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HEARING

BEFORE THE

SUBCOMMITTEE ON WATER AND POWER RESOURCES

OF THE

COMMITTEE ON INTERIOR AND INSULAR AFFAIRS UNITED STATES SENATE

NINETY-FIRST CONGRESS

SECOND SESSION

ON

S. 940

A BILL TO PROHIBIT THE LICENSING OF HYDROELECTRIC PROJECTS ON THE MIDDLE SNAKE RIVER BELOW HELLS CANYON DAM FOR A PERIOD OF 10 YEARS

FEBRUARY 16, 1970

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MIDDLE SNAKE RIVER MORATORIUM

MONDAY, FEBRUARY 16, 1970

U.S. SENATE,
SUBCOMMITTEE ON WATER AND POWER RESOURCES OF THE
COMMITTEE ON INTERIOR AND INSULAR AFFAIRS,
Washington, D.C.

The subcommittee met, pursuant to call, at 10 a.m., in room 3110, New Senate Office Building, Senator Clinton P. Anderson (chairman of the subcommittee) presiding.

Present: Senators Anderson, Church, Allott, Jordan of Idaho, and Hatfield.

Also present: Jerry T. Verkler, staff director; Stewart French, chief counsel; Daniel A. Dreyfus, Porter M. Ward, and Dennis Miller, professional staff members.

Senator ANDERSON. The purpose of this hearing before the Water and Power Resources Subcommittee this morning is to take testimony on S. 940, introduced by Senators Jordan and Church, to prohibit the licensing of hydroelectric projects on the Middle Snake River below Hells Canyon Dam for a period of 10 years.

There have been many proposals over the years for private or public construction of projects on this reach of the Snake River. There also has been strong opposition to the construction of any dams.

The purpose of S. 940 would be to impose a 10-year moratorium on non-Federal development. There are no present proposals for Federal development.

The text of S. 940, and the reports of the Departments of Agriculture and the Interior, will be included in the record at this point.

(The documents referred to follow:)

[S. 940, 91st Cong., first sess.]

A BILL To prohibit the licensing of hydroelectric projects on the Middle Snake River below Hells Canyon Dam for a period of ten years

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That, unless otherwise hereafter authorized by Congress, no license or permit shall be issued nor shall any application for a license or permit be accepted for filing under the Federal Power Act (41 Stat. 1063; 16 U.S.C. 791–823), as amended, with respect to that reach of the Middle Snake River running between Idaho and Oregon and Idaho and Washington extending from Hells Canyon Dam to a point at river mile 146.5 above the mouth of the Snake River where the Asotin Dam project was authorized by the Flood Control Act of 1962, during the ten-year period immediately following the date of the enactment of this Act: *Provided*, That nothing herein shall change or affect, for the purposes of any action which may be taken subsequent to such ten-year period, the present status, equities, positions, rights, or priorities of any party or parties to an application for license or permit pending before the Federal

Power Commission on the date of enactment of this Act: *And provided further*, That nothing herein shall preclude the completion of any hearing or the completion of the record of any proceedings pending before the Federal Power Commission on the date of enactment of this Act.

DEPARTMENT OF AGRICULTURE,
Washington, D.C., February 13, 1970.

Hon. HENRY M. JACKSON,
Chairman, Committee on Interior and Insular Affairs,
U.S. Senate.

DEAR MR. CHAIRMAN: As you asked, here is the report of the Department of Agriculture on S. 940, a bill "To prohibit the licensing of hydroelectric projects on the Middle Snake River below Hells Canyon Dam for a period of ten years."

The Department of Agriculture strongly supports the objectives of S. 940 and recommends its enactment.

S. 940 would prohibit issuance of, or acceptance of an application for, license or permit under the Federal Power Act with respect to a stretch of river known as the Middle Snake River which is the boundary between Idaho and Oregon and Idaho and Washington. The 101 mile stretch of river to which the bill would apply extends from Hells Canyon Dam to river mile 146.5 above the mouth of the Snake River which is near the town of Asotin, Washington.

A major portion of the Middle Snake River—67 miles of the stretch covered by S. 940—flows through a canyon within or bordering the Nez Perce, Payette, and Wallowa National Forests administered by the Forest Service of this Department. This awesome canyon is in one spot the deepest in the United States. The free-flowing river at its bottom is a magnificent stream consisting of alternate deep pools and white-water rapids. Its shoreline includes a series of sheer rock faces dropping almost vertically into the river and stretches lined with great boulders interspersed by occasional sandbars in back eddies. This reach of the Snake River is one of the last of America's great rivers that has been little changed by man. It is a scene of primitive ruggedness which can be equaled in few places in the United States today.

In addition to its striking beauty, the canyon of the Middle Snake provides unparalleled recreation opportunities. It contains challenging trails and numerous campsites along the river on bars, benches or at the mouth of tributary streams. The river and its tributaries are a high quality fishery for both resident and anadromous species. The Canyon contains archeological resources of inestimable value. Scientific investigation of the area's archeological and anthropological heritage has only recently begun.

Black bear, mule deer, elk, various predators, waterfowl, upland game birds, and bald and golden eagles inhabit the Middle Snake River Canyon. The bottom land is vital to the habitat of some species.

A hydroelectric project in the Middle Snake Canyon would eliminate or seriously affect most of its existing values. Because this Department believed that the combination of existing values of the Middle Snake Canyon is an outstanding, irreplaceable natural resource, it recommended to the Federal Power Commission on November 8, 1968, that the proposed High Mountain Sheep Dam in the canyon not be built.

We believe that the value of the Middle Snake Canyon itself, along with its recreation, wildlife, commercial fishery and sports fishery values, far outweigh any presently demonstrated need for a hydroelectric project. We view with increasing optimism the prospect that this Nation will find a way to meet water and power needs without serious environmental consequences and without sacrificing existing values of the Middle Snake. Enactment of S. 940 would therefore be fully consistent with these views.

The Bureau of the Budget advises that there is no objection to the presentation of this report from the standpoint of the Administration's program.

Sincerely,

J. PHIL CAMPBELL,
Under Secretary.

U.S. DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D.C., February 13, 1970.

HON. HENRY M. JACKSON,
Chairman, Committee on Interior and Insular Affairs,
U.S. Senate, Washington, D.C.

DEAR MR. CHAIRMAN: This is in response to your request for the views of this Department on S. 940, a bill "To prohibit the licensing of hydroelectric projects on the Middle Snake River below Hells Canyon Dam for a period of ten years."

We recommend that the bill be enacted.

The bill would prohibit, for a period of 10 years, the issuance of any license or permit or the acceptance of any application for a license or permit for a project under the Federal Power Act with respect to that reach of the Middle Snake River extending from Hells Canyon Dam to a point at river mile 146.5 above the mouth of the Snake River, which is the approximate site of the authorized Asotin Dam project. Although the bill would prevent the issuance of a license during this period, it would for the purpose of any action taken subsequent to the 10-year period, preserve the existing status of the parties and permit the completion of hearings now pending before the Federal Power Commission, in which Pacific Northwest Power Company and Washington Public Power Supply System are applying for a license for a two-dam hydroelectric project.

The Middle Snake River has long been a source of controversy, both between persons who wished that it be preserved as it is and those who sought development and between supporters of public and private power development. The unique scenic and recreational values of this reach and its critical importance to the anadromous fish and wildlife resources of the Columbia River have been central to much of the controversy.

On February 5, 1964, the Federal Power Commission granted a license for a hydroelectric project in this reach of the river to Pacific Northwest Power Company for the High Mountain Sheep site. On the Department of the Interior's objection, the Supreme Court, in an opinion dated June 5, 1967, vacated the license and remanded the case to the Federal Power Commission for further proceedings. The Court stressed the importance of giving consideration to the ecological and environmental aspects of a proposed water development project such as this.

Following the Supreme Court's decision, the Federal Power Commission scheduled further hearings, and on May 15, 1968, the Secretary of the Interior forwarded the Department's statement of position on the development of the Middle Snake River to the Federal Power Commission. In this statement, construction at the High Mountain Sheep site was warned against because it threatened extinction of the anadromous fish runs.

Development of a hydroelectric project on the Middle Snake was reexamined by the present Administration, and on August 12, 1969, a statement of the Department's current position, signed by Secretary Hickel, was filed with the Federal Power Commission. In the statement the Secretary concluded that ". . . it is in the public interest to oppose any construction of such a project at this time." The enactment of this bill would not be inconsistent with the position adopted by the Secretary of the Interior in the pending proceedings before the Federal Power Commission. Moreover, under the planning program of the Bonneville Power Administration, it is not anticipated that a Middle Snake hydroelectric project will be required to meet the power requirements of the Pacific Northwest before 1986. Until then, alternative feasible means of generation will be developed under the hydrothermal program.

The Bureau of the Budget has advised that there is no objection to the presentation of this report from the standpoint of the Administration's program.

Sincerely yours,

JAMES R. SMITH,
Assistant Secretary of the Interior.

Senator ANDERSON. I have numerous telegrams which I will include in the record at this point, without objection.

(The telegrams referred to follow:)

PORTLAND, OREG., *February 13, 1970.*

Hon. CLINTON P. ANDERSON,
U.S. Senator,
Senate Office Building,
Washington, D.C.:

As secretary of the Oregon State Association of Electrical Workers, which functions as the legislative and political arm of the International Brotherhood of Electrical Workers, AFL–CIO in this State, I respectfully wish to call to your attention that we are vigorously opposed to the passage of S–940 prohibiting the issuance of a license of a hydroelectric project to be constructed on the Snake River in the area between Hells Canyon Dam and Asotin. We have enthusiastically and continuously supported and have gone on record in convention and before committee hearings in favor of the immediate construction of High Mountain Sheep Dam on the Snake River.

HERMAN TEEPLE,
Secretary, Oregon State Association of Electrical Workers and Business Manager, Local Union 48, IBEW (1210).

PORTLAND, OREG., *February 13, 1970.*

Hon. CLINTON P. ANDERSON,
U.S. Senator,
Senate Office Building,
Washington, D.C.:

We of the Multnomah County Labor Council, would like to call to your attention that our council strongly opposes S–940 which as you know prohibits the issuance of a license on the hydroelectric project for the reach of the Snake River between Health Canyon Dam and the authorized Asotin Dam, for a period of 10 years. We have gone on record supporting the immediate construction of High Mountain Sheep on the Snake River.

THOMAS J. BAKER,
Secretary, Multnomah County Labor Council.

PORTLAND, OREG., *February 13, 1970.*

Hon. CLINTON P. ANDERSON,
Chairman, Water and Power Resources Subcommittee,
Washington, D.C.:

I respectfully wish to call your attention that our organization, Building and Construction Trades Council of Portland vicinity, vigorously opposes S. 940 which prohibits the issuance of a license of a hydroelectric project for the reach of the Snake River between Hells Canyon Dam and the authorized Asotin Dam for a period of 10 years. Our organization has gone on record in convention and before committee hearings supporting the immediate construction of high Mountain Sheep on the Snake River and will enhance employment and recreation areas considerably.

Thank you.

EARL B. KIRKLAND,
Secretary, Building and Construction Trades Councils of Portland and Vicinity.

PORTLAND, OREG., *February 13, 1970.*

Senator CLINTON P. ANDERSON,
Washington, D.C.:

We of Associated Oregon Industries are opposed to the provisions of S. 940 delaying the issuance of licensing and construction of hydroelectric projects in the Snake River for a period of 10 years. Any further delay in construction on one of the last remaining economical feasible sites in the Northwest will seriously impair Oregon's and the region's economic development. The stretch of the Snake River in the question has been the subject of almost continuous Government study for the past 15 years. The facts are known, we therefore urge your opposition to this measure.

Sincerely,

PHILIP BLADINE,
President, Associated Oregon Industries.

BOISE, IDAHO, *February 7, 1970.*

Senator CLINTON P. ANDERSON,
Chairman, Water and Power Resources Subcommittee,
New Senate Office Building, Washington, D.C.
(Attention Senator Jordan):

Unplanned exploitation of the Snake River inevitably entails probable misuse of an important natural resource. We agree that a 10-year moritorium would provide reasonable time thoroughly to study best possible utilization of the river, which would involve irrigation, hydroelectric power, recreation, unpolluted waste, fish and game conservation, industrial and private uses and transportation. The studies should include analyses of all types of pollutants: recreational, civil, industrial, and thermal.

The objective should be to preserve our important resource in its natural state for the indefinite future.

JEANNE G. STEARNS,
JAMES W. TOMPKINS,
Boise State College.

Senator ANDERSON. In addition, I am placing in the record, without objection, a report on S. 855, establishing the Buffalo National River, prepared by the Committee on the Interior and Insular Affairs and submitted on August 13, 1969, and a copy of Public Law 90–542, known as the Wild and Scenic Rivers Act.

(The documents referred to follow.)

Calendar No. 379

91ST CONGRESS, 1st Session } SENATE { REPORT No. 91-385

ESTABLISHING THE BUFFALO NATIONAL RIVER

AUGUST 13, 1969.—Ordered to be printed

Mr. JACKSON, from the Committee on Interior and Insular Affairs, submitted the following

REPORT

[To accompany S. 855]

The Committee on Interior and Insular Affairs, to which was referred the bill (S. 855) to provide for the establishment of the Buffalo National River in the State of Arkansas, and for other purposes, having considered the same, reports favorably thereon with amendments and recommends that the bill as amended do pass.

THE RIVER

The legislation would enable the Secretary of the Interior to establish the national river area to include not more than 95,730 acres preserving 132 miles of the Buffalo River, cited by the Department as "among the most outstandingly scenic of free-flowing streams in the Eastern United States."

With little residential or commercial development on its banks, and with no municipal or industrial pollution, the Buffalo River is unspoiled. It provides a unique opportunity for preservation since its headwaters lie within the Ozark National Forest, and the remaining 132 miles of the river can be preserved and administered as a single unit.

Hillsides and bluffs provide a variety of conditions for some 1,500 species of plants * * * while the Buffalo River and its tributaries are one of the richest waterways in the Nation in terms of the total number of fish species.

Within the proposed national river are * * * a 200-foot waterfall in Hemmed-in Hollow, the highest free-leaping waterfall between the southern Appalachians and the Rockies; a collection of outstanding gypsum formations in Beauty Cave, and a number of archeological sites. These sites can yield the story of Indian occupation from archaic to late prehistoric times—a span of some 9,000 years.

Recreational uses within the proposed Buffalo National River include boating, fishing, swimming, camping, photography, nature observation, and hunting, the report states:

> The old trails and wagon roads which wind along the river, parallel the tributaries and traverse the ridges, provide a good basis for developing a system of hiking and riding paths. Two rugged and virtually uninhabited expanses of country, one at each end of this area, will provide unusual primitive environments where a rider, canoeist, trail camper, and scientist may find enjoyment.

The proposed national river includes about 132 river-miles and a total of some 95,730 acres in four counties as follows: Newton County (43,610 acres); Searcy County (24,530 acres); Marion County (26,000 acres); and Baxter County (1,590 acres). The Federal Government owns about 770 acres of land within the national river boundaries, and this acreage is administered by the Forest Service, Department of Agriculture. The State of Arkansas owns about 2,960 acres of land comprising the Buffalo River and Lost Valley State Parks and scattered parcels of public hunting areas. The remaining land acreage within the national river boundaries is in private ownership.

The committee wishes to acknowledge and compliment the National Park Service on its very fine 1968 publication entitled "Proposed Buffalo National River, Arkansas." The information contained therein was of considerable value during the hearings on the measure.

The bill authorizes the Secretary of the Interior to acquire by donation, purchase with donated or appropriated funds, or exchange lands and waters or interests therein within the national river boundaries, and outside of such boundaries in order to avoid the payment of severance costs. Lands owned by the State of Arkansas or its political subdivisions may be acquired only by donation.

As amended the bill provides that owners of improved property or lands used solely for agricultural purposes on the date of acquisition could retain the right of use and occupancy for a term ending either on the death of the owner or his spouse, whichever occurs later, or not more than 25 years from the date of acquisition.

COSTS

The Department of Interior estimates the costs of the proposal as follows:

Land acquisition	$9, 200, 000
Development	8, 224, 000

The committee following its usual practice has amended the bill limiting the authorization to the above figures.

The annual operating costs are estimated to be $685,800.

AMENDMENTS

On page 3, line 5, amend the first sentence of section 2(b) to read as follows:

> (b) With the exception of property that the Secretary determines is necessary for purposes of administration, preservation, or public use, any owner or owners (here-

inafter in this section referred to as "owner") of (1) improved property used solely for noncommercial residential purposes on the date of its acquisition by the Secretary or of (2) lands used solely for agricultural purposes on such acquisition date may retain the right of use and occupancy of such property for such respective purposes for a term, as the owner may elect, ending either (*a*) upon the death of the owner or his spouse, whichever occurs later, or (*b*) not more than 25 years from the date of acquisition.

On page 3, line 24, after the word "purposes" insert the words "or agricultural."

Strike all of section 6 and renumber section 7 as section 6.

Section 6 stricken from the bill on the recommendation of the Department of the Interior provided for arrest authority for violations within the national river. In the report it is indicated that the Department favors general legislation applicable to all areas under the jurisdiction of the Park Service to solve this problem rather than accomplishing it on area-by-area basis.

Amend renumbered section 6 to read as follows:

SEC. 6. There are hereby authorized to be appropriated not to exceed $9,200,000 for land acquisition and not to exceed $8,224,400 for development of the area as provided for in this Act.

The Committee on Interior and Insular Affairs recommends enactment of S. 855, as amended.

The favorable report of the Department of the Interior follows:

U.S. DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D.C., May 26, 1969.

Hon. HENRY M. JACKSON,
Chairman, Committee on, Interior and Insular Affairs,
U.S. Senate, Washington, D.C.

DEAR MR. CHAIRMAN: Your committee has requested a report from this Department on S. 855, a bill to provide for the establishment of the Buffalo National River in the State of Arkansas, and for other purposes.

We recommend the enactment of the bill, with the amendments indicated below.

The bill authorizes the Secretary of the Interior to establish the Buffalo National River on not more than 95,730 acres in the Ozark Mountains of northwest Arkansas. The national river will include a segment of the Buffalo River, which will be preserved as a free-flowing stream, and adjacent land areas on both sides of the river containing unique scenic and scientific features.

The significance of the Buffalo River is not due to any single attribute of the river which, taken alone, ranks above that for any other river in the United States. Rather, its significance is due to a splendid combination of favorable qualities. Massive bluffs and deeply entrenched valleys give the Buffalo the most spectacular setting of any stream in the Ozark region, and enable it to be classed among the most outstandingly scenic of the free-flowing streams in the eastern United States. With little residential or commercial development on its banks, and with no municipal or industrial

pollution, the Buffalo River is unspoiled. It provides a unique opportunity for preservation since its headwaters lie within the Ozark National Forest, and the remaining 132 miles of the river can be preserved and administered as a single unit under the provisions of S. 855.

The geological features of the river provide an outstanding display—including the action of water in massive beds of cavernous limestone; the folding and faulting of sedimentary rocks; and limestone, dolomite, sandstone, and shale formations and their fossil remains of ancient life from the Ordovician to the Pennsylvania period of geologic time.

The flora along the river is richly diverse and noteworthy for the Ozark Mountains are the meeting place of America's flora. Hillsides and bluffs with their varying elevations and exposures provide a variety of conditions for some 1,500 species of plants. While not present in great numbers, a variety of animals exist in the area, and the Buffalo River and its tributaries are one of the richest waterways in the Nation in terms of the total number of fish species.

Within the proposed national river are two individual features which are especially noteworthy. One is a 200-foot waterfall in Hemmed-in-Hollow, the highest free-leaping waterfall between the southern Appalachians and the Rockies. The other is the collection of gypsum formations in Beauty Cave which are outstanding in size and variety, and which contain one or more types not known to exist elsewhere.

A large number of archeological sites also exist within the proposed national river. These sites can yield the story of Indian occupation from Archaic to late prehistoric times—a span of some 9,000 years. While no single event of national significance has taken place on the Buffalo River, the remaining artifacts of the pioneer era can be used in interpreting a much larger story—the settlement and eventual overpopulation of the Ozark hill country followed by the migration from the area which continues at the present time.

The proposed national river includes about 132 river miles and a total of some 95,730 acres in four counties as follows: Newton County (43,610 acres); Searcy County (24,530 acres); Marion County (26,000 acres); and Baxter County (1,590 acres). The Federal Government owns about 770 acres of land within the national river boundaries, and this acreage is administered by the Forest Service, Department of Agriculture. The State of Arkansas owns about 2,960 acres of land comprising the Buffalo River and Lost Valley State Parks and scattered parcels of public hunting areas. The remaining land acreage within the national river boundaries is in private ownership.

The bill authorizes the Secretary of the Interior to acquire by donation, purchase with donated or appropriated funds, or exchange lands and waters or interests therein within the national river boundaries, and outside of such boundaries in order to avoid the payment of severance costs. Lands owned by the State of Arkansas or its political subdivisions may be acquired only by donation.

The owners of "improved residential property" acquired for the national river, which the Secretary determines can be continued in such use without undue interference with the administration of the national river, may retain a right of use and occupancy for a term ending either (1) upon the death of the owner or his spouse, which-

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ever occurs later, or (2) not more than 25 year from the date of acquisition.

The Advisory Board on National Parks, Historic Sites, Buildings, and Monuments has judged the Buffalo River in Arkansas to be a nationally significant free-flowing stream, and has recommended its preservation as a national river.

The proposed recreational uses within the Buffalo National River include boating, fishing, swimming, camping, photography, nature observation, and hunting. The old trails and wagon roads, which wind along the river, parallel the tributaries, and traverse the ridges, provide a good basis for developing a system of hiking and riding paths. Two rugged and virtually uninhabited expanses of country, one at each end of this area, will provide unusual primitive environments where a rider, canoeist, trail camper, and scientist may find enjoyment

Under section 3 of the bill, hunting and fishing would generally be permitted within the boundaries of the national river in accordance with applicable Federal and state laws. Water resource projects having a direct and adverse effect on the proposed national river would be restricted under section 4 of the bill. This section is virtually identical to section 7(a) of the Wild and Scenic Rivers Act (82 Stat. 906, 913).

It should be pointed out that the free-flowing character of the river may well qualify it for consideration for inclusion in the national wild and scenic rivers system, but our overriding concern is the prompt protection of such values.

We recommend enactment of S. 855 with the following amendments:

1. Under section 2(b) owners of improved property acquired by the Secretary could retain the right of use and occupancy for noncommercial residential purposes. In view of the significant agricultural acreage within the proposed boundaries of the national river and the Secretary's authority under section 2(b) to impose appropriate conditions to assure property use consistent with the purposes of the legislation, we believe it desirable to allow retained rights for agricultural purposes. We therefore recommend that on page 3, the first sentence of section 2(b) be amended to read as follows:

"(b) With the exception of property that the Secretary determines is necessary for purposes of administration, preservation, or public use, any owner or owners (hereinafter in this section referred to as "owner") of (1) improved property used solely for noncommercial residential purposes on the date of its acquisition by the Secretary or of (2) lands used solely for agricultural purposes on such acquisition date may retain the right of use and occupancy of such property for such respective purposes for a term, as the owner may elect, ending either (a) upon the death of the owner or his spouse, whichever occurs later, or (b) not more than twenty-five years from the date of acquisition."

Additionally, the words "or agricultural" should be inserted before the word "purposes" on line 24 of page 3.

Section 6 of the bill provides for arrest authority within the Buffalo National River. This Department has recently reviewed various statutory provisions of the Department relative to making arrests. This Department has decided that general legislation to clarify the authority of the National Park Service to make arrests in areas such

as this proposed national river is desirable rather than accomplishing this objective on a case-by-case basis. We recommend, therefore, that section 6 of the bill be deleted in its entirety and that section 7 be renumbered as section 6.

Lastly, we note that the word "component" on line 5 of page 6 of the bill should be replaced with the words "national river". This is an editorial change.

The estimated cost of acquiring the private lands within the proposed national river is $9,200,000. This estimate is based on a 1967 estimate. The total development cost for the national river is estimated at $8,224,400, of which $6,347,100 is programed for the first 5 years after its establishment. The estimated annual cost of operation of the national river is $685,800 after the first 5 years.

The man-years and cost-data statement (based on current assumptions and estimates) required by the act of July 25, 1956 (5 U.S.C. 2953), when annual expenditures exceed $1 million, is enclosed.

The Bureau of the Budget has advised that while there is no objection to the presentation of this report, the Bureau will express its views in a separate report which it is submitting to the committee.

Sincerely yours,

RUSSELL E. TRAIN,
Under Secretary of the Interior.

ESTIMATED ADDITIONAL MAN-YEARS OF CIVILIAN EMPLOYMENT AND EXPENDITURES FOR THE 1ST 5 YEARS OF PROPOSED NEW OR EXPANDED PROGRAMS

	19CY	19CY+1	19CY+2	19CY+3	19CY+4
Estimated additional man-years of civilian employment:					
Executive direction:					
Superintendent	1	1.0	1.0	1	1
Administrative officer			1.0	1	1
Secretary	1	1.0	1.0	1	1
Total, executive direction	2	2.0	3.0	3	3
Substantive:					
Chief, interpretation and resource management	1	1.0	1.0	1	1
Assistant Chief, interpretation and resource management	1	1.0	1.0	1	1
Chief of maintenance	1	1.0	1.0	1	1
Property management assistant				1	1
Park rangers	1	3.0	3.0	4	10
Naturalist and historians		1.0	2.0	3	4
Personnel clerk				1	1
Clerk stenographer	1	1.0	1.0	1	4
Foreman				1	3
Craftsman and laborers	1	3.0	5.0	9	11
Clerical (seasonal)	1	1.0	1.0	1	2
Park ranger (seasonal)		1.3	2.8	3	7
Park naturalist (seasonal)		.3	1.0	1	2
Laborer (seasonal)	2	4.0	8.0	12	16
Total, substantive	9	17.6	26.8	40	65
Total	11	19.6	29.8	43	68
Estimated additional expenditures:					
Personal services	$100,200	$159,900	$224,300	$303,400	$479,100
All other	568,900	4,257,600	4,452,700	3,843,200	2,244,100
Total	669,100	4,417,500	4,677,000	4,146,600	2,723,200
Estimated additional obligations:					
Land and property acquisition	4,500,000	4,700,000			
Developments	1,030,700	1,995,900	1,364,400	920,700	1,037,400
Operation (management, protection and maintenance)	138,400	221,600	312,600	425,900	685,800
Total	5,669,100	6,917,500	1,677,000	1,346,600	1,723,200

Public Law 90-542
90th Congress, S. 119
October 2, 1968

An Act

To provide for a National Wild and Scenic Rivers System, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That (a) this Act may be cited as the "Wild and Scenic Rivers Act". Wild and Scenic Rivers Act.

(b) It is hereby declared to be the policy of the United States that certain selected rivers of the Nation which, with their immediate environments, possess outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values, shall be preserved in free-flowing condition, and that they and their immediate environments shall be protected for the benefit and enjoyment of present and future generations. The Congress declares that the established national policy of dam and other construction at appropriate sections of the rivers of the United States needs to be complemented by a policy that would preserve other selected rivers or sections thereof in their free-flowing condition to protect the water quality of such rivers and to fulfill other vital national conservation purposes.

(c) The purpose of this Act is to implement this policy by instituting a national wild and scenic rivers system, by designating the initial components of that system, and by prescribing the methods by which and standards according to which additional components may be added to the system from time to time.

SEC. 2. (a) The national wild and scenic rivers system shall comprise rivers (i) that are authorized for inclusion therein by Act of Congress, or (ii) that are designated as wild, scenic or recreational rivers by or pursuant to an act of the legislature of the State or States through which they flow, that are to be permanently administered as wild, scenic or recreational rivers by an agency or political subdivision of the State or States concerned without expense to the United States, that are found by the Secretary of the Interior, upon application of the Governor of the State or the Governors of the States concerned, or a person or persons thereunto duly appointed by him or them, to meet the criteria established in this Act and such criteria supplementary thereto as he may prescribe, and that are approved by him for inclusion in the system, including, upon application of the Governor of the State concerned, the Allagash Wilderness Waterway, Maine, and that segment of the Wolf River, Wisconsin, which flows through Langlade County. National wild and scenic rivers system. 82 STAT. 906 82 STAT. 907

(b) A wild, scenic or recreational river area eligible to be included in the system is a free-flowing stream and the related adjacent land area that possesses one or more of the values referred to in section 1, subsection (b) of this Act. Every wild, scenic or recreational river in its free-flowing condition, or upon restoration to this condition, shall be considered eligible for inclusion in the national wild and scenic rivers system and, if included, shall be classified, designated, and administered as one of the following: Eligibility for inclusion.

(1) Wild river areas—Those rivers or sections of rivers that are free of impoundments and generally inaccessible except by trail, with watersheds or shorelines essentially primitive and waters unpolluted. These represent vestiges of primitive America.

(2) Scenic river areas—Those rivers or sections of rivers that are free of impoundments, with shorelines or watersheds still largely primitive and shorelines largely undeveloped, but accessible in places by roads.

(3) Recreational river areas—Those rivers or sections of rivers that are readily accessible by road or railroad, that may have some

development along their shorelines, and that may have undergone some impoundment or diversion in the past.

National wild and scenic rivers.

SEC. 3 (a) The following rivers and the land adjacent thereto are hereby designated as components of the national wild and scenic rivers system:

(1) CLEARWATER, MIDDLE FORK, IDAHO.—The Middle Fork from the town of Kooskia upstream to the town of Lowell; the Lochsa River from its junction with the Selway at Lowell forming the Middle Fork, upstream to the Powell Ranger Station; and the Selway River from Lowell upstream to its origin; to be administered by the Secretary of Agriculture.

(2) ELEVEN POINT, MISSOURI.—The segment of the river extending downstream from Thomasville to State Highway 142; to be administered by the Secretary of Agriculture.

(3) FEATHER, CALIFORNIA.—The entire Middle Fork; to be administered by the Secretary of Agriculture.

(4) RIO GRANDE, NEW MEXICO.—The segment extending from the Colorado State line downstream to the State Highway 96 crossing, and the lower four miles of the Red River; to be administered by the Secretary of the Interior.

(5) ROGUE, OREGON.—The segment of the river extending from the mouth of the Applegate River downstream to the Lobster Creek Bridge; to be administered by agencies of the Departments of the Interior or Agriculture as agreed upon by the Secretaries of said Departments or as directed by the President.

82 STAT. 907

82 STAT. 908.

(6) SAINT CROIX, MINNESOTA AND WISCONSIN.—The segment between the dam near Taylors Falls, Minnesota, and the dam near Gordon, Wisconsin, and its tributary, the Namekagon, from Lake Namekagon downstream to its confluence with the Saint Croix; to be administered by the Secretary of the Interior: *Provided*, That except as may be required in connection with items (a) and (b) of this paragraph, no funds available to carry out the provisions of this Act may be expended for the acquisition or development of lands in connection with, or for administration under this Act of, that portion of the Saint Croix River between the dam near Taylors Falls, Minnesota, and the upstream end of Big Island in Wisconsin, until sixty days after the date on which the Secretary has transmitted to the President of the Senate and Speaker of the House of Representatives a proposed cooperative agreement between the Northern States Power Company and the United States (a) whereby the company agrees to convey to the United States, without charge, appropriate interests in certain of its lands between the dam near Taylors Falls, Minnesota, and the upstream end of Big Island in Wisconsin, including the company's right, title, and interest to approximately one hundred acres per mile, and (b) providing for the use and development of other lands and interests in land retained by the company between said points adjacent to the river in a manner which shall complement and not be inconsistent with the purposes for which the lands and interests in land donated by the company are administered under this Act. Said agreement may also include provision for State or local governmental participation as authorized under subsection (e) of section 10 of this Act.

(7) SALMON, MIDDLE FORK, IDAHO.—From its origin to its confluence with the main Salmon River; to be administered by the Secretary of Agriculture.

(8) WOLF, WISCONSIN.—From the Langlade-Menominee County line downstream to Keshena Falls; to be administered by the Secretary of the Interior.

(b) The agency charged with the administration of each component of the national wild and scenic rivers system designated by subsection

(a) of this section shall, within one year from the date of this Act, establish detailed boundaries therefor (which boundaries shall include an average of not more than three hundred and twenty acres per mile on both sides of the river); determine which of the classes outlined in section 2, subsection (b), of this Act best fit the river or its various segments; and prepare a plan for necessary developments in connection with its administration in accordance with such classification. Said boundaries, classification, and development plans shall be published in the Federal Register and shall not become effective until ninety days after they have been forwarded to the President of the Senate and the Speaker of the House of Representatives.

Publication in Federal Register.

82 STAT. 908

82 STAT. 909

SEC. 4. (a) The Secretary of the Interior or, where national forest lands are involved, the Secretary of Agriculture or, in appropriate cases, the two Secretaries jointly shall study and from time to time submit to the President and the Congress proposals for the addition to the national wild and scenic rivers system of rivers which are designated herein or hereafter by the Congress as potential additions to such system; which, in his or their judgment, fall within one or more of the classes set out in section 2, subsection (b), of this Act; and which are proposed to be administered, wholly or partially, by an agency of the United States. Every such study and plan shall be coordinated with any water resources planning involving the same river which is being conducted pursuant to the Water Resources Planning Act (79 Stat. 244; 42 U.S.C. 1962 et seq.).

Each proposal shall be accompanied by a report, including maps and illustrations, showing among other things the area included within the proposal; the characteristics which make the area a worthy addition to the system; the current status of landownership and use in the area; the reasonably foreseeable potential uses of the land and water which would be enhanced, foreclosed, or curtailed if the area were included in the national wild and scenic rivers system; the Federal agency (which in the case of a river which is wholly or substantially within a national forest, shall be the Department of Agriculture) by which it is proposed the area be administered; the extent to which it is proposed that administration, including the costs thereof, be shared by State and local agencies; and the estimated cost to the United States of acquiring necessary lands and interests in land and of administering the area as a component of the system. Each such report shall be printed as a Senate or House document.

Report, maps, etc.

Printing as Senate or House document.

(b) Before submitting any such report to the President and the Congress, copies of the proposed report shall, unless it was prepared jointly by the Secretary of the Interior and the Secretary of Agriculture, be submitted by the Secretary of the Interior to the Secretary of Agriculture or by the Secretary of Agriculture to the Secretary of the Interior, as the case may be, and to the Secretary of the Army, the Chairman of the Federal Power Commission, the head of any other affected Federal department or agency and, unless the lands proposed to be included in the area are already owned by the United States or have already been authorized for acquisition by Act of Congress, the Governor of the State or States in which they are located or an officer designated by the Governor to receive the same. Any recommendations or comments on the proposal which the said officials furnish the Secretary or Secretaries who prepared the report within ninety days of the date on which the report is submitted to them, together with the Secretary's or Secretaries' comments thereon, shall be included with the transmittal to the President and the Congress. No river or portion of any river shall be added to the national wild and scenic rivers system subsequent to enactment of this Act until the close of the next full session of the State legislature, or legislatures in case more than one

State is involved, which begins following the submission of any recommendation to the President with respect to such addition as herein provided.

(c) Before approving or disapproving for inclusion in the national wild and scenic rivers system any river designated as a wild, scenic or recreational river by or pursuant to an act of a State legislature, the Secretary of the Interior shall submit the proposal to the Secretary of Agriculture, the Secretary of the Army, the Chairman of the Federal Power Commission, and the head of any other affected Federal department or agency and shall evaluate and give due weight to any recommendations or comments which the said officials furnish him within ninety days of the date on which it is submitted to them. If he approves the proposed inclusion, he shall publish notice thereof in the Federal Register.

Publication in Federal Register.

Potential additions. Designation.

SEC. 5. (a) The following rivers are hereby designated for potential addition to the national wild and scenic rivers system:

(1) Allegheny, Pennsylvania: The segment from its mouth to the town of East Brady, Pennsylvania.

(2) Bruneau, Idaho: The entire main stem.

(3) Buffalo, Tennessee: The entire river.

(4) Chattooga, North Carolina, South Carolina, and Georgia: The entire river.

(5) Clarion, Pennsylvania: The segment between Ridgway and its confluence with the Allegheny River.

(6) Delaware, Pennsylvania and New York: The segment from Hancock, New York, to Matamoras, Pennsylvania.

(7) Flathead, Montana: The North Fork from the Canadian border downstream to its confluence with the Middle Fork; the Middle Fork from its headwaters to its confluence with the South Fork; and the South Fork from its origin to Hungry Horse Reservoir.

(8) Gasconade, Missouri: The entire river.

(9) Illinois, Oregon: The entire river.

(10) Little Beaver, Ohio: The segment of the North and Middle Forks of the Little Beaver River in Columbiana County from a point in the vicinity of Negly and Elkton, Ohio, downstream to a point in the vicinity of East Liverpool, Ohio.

(11) Little Miami, Ohio: That segment of the main stem of the river, exclusive of its tributaries, from a point at the Warren-Clermont County line at Loveland, Ohio, upstream to the sources of Little Miami including North Fork.

(12) Maumee, Ohio and Indiana: The main stem from Perrysburg, Ohio, to Fort Wayne, Indiana, exclusive of its tributaries in Ohio and inclusive of its tributaries in Indiana.

(13) Missouri, Montana: The segment between Fort Benton and Ryan Island.

(14) Moyie, Idaho: The segment from the Canadian border to its confluence with the Kootenai River.

(15) Obed, Tennessee: The entire river and its tributaries, Clear Creek and Daddys Creek.

(16) Penobscot, Maine: Its east and west branches.

(17) Pere Marquette, Michigan: The entire river.

(18) Pine Creek, Pennsylvania: The segment from Ansonia to Waterville.

(19) Priest, Idaho: The entire main stem.

(20) Rio Grande, Texas: The portion of the river between the west boundary of Hudspeth County and the east boundary of Terrell County on the United States side of the river: *Provided*, That before undertaking any study of this potential scenic river, the Secretary of the Interior shall determine, through the channels of appropriate

executive agencies, that Mexico has no objection to its being included among the studies authorized by this Act.

(21) Saint Croix, Minnesota and Wisconsin: The segment between the dam near Taylors Falls and its confluence with the Mississippi River.

(22) Saint Joe, Idaho: The entire main stem.

(23) Salmon, Idaho: The segment from the town of North Fork to its confluence with the Snake River.

(24) Skagit, Washington: The segment from the town of Mount Vernon to and including the mouth of Bacon Creek; the Cascade River between its mouth and the junction of its North and South Forks; the South Fork to the boundary of the Glacier Peak Wilderness Area; the Suiattle River from its mouth to the Glacier Peak Wilderness Area boundary at Milk Creek; the Sauk River from its mouth to its junction with Elliott Creek; the North Fork of the Sauk River from its junction with the South Fork of the Sauk to the Glacier Peak Wilderness Area boundary.

(25) Suwannee, Georgia and Florida: The entire river from its source in the Okefenokee Swamp in Georgia to the gulf and the outlying Ichetucknee Springs, Florida.

(26) Upper Iowa, Iowa: The entire river.

(27) Youghiogheny, Maryland and Pennsylvania: The segment from Oakland, Maryland, to the Youghiogheny Reservoir, and from the Youghiogheny Dam downstream to the town of Connellsville, Pennsylvania.

(b) The Secretary of the Interior and, where national forest lands are involved, the Secretary of Agriculture shall proceed as expeditiously as possible to study each of the rivers named in subsection (a) of this section in order to determine whether it should be included in the national wild and scenic rivers system. Such studies shall be completed and reports made thereon to the President and the Congress, as provided in section 4 of this Act, within ten years from the date of this Act: *Provided, however*, That with respect to the Suwannee River, Georgia and Florida, and the Upper Iowa River, Iowa, such study shall be completed and reports made thereon to the President and the Congress, as provided in section 4 of this Act, within two years from the date of enactment of this Act. In conducting these studies the Secretary of the Interior and the Secretary of Agriculture shall give priority to those rivers with respect to which there is the greatest likelihood of developments which, if undertaken, would render them unsuitable for inclusion in the national wild and scenic rivers system. Studies.

(c) The study of any of said rivers shall be pursued in as close cooperation with appropriate agencies of the affected State and its political subdivisions as possible, shall be carried on jointly with such agencies if request for such joint study is made by the State, and shall include a determination of the degree to which the State or its political subdivisions might participate in the preservation and administration of the river should it be proposed for inclusion in the national wild and scenic rivers system.

(d) In all planning for the use and development of water and related land resources, consideration shall be given by all Federal agencies involved to potential national wild, scenic and recreational river areas, and all river basin and project plan reports submitted to the Congress shall consider and discuss any such potentials. The Secretary of the Interior and the Secretary of Agriculture shall make specific studies and investigations to determine which additional wild, scenic and recreational river areas within the United States shall be evaluated in planning reports by all Federal agencies as potential alternative uses of the water and related land resources involved.

Land acquisition.

SEC. 6. (a) The Secretary of the Interior and the Secretary of Agriculture are each authorized to acquire lands and interests in land within the authorized boundaries of any component of the national wild and scenic rivers system designated in section 3 of this Act, or hereafter designated for inclusion in the system by Act of Congress, which is administered by him, but he shall not acquire fee title to an average of more than 100 acres per mile on both sides of the river. Lands owned by a State may be acquired only by donation, and lands owned by an Indian tribe or a political subdivision of a State may not be acquired without the consent of the appropriate governing body thereof as long as the Indian tribe or political subdivision is following a plan for management and protection of the lands which the Secretary finds protects the land and assures its use for purposes consistent with this Act. Money appropriated for Federal purposes from the land and water conservation fund shall, without prejudice to the use of appropriations from other sources, be available to Federal departments and agencies for the acquisition of property for the purposes of this Act.

(b) If 50 per centum or more of the entire acreage within a federally administered wild, scenic or recreational river area is owned by the United States, by the State or States within which it lies, or by political subdivisions of those States, neither Secretary shall acquire fee title to any lands by condemnation under authority of this Act. Nothing contained in this section, however, shall preclude the use of condemnation when necessary to clear title or to acquire scenic easements or such other easements as are reasonably necessary to give the public access to the river and to permit its members to traverse the length of the area or of selected segments thereof.

(c) Neither the Secretary of the Interior nor the Secretary of Agriculture may acquire lands by condemnation, for the purpose of including such lands in any national wild, scenic or recreational river area, if such lands are located within any incorporated city, village, or borough which has in force and applicable to such lands a duly adopted, valid zoning ordinance that conforms with the purposes of this Act. In order to carry out the provisions of this subsection the appropriate Secretary shall issue guidelines, specifying standards for local zoning ordinances, which are consistent with the purposes of this Act. The standards specified in such guidelines shall have the object of (A) prohibiting new commercial or industrial uses other than commercial or industrial uses which are consistent with the purposes of this Act, and (B) the protection of the bank lands by means of acreage, frontage, and setback requirements on development.

(d) The appropriate Secretary is authorized to accept title to non-Federal property within the authorized boundaries of any federally administered component of the national wild and scenic rivers system designated in section 3 of this Act or hereafter designated for inclusion in the system by Act of Congress and, in exchange therefor, convey to the grantor any federally owned property which is under his jurisdiction within the State in which the component lies and which he classifies as suitable for exchange or other disposal. The values of the properties so exchanged either shall be approximately equal or, if they are not approximately equal, shall be equalized by the payment of cash to the grantor or to the Secretary as the circumstances require.

(e) The head of any Federal department or agency having administrative jurisdiction over any lands or interests in land within the authorized boundaries of any federally administered component of the national wild and scenic rivers system designated in section 3 of this Act or hereafter designated for inclusion in the system by Act of Congress in authorized to transfer to the appropriate secretary jurisdic-

tion over such lands for administration in accordance with the provisions of this Act. Lands acquired by or transferred to the Secretary of Agriculture for the purposes of this Act within or adjacent to a national forest shall upon such acquisition or transfer become national forest lands.

(f) The appropriate Secretary is authorized to accept donations of lands and interests in land, funds, and other property for use in connection with his administration of the national wild and scenic rivers system.

(g)(1) Any owner or owners (hereinafter in this subsection referred to as "owner") of improved property on the date of its acquisition, may retain for themselves and their successors or assigns a right of use and occupancy of the improved property for noncommercial residential purposes for a definite term not to exceed twenty-five years or, in lieu thereof, for a term ending at the death of the owner, or the death of his spouse, or the death of either or both of them. The owner shall elect the term to be reserved. The appropriate Secretary shall pay to the owner the fair market value of the property on the date of such acquisition less the fair market value on such date of the right retained by the owner.

Right of use and occupancy.

(2) A right of use and occupancy retained pursuant to this subsection shall be subject to termination whenever the appropriate Secretary is given reasonable cause to find that such use and occupancy is being exercised in a manner which conflicts with the purposes of this Act. In the event of such a finding, the Secretary shall tender to the holder of that right an amount equal to the fair market value of that portion of the right which remains unexpired on the date of termination. Such right of use or occupancy shall terminate by operation of law upon tender of the fair market price.

"Improved property."

(3) The term "improved property", as used in this Act, means a detached, one-family dwelling (hereinafter referred to as "dwelling"), the construction of which was begun before January 1, 1967, together with so much of the land on which the dwelling is situated, the said land being in the same ownership as the dwelling, as the appropriate Secretary shall designate to be reasonably necessary for the enjoyment of the dwelling for the sole purpose of noncommercial residential use, together with any structures accessory to the dwelling which are situated on the land so designated.

Water resources projects. Restrictions.

SEC. 7. (a) The Federal Power Commission shall not license the construction of any dam, water conduit, reservoir, powerhouse, transmission line, or other project works under the Federal Power Act (41 Stat. 1063), as amended (16 U.S.C. 791a et seq.), on or directly affecting any river which is designated in section 3 of this Act as a component of the national wild and scenic rivers system or which is hereafter designated for inclusion in that system, and no department or agency of the United States shall assist by loan, grant, license, or otherwise in the construction of any water resources project that would have a direct and adverse effect on the values for which such river was established, as determined by the Secretary charged with its administration. Nothing contained in the foregoing sentence, however, shall preclude licensing of, or assistance to, developments below or above a wild, scenic or recreational river area or on any stream tributary thereto which will not invade the area or unreasonably diminish the scenic, recreational, and fish and wildlife values present in the area on the date of approval of this Act. No department or agency of the United States shall recommend authorization of any water resources project that would have a direct and adverse effect on the values for which such river was established, as determined by the Secretary charged with its administration, or request appropriations to begin

construction of any such project, whether heretofore or hereafter authorized, without advising the Secretary of the Interior or the Secretary of Agriculture, as the case may be, in writing of its intention so to do at least sixty days in advance, and without specifically reporting to the Congress in writing at the time it makes its recommendation or request in what respect construction of such project would be in conflict with the purposes of this Act and would affect the component and the values to be protected by it under this Act.

(b) The Federal Power Commission shall not license the construction of any dam, water conduit, reservoir, powerhouse, transmission line, or other project works under the Federal Power Act, as amended, on or directly affecting any river which is listed in section 5, subsection (a), of this Act, and no department or agency of the United States shall assist by loan, grant, license, or otherwise in the construction of any water resources project that would have a direct and adverse effect on the values for which such river might be designated, as determined by the Secretary responsible for its study or approval—

49 Stat. 863.
16 USC 791a.

Publication in Federal Register.

(i) during the five-year period following enactment of this Act unless, prior to the expiration of said period, the Secretary of the Interior and, where national forest lands are involved, the Secretary of Agriculture, on the basis of study, conclude that such river should not be included in the national wild and scenic rivers system and publish notice to that effect in the Federal Register, and

(ii) during such additional period thereafter as, in the case of any river which is recommended to the President and the Congress for inclusion in the national wild and scenic rivers system, is necessary for congressional consideration thereof or, in the case of any river recommended to the Secretary of the Interior for inclusion in the national wild and scenic rivers system under section 2(a)(ii) of this Act, is necessary for the Secretary's consideration thereof, which additional period, however, shall not exceed three years in the first case and one year in the second.

Nothing contained in the foregoing sentence, however, shall preclude licensing of, or assistance to, developments below or above a potential wild, scenic or recreational river area or on any stream tributary thereto which will not invade the area or diminish the scenic, recreational, and fish and wildlife values present in the potential wild, scenic or recreational river area on the date of approval of this Act. No department or agency of the United States shall, during the periods hereinbefore specified, recommend authorization of any water resources project on any such river or request appropriations to begin construction of any such project, whether heretofore or hereafter authorized, without advising the Secretary of the Interior and, where national forest lands are involved, the Secretary of Agriculture in writing of its intention so to do at least sixty days in advance of doing so and without specifically reporting to the Congress in writing at the time it makes its recommendation or request in what respect construction of such project would be in conflict with the purposes of this Act and would affect the component and the values to be protected by it under this Act.

(c) The Federal Power Commission and all other Federal agencies shall, promptly upon enactment of this Act, inform the Secretary of the Interior and, where national forest lands are involved, the Secretary of Agriculture, of any proceedings, studies, or other activities within their jurisdiction which are now in progress and which affect or may affect any of the rivers specified in section 5, subsection (a), of this Act. They shall likewise inform him of any such proceedings, studies, or other activities which are hereafter commenced or resumed before they are commenced or resumed.

(d) Nothing in this section with respect to the making of a loan or grant shall apply to grants made under the Land and Water Conservation Fund Act of 1965 (78 Stat. 897; 16 U.S.C. 4601–5 et seq.).

SEC. 8. (a) All public lands within the authorized boundaries of any component of the national wild and scenic rivers system which is designated in section 3 of this Act or which is hereafter designated for inclusion in that system are hereby withdrawn from entry, sale, or other disposition under the public land laws of the United States.

(b) All public lands which constitute the bed or bank, or are within one-quarter mile of the bank, of any river which is listed in section 5, subsection (a), of this Act are hereby withdrawn from entry, sale, or other disposition under the public land laws of the United States for the periods specified in section 7, subsection (b), of this Act.

SEC. 9. (a) Nothing in this Act shall affect the applicability of the United States mining and mineral leasing laws within components of the national wild and scenic rivers system except that— Mining and mineral leasing laws.

(i) all prospecting, mining operations, and other activities on mining claims which, in the case of a component of the system designated in section 3 of this Act, have not heretofore been perfected or which, in the case of a component hereafter designated pursuant to this Act or any other Act of Congress, are not perfected before its inclusion in the system and all mining operations and other activities under a mineral lease, license, or permit issued or renewed after inclusion of a component in the system shall be subject to such regulations as the Secretary of the Interior or, in the case of national forest lands, the Secretary of Agriculture may prescribe to effectuate the purposes of this Act;

(ii) subject to valid existing rights, the perfection of, or issuance of a patent to, any mining claim affecting lands within the system shall confer or convey a right or title only to the mineral deposits and such rights only to the use of the surface and the surface resources as are reasonably required to carrying on prospecting or mining operations and are consistent with such regulations as may be prescribed by the Secretary of the Interior or, in the case of national forest lands, by the Secretary of Agriculture; and

(iii) subject to valid existing rights, the minerals in Federal lands which are part of the system and constitute the bed or bank or are situated within one-quarter mile of the bank of any river designated a wild river under this Act or any subsequent Act are hereby withdrawn from all forms of appropriation under the mining laws and from operation of the mineral leasing laws including, in both cases, amendments thereto.

Regulations issued pursuant to paragraphs (i) and (ii) of this subsection shall, among other things, provide safeguards against pollution of the river involved and unnecessary impairment of the scenery within the component in question.

(b) The minerals in any Federal lands which constitute the bed or bank or are situated within one-quarter mile of the bank of any river which is listed in section 5, subsection (a) of this Act are hereby withdrawn from all forms of appropriation under the mining laws during the periods specified in section 7, subsection (b) of this Act. Nothing contained in this subsection shall be construed to forbid prospecting or the issuance or leases, licenses, and permits under the mineral leasing laws subject to such conditions as the Secretary of the Interior and, in the case of national forest lands, the Secretary of Agriculture find appropriate to safeguard the area in the event it is subsequently included in the system.

Administration.

SEC. 10. (a) Each component of the national wild and scenic rivers system shall be administered in such manner as to protect and enhance the values which caused it to be included in said system without, insofar as is consistent therewith, limiting other uses that do not substantially interfere with public use and enjoyment of these values. In such administration primary emphasis shall be given to protecting its esthetic, scenic, historic, archeologic, and scientific features. Management plans for any such component may establish varying degrees of intensity for its protection and development, based on the special attributes of the area.

(b) Any portion of a component of the national wild and scenic rivers system that is within the national wilderness preservation system, as established by or pursuant to the Act of September 3, 1964 (78 Stat. 890; 16 U.S.C., ch. 23), shall be subject to the provisions of both the Wilderness Act and this Act with respect to preservation of such river and its immediate environment, and in case of conflict between the provisions of these Acts the more restrictive provisions shall apply.

16 USC 1131 note.

(c) Any component of the national wild and scenic rivers system that is administered by the Secretary of the Interior through the National Park Service shall become a part of the national park system, and any such component that is administered by the Secretary through the Fish and Wildlife Service shall become a part of the national wildlife refuge system. The lands involved shall be subject to the provisions of this Act and the Acts under which the national park system or national wildlife system, as the case may be, is administered, and in case of conflict between the provisions of these Acts, the more restrictive provisions shall apply. The Secretary of the Interior, in his administration of any component of the national wild and scenic rivers system, may utilize such general statutory authorities relating to areas of the national park system and such general statutory authorities otherwise available to him for recreation and preservation purposes and for the conservation and management of natural resources as he deems appropriate to carry out the purposes of this Act.

(d) The Secretary of Agriculture, in his administration of any component of the national wild and scenic rivers system area, may utilize the general statutory authorities relating to the national forests in such manner as he deems appropriate to carry out the purposes of this Act.

Cooperative agreements with State or local governments.

(e) The Federal agency charged with the administration of any component of the national wild and scenic rivers system may enter into written cooperative agreements with the Governor of a State, the head of any State agency, or the appropriate official of a political subdivision of a State for State or local governmental participation in the administration of the component. The States and their political subdivisions shall be encouraged to cooperate in the planning and administration of components of the system which include or adjoin State- or county-owned lands.

Assistance in financing State and local projects.

16 USC 460l-4 note.

16 USC 460l-460l-3.

SEC. 11. (a) The Secretary of the Interior shall encourage and assist the States to consider, in formulating and carrying out their comprehensive statewide outdoor recreation plans and proposals for financing assistance for State and local projects submitted pursuant to the Land and Water Conservation Fund Act of 1965 (78 Stat. 897), needs and opportunities for establishing State and local wild, scenic and recreational river areas. He shall also, in accordance with the authority contained in the Act of May 28, 1963 (77 Stat. 49), provide technical assistance and advice to, and cooperate with, States, political subdivisions, and private interests, including nonprofit organizations, with respect to establishing such wild, scenic and recreational river areas.

(b) The Secretaries of Agriculture and of Health, Education, and Welfare shall likewise, in accordance with the authority vested in them, assist, advise, and cooperate with State and local agencies and private interests with respect to establishing such wild, scenic and recreational river areas.

Administration and management policies. Review.

SEC. 12. (a) The Secretary of the Interior, the Secretary of Agriculture, and heads of other Federal agencies shall review administrative and management policies, regulations, contracts, and plans affecting lands under their respective jurisdictions which include, border upon, or are adjacent to the rivers listed in subsection (a) of section 5 of this Act in order to determine what actions should be taken to protect such rivers during the period they are being considered for potential addition to the national wild and scenic rivers system. Particular attention shall be given to scheduled timber harvesting, road construction, and similar activities which might be contrary to the purposes of this Act.

(b) Nothing in this section shall be construed to abrogate any existing rights, privileges, or contracts affecting Federal lands held by any private party without the consent of said party.

(c) The head of any agency administering a component of the national wild and scenic rivers system shall cooperate with the Secretary of the Interior and with the appropriate State water pollution control agencies for the purpose of eliminating or diminishing the pollution of waters of the river.

Fish and wildlife. Jurisdiction under State and Federal laws.

SEC. 13. (a) Nothing in this Act shall affect the jurisdiction or responsibilities of the States with respect to fish and wildlife. Hunting and fishing shall be permitted on lands and waters administered as parts of the system under applicable State and Federal laws and regulations unless, in the case of hunting, those lands or waters are within a national park or monument. The administering Secretary may, however, designate zones where, and establish periods when, no hunting is permitted for reasons of public safety, administration, or public use and enjoyment and shall issue appropriate regulations after consultation with the wildlife agency of the State or States affected.

Compensation for water rights.

(b) The jurisdiction of the States and the United States over waters of any stream included in a national wild, scenic or recreational river area shall be determined by established principles of law. Under the provisions of this Act, any taking by the United States of a water right which is vested under either State or Federal law at the time such river is included in the national wild and scenic rivers system shall entitle the owner thereof to just compensation. Nothing in this Act shall constitute an express or implied claim or denial on the part of the Federal Government as to exemption from State water laws.

(c) Designation of any stream or portion thereof as a national wild, scenic or recreational river area shall not be construed as a reservation of the waters of such streams for purposes other than those specified in this Act, or in quantities greater than necessary to accomplish these purposes.

(d) The jurisdiction of the States over waters of any stream included in a national wild, scenic or recreational river area shall be unaffected by this Act to the extent that such jurisdiction may be exercised without impairing the purposes of this Act or its administration. 82 STAT. 917

(e) Nothing contained in this Act shall be construed to alter, amend, repeal, interpret, modify, or be in conflict with any interstate compact made by any States which contain any portion of the national wild and scenic rivers system. 82 STAT. 918

(f) Nothing in this Act shall affect existing rights of any State, including the right of access, with respect to the beds of navigable streams, tributaries, or rivers (or segments thereof) located in a national wild, scenic or recreational river area.

Easements and rights-of-way.

(g) The Secretary of the Interior or the Secretary of Agriculture, as the case may be, may grant easements and rights-of-way upon, over, under, across, or through any component of the national wild and scenic rivers system in accordance with the laws applicable to the national park system and the national forest system, respectively: *Provided*, That any conditions precedent to granting such easements and rights-of-way shall be related to the policy and purpose of this Act.

Claim and allowance as charitable contribution or gift. 76 Stat. 1034. 68A Stat. 410.

SEC. 14. The claim and allowance of the value of an easement as a charitable contribution under section 170 of title 26, United States Code, or as a gift under section 2522 of said title shall constitute an agreement by the donor on behalf of himself, his heirs, and assigns that, if the terms of the instrument creating the easement are violated, the donee or the United States may acquire the servient estate at its fair market value as of the time the easement was donated minus the value of the easement claimed and allowed as a charitable contribution or gift.

Definitions.

SEC. 15. As used in this Act, the term—

(a) "River" means a flowing body of water or estuary or a section, portion, or tributary thereof, including rivers, streams, creeks, runs, kills, rills, and small lakes.

(b) "Free-flowing", as applied to any river or section of a river, means existing or flowing in natural condition without impoundment, diversion, straightening, rip-rapping, or other modification of the waterway. The existence, however, of low dams, diversion works, and other minor structures at the time any river is proposed for inclusion in the national wild and scenic rivers system shall not automatically bar its consideration for such inclusion: *Provided*, That this shall not be construed to authorize, intend, or encourage future construction of such structures within components of the national wild and scenic rivers system.

(c) "Scenic easement" means the right to control the use of land (including the air space above such land) for the purpose of protecting the scenic view from the river, but such control shall not affect, without the owner's consent, any regular use exercised prior to the acquisition of the easement.

Appropriations.

SEC. 16. There are hereby authorized to be appropriated such sums as may be necessary, but not more than $17,000,000, for the acquisition of lands and interests in land under the provisions of this Act.

Approved October 2, 1968.

LEGISLATIVE HISTORY:

HOUSE REPORTS: No. 1623 accompanying H. R. 18260 (Comm. on Interior & Insular Affairs) and No. 1917 (Comm. of Conference).

SENATE REPORT No. 491 (Comm. on Interior & Insular Affairs).

CONGRESSIONAL RECORD:

Vol. 113 (1967): Aug. 8, considered and passed Senate.

Vol. 114 (1968): July 15, Sept. 12, considered and passed House, amended, in lieu of H. R. 18260.
Sept. 25, House agreed to conference report.
Sept. 26, Senate agreed to conference report.

Senator ANDERSON. Senator Church.
Senator CHURCH. Thank you very much, Mr. Chairman.

STATEMENT OF HON. FRANK CHURCH, A U.S. SENATOR FROM THE STATE OF IDAHO

Senator CHURCH. The bill which we are considering today, S. 940, is one which I believe to be urgent in nature. The bill, as you know, would prohibit the licensing by the Federal Power Commission of any dams on the Middle Snake River in Idaho.

I have cosponsored this bill with my colleague from Idaho, Senator Jordan, because we believe that the time should be provided for further appraisal of the Middle Snake in the context of the changing need.

In my view, the necessity for this legislation is pressing because of the application for construction of a hydroelectric project on the Middle Snake which is pending before the Federal Power Commission.

I am presently persuaded that the construction of a hydroelectric dam on the Middle Snake would not contribute greatly to the development of Idaho. The power would be sold almost entirely outside the State to large urban centers. An alleged benefit to the fishery has yet to be proved or even accepted by the best informed sportsmen groups.

If the dam were to involve a Federal contribution, congressional appropriations for water development projects are limited and it is very important to arrange our priorities in such a way that multipurpose projects, which include irrigation, navigation, and flood control benefits as well as electric power—and which contribute most to the general growth of our economy—are built ahead of those projects which contribute the least.

Hells Canyon has a long history of conflict in the private- versus public-power field. I will not go into a detailed chronology. The record, however, is replete with divided and opposing appraisals. Even now there are questions as to the location of the damsite. Meanwhile, there has been a growing movement against any dams in the canyon and for establishment of this section of the Snake as a recreational river preserved in its natural state.

A bill for this latter purpose has been introduced and is pending before the Senate Parks and Recreation Subcommittee.

Mr. Chairman, this is a magnificent stretch of the river in a canyon deeper than the Grand Canyon of the Colorado. The Seven Devils peaks rise 8,000 feet above waters that often churn white between sheer walls of rock. This is a wild and remote area where thousands of deer and elk graze in the wintertime and which is the natural habitat for cougar, bear, coyote, and other wildlife. Salmon, steelhead, bass, and the mighty sturgeon abound in the river. Migratory waterfowl, wild turkeys, golden eagles, partridge, grouse, and many other birds flock here. Domestic livestock also graze in the area.

Hells Canyon is internationally known to white-water boatmen. Many visitors reach the canyon by jet boats from Lewiston, Idaho, or down steep trails from the Idaho or Oregon sides.

There are many fine campsites along the river, some of them ancient Indian stopping places with archeological and anthropological importance.

There are other sound reasons for advocating a moratorium. We need more time to assess the possibility of preserving the start of the salmon and steelhead runs. These contribute not only to the burgeoning recreation industry for transient sportsmen but also to the pleasure of life in our State for many thousands of our citizens.

Another few years should bring us vital answers that we can only guess at now.

Finally, there is the consideration which must be given to the likelihood that nuclear technology will continue to advance. Its pace in recent years has been such that a hydroelectric dam without the enhancement of other public benefits might well be rendered obsolete before it is even completed. There are other alternative sources for power under examination.

When there are so many multipurpose projects that could be completed in the interim, it seems hardly sensible to rush to judgment on building a single-purpose or, at most, a dual-purpose dam in this critical stretch of the river.

Mr. Chairman, we are not prejudging the issue in seeking this moratorium. We ask only for sufficient time to make sure that this great resource is finally dedicated to its highest and best public use. That is the purpose of the bill.

Mr. Chairman, we have many witnesses assembled here this morning and I want to personally extend my thanks to you for making the arrangements to hold a hearing this early in the session on a bill which has very important consequences to our State.

Senator ANDERSON. This is where I came in. I had a hearing one time 10, 12, 15 years ago in which we had this very discussion at which various engineers made kind, and unkind, comments about dams.

Senator Jordan.

STATEMENT OF HON. LEN B. JORDAN, A U.S. SENATOR FROM THE STATE OF IDAHO

Senator JORDAN. I, too, want to thank you for calling this hearing, so that we can get on with the business of this legislation.

Mr. Chairman, a modern song repeats the biblical observation that there is a time and season for all things. I believe that is true in this case. This is a time for study of the Middle Snake River, not for premature development nor for committing it to a natural-river state.

I take the position as one who believes strongly in the balanced use of our natural resources and who appreciates that our resource development contributes to the creation or the enhancement of jobs and economic opportunity within the State where several thousand young Idahoans reach maturity annually, enter the job market, start new homes, and, unfortunately, altogether too many of them leave the State and go elsewhere for employment.

Moreover, Mr. Chairman, I am not unmindful that plans for all natural resource development now, as never before, must undergo a rigorous examination to insure that the ecology of the area and the quality of the environment must be properly considered.

This position of urging the moratorium is taken by one—and I am speaking of myself—who knows the Middle Snake country as intimately probably as anyone in this room. For 11 years I lived on the Middle Snake River, and the proposed developments in this area would inundate the ranch where my wife and I and our family lived during those 11 years.

My courageous and resourceful wife and I reared our young family in the magnificent isolation of Hells Canyon far from schools, far from doctors, from hospitals, and many kinds of medical care, even from stores and other amenities of modern life.

So I know firsthand, and I love deeply, the great Snake River country.

There are some who say the Snake River has been studied too much, that further study has no point or relevancy. I do not agree with this.

The important, multipurpose basinwide studies of the River Basin Commissions established under the Water Resources Planning Act are just getting underway.

The National Water Commission, assigned by Congress to study major national water supply problems, has just published its first annual report and has 4 years to complete its study.

The major resource planning efforts in the State of Idaho are barely started.

Federal wild and scenic river studies and Wilderness Act studies are just getting off the ground.

This bill, which Senator Church and I are cosponsoring, merely provides for a 10-year delay to give the decisionmakers in Federal, State, and local executive agencies and legislative bodies an opportunity to have the advantage of the information to be gleaned from these important planning studies before making what may be irreversible decisions on the future of the Middle Snake.

The delay harms no interested user. No rights will be confiscated. Power utilities have access to alternate sources of power to make up for the hydropower temporarily forgone on the Middle Snake project. They can step up completion of thermal generation facilities already on their drawing boards.

The hydropower resources remain unimpaired, as does the water supply resource and the scenic and recreation resources. Moreover, Idaho already makes a substantial contribution to the Nation's wilderness. Fifty-three percent of the Nation's existing wild-river mileage is located in Idaho, and six other rivers in Idaho are under study for inclusion in the wild-rivers system.

Idaho has 2½ million acres of forest wilderness and primitive areas, the Nation's prime wild acreage and an area twice the size of the State of Delaware.

During this hearing I hope that the committee and the witnesses will consider fully the fact that the Snake River and its tributaries represent the only major surface-water resource remaining to meet future water requirements in a tremendous arid and semiarid area in Idaho and in the arid eastern half of our neighboring State of Oregon.

Any assessment of the importance of surface-water supply in Idaho and eastern Oregon must consider the climate facts of life in the arid section of the mountain-desert West. Annual precipita-

tion in Boise averages only about 11 inches a year. This is only about half the annual quantity of moisture regarded as necessary to bring crops to maturity without irrigation. This rainfall averages about one-fourth of the annual precipitation in the New York area, and about one-eighth the annual average in Miami.

Moreover, the Boise area receives more precipitation than do major farming areas in Idaho to the east and south of the capital city.

There is a pitifully small acreage of irrigated green space in Idaho. And to provide water for trees, for lawns, for gardens, for cities, for farms, for industry required to accommodate the growing population, and to serve the parks and outdoor recreation playgrounds and the needs of the fish and wildlife resources of our State, more water will be needed in future years. Of this there can be no doubt. Pending studies now going forward will only confirm the size of this need, the dimension of our water-supply problem.

As a resident of Idaho—by adoption I might add, Mr. Chairman—a former Governor of that great State and now the U.S. Senator representing the State, I can see only one available course open to me or anyone else who seriously considers the future of Idaho and western Oregon. That course is to keep the options open for an adequate future water supply and a properly managed river resource. This I firmly believe is what this proposed legislation will do.

The distinguished Supreme Court Justice Oliver Wendell Holmes once observed that "a river is more than an amenity. It is a treasure."

I urge support for this legislation, to help maintain this river treasure unimpaired and uncommitteed for a brief decade so that important long-range decisions affecting the interests of Idaho and eastern Oregon, and the Nation as a whole, for generations yet to come, can be made by the Federal administrators and by the Congress.

Mr. Chairman, I also ask unanimous consent to reproduce at this point from the Congressional Record a statement I made last year when Senator Church and I proposed this legislation.

Senator ANDERSON. Without objection, it will be included in the record.

(The statement referred to above follows:)

S. 940—INTRODUCTION OF BILL RELATING TO A MORATORIUM FOR DAMS ON THE MIDDLE SNAKE

Mr. JORDAN of Idaho. Mr. President, I introduce today, for appropriate reference, on behalf of myself and my distinguished colleague, Senator CHURCH of Idaho, a bill which will declare a moratorium on the granting of a license for any dam on the Middle Snake River between the Hells Canyon Dam and the site of the Asotin Dam. This would apply for a period of 10 years.

This will be consistent with the 10-year moratorium on the reconnaissance studies of water augmentation for the Southwest from sources outside the Colorado River Basin States as spelled out in the Colorado River development bill and for the 10-year study on the main Salmon River which is now designated in the study section of the wild and scenic rivers bill. The Columbia River Basin States are a full generation behind the Colorado River Basin States in water resource planning. We expect to make good use of this 10-year period.

First. The Pacific Northwest River Basins Commission was created on March 6, 1967. Studies by this Commission are now going forward in cooperation with agencies of the States of Idaho, Oregon, Washington, Montana, and Wyoming.

Second. The constitution of Idaho was amended in 1964 to authorize a State water resource board. This was funded in 1967. This agency is now building an organization and has started its study and inventory of water and land resources of the State to determine the present and future water needs.

Third. We need more facts which current studies will provide.

Mr. President, after having achieved a 10-year moratorium on the Colorado River, Project Act in order to preserve our options provided by that moratorium it would be inconsistent and inexcusable to remain silent while dam builders argue over who will build a dam at Appoloosa or Mountain Sheep when the building of either project will foreclose the hard-won options we have thus far successfully defended. For these reasons Senator CHURCH and I intend to insure that Idaho's options in water resource development are kept open and not foreclosed by precipitate action in licensing by the FPC or authorization by the Congress for Federal construction of any dam in the Middle Snake Area.

Some pertinent facts which relate to this situation are—

First. High Mountain Sheep, Appoloosa, and Nez Perce are mutually exclusive, that is, the building of any one would preempt the building of the other two. Nez Perce is superior to the other two in every way because it is located below the confluence of the Salmon and Snake Rivers and will best use the water from both rivers behind a single dam. Consideration of the Nez Perce has yielded with pressure to preserve anadromous fish runs.

Second. On January 20, 1958, the FPC denied an application by Pacific Northwest Power Co.—project No. 2173—to build dams at Mountain Sheep and Pleasant Valley. At that time the Commission said:

Commission determines that applicant's project will not be best adapted to a comprehensive plan of development of the water resources of the region under Section 10(a) of the Federal Power Act after finding that the Nez Perce project would have more flood control benefits and greater power benefits than applicant's proposed project."

Third. The reasons for denying the applicant's application are even more valid now than they were in 1958. Since then preliminary studies disclose:

That the Snake River watersheds will not provide enough water to irrigate the great potential of land adjacent and economically feasible new irrigable lands.

That the best source of supplemental water is Idaho's own Salmon River.

That present salmon runs may already be doomed by the building of the 10 dams below the mouth of the Salmon River that are now either built, under construction, or authorized, or it may be that fisheries research may provide a means of passing fish over dams without the high losses that now occur.

That to achieve Idaho's ultimate reclamation potential both supplemental water supplies and low cost pumping power are essential. Both of these elements are available in the Salmon storage behind Nez Perce Dam with pumpback to project lands by low cost Nez Perce power.

That the building of Nez Perce would not only make possible the use of Salmon River water for upstream consumptive use in the Snake River Basin but would make available for the same purpose a minimum flow of 5,000 cubic feet per second now required by the FPC as a condition in the licensing of Idaho Power Co. at its three-dam complex upstream in the Middle Snake.

Mr. President, Idaho is now at the crossroads. The stakes are high. Within 10 years we must decide which direction to take, whether it be toward achieving our high reclamation potential by full development of the Middle Snake or to maintain an open river. We do not have to make this decision now. Nor do we wish to be forced into a decision by others who are motivated by the single purpose, power. Bear in mind, there are many sources of power including nuclear or fossil fuel generation but the one essential element in making the desert bloom is water.

In Idaho we have a double loyalty in our great love for our vast forests, mountain meadows, open ranges, lakes, and streams. We are determined to protect our great wildlife and recreation resources and we are equally determined to utilize the natural resources of these areas to help us grow and develop full our industrial and agriculture potential. I believe that these objectives are not incompatible and I hope that Congress will assist us in reaching these objectives by granting a moratorium until our studies have been completed.

The VICE PRESIDENT. The bill will be received and appropriately referred.

The bill (S. 940) to prohibit the licensing of hydroelectric projects on the Middle Snake River below Hells Canyon Dam for a period of 10 years, introduced by Mr. JORDAN of Idaho (for himself and Mr. CHURCH), was received, read twice by its title, and referred to the Committee on Interior and Insular Affairs.

Senator ANDERSON. I see the Senator from Colorado is here.

Have you a statement to make?

Senator ALLOTT. No, Mr. Chairman.

Senator ANDERSON. Senator Packwood.

STATEMENT OF HON. ROBERT W. PACKWOOD, A U.S. SENATOR FROM THE STATE OF OREGON

Senator PACKWOOD. Mr. Chairman, I have with me, on my right, Mr. Boyd Norton, who is the western director for The Wilderness Society, stationed in Denver, and, on my left, Gerald Jayne, secretary of the Hells Canyon Preservation Council, from Idaho Falls. If any expert knowledge is needed in the area they will assist me in answering.

Mr. Chairman, as a young man in Oregon, I grew to regard the protection of our environment as one of the vital issues facing mankind.

Now in a position of significant responsibility, I am even more intent on making certain that I do everything within my power to achieve this goal.

The hearing today focuses on a 10-year moratorium of the Snake River. The distinguished conservationist from Idaho, Senator Church, is to be commended for the introduction of this legislation along with Senator Jordan.

When S. 940, the 10-year moratorium bill, was introduced in Congress, it represented a departure from the norm. It was not necessarily the most popular cause to espouse. "Environment" was not the catch-all expression it is today. To be for environment and ready to stage a war on air and water pollution did not necessarily put one in the "good guys" category. So those who had the foresight to envision the need for a 10-year moratorium on one of America's truly great rivers—the Snake—deserve much credit and the gratitude of everyone concerned about environment.

But now a new battle cry is being heard across this land. This time the fighting words are air and water pollution—protecting that environment which is left unscathed or still has a chance to be saved.

There is one thing on which we can all agree. That is that the Hells Canyon-Snake River area of Idaho, Washington, and Oregon is worth saving. It is worth preserving. The only question is how to best get that accomplished.

I think it can best be accomplished through a bill I recently introduced in the Senate, S. 3329, which would establish the Hells Canyon-Snake National River in the States of Idaho, Oregon, and Washington. This bill will undoubtedly come before another subcommittee of the Interior Committee.

But what I think should be done today may not be regarded tomorrow as a bold proposal. What is important here is that we all understand as much as we can about the Middle Snake River.

For that reason, when the other witnesses have finished testifying I have film to show of the Snake River and would appreciate the indul-

gence of the committee to watch it, if I may have a half hour's notice so that the projector may be set up.

Senator ANDERSON. That may be done.

Senator PACKWOOD. I don't want to take the time of the witnesses who have come a lengthy distance to view the film, and who are familiar with it.

In addition, you have already been provided with copies of the Audubon, "The Living Wilderness"—which contain very fine articles on the Middle Snake—as well as copies of a letter from Lewis Bell, representative of the 50,000-member Washington State Sports Council, and the Oregon Fish and Game Council.

I would ask the chairman if these two letters might be included in the record of this proceeding at this point.

Thank you.

Senator ANDERSON. Without objection, that will be done.

(The documents referred to follow:)

BELL, INGRAM, SMITH, JOHNSON & LEVEL,
Everett, Wash., February 4, 1970.

Senator PACKWOOD,
Senate Office Building,
Washington, D.C.

DEAR SENATOR PACKWOOD: I am a representative of the Washington State Sports Council, which is a large organization of over 50,000 members and some 125 chapters of hunters and fishermen in the State of Washington.

I am also Chairman of the Interagency Committee for Outdoor Recreation of the State of Washington, as established by statute to spend some $50,000,000.00 of state monies raised by bond issue and appropriated by the Legislature for the purchase of outdoor recreational lands and the preservation of recreational opportunity in this state.

As such, I am state liaison officer to the federal government as designated by the Governor in the matching of funds from the land and water conservation fund of the United States.

On top of that, I am an ardent, actual user and admirer of the Snake River—Hells Canyon country.

I have been led to understand that you have either introduced or are proposing to introduce legislation for the establishment of a Snake River-Hells Canyon national river and recreation area, the details of which legislation I am familiar with.

On behalf of the above-mentioned organizations, may I express to you our full support and deep appreciation for your interest in this matter and assure you that we will, in every way, aid and assist you in the passage of this legislation and come to the Congress of the United States, if requested, to testify in the hope that we can give some clarity to the various aspects of that legislation.

I can assure you that the area is of the highest quality for recreational opportunity, sorely needed in this crowded day and time, and of utmost importance to thousands of people, not only in this state, but in surrounding states and the United States in general.

If the legislation has actually been drafted, it would be much appreciated if you would send a copy thereof to me and keep me advised when it is introduced.

Thank you for your courtesy.

Yours truly,

LEWIS A. BELL.

OREGON FISH AND GAME COUNCIL,
Richland, Oreg., February 9, 1970.

Senator ROBERT PACKWOOD,
Senate Office Building,
Washington, D.C.

DEAR SIR: On behalf of our Sportsmen's Club and all our neighbors and friends in Baker County, we would like to express our gratitude and appreciation for your time and effort in introducing the Hells Canyon-Snake National River Bill.

As you know, this river means a lot to us, in sentimental value, boating pleasure, ancient cultures, and as winter ranges for our wildlife.

We have been deprived of so much by the construction of the three Idaho Power Dams that we have become very extra-sensitive to the threat of further deprivation and destruction offered by more dams downstream.

At a time when you may be receiving threats of unpopularity and abuse, it will be very encouraging and heartening for you to know that you are without doubt on the overwhelmingly popular side, and this specific move is the impressive one that will no doubt bring you dividends of confidence and support from your constituents.

Not many men have the nerve to stand up against the threats of big enterprises on behalf of the common people. Too many of our legislators have been bought and paid for, so to speak, rather out of respect or fear.

It is my opinion that 95% of Baker County, or even more are solidly behind you on this issue. I would even go as far as to say that half of the impact area, or more, even though they might expect tax benefits from a dam, are still with us in our desire for preservation of the rest of Hells Canyon.

Enclosed is an excerpt from the local paper serving 25,000 people, whose editor used to be a potential promoter for "development of the Middle Snake." His last comments included with material from Dr. Luna Leopold's material on unique estethic values of Hells Canyon compared to other like areas, suggested reassessment of the development position.

Increasing numbers of local people are beginning to be more vocal on the preservation question, and Brock Evans, Sierra Club Rep. says he can see it swinging nationally in our favor more each day.

Next time you are in Baker, contact me for a free Jet boat ride down the upper section of Hells Canyon to the Wild Sheep Rapid, where boats usually stop. This will be free to your entire party. We have an 18′ glass boat and a friend has the 22′ aluminum boat that Arthur Godfrey rode up from Lewiston, here, now.

Sincerely,

CARMELITA HOLLAND,
Secretary.

[From the Record-Courier, Baker, Oreg., Feb. 5, 1970]

CANYON TRAFFIC PACE UNBELIEVABLE, FIRST FIGURES SHOW

Phenemonal growth in traffic in remote Hells Canyon is shown by figures compiled by Idaho, Oregon and National forest cooperating agencies, it was learned here this week.

The boat counter system recorded 28,132 visitor-day patrons going up river at Cache creek (below Salmon river.)

The Imnaha-Horse Creek access route reported 14,517.

Pittsburg Landing Idaho access counted 14,464.

Hells Canyon dam point counted 9,559 downstream bank anglers and from the dam to the wilderness area counted 2,472 boat anglers.

The grand total for the year was 69,144 visitor days, compared with 42,500 the year before, said Wade Hall, forest service liaison man for the canyon's three national forests.

This figure does not include scenic flights nor trail entry, it was stated. Deducting repeat trips, more than 800 individual boats were tabulated.

The heavy use of 709 boats below Hells Canyon in the free-flowing river compares with nominal use in Brownlee and upper pools of the dam developments, it was pointed out.

Thirty-two cars were actually checked below Hells Canyon dam on one day—November 29.

AREA NOW IN PICTURES

Why is the Hells Canyon area of Snake River important?

The story in colored slides is available and Mr. Hall is showing them.

Developed over a period of several years during frequent trips into the canyon on business ranging all the way from keeping tab on proposed power developments to wildlife surveys and river traffic studies the slides in general cover material that will provide a comprehensive understanding of the whole area resource and its problems.

First showing for the slides will be by Mr. Hall at Powder River Sportsmen's club Monday Feb. 16, followed the 17th at Orofino, Idaho, the 18th at Moscow, Idaho, and the 19th tentatively at the February meeting of Hells Canyon Corridor association of the three counties meeting in Baker. A showing in Portland has also already been scheduled.

[From the Chiefton, Enterprise, Oreg., Jan. 27, 1970]

FISHING SURVEY MADE ON SNAKE

In a news release this week the Oregon Game Commission has shown that the free-flowing portions of the Snake River from Brownlee Dam to below Hells Canyon Dam has a significantly greater use by anglers than the reservoir areas. Figures for these studies were gathered during the 1969 study of the area.

Angler hours per lineal mile of water amounted to 53.6 on the Oxbow Reservoir and 30.0 on Hells Canyon Reservoir as compared to 322.0 angler hours per lineal mile in the 1.6 miles of river below Hells Canyon Dam. The study also showed that 88 percent of the anglers interviewed expressed a preference for the fish which were present in the river where it is free-flowing, as opposed to the fish in the reservoirs

Many of the boaters interviewed in the High Mountain Sheep Dam impact area volunteered the opinion that hydroelectric development should be opposed. The dams are all but totally deserted by fishermen.

Senator PACKWOOD. In addition, Mr. Chairman, one of the principal arguments pro and con on the erection of the dam on the Snake River is the power needs of the Northwest in the next 10 years.

There are those who are opposed to the 10-year moratorium because they claim we are going to be in a power-short situation and we cannot afford to delay the building of this dam.

With that in mind, I asked the Assistant Deputy Director of the Bonneville Power Administration, Don Hodel, to get for me from his research department a statement on the power needs of the Northwest in the next 10 years and the necessity for the construction of any new dams, whether they be on the Snake River or any other tributary of the Columbia or the Columbia itself.

I have a memo—I ask that it be made a part of the record—from Bernard Goldhammer, chief of the Power Section of the Bonneville Power Administration. I will not read the entire memo but what it says and what it says exactly is that if we continue with the projected nuclear power developments that are now on the boards and if we will simply build and complete the generating facilities of the existing dams that are already built, that, and I am quoting, "No new dams need to be constructed to meet the projected load growth in the 1970's."

So that all this committee has to do, all this Congress has to do if it wants to generate the power needs that are necessary for the Northwest, is to install the generating capacity in the existing dams, to simply approve of the plans for the development of nuclear generation that are already planned.

We don't need to dam up any more rivers in the Northwest, including the most beautiful of all and the most rugged of all, the Snake River.

Thank you very much, Mr. Chairman.

(The document referred to follows:)

U.S. DEPARTMENT OF THE INTERIOR,
Portland, Oreg., October 24, 1969.

To: Don Hodel.
From: B. Goldhammer.
Subject: Power needs of the Pacific Northwest in the 1970's.

Oregon, Washington, and those parts of Idaho and Montana served by the Bonneville Power Administration will require nearly 14,500,000 kilowatts of additional power capacity during the 1970's. The 109 publicly-owned, investor-owned, and cooperative-owned utilities and the Bonneville Power Administration have developed a hydro-thermal program to meet these power needs.

Through the 1970's 7,500,000 kilowatts of steam generated power is planned. The first steam-generation plant, the 1,400,000 kilowatt coal-fired plant at Centralia, Washington, is already under construction. Equipment has been ordered for the second plant—the 1,100,000 kilowatt Trojan plant to be built by Portland General Electric Co. near Rainier, Oregon.

In addition to the 7,500,000 kilowatts of thermal generation, 7,000,000 kilowatts of hydro power capacity is needed to meet the projected loads. The hydro can be supplied by completing dams such as Libby, Little Goose, and Lower Granite already under construction and by adding generation at existing dams such as Grand Coulee, The Dalles, John Day, and the second powerhouse at Bonneville Dam. No new dams need to be constructed to meet the projected load growth in the 1970's.

Senator ANDERSON. Are there any questions?

Senator CHURCH. Mr. Chairman, I just want to say to Senator Packwood that the memo to which he refers and the testimony he has just given concerning the role of new dams in meeting the future power needs of the Northwest is highly significant.

It is clear that in the future we can no longer rely on hydroelectric power to furnish the new supply of electricity that will be necessary. The bulk of that electricity clearly must come from other sources. I think that the sooner we recognize this the better, because, as the Senator well knows, there are not very many prime damsites left, and certainly we don't want to leave all the rivers of the Northwest in a condition where there is nothing but reservoirs, and no free-flowing natural streams to provide the diversity necessary if the recreation options of the area are to be pursued.

So, I commend the Senator for the emphasis he has given this point that is often overlooked in a region which traditionally has relied upon hydroelectric dams as the source of its power.

Senator ALLOTT. Mr. Chairman, could I ask one question of Senator Packwood?

Senator ANDERSON. Senator Allott.

Senator ALLOTT. Senator, in your statement, on page 2 you refer to a Hells Canyon-Snake National River. One of the things which has bothered me considerably over the years on this committee is the expansion of classification of land use. We have all sorts of natural historical sites, national monuments, wild areas, wilderness areas, national parks, and game refuges, and I think there are some subdivisions of all of these.

For my own information, is a national river one of the categories that the Park Service or Interior Department has established?

Senator PACKWOOD. Senator Allott, it is not in a sense administrative determinations. I discovered by talking with the Interior Department and the Department of Agriculture that by statute we can create about anything we want. This is a unique category. Frankly, I don't care what you call it.

What I want to make sure is that the area is preserved intact as it is.

Senator ALLOTT. I just had my attention called to the fact that we have established one other, the Ozark National River, which had slipped my memory.

My only feeling about this subject is that we had a long and difficult fight establishing the criteria for our wilderness areas, as everybody on this committee remembers.

Last year we started downgrading the criteria for wilderness areas to cover the Great Swamp area in New Jersey, because it is not truly a wilderness area.

I think that, the nearer we can keep legislation of various kinds within the definitely established parameters that we have, the nearer we will come to accomplishing the purpose of Members of the Senate who are offering bills for one thing or the other.

I am not sure, exactly, despite the fact that we did establish the Ozark National River, what a national-river category is. Perhaps Secretary Smith, can enlighten us a little bit on that when he gets to the stand.

That is all I have.

Senator ANDERSON. Are there any further questions?

Thank you very much, Senator Packwood.

Senator PACKWOOD. Thank you, Mr. Chairman.

Senator ANDERSON. Mr. James R. Smith.

STATEMENT OF HON. JAMES R. SMITH, ASSISTANT SECRETARY FOR WATER AND POWER DEVELOPMENT, U.S. DEPARTMENT OF THE INTERIOR

Mr. SMITH. Mr. Chairman and members of the committee, I have with me Mr. Lane Morthland, Associate Solicitor for Water and Power Development, in case there are some legal or technical questions you might care to ask.

I am pleased to appear before the Subcommittee on Water and Power Resources to present the views of the Department of the Interior on S. 940, a bill to prohibit the licensing of hydroelectric projects on the Middle Snake River below Hells Canyon Dam for a period of 10 years.

The Department supports this bill and recommends its enactment.

The bill would prohibit, for a period of 10 years, the issuance of any license or permit for a project under the Federal Power Act with respect to that reach of the Middle Shake River extending from Hells Canyon Dam to a point at river mile 146.5 above the mouth of the river or the acceptance of any new applications therefor.

Although the bill would prevent the issuance of a license during this period, it would preserve the existing status of the parties for the purpose of any action taken subsequent to the 10-year period.

It would also permit the completion of hearings now pending before the Federal Power Commission in which Pacific Northwest Power

Co. and Washington Public Power Supply System are applying for a license for a two-dam hydroelectric project.

The Middle Snake River is one of the few remaining river resources in the United States with a potential for the production of substantial hydroelectric power which remains in a wild state.

As such, its disposition has long been in controversy between persons who seek its development and those who would preserve its unique, scenic, and recreational values, and safeguard its important role in supporting the anadromous fish and wildlife resources of the Columbia River.

On February 5, 1964, the Federal Power Commission granted a license for a hydroelectric project in this reach of the river to Pacific Northwest Power Co. for the High Mountain Sheep site.

On the Department of the Interior's objection, the Supreme Court, in an opinion dated June 5, 1967, vacated the license and remanded the case to the Federal Power Commission for further proceedings.

The Court stressed the importance of giving consideration to the ecological and environmental aspects of a proposed water development project such as this.

Following the Supreme Court's decision, the Federal Power Commission scheduled further hearings, and on May 15, 1968, the Secretary of the Interior forwarded the Department's statement of position on the development of the Middle Snake River to the Commission.

In this statement, construction at the High Mountain Sheep site was warned against because it threatened extinction of the anadromous fish runs.

Development of a hydroelectric project on the Middle Snake was reexamined by the present administration, and on August 12, 1969, a statement of the Department's current position, signed by Secretary Hickel, was filed with the Federal Power Commission.

In commenting on the statement the Secretary said:

> The Department supports a moratorium on the construction of any facility on the Middle Snake. It is possible that it would be in the best interest of the Nation to leave it in its present state.

With respect to future planning, the Secretary said further:

> I am of the opinion that within the next 3 to 5 years our water resource studies and planning activities, together with environmental factors, will put us in a much better position to determine how the waters of the Middle Snake should be used.

The Snake River Basin lies within the jurisdiction of the Pacific Northwest River Basins Commission, established by Executive order on March 6, 1967, at the request of the five Pacific Northwest States. It is charged with the responsibility of developing a "comprehensive, coordinated, joint plan" for water and related land development in its area.

It has established a timetable for the development of a joint Federal-State and local government plan. The timetable extends over a 10-year period but the Middle Snake River study has been scheduled early in the program so as to be compatible with work on ajoining basins.

The Bonneville Power Administration has projected the electric power load requirements and resources of the Northwest States. These projections indicate that the orderly development of existing and

planned production facilities will meet the electric power requirements of the Pacific Northwest over the next decade.

In fact, it is not anticipated that a Middle Snake hydroelectric project will be needed to meet the power requirements of the Pacific Northwest before 1986.

It should further be noted that although the bill provides, on page 2, lines 4 through 13, that the status quo of the parties in the proceedings before the Federal Power Commission will be preserved, the Bureau of the Budget has asked us to inform you that it has been advised by the Federal Power Commission that it would be difficult for the Commission to terminate the proceedings during the period of the moratorium. A record 10 years old would most likely be inadequate to provide a basis for the Commission's issuing a decision.

Mr. Chairman, we believe it is best that the status quo be maintained on this part of the river for the next several years. In 10 years there will be many new considerations that may dictate to us how this natural resource can best be utilized for mankind. At the present time there is no clear-cut answer. Therefore, time is on our side. We believe the moratorium should be established.

Thank you, Mr. Chairman.

Senator ANDERSON. Did you have a survey of this whole power situation made recently?

Mr. SMITH. Yes; the Bonneville Power Administration has given to us sufficient information to indicate that there will be no need, as I mentioned, at least until 1986, for any additional capacity which this might logically provide.

Senator ANDERSON. Is that nationwide?

Mr. SMITH. No; this was just for that region about which we are concerned today, Mr. Chairman.

Senator ANDERSON. I hope one might be made, because we are shutting down reactors in the Northwest at the same time they are having a hard time to find current in the Eastern States.

Mr. SMITH. In other areas of Government that sort of study is being made, sir.

Senator ANDERSON. A former Assistant Secretary of the Interior is now in New York with a very large company. They are having problems. The people out in the West are having problems because reactors are being shut down in the State of Washington. The problem is nationwide.

Senator Jordan.

Senator JORDAN. Mr. Secretary, I want to thank you personally for what I think is a very fine statement.

Are we to assume from this statement that the Nixon administration is speaking in support of the Jordan-Church moratorium?

Mr. SMITH. Yes, sir.

Senator ANDERSON. Senator Church.

Senator CHURCH. I also want to express my appreciation for the support which the administration has given this proposal. I think that you have made two points in your excellent testimony, Mr. Secretary, that should be underscored. The first is that there is no urgent need to build a dam on the Middle Snake in order to meet the power requirements of the Northwest for the entire period of this moratorium.

Are these alternate sources available so that power needs can be met without building a dam on the Middle Snake?

Mr. SMITH. That is correct, sir.

Senator CHURCH. And your surveys established this, so that the argument for building the dam on the Middle Snake to meet the power requirement simply is not based on fact. I am sure the administration would not have taken a position in support of this legislation if a careful appraisal of the power situation had not been made.

Mr. SMITH. That is true.

Senator CHURCH. The second point, Mr. Secretary, is contained in a paragraph in your statement that I would like to reread, because I think it sums up the argument for a moratorium in a most succinct way.

You say:

> We believe it is best that the status quo be maintained on this part of the river for the next several years. In 10 years there will be many new considerations that may dictate to us how this natural resource can best be utilized for mankind. At the present time, there is no clearcut anwser. Therefore, time is on our side. We believe the moratorium should be established.

I think that sums up the case, because this is the last untamed stretch of the Snake. It is of such magnificence, and it has so many possible uses, that we ought not rush to judgment.

That is the whole case we make for the moratorium. I must say I am extremely pleased that the administration has seen fit to endorse it.

Mr. SMITH. Thank you, Senator.

Senator ANDERSON. Senator Allott.

Senator ALLOTT. I would like to ask you, Mr. Secretary, about the question I inquired of Senator Packwood.

I am aware that we established the Ozark National River and that is not in this bill. Although I am aware that the Congress can make any classification it wishes, is there a definite category and classification which is known as national rivers?

Mr. SMITH. I do not know, Senator. I will see that you are given that information within the day.

(The information referred to above follows:)

DEPARTMENT OF THE INTERIOR,
Washington, D.C., March 6, 1970.

Hon. GORDON ALLOTT,
U.S. Senate,
Washington, D.C.

DEAR GORDON: During testimony on S. 940, a bill "To prohibit the licensing of Hydroelectric projects on the Middle Snake River below Hells Canyon Dam for a period of ten years," you requested the Department to prepare a statement for the hearing record explaining the difference between a "national river" and a river within the National Wild and Scenic Rivers System. Although the titles are similar, and both types of areas seek to preserve portions of free-flowing streams, there are differences based upon size and degree and intensity of recreation development envisioned. This information will be provided for the record but I am also pleased to provide this additional response to your inquiry.

River areas within the *National Wild and Scenic Rivers System* are limited to an average of 320 acres per mile, or approximately one-quarter mile back from each bank, with fee title acquisition further limited to an average of 100 acres per mile. Thus, the boundaries of such river areas encompass a relatively narrow stretch or "ribbon", centered on the river itself. Within this ribbon, recreation development would be, at most, on a modest scale with emphasis on providing

those facilities oriented to active visitor use and enjoyment of the river such as boating and fishing, rather than encouraging activities that are incidental to the river.

A national river area, while also including the river and immediate adjoining lands, would extend back in places to include lands that are somewhat removed from the river that have special scenic, scientific, historic, or recreation interest. This concept provides a broader resource base and permits a greater diversity of recreation activities. A full-range of visitor facilities would be developed within the boundaries of a national river area in order to accommodate the broader uses envisioned. Such development would permit and encourage outdoor recreation activities which may be incidental to the river, as well as those closely associated with the river.

In summary, both *national river* areas and river areas within NW&SRS would preserve vestiges of our free-flowing streams and provide opportunities for their use and enjoyment. The latter, however, would primarily preserve the stream and its immediate land environment and afford recreational opportunities directly related thereto. National river status, by contrast, would include a larger land area and a more diversified development within the boundaries of the area and afford a wider range of recreation activities including activities which may be incidental to the river itself.

The *national river* prototype was the Ozark National Scenic Riverways established in 1964, by P.L. 88-492.

To date, the Department of the Interior has supported the establishment of one other national river, the Buffalo in Arkansas. S. 855, to authorize establishment of this area, passed the Senate on September 3, 1969.

If I can be of further help, please let me know.

Sincerely yours,

JAMES R. SMITH,
Assistant Secretary of the Interior.

Senator ANDERSON. Didn't you see a film entitled "Wild Rivers" a few days ago?

Mr. SMITH. Yes, I am familiar with that. But national rivers—I don't know if there is a difference in connotation between the two. I will find out.

Senator ANDERSON. Is there a classification of "wild rivers" and "national rivers"? If so, it ought to be clarified.

Senator ALLOTT. That is my real point. I think, frankly, we have overproliferated in our classifications so far. That was my only thought in rasing this question. We can discuss this later.

Senator CHURCH. The only national river that I can recall is the Ozark. I think there has been that category established. But it certainly varies from the normal standard set up in the national wild rivers bill.

Senator ALLOTT. I take it that the general concept is the same as the wild-rivers concept.

Senator ANDERSON. Senator Hatfield.

Senator HATFIELD. Thank you, Mr. Chairman.

Mr. Secretary, on page 3, the last paragraph, you state in your testimony that—

> The Bonneville Power Administration has projected the electric power load requirements and resources of the Northwest States. These projections indicate that the orderly development of existing and planned production facilities will meet the electric power requirements of the Pacific Northwest over the next decade.

Would you list for me what these existing and planned production facilities are that you obviously support?

Mr. SMITH. Yes, I will provide you, for the record, a specific listing. I can bring you in broad totals at this moment if you wish, but perhaps you would like it dam by dam.

Senator HATFIELD. I would like for the record the exact ones which the Department supports and may I presume that these include thermal and other-than-hydro facilities?

The data referred to above follow.)

FEDERAL COLUMBIA RIVER POWER SYSTEM—GENERAL SPECIFICATIONS, PROJECTS EXISTING, UNDER CONSTRUCTION, AND AUTHORIZED—NAMEPLATE RATING OF INSTALLATIONS AS OF DEC. 31, 1969

Project	Operating agency [1]	Location	Stream	Existing			Under construction		Authorized		Other potential		Total	
				Initial date in service	Number of units	Total capacity (kilowatts)	Number of units	Total capacity (kilowatts)	Number of units	Total capacity (kilowatts)	Number of units	Total capacity (kilowatts)	Number of units	Total capacity (kilowatts)
Bonneville	CE	Oregon-Washington	Columbia	June 1938	10	518,400			6	324,000			16	842,400
Grand Coulee	BR	do	do	September 1941	18	[2] 2,042,000	6	[3] 3,838,000			6	(3,600,000)	36	9,771,000
Grand Coulee [4]		do	do				2	97,000	4	(194,000)				
Hungry Horse	BR	Montana	Flathead [5]	October 1952	4	285,000							4	285,000
Detroit	CE	Oregon	North Santiam	July 1953	2	100,000							2	100,000
McNary	CE	Oregon-Washington	Columbia	November 1953	14	980,000					6	420,000	20	1,400,000
Big Cliff	CE	Oregon	North Santiam	June 1954	1	18,000							1	18,000
Lookout Point	CE	do	Willamette [6]	December 1954	3	120,000							3	120,000
Albeni Falls	CE	Idaho	Pend Oreille	March 1955	3	42,600							3	42,600
Dexter	CE	Oregon	Willamette [6]	May 1955	1	15,000							1	15,000
Chief Joseph	CE	Washington	Columbia	August 1955	16	1,024,000			11	1,045,000	13	1,573,000	40	3,642,000
Chandler	BR	do	Yakima	February 1956	2	12,000							2	12,000
The Dalles	CE	Oregon-Washington	Columbia	May 1957	16	1,119,000	8	688,000					24	1,807,000
Roza	BR	Washington	Yakima	August 1958	1	11,250							1	11,250
Ice Harbor	CE	do	Snake	December 1961	3	270,000			3	332,880			6	602,880

Hills Creek	CE	Oregon	Willamette [6]	May 1962	2	30,000								2	30,000
Minidoka	BR	Idaho	Snake	May 1909	7	13,400								7	13,400
Boise diversion	BR	do	Boise	May 1912	3	1,500								3	1,500
Black Canyon	BR	do	Payette	December 1925	2	8,000								2	8,000
Anderson Ranch	BR	do	Boise [5]	December 1950	2	27,000			1	13,500				3	40,500
Palisades	BR	do	Snake	February 1957	4	114,000					2	135,000		6	249,000
Cougar	CE	Oregon	McKenzie [5]	February 1964	2	25,000			1	35,000				3	60,000
Green Peter	CE	do	Middle Santiam	June 1967	2	80,000								2	80,000
Foster	CE	do	South Santiam	August 1968	2	20,000								2	20,000
John Day	CE	Oregon-Washington	Columbia	July 1968	10	1,350,000	6	810,000	4	540,000				20	2,700,000
Lower Monumental	CE	Washington	Snake	May 1969	2	270,000	1	135,000	3	405,000				6	810,000
Little Goose	CE	do	do				3	405,000	3	405,000				6	810,000
Lower Granite	CE	do	do				3	405,000	3	405,000				6	810,000
Teton	BR	Idaho	Teton				2	16,000						2	16,000
Lost Creek	CE	Oregon	Rogue				2	49,000						2	49,000
Dworshak	CE	Idaho	Clearwater [6]				3	400,000	3	660,000				6	1,060,000
Strube	CE	Oregon	McKenzie [5]						1	4,500				1	4,500
Libby	CE	Montana	Kootenai				4	420,000	4	420,000				8	480,000
Asotin	CE	Washington-Idaho	Snake						4	540,000				4	540,000
Total installed capacity						8,496,150		7,263,000		5,323,880		5,728,000			26,811,030
Total number of projects						25		6		2		0			33

[1] CE—Corps of Engineers; BR—Bureau of Reclamation.
[2] Includes 3 service units and increase of 17,000 kilowatts each for 4 rewound main units.
[3] Includes an increase of 17,000 kilowatts each for 14 units to be rewound and 600 000-kilowatt.
[4] Units being installed at the 3d powerplant.
[5] Pump turbines.
[5] South fork.
[6] Middle fork.
[7] North fork.

Note: BPA—Branch of Power Resources, Jan. 6 1970.

Mr. SMITH. The general statement that the power load requirements of the Pacific Northwest can be met in the next decade very definitely includes the hydrothermal program. It includes not only additions to existing hydro structures planned and authorized, and some under construction, but it also presumes the continuation of the thermal aspects of the hydrothermal program.

Senator HATFIELD. So that it might include other than those which are specifically licensed at this time?

Mr. SMITH. Yes, sir; and it would include non-Federal thermal.

Senator HATFIELD. Yes; but also those which are presently licensed and those which are being programed and perhaps licensed at a later date.

Mr. SMITH. Yes.

Senator HATFIELD. So that, when we talk about the projected power requirements of the Northwest, the Department is fully aware of its own statements made through the Bonneville Power Administration of projected brownouts in the Northwest based upon existing power production facilities unless they are supplemented by hydrothermal programs which lead to the hydrothermal agreement?

Mr. SMITH. Yes, sir.

Senator HATFIELD. Now, in a column written by Frank Hewlett in a Salt Lake City, Utah, newspaper of October 13, we have the testimony of former Secretary of Interior Stewart Udall.

In this column it indicates that the main dam he was suggesting would be built at Appaloosa, about 8 miles above High Mountain Sheep. He feels this would do much toward limiting the troublesome fish problem since the Appaloosa site is well above the Salmon River and the Snake—and says publicly and privately owned utilities of the Northwest would benefit through the allocation of power from the Columbia River Federal power system equivalent to their prepaid portion of the power output of the Appaloosa project.

May I assume then that the present administration no longer supports the Apaloosa project or any other project at this time?

Mr. SMITH. I think it is implicit in our support of this moratorium that we need neither propose nor oppose any specific project on the Middle Snake.

Senator HATFIELD. Unequivocally you support the 10-year moratorium without any ifs, ands, or buts?

Mr. SMITH. Yes, sir.

Senator HATFIELD. Thank you.

Senator ANDERSON. You say you are neither proponents or opponents?

Mr. SMITH. We are neither proponents nor opponents of any specifice project on the Snake.

Senator ANDERSON. Thank you very much.

Mr. SMITH. Thank you, sir.

(Subsequent to the hearing the following clarifying letter was received:)

DEPARTMENT OF THE INTERIOR,
Washington, D.C., March 6, 1970.

Hon. LEN B. JORDAN,
U.S. Senate,
Washington, D.C.

DEAR SENATOR JORDAN: This will confirm the telephone conversation between you and Jim Watt concerning your bill S. 940, which was the subject of the recent Senate hearings.

In presenting my testimony I supported the bill as it was introduced by you and Senator Church. We did not specifically focus our attention on the Asotin Dam and whether or not it should be constructed. In fact, no particular reference was made to it.

I have been advised by the Solicitor's Office that the bill as introduced by you would prohibit the Federal Power Commission from licensing the construction of a facility by non-Federal interests on the stretch of the river from below the Asotin Dam site up to Hells Canyon Dam. The enactment of S. 940, we are advised, would not "deauthorize" the Corps of Engineers' Asotin Dam, which Congress authorized several years ago.

Sincerely yours,

JAMES R. SMITH,
Assistant Secretary.

Senator ANDERSON. Dr. Nelson.

STATEMENT OF M. M. NELSON, DEPUTY CHIEF, FOREST SERVICE, U.S. DEPARTMENT OF AGRICULTURE

Mr. NELSON. Mr. Chairman, I have with me Mr. Reynolds Florance, Director of our Division of Legislative Reporting and Liaison. Before I start my prepared statement, I do want to tell you, Mr. Chairman, that Ed Cliff was looking forward to being here as the Chief of the Forest Service and presenting this statement but he became ill on Friday and is home sick. So I am substituting in the job that he would normally do here before the committee.

Mr. Chairman and members of the committee, the national forest system administered by the Forest Service of the Department of Agriculture contains some of America's most scenic and remarkable lands and waters. Included among these is the Middle Snake River forming part of the boundary between the States of Idaho and Oregon and Washington.

I am therefore greatly pleased with this opportunity to present the views of the Department of Agriculture on S. 940, a bill that would help protect this outstanding natural resource.

S. 940 would prohibit for 10 years certain actions which could lead, under the Federal Power Act, to construction of a dam along a 101-mile stretch of the Snake River. This stretch, known as the Middle Snake River, flows for 67 miles through a canyon within or bordering the Nez Perce, Payette, and Wallowa National Forests. A portion is included in the Hells Canyon-Seven Devils Scenic Area, established as a part of the National Forests involved. The canyon is part of the boundary between Idaho and Oregon and Idaho and Washington.

We believe that the free-flowing segment of the Middle Snake River within and bordering National Forests is a magnificent, irreplaceable natural feature and is worthy of keeping in a free-flowing state.

The canyon through which the Middle Snake flows is, in one spot, the deepest in the United States. The river itself is awesome and challenging. It consists of a series of white-water rapids flowing into deep, placid pools. Its shoreline varies from sheer cliffs and great boulders to wide bars and benches.

The Middle Snake Canyon is a unique recreational resource. There are challenging trails carved in steep rock faces and up rugged, narrow canyons. The trails lead to level, easy stretches along the riverside and to numerous campsites on the bars and benches and at the mouth of tributary streams. The river also offers special opportunities for floating and boating on an untamed stream.

Archaeological features are a special attribute of the areas along the Middle Snake River. Artifacts, rock carvings, and other signs of historic Indian life are common.

There are thousands of acres of winter and resident game range in the canyon bottoms. Bear, deer, elk, various predators, waterfowl, upland birds, and bald and golden eagles inhabit the canyon.

The bottom areas are a vital part of the habitat of some of these species. The river and its tributaries are a high-quality fishery for both resident and anadromous species.

A hydroelectric project affecting the national forest portions of the Middle Snake River would inundate, destroy, or adversely affect its unique natural resources and opportunities. It would irretrievably alter a vestige of our primitive natural heritage. Because of this, the Department of Agriculture recommended to the Federal Power Commission on November 8, 1968, that the proposed High Mountain Sheep Dam not be built.

We believe that the value of the Middle Snake Canyon itself, along with its recreation, wildlife, and commercial and sports fishery values, far outweighs any presently demonstrated need for a hydroelectric project.

Our hope is that alternatives can be found to meet the Nation's water and power needs without sacrificing the existing qualities of the Middle Snake River.

This concludes my statement, Mr. Chairman. I will be glad to try to answer any questions you may have on the relationship of the Middle Snake to our national forest management programs.

I might say, too, that our mapmakers in the Forest Service did prepare a map that is here. If it is of any use to the committee we have tried to illustrate what would be provided by this bill and the various proposals that have been made for dams along the Middle Snake.

Senator ANDERSON. Are there questions?

Senator CHURCH. Mr. Chairman, I just simply want to say that the statement which Mr. Nelson has given, his description of the Hells Canyon, helps to underscore what a precious asset it is to the Northwest.

I appreciate the fact that the Department of Agriculture supports the Department of the Interior and the administration in the endorsement given to the legislation.

Mr. NELSON. Thank you, Mr. Chairman.

Senator JORDAN. Mr. Nelson, have you been up on the river?

Mr. NELSON. I have been in the area. I have flown over it several times.

Senator JORDAN. You have not been right on the river?

Mr. NELSON. Yes; I have been on the river, but not below Hells Canyon.

Senator JORDAN. Someone wrote a very good statement for you. I hope you will go up there sometime and take a look at it.

Mr. NELSON. Thank you.

Senator ANDERSON. Thank you very much, Mr. Nelson.

STATEMENT OF HON. STEWART L. UDALL, FORMER SECRETARY, U.S. DEPARTMENT OF THE INTERIOR

Mr. UDALL. Mr. Chairman, I have a brief statement which is so brief I will read it and also make a few other comments, if I may.

I am here today solely as an individual. I am not acting as a spokesman for anyone. I am here partly out of homesickness for further conversations and dialog with members of this committee. But I don't think there was any problem in my years as Secretary, unless it was the Grand Canyon, that we wrestled with more and worried about more in terms of national policy.

I want to give emphatic, unqualified support to the Hells Canyon moratorium bill, S. 940, sponsored by the two Senators from Idaho. It represents conservation foresight of the highest order. I commend Senator Church and Senator Jordan for their wise and statesmanlike act in cosponsoring this legislation at this particular time.

As Secretary of the Interior, for 8 years I, with my advisers, wrestled with the problem of what to do about Hells Canyon. Initially we opposed the competing license applications of the entities who sought a license to dam this stretch of the river. We argued that if any dam was built it should be a Federal dam.

Later we made a special study of the Appaloosa site as a means of keeping both the Salmon and Imnaha Rivers unobstructed as free-flowing streams.

The thing that interests me most when I look back 10 years is how all of us not only enlarged our concept of conservation, I think we take a much different view today with regard to rivers and their values than we did a decade ago; the mystique that somehow we could get much of our power from hydroelectric sources still ran strongly a decade ago. That is not true today.

In fact, I saw a recent study of someone indicating that if most of the major sites that are left in this country, today, hydroelectric sites, were built, this would provide between 2 and 3 years' supply to meet the Nation's demands at the present level.

So this shows you that we have literally run out of rivers and this, I believe, makes all of us pause and look at the whole past history of this controversy.

It is no secret that my personal views on the value of high dams on the key sections of the major rivers of the Nation underwent considerable alteration in the 1960's.

I think that was true of Congress as a whole and the country as a whole.

I approved the report that dealt a death blow to the Rampart Dam on the Yukon. I and my associates were the architects of the "no dam"

plan that finally resolved the national controversy over the Grand Canyon stretch of the Colorado.

I prepared the order President Lyndon Johnson signed on January 20, 1969, that made Marble Canyon on the Colorado a national monument.

I initiated the proposal for a national system of wild rivers put forward by President Johnson in his state of the Union message in January 1965, which Senator Church and Senator Jordan did as much as anyone else to make that legislation national policy.

The Nation is now, belatedly—and with strong leadership from this committee—developing new environmental plans and guidelines to govern our future growth. This fact alone argues for favorable action on this legislation.

Our conservation values are evolving, our sense of the long-term national interest in the use of our resources is under sweeping review.

When we are attempting to evaluate and develop our whole environment in terms of the future, the leadership from the Executive and the Congress and the country as a whole, I think this strongly argues for going very slow concerning a decision of this magnitude.

Hells Canyon is no ordinary resource. It is an awe-inspiring place, as all know who have peered over its rims or traveled by boat in its depths.

It has been said here today, and I have always had the idea, that this was the deepest gorge in North America. The National Geographic atlas tells me that it is the deepest gorge on the face of the earth.

I think that fact alone ought to give us pause. The widest gorge on the face of the earth is also located in the United States and that is the Grand Canyon National Park.

The decision concerning its future has quite understandably attracted intense interest in all parts of the country.

Mr. Chairman, the people of Idaho and the citizens of the United States will be in a far better position to make a final decision on the use of this remarkable resource in 1980 than we are today. Our environmental values and conservation goals are changing at a rapid rate.

The very scope and grandeur of Hells Canyon urges deliberation and not haste in making the ultimate choices that will decide its future for the centuries ahead.

A moratorium, I believe, is the essence of wisdom, for this is a decision of such magnitude that it should ultimately be made, in my view, by the Congress, and not by a Commission that must perforce decide within the framework of undeveloped environmental guidelines and outdated regulatory precedents.

It is my hope that the Congress will enact this legislation without delay.

I would like to add two other things briefly, Mr. Chairman. That is that I think that the finest hydroelectric project that is underway in this country today, one of the best that has even been developed, is the project to convert Grand Coulee Dam into a peaking facility which will nearly quadruple its output. This is the way we are going to magnify our hydro potential.

This project alone will make an enormous input into the whole power grid in the Northwest.

I know there are many ideas and many plans. Senator Packwood presented one here this morning. My own view at this stage in my

life and the way my feeling has changed with regard to rivers and their future is that I think that the deepest gorge on the planet and a magnificent place, indeed, probably ought to be a national park and not a national river but that is just one person's view.

Thank you very much, Mr. Chairman.

Senator ANDERSON. Are there any questions?

Senator CHURCH. Mr. Chairman, I would like to thank Stewart Udall for coming. His presence here gives emphasis to the importance of this legislation. He is a conservationist who is widely known and respected throughout the country.

He very candidly pointed out that during his tenure as Secretary, the previous Administration once contemplated a Federal dam in this area, but he has made it equally clear that his own personal position has changed and that he endorses the moratorium concept.

I just want to express my appreciation for your testimony, Stu, and thank you for coming.

Mr. UDALL. Senator, during the 1960's, we were always operating within the constraint, because the applications had been filed, that there was going to be a dam built. The effort that we made throughout, both as an intervenor with the Federal Power Commission and with our later study of the Appaloosa site was always based on the assumption that the Federal Power Commission was going to act and that there was going to be a dam. Fortunately, I think that the delays, the Supreme Court reversing the decision of the Power Commission, just bought time, and I think we all see it in a different light today than we did a few years ago.

That is the reason I think this legislation is very well conceived and very timely.

Senator CHURCH. Do you not think that if no bill were considered, debated, and passed by the Senate dealing with this matter, and the question were left as it now stands for decision by the Federal Power Commission, that the Middle Snake would be in serious jeopardy? That is to say, there would be a very large risk under those circumstances that the FPC would license construction of the dam?

Do you agree with that?

Mr. UDALL. Senator, this is a very good point. One of the things that always disturbed me in my years as Secretary was that the whole history of the Federal Power Commission, and this is understandable when you look to its past beginning in 1920 when it was created, is that if somebody filed an application there was a presumption that a license should be granted. That is the whole history of the Commission.

The Supreme Court opinion for the first time questioned that as an approach and philosophy. I think if one looks at the record of the Federal Power Commission, unless this committee acts there is a very strong possibility or probability that the FPC will feel that it has to make a judgment, and if it has to make a judgment I would assume that it would grant a license rather than deny one, because never in its history that I am familiar with has it handed down a decision saying that we feel no license should be granted.

Senator CHURCH. I certainly agree with you. I think the record shows that the Federal Power Commission is a dambuilding agency.

Senator ANDERSON. What is that?

Senator CHURCH. A dambuilding agency.

The fact that this matter is once again pending for decision before the FPC is what gives such urgency to the bill that Senator Jordan and I have proposed.

Senator JORDAN. I want to welcome Stewart Udall back before this committee. You look familiar sitting there at the table. We enjoy having you back on this issue.

You mentioned the Grand Coulee Dam and that has raised recollections in my mind. I know when Grand Coulee was built in the 1930's, without consultation with the Canadians we went forward with the project that destroyed a thousand miles of the finest salmon spawning beds in the world, most of them in Canadian waters. The Canadians have never quite forgiven us for that.

Now comes a point in history on the Grand Coulee project when the third powerhouse will be completed. This will furnish a tremendous peaking capacity for the whole Northwest hydroelectric system and for the whole system, hydroelectric and thermal. It will be the system's chief peaking plant.

Now I don't know anyone in this great dam versus fish controversy that wants to remove Grand Coulee Dam. We had our bumps over it but it does fill a real need in the development of the water and the energy of the Pacific Northwest.

Thank you so much for your testimony.

Senator ANDERSON. Senator Hatfield.

Senator HATFIELD. I would just like to comment that Stu Udall is one of my favorite people. I am glad to see him before us today when we are considering this important issue.

I think when he says that there has been change in the minds of people and the public at large in the last few years he illustrates it most eloquently today.

For 50 years, Secretaries of the Interior appeared before this committee to describe and propose dams. The more dams they could propose, the better Secretary of the Interior they were considered. Today, we have a former Secretary and the immediate past Secretary who comes and gives us a list of the proposed dams he helped kill. I think that is indeed a very interesting point to show this change.

I would like to utilize each occasion that I can to point out and to emphasize that we are certainly pleased that Senator Jordan and Senator Church have introduced this moratorium.

I think it is a very statesmanlike approach. But I have to also be concerned about the support we must be seeking from not only the Interior Department but I think men like Secretary Udall and others who are recognized leaders in the conservation program, that we do have a growing people problem in this country.

I would like to just quote at this time, Mr. Chairman, for the record, because I want to read the memorandum from the Bonneville Power Administration very carefully, because, as I recall, this was quoted as saying that there would not be a shortage in the 1970's but I think this committee has to look beyond the 1970's.

If we declare a moratorium on the Snake—and I don't say the dams are the only source of energy, for there are many other sources if we can get them developed, but let us look beyond the 1970's. I

want to utilize the Bonneville Power Administration's own statement here, in material prepared for Congressman Wendell Wyatt's speech before the luncheon of the Bonneville Regional Advisory Council of January 9 this year, 1970. Now, that is only a matter of a few weeks ago.

I quote from that speech in which this material was given to Congressman Wyatt from Mr. Willard of the Bonneville Power Administration [reads]:

> In 1969, the residential use of electricity in the Pacific Northwest exceeded the total of all electricity used in the region in 1950, which included residential, commercial, industrial, and other uses. Estimates of future load requirement calculated as carefully as the trajectory of a flight to the moon indicate that the use of electricity in the Pacific Northwest in 1990, 10 years following the moratorium, will approach the 1950 requirements of the entire United States.

Now I do feel that we must have supporting data. I think we have to have dependable data upon which we project our future needs for energy.

I am not talking now about hydro. I am talking about energy, period. And if we are going to run up against the same groups of people who will oppose the thermal development, who now stand opposed to hydro development, then I think we are really not serving the needs of our people both today or in the future.

I certainly support the moratorium if we can get the support for other energy development. But if we cannot, then I say this committee is addressing itself to the wrong issue. Instead of talking about dams we should be talking about exploding population development because that is the key to this whole problem.

As long as we are going to continue to reproduce our kind and our species, we are going to have to face the reality of the need for energy. I just don't want to see this committee or any other group get so completely into a position that it fails to realize the future needs of this area and the whole Nation.

Senator CHURCH. Senator, a little less energy might mean fewer people.

Senator HATFIELD. No. Just the opposite is true. During the blackout on the eastern seaboard, if you recall, 9 months later there were more babies born in those hospitals than any time in recent years. The more power we have, and the more television sets, the less population explosion we have.

Senator CHURCH. The Senator misunderstood me. I was not referring to electric energy.

Senator HATFIELD. We need to keep the lights on.

Senator ANDERSON. We are very happy to have reference to Grand Coulee Dam. It reminds me again this started originally as a WPA project on which some of us were very actively engaged.

Senator Allott asked a very good question, I thought.

I have the committee report on the Buffalo National River Act and a copy of the Scenic and Wild Rivers Act which I already have included in the record.

Thank you very much, Secretary Udall.

Mr. Bill Hall.

STATEMENT OF W. D. (BILL) HALL, EDITORIAL PAGE EDITOR, LEWISTON MORNING TRIBUNE, LEWISTON, IDAHO, AND CLARKSTON, WASH.

Mr. HALL. Mr. Chairman, Senators, the thought has occurred to me that I may be appearing here today as much to tell you what I don't know—what none of us knows at this moment—as I am to tell you what I think I do know.

That is the point: We cannot say with any certainty right now which is the most beneficial future use of the Middle Snake River.

But the pieces do seem to be falling into place rather rapidly. Quite probably all we require is a few more years—no more than 10, and most likely considerably less—before our perspective clears enough to say with some confidence whether this stream will serve the Nation best as it is or with manmade modifications.

That is the reason for Senate bill 940. It asks only that we do nothing for a bit longer, that we take a little more time, gain some hindsight and sharpen our perspective. And that is why the Lewiston Morning Tribune supports this measure.

The principal choices now facing us are three: (1) damming the stream for hydroelectric generation, (2) damming the stream for pumpback storage to irrigate land to the south of the damsites, or (3) preserving the stream as it is—a nearly natural river with a virgin scenic backdrop that supplies a frontier form of recreation.

For what it is worth, my newspaper believes that the first of the three alternatives—a hydroelectric dam—is the least likely to pan out as a responsible use of this resource.

Henry R. Richmond, Administrator of the Bonneville Power Administration, quoted figures on December 4, 1969, that indicate the peak-load power needs of the Pacific Norhwest will triple in the next 20 years.

Obviously, you could dam every last remaining stream of any consequence in the Northwest and still not meet that kind of demand. So it is only a matter of time before we turn entirely to the alternate sources of power anyway.

That is the question: Do we dam every last stream in the Northwest and then turn to the alternatives? Or do we set aside a handful of the few remaining streams and turn to the feasible alternatives today?

In short, it is the opinion of my newspaper that a hydroelectric dam on the Middle Snake would be virtually an obsolete long-term use of that stream—even for peaking power.

That leaves the two remaining options of reclamation and conservation. The choice between those two courses cannot responsibly be made at this moment—by anyone.

Since your colleagues and my Senators—Senator Jordan and Senator Church—have so ably presented these two opposing choices, I need not belabor the details.

But suffice it to say, that, if I understand their positions, Senator Jordan believes a little more time may show us that the best use of the Middle Snake is pumpback storage for reclamation to help feed a hungry world.

And Senator Church is inclined to believe that, in a few more years,

America may come to recognize Hells Canyon on the Middle Snake as a national feature as valuable as Yellowstone Park or Carlsbad Caverns.

To their credit, neither Senator is cocksure in his opinion. Each is willing to wait a few more years and, in the interest of all, see which approach will prove out.

For once, we don't have to rush into something. And we could be sorry later for a hasty decision now. So tabling the Middle Snake would appear to be the more prudent course.

At this point, I want to interject that Senate bill 940 prohibits for 10 years the "licensing" of hydroelectric projects on the Middle Snake. That would appear to permit the construction of a Federal dam or dams.

I recognize that such Federal dams appear stalemated for the present, so my calling attention to that wording in the bill is probably only so much lint-picking.

But it should be noted that my newspaper's support for Senate bill 940 is based on the understanding that the clear intent of this legislation is to declare a moratorium on all dam construction on the Middle Snake River, not just a postponement of non-Federal projects.

If that is not the clear intent of this bill, I respectfully ask that you modify this measure to provide full protection against all dams of any type while we spend the next few years sorting out the alternatives. The bill is pointless if it fails to postpone dam construction of every kind.

Although I have come here to say that the Tribune is not certain which of the two prime uses of the river may prove out over the next few years, I don't want to leave any false impression. We do have our prejudices.

Naturally, one is that, if any dam is built on this stream, Idaho, Oregon, and Washington should share equally in the benefits. If the shortsighted course is taken and a hydroelectric dam is poured into the Middle Snake, the more modest benefits of that alternative should go not only to the Oregon and Washington citizens of the Portland-Seattle urban area—who would reap the power—but to the citizens of Idaho as well, through a sharing of the revenues from such a project.

However, our prime prejudice at this point is to be inclined against a dam of any kind for any purpose. The Tribune leans toward the view that the time bought with Senate bill 940 will probably show conservation is the higher use.

The bill introduced jointly by Senator Packwood and Congressman Saylor—to establish the Hells Canyon-Snake National River—is appealing to many Idaho, Washington, and Oregon citizens who play along this river.

Some of the details of the bill are open to question, but the concept is, in our view, commendable. Perhaps Senate bill 940 will eventually become the foundation for that approach.

However, the Tribune, like Senator Jordan and Senator Church, is not absolutely certain at this point which course is more constructive in the long term. The Middle Snake has been a resident of Idaho longer than any of us. And it will be there—in one form or another—

long after we have all been conserved or damned. There is no need to panic and rush to a rash decision this very year.

With this bill and a little patience, our best option will present itself.

Mr. Chairman, I was able to obtain Friday from a professional polling agency in Boise the results of a poll asking people of Idaho whether they support this bill. I have included that at the last stage of my testimony. I think it speaks for itself. It shows the people of Idaho overwhelmingly support it.

(The document referred to follows:)

Poll taken during the week of Feb. 9–13, by J & A Research, an independent market and opinion research company, Boise, Idaho.

The poll question:

"Senators Church and Jordan have proposed a moratorium to prevent dam building in the Hells Canyon or Middle Snake River area for 10 years to enable Idaho time to see what options there are besides dam building. Do you agree with this proposal?"

City	Yes	No	Do not know
Boise	75	6	17
Blackfoot	18	3	3
Idaho Falls	32	3	96
Coeur d'Alene	15	19	19
Twin Falls	32	5	5
Lewiston	36	7	1
Moscow	18	1	6
Total	226	44	75
Percentage	65.5	12.8	21.7

Senator ANDERSON. That is a very good statement.

Mr. HALL. Thank you.

Senator CHURCH. I want to join in saying that your statement is extremely lucid and plain spoken. I appreciate it.

I do think that the results of the poll to which you referred ought to be mentioned. It is the first time I have seen it. It was taken, I understand, by a competent pollster, and citizens in Boise, Blockfoot, Idaho Falls, Coeur d'Alene, Twin Falls, Lewiston, and Moscow were questioned, all in all, 345, which is a rather large sampling for a small State when you consider that the Gallup Poll is based upon a sampling of only 1,500 people nationwide.

The question asked was the following:

Senators Church and Jordan have proposed a moratorium to prevent dam building in the Hells Canyon or Middle Snake River area for 10 years to enable Idaho time to see what options there are besides dam building. Do you agree with this proposal?

The percentage total was 65.5 percent yes, 12.8 percent no, and 21.7 percent undecided.

I think that is a rather overwhelming indication of what public sentiment is in Idaho.

I am really very encouraged to see that the public so strongly supports the moratorium bill.

Mr. HALL. Yes, Senator.

I might add that as one who makes his life trying to read public opinion, guessing outcomes of elections—I guessed right on yours and Senator Jordan's the last few times—it has been my impression that this is what was happening in Idaho.

I think 2 or 3 years ago the people of Idaho were unconcerned about this sort of thing and it turned around rather dramatically.

I don't have a poll showing what it was but we do have this poll which I think is probably quite accurate. It should be noted it is about a 5-to-1 margin.

Senator CHURCH. I agree with you that opinions have changed dramatically on the conservation front. I am thankful that this is so.

A few years ago, I believe that a moratorium proposal, as you say, would have received little support in Idaho. We have come to a much more informed view on the care of our natural resources. Your testimony was excellent.

Senator ANDERSON. Senator Jordan.

Senator JORDAN. Thank you, Mr. Chairman.

I want to say to Bill Hall and the fine paper he represents, we are pleased to have his testimony. I think it is very concise, very accurate in its statement of our relative positions. I think we could clear the record to this extent: The Lewiston Tribune does not oppose dam-building per se.

Mr. HALL. No, we do not, Senator.

Senator JORDAN. I know we have stood shoulder to shoulder back through the years trying to bring navigation to the inland empire for which Lewiston would be a seaport. Your paper and you personally have been a strong voice in advocating a series of slack water pools from Lewiston to the ocean in order to implement the navigation to the inland empire.

Mr. HALL. That is correct, Senator. We take a position of which is the higher use. With something as important as navigation it is pretty hard not to put down your fiishing rod and cry a little, and let them go ahead.

Senator JORDAN. Sometimes the reference is made to the stagnant pools behind a dam. You don't find a stagnant pool behind seven or eight dams below Lewiston to be offensive?

Mr. HALL. No, sir, because they are so far below us primarily. Senator, that is another point, though. I think we should have both reservoirs and free-flowing streams in the Northwest, for developmental reasons as well as recreation.

As you mentioned, these navigation dams will back water into Lewiston. We will be surrounded on two sides by semi-stagnant water. We won't be able to go downstream on the Snake except on these pools.

If they build a dam on the Middle Snake, that will make still more stagnant water. If it is not built, if this bill is respected, then we can go one direction and have the pool recreation and go in the other direction and have the free-flowing stream recreation. We would like the best of both worlds.

Senator JORDAN. Now, suppose the people at The Dalles said we want all dams below and free-flowing rivers above, would you have agreed with their position?

Mr. HALL. If it was in the national interest, I think it is their business. Now I recognize that this is a national issue and it can't be just what Lewiston wants. By the same token, our opinion is part of that and I am happy you asked me here to give that as I see it.

Senator JORDAN. You have made a good statement. I appreciate that.

Senator ANDERSON. Senator Hatfield.

Senator HATFIELD. Mr. Chairman, I would just like to comment that I admire Bill Hall and his newspaper because of its plain-speaking ability. When you read their editorials, you know where they stand.

I appreciate that kind of forthrightness. I also appreciate the point you made on page 2 of your testimony when you talk about the other alternatives, because I think you face up to the very point I was making awhile go. If we don't go ahead and commit ourselves to building dams on every stream, we should consider the other alternatives now, especially in the light of the possible moratorium.

Thirdly, I appreciate the comment that you made regarding slack water navigation that goes from the sea to Lewiston, Idaho, and the potential of that development. In commerce alone, that means the dry cargo that goes out of that area to the hungry parts of the world. This is another one of the great values we have to examine in terms of our rivers today, not just the single use but the multiple uses that come from our rivers.

When we use the word "stagnant," I am sure it is a question of semantics but I don't think even though we have so-called semistagnant pools behind these dams that that means pollution will be tolerated. They still can be pure water pools and we still can maintain our war against pollution in such areas.

So, Mr. Chairman, I do commend Mr. Hall for a very fine statement. I think he looks at the picture here as a total program and sees the total needs of the area.

Mr. HALL. Thank you, sir.

Senator HATFIELD. And it benefits Oregon, by the way, and The Dalles as well, to have that slack water navigation.

Mr. HALL. You are welcome to it then.

Senator ANDERSON. Dr. Lee.

STATEMENT OF ROBERT R. LEE, DIRECTOR, IDAHO WATER RESOURCE BOARD

Mr. LEE. Mr. Chairman, members of the committee, I am Robert R. Lee, Director of the Idaho Water Resource Board. The Board is the State of Idaho's water planning and development agency.

In the last week, a development occurred which has imposed problems in presentation of a complete position on the part of the board before the committee at this time.

The Governor of Idaho and our board have consistently taken the position that development of this area was in the best interest of our State if major benefits were made available to our State. A proposal was made in the last week which provides reason to believe that these benefits will be forthcoming.

However, our board, our Governor and our legislature, which is now in session, need time to consider this development.

We are, therefore, prepared today to make an initial statement but would ask the committee for time during which consideration of this new development may be explored and the opportunity to supplement the record at the time that these decisions have been made.

Senator ANDERSON. How long would we have to wait for your statement?

Mr. LEE. The legislature is tentatively scheduled to recess in a couple of weeks. We need at least 2 weeks, I would judge.

However, I am able to restate the position of the Board and to give some reasons to the committee for that position.

The position of the Water Resource Board with respect to Middle Snake development has been as follows:

1. Multipurpose hydroelectric development in the middle reaches of the Snake River constitutes the optimum use of this resource, provided that the State share in the economic benefits that would flow from the development.

2. There should be a subordination of any power right to upstream consumption use so that upstream development could proceed without jeopardy. The Board has urged that the Federal Power Commission require insertion of a provision into any license that might be granted which would state:

> This project shall be operated in a manner that will in no way conflict with the present or future depletion in flows of the waters of the Snake River and its tributaries, and the operation of this project pursuant to this license shall be at the risk of the licensee and shall be subject and subordinate to the use of the Snake River and its tributaries for irrigation, domestic, and municipal or other consumptive uses, said present and future uses to be without payment of compensation in any form to the licensee.

3. Postamortization benefits which would accrue after project payout should be available to assist Snake River Basin development.

4. Access roads to the project should be provided from both the Oregon and Idaho sides in order to enhance the recreational potential of the dam sites and reservoir areas.

5. Agreement should be reached between the taxing authorities of Idaho and Oregon that one-half of the facilities would be deemed to be taxable in each State regardless of their location.

6. Insertion of conditions in the license to insure that the project would not be an obstacle to but would assist future irrigation development.

I would like to now go into some depth as to why the Board has taken the position just stated.

ECONOMIC BENEFITS

The State of Idaho has need of additional revenues to enhance the quality of living for residents in the State of Idaho and those who might visit it. Only 20 percent of the land area in the State provides a tax base, with the remaining being in public ownership. Our taxes are high, per capita income relatively low, and public services at critical levels in some areas.

For example, we do not yet have public kindergartens in the State of Idaho. There are not sufficient revenues to provide adequate road maintenance and construction in the towns and cities. The legislature is having difficulty finding enough money to support a water development program and also a water pollution control program.

For example, there are not matching funds available to take advantage of the Clean Rivers Act passed by the Congress.

Educational needs are outrunning the availability of tax revenues to finance them.

Furthermore, there is a move to set aside large areas of the State of Idaho in wild rivers or wilderness areas, or in other ways limit economic activity, so that the State's options for improving its economic condition are becoming limited.

This background should help explain the reason why the Board has for the past 2½ years been attempting to seek economic benefits from Middle Snake development.

As originally proposed, the project would provide power mainly to the coastal areas while using a resource that is one of the State's principal assets. Approximately 85 percent of the water that enters the Middle Snake region finds its source in Idaho, with the inclusion of a portion of that flow arising in the State of Wyoming and available to Idaho by compact.

The board has felt that this resource should be available to and produce benefits for the State of Idaho. Progress has been made toward achieving significant economic benefits for the State from any Middle Snake development. Approximately $2½ million per year would accrue to the State in taxes from the contemplated development.

In addition, Pacific Northwest Power Co. has recently agreed that the State would share in 10 percent of the project, which could be sold on the basis of the so-called Swan Falls formula to the Idaho Power Co. for use in the State, with a net return to the State of approximately $1.5 million per year.

Also, serious consideration is being given to the possibility of eventual State financing of the nonpower facilities, with additional savings thereby occurring to the State of Idaho.

These savings could result in another $1.5 million per year or more, depending on the final cost of the project.

The committee may be interested in knowing that a Middle Snake project, such as Appaloosa-Low Mountain Sheep, would approximately double the existing hydroelectric capacity in the State of Idaho and would have approximately four times as much installed capacity as any other remaining undeveloped hydro project in the State of Idaho, outside of the Salmon River.

The following list ranks the other major proposed hydroelectric multipurpose developments in Idaho according to installed capacity:

[In kilowatts]

Project	*Installed capacity*
Appaloosa-Low Mountain Sheep	2,145,000
Lynn Crandall plus Palisades powerplant enlargement	375,000
Garden Valley plus Scriver Creek	368,500
Twin Springs-Lucky Peak	109,300
Guffey	85,000–186,000
American Falls	30,000–80,000

It should be evident that the Middle Snake River represents the last opportunity for the State of Idaho to share in any major way in the economic benefits from multipurpose hydroelectric development.

It was in recognition of this great asset that the Idaho Water Resource Board petitioned the Federal Power Commission in August of 1967 to become an intervenor in the High Mountain Sheep case.

The FPC order granting intervention was issued on September 25, 1967. The board had not previously been a party to the hearings because it was not created until 1965.

On June 24, 1968, the board authorized the filing of an application to the FPC for a preliminary permit to study the Appaloosa site for construction.

POWER RIGHT SUBORDINATION

The reason for the board's suggested subordination statement is that the board does not want to see upstream development jeopardized by the granting of a power license downstream.

Our State water planning activities have not progressed to the point of fully identifying the timing of the depletions of the Snake River flow which will occur as the great economic development potential of southern Idaho is realized.

Therefore, we feel the risk of depletion should be upon the joint applicants.

Our studies show that in 1966 there were about 3.6 million acres of land being irrigated in the State and 3.2 million acres in the Upper Snake River Basin in Idaho.

There are approximately 8.7 million additional acres having irrigation potential in the Upper Snake River Basin, both in Idaho and Oregon, with about 6 million of that being in Idaho. Prediction of the rate of future development is very uncertain.

However, if we look to the longrun future, it is evident that water, not land, will be the limiting factor in development of the Upper Snake River Basin.

Historically, land put under irrigation in the Upper Snake Basin in Idaho has averaged approximately 42,000 acres per year, but in the last 16 years irrigation development has averaged about 50,000 acres per year.

I might add that is primarily private development.

Based on a rate of 50,000 acres per year, we would expect that by the year 2020 an additional 2,700,000 acres could be developed, requiring an additional 4 million acre-feet of water per year, if one assumes a consumptive use of 1½ acre-feet per acre.

Considering the other demands for water from the Snake River, which have yet to be fully identified, one can realize why the board feels that the risk of Middle Snake development should rest with the licensee.

An understanding of the water resources available for development in Idaho is essential if one is to understand the State's position with respect to Middle Snake development. The average annual flow of the Snake River at Weiser under 1970 conditions is approximately 11 million acre-feet per year. The minimum flow would be about 7 million acre-feet per year. Flow of the Salmon River at Whitebird is about 8.5 million acre-feet; the flow of the Clearwater at Spaulding is approximately 10½ million acre-feet, and the total flow of the Snake River as it leaves Idaho is about 33 million acre-feet.

Most of the economic development potential lies in southern Idaho; therefore, the Snake River has to be the main source of water supply.

With the Middle Fork of the Clearwater and the Selway and Lochsa tributaries set aside as wild rivers, and with the prospect that the Salmon River will also be set aside as a wild river, only about one-third of the Snake River water leaving Lewiston is, therefore, available for development of the State.

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If that, too, is set aside as a wild river, then the economic development of southern Idaho will be severely limited.

The conclusion that we reach with respect to water resources development is that with proper regulation there will be sufficient water available in the Snake River to satisfy the demand for irrigation development as of the year 2020.

POSTAMORTIZATION BENEFITS

The board feels that the post amortization benefits that accrue should be made available to the Upper Snake River Basin States on the basis of contributed hydrology once project payoff has occurred.

This is consistent with the current practice of the Federal Government whereby postamortization benefits from Federal power projects are used by the Bureau of Reclamation to support the irrigation development.

We recognize that this would require congressional action and would hope that this could be accomplished.

ACCESS ROADS

There is quite general agreement that unless there is highway access from both the Oregon and Idaho side of any Middle Snake development, the economic impact of recreational development will not be fully realized because of the reluctance of tourists to traverse a dead-end road. We believe that this is essential to make this area open for people to visit.

DIVISION OF TAXABLE PROPERTY

The board feels that agreement must be reached between Idaho and Oregon with respect to the manner in which Middle Snake facilities should be taxed so that the State will receive full benefit from the kilowatt-hour generation tax and ad valorem taxes. The joint applicants have agreed to this provision.

COMPATIBILITY WITH IRRIGATION DEVELOPMENT

The project should be so operated after payout that it will be compatible with upstream irrigation development if that proves to be economically feasible. This can be accomplished by the installation of reversible turbines to allow pumpback and by modification of the operation of the structures.

ADDITIONAL REASONS FOR SUPPORTING DEVELOPMENT

The board's position before the Federal Power Commission that multipurpose hydroelectric development of the Middle Snake is in the public interest is based on more than just receiving direct economic benefits from the project. All of the following facts are of importance:

1. MAJESTY OF THE AREA

Members of the board are well familiar with the rugged majesty of the Middle Snake and Hells Canyon area, having visited it. This region is indeed a unique resource which is difficult to describe and that can best be left to others who are more eloquent.

Yet, the board feels that development, while it would remove a free-flowing stream and change the nature of the fishery as well as remove some game habitat, would not in any way affect the beauty, the majesty, or most of the values of this unique area. Rather, it would make these qualities available for viewing by many more people than can now visit the area because of the cost and the time to move upstream on riverboats or to make the long, tortuous drive from the Salmon River into Pittsburg Landing.

2. RECREATION ACCESS

There is no question but that the improvement of access into the Middle Snake area which would result from dam construction and the availability of a reservoir for ease of navigation would significantly improve the recreational opportunity for the average visitor.

Testimony before the Federal Power Commission shows that about 22,000 man-days of visitation were experienced in the Middle Snake reach below Hells Canyon and upstream from the Salmon River. Of this amount, about 12,000 man-days can be attributed to access via the road to the Idaho Power Co.'s Hells Canyon Dam. The remaining 10,000 man-days would have been by boat and motor vehicle from the downstream areas. This must be contrasted to the Idaho Power Co. count in 1969 of visitors to their Hells Canyon recreational facilities alone of 125,000 visitors.

In 1968, the vehicle counts of the State Highway Department of Oregon on State Highway 86 and the Idaho State Highway Department on State Highway 71 into the Hells Canyon area show that 126,000 vehicles made the trip.

Preservation of the area in its present state will mean that the opportunity to visit and view the magnificent vista of the Hells Canyon and Middle Snake reach will be available only to a select few, but development will make it accessible for thousands more.

3. NAVIGATION REQUIREMENTS

The FPC license for Idaho Power Co.'s projects provides for a minimum flow below Hells Canyon Dam of 5,000 cubic feet per second at all times and for 13,000 cubic feet per second during summer months at Lime Point, which is just above the mouth of the Grande Ronde River—below the Salmon River.

Low flows in the Salmon River during this period approximate 5,000 cubic feet per second, requiring a release of about 8,000 cubic feet per second at Hells Canyon during the summer and at least 5,000 at other times.

It has been suggested by recreational boating interests that the minimum Hells Canyon release be increased to 10,000 cubic feet per second. This increase would conflict with power-peaking operations at Hells Canyon and commit some undetermined amount of additional Snake River water to navigation uses. Any additional commitment of water downstream for riverboat navigation will adversely affect the opportunity for upstream development.

4. WATER QUALITY REQUIREMENTS

The Department of the Interior Middle Snake reconnaissance study clearly pointed out the opportunity for enhancement of downstream water quality by better regulation of the Middle Snake River. A thermal block at the mouth of the Snake River as it enters the Columbia has caused delays in fish runs and possible mortality to the runs in times past.

In addition to the thermal problem, there is the specter of the oxygen depletion problem which may arise in the reservoirs below Lewiston once slack river navigation is made possible by dams now under construction. In addition to this, Upper Snake River development in southwest Idaho will likely have some negative impact on water quality.

Because of these considerations the board a year ago requested the Corps of Engineers to look at Dworshak Dam operations again to see if multilevel outlets would not be justified to help improve water quality control in the Clearwater and downstream from Lewiston.

As a result of the board's action, the corps has agreed to install these multilevel outlets, which gives greater flexibility of operation. Without this flexibility at Dworshak, the only remaining possibility for regulation of riverflows for downstream water quality control would be on the Snake River, since the middle fork of the Clearwater with the Selway and Lochsa tributaries is in a wild rivers status and the Salmon River is under study.

Even with Dworshak storage, there is no surface storage elsewhere on the entire Snake River system outside of the Middle Snake except for Garden Valley storage in southwest Idaho and Lynn Crandall in the Upper Snake. Without development of the Middle Snake, our options for upstream development are significantly limited.

As we look to the future we believe that cold, high-quality water from the Salmon River will likely have to be introduced via tunnel diversion to the Middle Snake to allow upstream development to take place and still satisfy downstream water quality requirements. But because of the runoff pattern of the Salmon River, storage must be provided on the Middle Snake to be able to store spring runoff and make it available in the fall when it is needed for water quality control.

5. WILD RIVERS

The Senate wild rivers hearings, prior to the passage of the Wild and Scenic Rivers Act, clearly demonstrated, and there was unanimous agreement, that the Middle Snake reach should be developed in the interest of multipurpose development.

The board supported this position and the dedication of the middle fork of the Salmon and the middle fork of the Clearwater and Selway and Lochsa tributaries in the wild and scenic rivers system.

It also did not object to the inclusion of the Salmon River, the Priest, the Moyie, the St. Joe, and the Bruneau Rivers in the study section of the bill. Based on this earlier understanding, the board has felt that Middle Snake development should proceed and it should not be set aside as a wild river.

We believe that the movement by preservationists to set aside the Middle Snake region as a wild river is not in the best interest of the State of Idaho. We would point out that the national wild and scenic rivers system already include 290 miles of Idaho rivers out of the total of 545 miles in the Nation.

In addition, roughly 500 miles of Idaho rivers are in the study section of the bill, which raises the reasonable question of where the point of diminishing returns is for Idaho in its contribution to the system.

If another 100 miles is added to the wild and scenic rivers system from Asotin to Hells Canyon Dam, one wonders if the economic benefits foregone are not too great for a relatively poor State.

Even if improved road access to the Middle Snake is provided, there are few opportunities for great numbers of people to enjoy the river and the bank areas. In fact, the wild rivers concept, far from contributing to recreational opportunity, could severely limit it.

For example, the Forest Service is now considering ways to limit use of the middle fork of the Salmon River because only a few thousand people can use the river and still maintain it in its wild state.

A major reservoir in the Middle Snake area would provide access for great numbers of citizens of the State and Nation who would be unable to enjoy this beautiful area otherwise.

Moreover, a wild rivers designation could act as a deterrent to future upstream development since there could be water quality and minimum flow requirements that could not be met except with additional storage. The only remaining major storage site in southwest Idaho is the Garden Valley Dam. This storage is dedicated to irrigation development and power generation.

If it is necessary to dedicate Garden Valley storage of downstream water quality control and to maintain minimum flows for riverboat navigation, the economic potential of southwest Idaho will be severely endangered.

6. PUMPBACK FOR IRRIGATION

Middle Snake development can be compatible with the introduction of Salmon River water to the Snake for eventual pumpback for irrigation when it becomes economically feasible and necessary.

Our recent agricultural water needs and water inventories studies show that this will not likely be required until sometime beyond 2020, or the time that the license period is up for a Middle Snake project. The economics of pumpback would also have to be demonstrated at that time.

7. SALMON RUNS

The committee should recognize that the salmon runs up the Middle Snake are being transferred to the Salmon River drainage by reason of the developments already on the Middle Snake. There is a theoretical possibility of additional danger to the salmon runs on the Lower Snake and Salmon by the use of the High Mountain Sheep-China Gardens complex.

It is for this reason, among others, that the water resource board is on record opposing High Mountain Sheep.

The Appaloosa-Low Mountain Sheep complex would be substantially above the mouth of the Salmon and above the mouth of the Imnaha and would not interfere with the salmon runs, nor would the Pleasant Valley-Mountain Sheep combination.

Thank you for the opportunity to present the board's views before the committee.

Senator ANDERSON. Senator Church.

Senator CHURCH. Dr. Lee, I take it from your testimony that the board opposes the moratorium bill.

Mr. LEE. The board has not had sufficient time to really take a position on the moratorium bill. We meet on February 28 in Boise and will at that time take an official position.

For this reason, with opportunity to have hearings, we ask that the record be extended.

Senator CHURCH. You have spoken in favor of a hydroelectric dam on the Snake. That is clearly inconsistent with the purpose of the moratorium. Therefore, one would have to conclude that the position of the board is adverse to the bill.

Mr. LEE. Senator Church, not necessarily. If the moratorium bill would mean that at the end of the moratorium Middle Snake development could proceed, this could be compatible with the board's feeling.

If the moratorium bill would result in a wild river, the board feels very strongly that this would injure the State of Idaho.

Senator CHURCH. You are aware of the provisions of the bill. It would not attempt to prejudge the final use of the Middle Snake. It simply establishes a 10-year period in which we can collect all the data and make certain that the final choice is in the best public interest.

But your testimony endorses the construction of a hydroelectric dam in the Middle Snake. I should think that this is inconsistent with a moratorium which would prohibit the construction of such a dam for 10 years. Isn't that true?

Mr. LEE. Yes, sir; I would say in general that is true. I would point out the fact that the board has not expressly directed its attention to the provisions of S. 940 and officially done that, and add also, Senator, that the board's position is predicated upon receiving substantial economic benefits for the State.

Those have not yet been nailed down. We expect they will very shortly. If that is the case, then the board would be in favor of development.

Senator CHURCH. The board has authorized your statement.

Mr. LEE. Yes.

Senator CHURCH. I think it follows, then, that given a portion of the revenues from the proposed dam, the board would favor its construction?

Mr. LEE. I would judge that that would be the situation.

Senator CHURCH. Does this represent a change in position on the part of the board?

Mr. LEE. No, sir. The board consistently has taken the position that I outlined earlier, that multipurpose hydroelectric development in the Middle Snake is in the interest of the State if the State should receive substantial benefits.

Senator CHURCH. You can best speak for the position of the board, since you are its executive secretary. In meetings I have had with the board, I carried away the impression that it did not oppose the moratorium, but that if the Federal Power Commission were to license a dam, then the board wanted to make certain that Idaho would participate as fully as possible in whatever financial benefit the dam would bring.

Perhaps I misunderstood the board's position, but that was the impression conveyed to me.

So your testimony comes as something of a surprise, because it does in fact constitute an endorsement of the efforts being made by the utilities to secure a license to proceed with the construction of the dam.

And I might say it comes at the 11th hour.

May I ask this question: Does your testimony represent the position of the Samuelson administration?

Mr. LEE. I could not say that, sir, no, because our board is a separate constitutional board. The position of the Governor has been consistent with that of the board heretofore in trying to seek economic benefits.

The other State agencies, I am sure during the hearing, if the hearing is left open, will make statements and there will be a statement from the Governor.

Senator CHURCH. Was your testimony submitted to the Governor before you came here?

Mr. LEE. There have been some conversations with the Governor and the Governor's staff with respect to the statement.

I cannot say, however, that the Governor supports everything that the board has said with respect to Middle Snake development. I would rather have the Governor make that statement.

Senator ANDERSON. The chairman has received a statement from George H. Binning, president of the Southwestern Idaho Development Association. We will insert it in the record at this point.

(The document referred to follows:)

SOUTHWESTERN IDAHO DEVELOPMENT ASSOCIATION,
Boise, Idaho, February 11, 1970.

Hon. CLINTON P. ANDERSON,
U.S. Senate, Chairman, Water and Power Resources Subcommittee, New Senate Office Building, Washington, D.C.

DEAR SENATOR ANDERSON: At the request of Senator Len Jordan, the Southwestern Idaho Development Association is hereby submitting its written resolution on S. 940, the Middle Snake River ten year moratorium bill.

Will you please enter this resolution into the records at the hearing to be held by the Water and Power Resources Subcommittee on Monday, February 16 at 10:00 a.m.

Very truly yours,

GEORGE H. BINNING,
President.

RESOLUTION

Whereas the Southwestern Idaho Development Association has put together a project encompassing extensive areas in southwestern Idaho, tributary to the Snake River and has received unanimous support of the various areas involved including Payette, Weiser, Mountain Home, Bruneau and others; and

Whereas feasibility studies have been completed on desirable portions of this area and other studies are progressing favorably; and

Whereas bills have been drawn by Idaho's Congressional delegation (Southwest Idaho Water Project) with bi-partisan support but are being held up because of shortage of funds on a national level; and

Whereas water proceeding down the lower Snake River is water largely originating in Idaho from which Idaho should benefit; and

Whereas power jointly developed at these sites could provide some of the funds necessary for the building of portions or all of the Southwest Idaho Water Project with tremendous economic benefit to this area and to the State: Now therefore, the Board of Directors of the Southwestern Idaho Development Association upon resolution duly adopted at the annual meeting are hereby placed on record as favoring full multiple use of the "Middle Snake River," not restricting it to a "free-flowing or wild river" and not confining its use to a park only; that full multiple use will include power development revenues from which the State of Idaho, and in particular the Southwest Idaho Water Project, should participate in, thereby making possible the building of all or portions of the Southwest Project now in spite of scarcity of Federal funds, this while greatly increasing recreational availability and resources. This multiple use development with proper Idaho participation could well proceed without delay.

Senator ANDERSON. Are you familiar with that statement?

Mr. LEE. No, not necessarily, Mr. Chairman.

Senator CHURCH. Dr. Lee, in your testimony you say that the hydroelectric development of the Middle Snake constitutes the optimum use of this resource.

How do you know that?

Mr. LEE. This is a matter of judgment on the part of the board. These issues like this dealing with preservation or multiple us ultimately result in a matter of judgment based on available facts, consideration of these.

Our water resource board is the body in our State to make these judgments. In this judgment they think the optimum development of the stretch is in the interest of the State.

Senator CHURCH. The arguments you put forth to support that judgment are contained in your statement. The evaluation to be given the judgment is, of course, dependent upon the validity of the arguments.

As I have listened to your statement, you seem to lay emphasis upon two arguments. One has to do with the future power needs of the State and the contribution that a dam in the Middle Snake River would make in adding to the power supply.

Do you know how much of the power that will be generated by this dam will be sold in Idaho?

Mr. LEE. Not exactly.

Senator CHURCH. Has the board made a study to determine what contribution this dam will make to our power supply in Idaho?

Mr. LEE. If the current agreement we are working on should be consummated it would mean that at least 10 percent of the power would be.

Senator CHURCH. And 90 percent would go to the urban areas, I take it, of Oregon and Washington?

Mr. LEE. That is right, with the exception that part of the Washington Water Power Co.'s system serving northern Idaho would also receive the benefit of this development.

Senator CHURCH. So, at best, only a small share of the power would come to Idaho?

Mr. LEE. Yes, sir.

Senator CHURCH. Now your second argument which has to do with the contribution that a dam would make to taxes.

Do you think that tax revenues are a sufficient basis for reaching a judgment which has to do with so important a resource as the Hells Canyon stretch of the Middle Snake?

Mr. LEE. Not taxes alone, sir. The board, as I tried to point out in the statement, certainly is impressed by the amount of taxes that would be paid, $2½ million a year to a State, and that is about 10 percent of the budget—I am sorry, our annual budget is around $200 million, so it would be about 1 percent. Still that is a significant contribution in one fell swoop.

In addition to that, there is a possibility if this agreement is consummated that with the 10 percent of the power being available for utilization in Idaho there would also be another $1½ million available through board participation in making that 10 percent come to the State, and with the possibility of that the board would finance the structure, that is the nonpower facilities, an additional $1½ million or more would be available to the State.

Now this means that upward of possibly $5 million per year would be available to the State of Idaho.

Senator CHURCH. Have you any assurance that the State participation in such a project would have the approval of the Federal Power Commission?

Mr. LEE. We do not have that assurance. We have not yet consummated it. We expect in the next 2 weeks we will be able to make contacts with the Federal Power Commission and have legislative hearings in our own State so that the judgment of the representatives of the people of Idaho could be made on this important issue.

Senator CHURCH. What part of the tax revenues that you expect the dam to produce would be paid to the State government, and what part would go to the counties?

Mr. LEE. The estimated taxes to the local counties would be about $1 million. About $1½ million would be paid to the State.

Senator CHURCH. The additional $1½ million that you mentioned would be paid directly to the State water board?

Mr. LEE. This would be up to the legislature pursuant to State law.

Senator CHURCH. You see this as a source of substantial revenue, however, for the water board, do you not?

Mr. LEE. Yes, and then through the board for the benefit of the people of Idaho.

Senator CHURCH. What has the State legislature seen fit to appropriate to the water board to date? What is the size of your annual appropriation so that we can get some comparison between that and what you would anticipate receiving from the dam?

Mr. LEE. The appropriation at the last session, as I recall, was somewhere in the neighborhood of $700,000 for the biennium. The previous biennium was somewhat larger because of the funding of these studies.

At the last session they appropriated $500,000 for a water resource board revolving fund and are giving consideration now to augmenting that fund.

The problem in augmenting it is the lack of revenues.

Senator CHURCH. Would it be fair to say, if the dam were built, that you would anticipate the board would get double the money it now gets to operate with?

Mr. LEE. The board, and I think the State, would likely feel that this $1½ million initially could go for water resource board development. That could include multipurpose development, recreation, irrigation, water quality control, for whatever purposes.

Senator CHURCH. In looking for sources of additional revenue to support the board, aren't there alternative possibilities?

I am thinking of the Southwest Idaho Water Development Project, of the recommendations that have been made by the Idaho Power Co. which would furnish the board, should they be approved, with additional revenue.

In other words, the board is not really tied to a development in the Middle Snake for supplementary revenue, isn't that true?

Mr. LEE. That is true, sir. However, outside of that particular development the potential southwest Idaho joint venture is the only one remaining that has been identified.

Senator CHURCH. So far?

Mr. LEE. If I might add, too, the board's interest is not solely an economic one as I tried to point out in the statement. I could repeat some of those.

Senator CHURCH. You make several references in your statement to recreational uses and couple those references with assertions that such uses limit economic development.

I find that hard to follow in view of the fact that the recreational and tourist industry has become the fastest growing industry in the State and, therefore, has become a great money earner for the people of Idaho.

Do you not regard that kind of dollar comparable to the kind of dollar that comes from electricity and industry?

Mr. LEE. No, sir.

Senator CHURCH. Is there any lesser value to that kind of dollar?

Mr. LEE. There is no lesser value to that kind of dollar. I believe the statement that I made has been misinterpreted. Rather than talking about this area not having great recreation potential, everyone recognizes that it does. But that preservation severely limits the opportunity for recreational development.

For example, I would point out to you that the Forest Service, in publishing its rules and regulations for administering the wild rivers in the Middle Fork of the Salmon, has suggested that they are going to have to limit in some way access to the wild river because the great numbers of people that have become aware of this now and seek to use it will destroy it unless there is some limitation.

If a wild river is set apart in a similar fashion on the Middle Snake, the ability of that river to absorb very many persons is limited.

It certainly will be greater than the Middle Fork of the Salmon. But there is really a serious question as to how much recreational opportunity any additional wild rivers gives to people in the State of Idaho or the Nation, because they are fragile, they can only absorb a limited number of people.

If you have development in the Middle Snake, far more people will be able to view that magestic area. It is overpowering.

Senator CHURCH. Isn't that a value judgment?

Mr. LEE. I think the record demonstrates that the experience on the Hells Canyon development has opened it up and far more people are able to come into the Hells Canyon area from the upper reaches than would ever have been possible before. And is now possible coming up from Lewiston or from Pittsburg Landing into that area.

It is a question of the quality of the environment.

Senator HATFIELD. Will you yield at this point?

Senator CHURCH. I will yield.

Senator HATFIELD. I have asked the Senator to yield at this point because I think there are two things that might be very helpful to this committee involving the very point that the Senator brings up.

That is, I have before me reports from the Baker newspaper, Baker Record Courier, Baker, Oreg., and the Enterprise newspaper in Oregon which indicate there have been two recent surveys made just on the matter of where are the popular areas now that are being utilized for recreation: One is made by the National Forest Service.

I would ask the chairman if it would be appropriate to ask the Forest Service for this report for inclusion in the record, and also from the Oregon Game Commission.

(The information referred to follows:)

DEPARTMENT OF AGRICULTURE,
FOREST SERVICE,
Washington, D.C., March 10, 1970.

Hon. HENRY M. JACKSON,
Chairman, Committee on Interior and Insular Affairs,
U.S. Senate.

DEAR MR. CHAIRMAN: During the recent hearings by the Subcommittee on Water and Power Resources on S. 940, Senator Hatfield asked us to provide information relating to recreation use along the Middle Snake River. We are pleased to give you the following information in response to his request.

The Forest Service recently cooperated with the Oregon State Game Commission and the Idaho Fish and Game Commission in estimating use of the free-flowing Snake River, between Hells Canyon Dam and the Oregon-Washington line. Based on information obtained as a result of this study, we estimate that 1969 use of this segment of the river was approximately 69,000 visitor days.

We understand that a hand-corrected draft of the Forest Service-Oregon-Idaho Cooperative study has been sent to your committee by Mr. William E. Pitney of the Oregon State Game Commission.

Enclosed is a summary of observations on the Brownlee, Oxbow, and Hells Canyon reservoirs on the Snake River made by Mr. Wade Hall of the Wallowa-Whitman National Forest. Unfortunately, these observations are not in the nature of a controlled sampling and do not form a basis for a direct comparison with use of the river below the dams.

Sincerely,

M. M. NELSON, *Deputy Chief.*

OBSERVATIONS OF RECREATIONAL USE IN THE SNAKE RIVER AREA

Following is a summary of the use observed on Idaho Power Company's Brownlee, Oxbow, and Hells Canyon pools. Observations were made by Mr. Wade Hall, Wallowa-Whitman National Forest, during a number of trips through the area. Some variance in itinerary creates a different number of times observed. Observations were taken on one or more of the following dates; July 26, 1968; August 27, 1968; September 2, 1968; May 6, 1969; July 23, 1969; September 23, 1969; October 18, 1969; October 30, 1969; November 29, 1969; January 18 and 19, 1970; February 22, 25, and 26, 1970.

[1st number is number of times observed; second shows total number of units observed, i.e., 11/30 means on 11 occasions a total of 30 camper units]

Site	Trailer or camper units	Tent camps	Cars with boat trailer	Bank fisherman	Boats docked	Boats in use
Brownlee Pool	11/30	1/2		10/24	9/8	9/14
Farewell Bend	4/7					
Idaho Camp	2/4					
Richland Marina	8/19		8/2	8/2	9/4	10/5
Oxbow Pool	8/40	1/2		9/79	8/8	8/7
McCormick Park	10/71	10/1				
Hells Canyon Pool	10/18	2/3		7/29	5/2	7/10
Copperfield Park	8/51	8/1		8/3		8/1
Hells Canyon Park	3/6					
Woodhead Park	2/5					
Free-flowing river, below HC Dam	8/84			7/145	2/2	5/11

The La Grande office of the Oregon Highways Parks Division said use figures for Farewell Bend showed 162,520 days use for the period July 1, 1967, to June 30, 1968, included 9,545 camper nights. From July 1, 1968, thru June 30, 1969, use was 104,356 visitor days and included 9,139 camper nights. They attribute part of the decline to installation of traffic counters and part to re-routing of 80–N which now by-passes the park.

With due respect to the witness, both these reports indicate that the more popular areas for boaters in the case of the Forest Service reports of Idaho and Oregon compiled by the Oregon and Idaho offices of the National Forest Service, and by the Oregon State Commission relating to anglers, that the more popular area is in the free-flowing part of the river rather than in the pools behind the dams.

In other words, I would feel that from the summary of these two reports it would tend to refute Mr. Lee's contention that the greater recreational interest and acivity is found in the pool areas behind the Idaho Power Co. dam. But rather, in these two surveys, it says that the greater visitor days on the part of boater and the number of anglers will be found in the free-flowing part of the river.

I think those two reports might be very helpful to the committee.

Senator ANDERSON. Without objection, those two reports will be included in the record.

Senator CHURCH. I have no further questions.

Senator ANDERSON. When the reports are received our staff will study them a bit and they will decide if they will be admitted in full or they can be condensed.

Senator JORDAN. May I make a request, Mr. Chairman. Coincident with the filing of these reports, may the staff also supply reports of the vistior-days at Lake Mead and visitor-days at the complex of the Shasta Trinity Reservoirs in California?

Senator ANDERSON. Without objection, that will be done.

(The report referred to follows:)

According to the statistical appendix to the report of the Commissioner of Reclamation for 1968, during 1967 a total of 4,130,681 visitor-days of recreational use were recorded at Hoover Dam and the Lake Mead National Recreation Area.

A total of 2,796,091 visitor-days were recorded at the Whiskeytown-Shasta-Trinity National Recreation Area.

Senator JORDAN. I want to pursue a line of questioning a little different here, Mr. Lee, because I don't entirely agree with you on water supply in the Snake River Basin.

I think you have said that the average flow of water past the Weiser gage is around 11 million acre-feet a year. This is average. Obviously, we can't irrigate land on average flows any more than we can build bridges for the average load. We have to be concerned about the low or critical water year.

You said also there was presently under cultivation upstream, about 3½ million acres of land. You also estimate that the consumptive use of water for irrigation is about 1½ acre-feet per acre.

Mr. LEE. That is a very conservative figure.

Senator JORDAN. Yes. I have heard estimates up to 2 acre-feet a year for consumptive use. Be that as it may, if we assume using your figures of 11 million acre-feet of water flowing past Weiser gage—3½ million acres irrigated upstream at 1½ acre-feet per acre—we would have an average yield of the Snake River watershed of around 16.2 million acre-feet a year.

Is that approximately right?

Mr. LEE. Yes.

Senator JORDAN. I lived on the river in the thirties when the flows for a period of years were very meager and uncertain, when the flows were for a period of time, about 60 percent of average.

Does that bear out the studies you have made?

Mr. LEE. Yes. The flow of the Snake River during the thirties was significantly reduced.

Senator JORDAN. What I am leading up to is, let us look at the water supply situation. Suppose, then with an average annual yield of 16.2 million acre-feet from the whole river watershed we run into a critical year, a 60-percent year, or even a series of critical years. Because our records reach back only so relatively few years in number, we don't know whether we have experienced the most critical of water years at all.

I know when I was working on the St. Lawrence Seaway power project, we had records going back a hundred years. We calculated river flows and the height of dams was predicated on a certain flow of the river, based upon these past records.

Then we found a series of lower flows beyond any that had occurred before on the St. Lawrence River.

Let us get back to the situation of a 60-percent year on an average watershed yield of 16.2 million acre-feet on the Snake River. Sixty percent would give us about 9.7 million acre-feet of the total in a critical water year, in a 60-percent year, would it not?

Mr. LEE. Yes, following that calculation, yes, sir.

Senator JORDAN. Now we already have a demand upstream for 3½ million acres which must be met at 1½ acre-feet to the acre for a total 5.2 million acre-feet.

According to my figures, we have a freeboard not of 7 million acre-feet, as you indicate in your statement, but in a critical water year we would have a freeboard past Weiser of 4.5 million acre-feet.

Is that approximately right?

Mr. LEE. According to your calculations, sir, I can qualify that a little later, but I would like to hear the rest of your question.

Senator JORDAN. Will you tell the committee, if you will please, what are the requirements in the Federal Power Commission licensing of

Idaho Power Co. projects for the release of water to maintain a live river? How much is required to be released as a minimum?

Mr. LEE. 5,000 cubic feet per second.

Senator JORDAN. That is my recollection.

Translate that into acre-feet. How many acre-feet would that exhaust from the river flow?

Mr. LEE. It would be about 3¼ million acre-feet per year.

Senator JORDAN. That is right. That is the way I compute it, too. Take that 3¼ million acre-feet from 4½ of the freeboard, and I just don't agree that we have enough water in the Snake River watershed to see us through the year 2020 at the present rate of development.

Would you agree if you accept my premise of a 60-percent flow?

Mr. LEE. Senator, there is nothing wrong with the calculation that you have made. However, I would say that it is a little more complicated than what you have laid out for these reasons: The calculation of the 7 million minimum flow under 1970 conditions is based on operation studies of current reservoirs reproducing the hydrology of the system and finding out what is the flow, current development and finding out what the flow would actually be.

After it comes from the reservoirs you have return flow coming back to the rivers and so forth. This is the judgment of our staff working with the staff of the Pacific Northwest River Basin Commission and all the Federal water agencies in the Northwest.

These figures will be published as part of the Columbia Pacific study which is now nearing completion.

Senator JORDAN. Even the experts may be wrong because the old 308 report put together by the Corps of Engineers in the late 1920's and reviewed and revised and reviewed again said that the ultimate for additional irregation development in the Snake River plains area was about 1½ million acres.

Your Board comes along now and says 7 or 8 million acres additional are engineeringly feasible to be irrigated.

What I am saying here is that even the experts can be wrong. Tell me how much storage for irrigation purposes do we presently have in the headwaters of the Snake River Basin.

Mr. LEE. I believe it approximates something like 3 million acre-feet.

Senator JORDAN. I think it is a little more than that but it is not altogether usable for irrigation and storage. Compare that, if you will, with the storage on the Colorado River which we call a reasonably fully plumbed system.

Mr. LEE. I don't recall the exact figures but I think it is something in excess of the flow of the Colorado and probably 1½ times.

Senator JORDAN. It is four times the flow of the Colorado River. If we have a completely plumbed river we can calculate that the years of abundant supply will carry us over to the years of a meager supply, and this is a fully plumbed river as compared with the Snake River where you say there is 3 to 4 million acre-feet of headwater storage on an average annual runoff of 16 million acre-feet.

We have 25 percent headwater storage on the Snake River compared with 400 percent on the Colorado. We cannot supply water on averages. We have to do it on critical year estimates. These are the things that bother me.

Mr. LEE. Senator, I fully agree with you that you cannot plan on averages. You have to plan on a critical year with assumed shortage that will occur over a period of years.

Senator JORDAN. Just one more question, because time is running out here. As you told Senator Church, about 90 percent of the power is expected to be used downstream.

Do you anticipate in case of a development in this stretch of the river that sometime, and I am going to say inevitably, inevitably there will be a conflict between the people who want to squeeze every bit of water out of the drainage to go through the turbines to turn the generators and the people who want to divert the water upstream for reclamation?

Mr. LEE. Yes, sir. Unless there is some limitation placed in the FPC license that would make it available for future development even after project payout, there would be a conflict.

(Subsequent to the hearing, Senator Jordan inserted in the record his supplemental statement on possible conflict of interest. The complete statement follows:)

SUPPLEMENTAL STATEMENT OF SENATOR LEN B. JORDAN RELATIVE TO POSSIBLE FUTURE CONFLICTS OF INTEREST BETWEEN POWER-USERS AND WATER-USERS OF THE SNAKE RIVER

During the hearings, I questioned Dr. Lee on the possibilities of a future conflict of interest between the users of Snake River water for power generation and for irrigation and municipal and industrial purposes. The following excerpted testimony from the House hearings in 1955 on the proposed Hells Canyon Dam is introduced at this time as pertinent to this discussion:

"1). STATEMENT OF R. P. PARRY, TWIN FALLS, IDAHO, COUNSEL FOR IDAHO POWER

"The point of issue of the irrigators is this: There is no disagreement between any of the engineers, so far as I know, that during 8 months of the year whatever water flows in Snake River below Milner Dam, whether it is return flow that comes from upstream irrigation, whether it is contributions from the tributaries, or whatever its source, must be allowed to flow through whatever powerplant is built at that point, whether it is the high dam or 3 dams, must be allowed to go on down through the lower Snake dams, if and when they are built; must in any event be allowed to flow down through the great dams on the lower Columbia, because it is just obviously economically silly during those 8 months to stop any water and store it up in the Hells Canyon when it could be used for power producion during the short periods in the lower Columbia.

"So there is no argument, as I understand it, between any engineers. But the only time water would be stored in the Hells Canyon area is during the 4 months of the so-called storage period—April 15 to August 15—on an average.

"There has been and there will be conflicts as to how much space can be annually filled during those 4 months.

"Above the dam is this great irrigated empire, one of the greatest in the world, which presently consists of about 2¾ million acres of irrigated land.

"The ones who are most vitally interested are not the ones such as Mrs. Steel and others on the tributaries, but those having water rights on the upper Snake River and who are interested in the large irrigation storage reservoirs at American Falls Reservoir, which only filled 50 percent in the thirties, in Jackson Lake, which many times has not filled at all, or in the other irrigation reservoirs, who foresee that if there is this investment in Hells Canyon Dam and its associated plants and transmission lines, which run into some astronomical figures, from $1.2 billion to $1.5 billion, that if there is that great federal investment down there, obviously, since there are no irrigation features concerned, built under the commerce clause of the Constitution, and we run into another cycle of dry years such as we have had in the past, there will be the conflict of interest of the federal dam on the one hand, which obviously cannot be filled, and the need for both the direct flow irrigation diversion and the filling of the irrigation reservoirs up-

stream. And that conflict has gotten the irrigators into this controversy and, if I may be pardoned a personal reference, is how I got into it.

"So I believe that I can factually state that the issue is: Is it justifiable to construct in the Hells Canyon reach more than the 1 million acre-feet of Storage, which can be filled every year and which the private company is desirous of building, and then the possibility—and it is a very complex legal question which I would like to later discuss in more detail—of conflict between the irrigation rights upstream on the main stem of the Snake River and this federal dam if it were built.

"I would appreciate it if I could for a few moments summarize quite briefly some of the high points in the matter as we see it.

"As was mentioned yesterday, my legal experience in the past has been chiefly devoted to representing canal companies and irrigation districts in what we call Central Snake River Basin, representing the American Falls Reservoir District, some 500,000 acres; the Twin Falls Canal Co. of about 200,000 acres; the North Side Canal Co. about 160,000; and various other ones.

"I likewise have been special counsel for the Idaho Power Co. in the Federal Power Commission proceedings which have been referred to.

"For some several years I have likewise been chairman of he Idaho Compact Commission charged with the duty of representing that State in the negotiations of a Columbia River compact. I have been chairman of the legal committee of that interstate compact group and have served on that to the extent that I have been able to find time to do so while not compelled to be in Washington on various hearings.

"Collectively those whom I represent—and I am of course in no way concealing the fact that I am appearing here as attorney for the Idaho Power Co.—but collectively we object to the construction of the high dam and consequently the passage of the pending legislation for a variety of reasons.

"As has been mentioned by Mr. Riter and other witnesses, the amount of water that can be stored in the high dam without conflict with the production of power is only that amount of water which passes the point in question during the so-called storage period, which is about 4 months in the year, and any statements as to the amount of water flowing past Hells Canyon Dam in the entire year are entirely misleading.

"There is attached to my statement a chart and an enlargement of it has now been placed on the easel, showing that in a typical period from the years 1929 to 1937, inclusive, the amount of storable waters as shown on the chart, and likewise in a table which is attached to my testimony, and in none of the years of that period would there be within a million acre-feet of enough water to fill the Hells Canyon Dam if this usable storage were evacuated.

"That is the concrete situation that disturbs the irrigation users, and it disturbs the Idaho Compact Commission, because, regardless of what is written in this bill in the way of protective language, we know that in any future period when there will be a cycle of years similar to that which existed historically in the past, there will be a conflict between the demand for irrigation water in this upper area that I described yesterday and the demand for this large Hells Canyon installation, which, with the dam itself, its accompanying transmission lines, these various downstream installations we have talked about—regardless of how much we argue about what the law is, there will be an actual physical conflict. It will not be possible to fill all the usable space of the dam during the storage period and at the same time supply upstream irrigation rights.

"Speaking for a moment from my position as chairman of the Idaho Compact Commission, we have endeavored to get a compact which would be an agreement among the States, as you gentlemen know which would protect Idaho on its upstream consumptive uses. And we have had considerable argument with the downstream States, and finally we compromised with them and said that we would agree that our protection should be limited to those rights which would be established to and through the year 2000. The States of Oregon and Washington have refused to enter into such a compact, although it was ratified by the legislatures of Idaho, Wyoming, and Utah.

"The statement was made by a Senator from Washington over in the Senate that the compact would never be ratified.

"That points up the reason why the irrigators of Idaho have a very real fear, and we believe the law supports us, that since this dam in Hells Canyon reach has no reclamation connected with it at all that, if it is justifiable, it is justifiable at all under the commerce clause, than any protective language in this legislation will be, of course, subject to any subsequent action by this or any

other Congress because, obviously, you cannot amend the Federal Constitution by an act of Congress. And that is the real conflict in rights which seriously disturbs those who are interested in irrigation in Idaho.

"Throughout this hearing engineers for both sides have agreed that this is the only time water is available for storage in any project in the Hells Canyon reach of the river. The test of a storage dam is the amount of water available in past historical short water years. On the Snake River the years 1929–37 present a typical dry cycle. Attached as chart I is a diagram showing in the solid black area the time and amount of water that may be stored in the period from 1929–37, assuming irrigation upstream at only 367,000 acres over the 1948 average, which we estimate will occur by 1962. The tabulation shows the water available for storage in the 20-year period from 1929 to 1948 for 3 different levels of irrigation development.

"It will be noted that during this entire period there was not available enough water to come within a million acre-feet of filling—and that in many years the supply was very short.

"Another method of portraying the water shortages that would prevail with respect to the dam with storage capacity of 3,800,000 acre-feet is to take the storable flows available during the period 1929–48. Attached table A shows the storable flows for this period. The large dam could have been filled only four times in this period, which is agreed to be typical of the streamflow.

"As a result of operating the high dam for power production in conformance with the present power requirements, there will be wide variations between the at-site generation in the storage release and storage refill seasons. Chart II attached shows the monthly variations and also the times when and the amount of power that will need to be transmitted into Idaho to supply the 500,000 kilowatts of prime power allocated to Idaho by the pending legislation. The Hells Canyon deficiency in the storage period will need to be supplied from the lower Columbia River plants and as noted Mr. Houston, surplus from the lower Columbia River plants will be available only a few years (probably 3) after the high dam might be completed. A comparison of chart I with chart II shows the effect of storage on the at-site power production.

"In connection with the proposed method of operation planned for the single dam, that is for the transmission of large amounts of power westward to the Bonneville system during 8 months of the year, and then the transmission of some 420,000 kilowatts or more back to Idaho during 4 months of the year there would, of necessity, be required a tremendous new addition to the federal transmission system. Transmission of this large block of power would be a major undertaking. It has been suggested by certain federal engineers, as we understand it, that this would take either two 230,000-volt lines or one 345,000-volt line. The latter plan has been criticized because reliance on the single line would throw the entire system out of commission in the event of any accident thereto. In any event it will create an additional project of considerable magnitude.

"In conclusion I submit that, as stated earlier, the only difference between these two projects is the additional 2,880,000 acre-feet of storage capacity in the single dam project. It seems clear that if this additional storage is desired, the proper place to provide it is in upstream storage either on the upper Snake River or its tributaries. Expenditure of federal funds to create this cyclical storage at any place in the Snake River Basin seems completely unjustified and from the power production angle it is certainly clear that the additional power provided by this additional storage, even if we include both at-site generation and the additional generation at all planned eight downstream sites, will cost more than its value. And additionally, it is very evident that the same incremental power could be furnished at modern stream plants located adjacent to the load centers at Portland and Seattle for about from one-third to one-fifth of the difference in cost between the company's 3-dam project and the single dam.

"And finally, that this pending legislation presents no realistic relief for the power consumers of southern Idaho. An actual power shortage is now there existent. It will inevitably increase from year to year. If this legislation passes, the consumers in the Idaho Power Co.'s area are going to be either condemned to a life of deficiency or the company will have to begin the immediate construction of high-cost stream plants. We will then have the anomaly of steam plants grinding out kilowatts while being located on the banks of the Snake River itself, while the waters of that great stream, with their potential hydroelectric development characteristics, flow unused to the sea.

TABLE A.—ESTIMATED WATER AVAILABLE FOR STORAGE, APR. 15 TO AUG. 15, SNAKE RIVER AT OXBOW

	1962	1977	2008
Streamflow: Irrigation developed from 1948 (acres)	367,000	725,000	1,196,000
Minimum release during storage period (cubic feet per second)	5,000	5,000	2,000
Year (acre-feet):			
1929	1,964,000	1,005,000	971,000
1930	1,576,000	796,000	674,000
1931	1,140,000	810,000	397,000
1932	2,344,000	1,687,000	1,411,000
1933	2,538,000	1,882,000	1,677,000
1934	1,143,000	646,000	507,000
1935	1,464,000	1,136,000	673,000
1936	2,791,000	1,927,000	1,848,000
1937	1,590,000	1,017,000	768,000
1938	4,464,000	3,314,000	3,393,000
1939	1,872,000	810,000	1,045,000
1940	2,247,000	1,262,000	1,481,000
1941	2,285,000	1,401,000	1,416,000
1942	3,362,000	2,386,000	2,354,000
1943	6,062,000	4,846,000	5,083,000
1944	2,465,000	1,501,000	1,493,000
1945	2,920,000	2,082,000	2,018,000
1946	4,064,000	2,753,000	3,175,000
1947	2,900,000	1,710,000	2,004,000
1948	3,839,000	3,111,000	2,912,000
Median year	2,404,000	1,594,000	1,487,000

CHART I

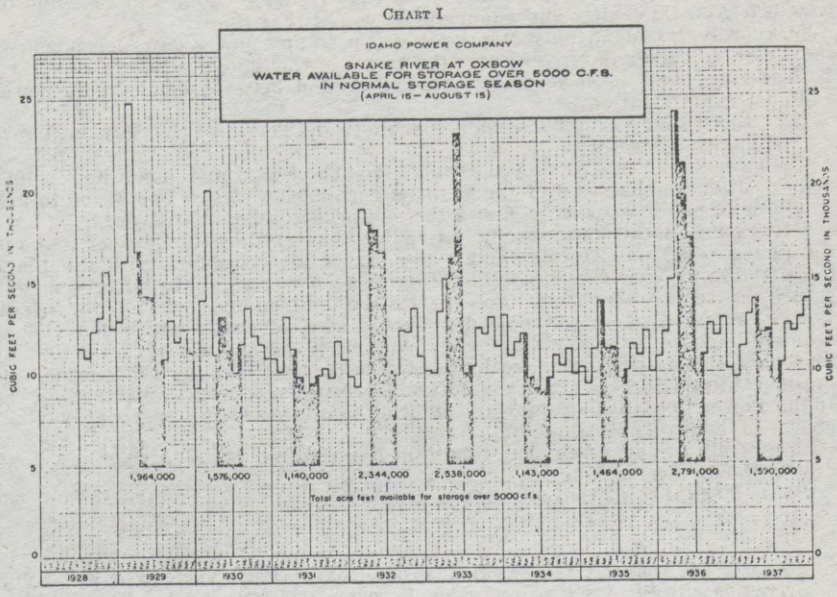
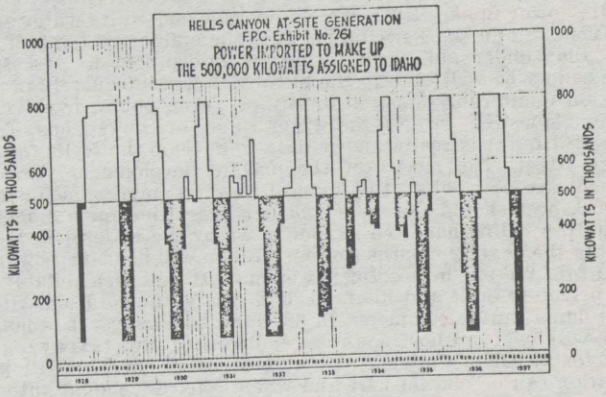


CHART II



"Mr. Parry, in the House hearings, on Hells Canyon in 1952 I believe that you appeared as representing yourself as Chairman of the Idaho membership of the Columbia River Compact Commission. Is that right? I think that is found on page 625. And this statement was made by you at that time:

" 'Accordingly, Idaho must unalterably oppose any power dam dependent on the waters of the Snake River above the mouth of the Salmon River.'

"And then the reason you gave was the conflict between downstream power and upstream irrigation.

"The three Idaho Power Co. dams are above the mouth of the Salmon River?

"Mr. PARRY. They are.

"Mrs. GREEN. Then why do you advocate the three-dam plan now when in 1952 your position as chairman of the compact commission was in opposition to any power dam, public or private, above the mouth of the Salmon River?

"Mr. PARRY. Because the specific water licenses issued by the State of Idaho to the power company subjects their water rights in accordance with the Idaho Constitution, as amended in 1921—subjects the power rights to all present and future upstream water rights. So also are the findings and order of the federal Power Commission, as recommended by the staff of that Commission and as requested by the company specifically, and with the thought in mind that by reason of the specific language in the water licenses and the FPC licenses, if granted, there will be a binding unalterable provision whereby any rights of the Idaho Power Co. will be junior and inferior to all upstream water rights either now or in the future for an unlimited time.

"Mrs. GREEN. You mean that condition has changed between 1952 and now?

"Mr. PARRY. Yes, ma'am.

"Mrs. GREEN. I think that is an interesting statement."

STATEMENT OF ALBERT CARLSEN, BLACKFOOT, IDAHO, PRESENTED TO THE SUBCOMMITTEE OF THE SENATE COMMITTEE ON INTERIOR AND INSULAR AFFAIRS AT BOISE, IDAHO, APRIL 4, 1955.

I appreciate the opportunity to make a statement in opposition to the construction of a federal dam at Hells Canyon on the Snake River in Idaho.

I am opposed to the project for the following reasons:

1. I am a citizen of southern Idaho, an area whose entire economy is based on our water supply. Every major ditch company, water users organization, and farm bureau in the area are opposed to the Federal Government building a power dam on the lower Snake River, which must depend on its water supply originating in Wyoming and southern Idaho. It is the opinion of the best legal minds in the area that under our Constitution, as interpreted by the Supreme Court, language cannot be written into the bill which will adequately protect our water rights. I am unalterably opposed to any program, public or private, which does not, without question, protect the water rights of the citizens of Idaho.

2. Private capital is ready and willing to develop the Hells Canyon stretch of the Snake River. The merits of the private development versus Government development are now before the Federal Power Commission for decision. Under no circumstances should Congress consider legislation for a single dam at Hells Canyon until a ruling has been handed down by the Federal Power Commission.

3. Within the next 12 months southern Idaho will be using power from a steam plant in Utah. We are in need of power now. It has been reliably reported that the first privately built and financed dam can be in operation within 18 months and all 3 dams can be completed in 38 months; whereas it is not at all certain Congress will ever authorize an expenditure of the taxpayer's money for a federal dam at Hells Canyon, and at best many months will pass before an authorization can be obtained. If and when Congress should authorize a dam at Hells Canyon, testimony brought out at the Federal Power Commission hearings indicates that at least 6 years will elapse before any power will be generated and at least 10 years will be required to complete the project.

4. In view of the great strides made in the field of atomic energy, it is entirely possible that dams such as Hells Canyon will be obsolete before the 10 years necessary for construction has elapsed.

5. In view of the possibility of atomic warfare, just good commonsense dictates a decentralization of our powerplants and war industries to the greatest possible degree. Certainly 3 dams to control the flow of the Snake River will be much safer than 1 dam, which if struck by an atomic bomb would destroy countless

lives and millions of dollars worth of property. In addition, the war industries dependent upon Hells Canyon power would no doubt be out of commission for years.

6. I am opposed in principle to the federal government going into any business in competition with its citizens, who necessarily must furnish the government with the taxes to carry on its legitimate functions. Thank you for allowing me to present this statement.

STATEMENT OF ALEX O. COLEMAN, ST. ANTHONY, IDAHO, DIRECTOR, IDAHO STATE RECLAMATION ASSOCIATION

Mr. Chairman and members of the committee, I am Alex O. Coleman, a farmer and stockman of St. Anthony, Idaho. My home place consists of a quarter section of land which is irrigated by the waters of the North Fork, or Henry's Fork, of the Snake River, with the supplemental water from the Island Park Reservoir of the Fremont-Madison Irrigation District. I also operate a small farm in Madison County. The water for this acreage is provided by the Teton River, a tributary of the Snake River, which for many years has presented a serious flood-control problem in the communities through which it passes.

At the present time I am a member of the Committee of Nine, which regulates and manages the distribution of water for Water District No. 36. I am a director of the Idaho State Reclamation Association, representing the upper Snake River Valley. For the past 15 years I have been a director of the Twin Groves Canal & Irrigation Co., which furnishes the larger portion of the natural-flow water for my farm. I am a member of the Idaho Commission of the Columbia Interstate Compact Commission.

I am attending this hearing as a representative of the Idaho State Reclamation Association. On the 25th and 26th of April 1955, at our annual convention which was held at Idaho Falls, Idaho, a resolution was passed unanimously in opposition to the proposed building of a federal dam in the Hells Canyon region. Some of our reasons for opposing this dam are: First, we feel that the building of such a dam is an infringement on our water rights. Second, it gives us no assurance of future upstream development. Third, it deprives the State of Idaho of the opportunity to develop her own natural resources. Fourth, it does not provide a means of flood control as its proponents claim. Fifth, the order of listing of preferential uses of water in this bill is highly objectionable to reclamationists.

Let us consider these bills—H.R. 4719, 4730, 4739, and 4740—first as they affect our States' rights:

When Idaho was admitted to the Union as a State, her constitution was accepted by the Members of Congress and Senators from the 42 States of the Union. One paragraph of this constitution in particular grants and regulates the rights of the use of water within the State. I quote:

"Water being essential to the industrial prosperity of the State, and all agricultural development throughout, the greater portion of the State depending upon its just apportionment to, and economical use by, those making a beneficial application of the same, its control shall be in the State, which, in providing for its use, shall equally guard all the various interests involved. All the waters of the State, when flowing in their natural channels, including the waters of all natural springs and lakes within the boundaries of the State"—

I should like you to pay particular attention to this clause—

"are declared to be the property of the State, whose duty it shall be to supervise their appropriation and allotment to those diverting the same therefrom for any beneficial purpose, and the right to the use of any waters of the State for useful or beneficial purposes is recognized and confirmed; and the right to the use of any of the public waters which have heretofore been or may hereafter be allotted or beneficially applied, shall not be considered as being the property right in itself, but such right shall become"—

and this is important—

"the complement of, or one of the appurtenances of, the land or other thing which, through necessity, said water is being applied; and the right to continue the use of any such water shall never be denied or prevented."

Now, these are the conditions under which Idaho was admitted as a sovereign State to the Union—

"from any cause than the failure on the part of the user thereof to pay the

ordinary charges or assessments which may be made to cover the expenses for delivery of such water."

Our second reason for opposing these bills is that they give us absolutely no assurance of future upstream development. Now, members of this committee, I am sure that no conscientious Member of Congress would consent to the expenditure of one-half to one billion dollars of the United States Treasury funds, of the taxpayers' hard-earned money, to build this dam without the assurance of adequate water to fill it. This can only be done by the filing on all of the unappropriated waters that are and may be at any future time a part of the Snake River. This fact alone would deprive Idaho of any future independent development. Agriculture would be stopped immediately.

A columbia interstate compact system has been in the process of negotiation for the past 4 years and was finally approved by the commissioners of the 7 Columbia Basin States last January. As a member of the Idaho commission I attended practically all of the meetings during these years. The Legislature of the State of Idaho approved that compact, but the States of Oregon and Washington did not.

The upstream States are contending that beneficial consumptive use should have priority over downstream nonconsumptive use. We feel that the desire of the downstream States, Oregon and Washington, to control all of the water regardless of its place of origin is the predominant factor in obstructing the the ratification of the compact as it now is framed. We, in Idaho, definitely feel that no development whatsoever of the Snake River, which is an interstate stream, should be undertaken until a compact of the Columbia River States has been ratified by the States involved and by the United States Congress.

There is the possibility, then, that the building of this high federal dam (under these bills) would do one or more of these things; It could either stop future development in agriculture; it could threaten the water rights of land now in production; or it could be built without the guaranty of adequate water for its maintenance. In any of these events the building of this dam would deprive the State of Idaho of the constitutional right to fulfill her obligations to her citizens.

Third, these bills deprive Idaho of the right to develop her own natural resources. Water is to Idaho what coal and oil are to the great States of Pennsylvania, Utah, and Wyoming. Water is to Idaho what copper is to Montana. Water is to Idaho what natural gas is to Oklahoma, New Mexico, and Texas. Water is to Idaho what offshore oil is to Louisiana, Texas, and California. Water is to Idaho what timber and fishing industries are to Washington and Oregon. We in Idaho have not interfered in the natural-resource development of our sister States. Why, then, should Idaho be deprived of her right to manage for her benefit her most valuable resource?

From the standpoint of reclamation, all hydroelectric power should be secondary to the beneficial uses of water upon the arid land. We feel sure that if the federal government develops Hells Canyon a large portion of the power will be exported to other areas and not be made available for our future development. From our own knowledge of matters of this kind, we are certain that the Control of State government is far superior to that of the federal level where local problems and development are concerned.

According to the man on the land, the ownership of water facilities should be in local interests and subject only to the satisfaction of contractual obligations. This same rule should apply to power developed incident to the impounding of water for irrigation. There has been an increasing tendency to centralize control in federal and special agencies. This is contrary to our belief in the sovereignty of State law. Reclamationists do not favor being deprived of the means of making a livelihood.

Fourth, these bills are not a means of flood control as is claimed. The inclusion of the words "flood control" is merely one vehicle by which the proponents expect to secure control of the waters of Snake River. Proponents of this legislation have made this statement regarding flood control:

"Two outstanding engineer organizations have agreed, in writing, that there are tremendous benefits to be attained through the use of the storage space behind Hells Canyon Dam for impounding some of the floodwaters that imperil downstream lives and property. My colleagues will remember 50 lives were lost and $100 million in property damage suffered in 1948, when the Columbia went on a rampage. If a flood similar to that which occurred in 1894—greatest

of record—should occur now, with a much greater development along the riverbanks, the total loss would exceed $350 million."

Proponents are employing fear tactics, for the recurrence of the high-water flows attributable to a flood of the magnitude of the 1894 flood are virtually an impossibility. Since that date, there have been many dams built on the Columbia River and its tributaries. In district 36 alone about 5,500,000 acre-feet of storage space has been constructed. Boise River has three outstanding dams which will guarantee against the recurrence of a flood on that tributary. In the Snake River Basin above Weiser, there is over 9 million acre-feet of storage, or roughly about three-fourths of the average annual flow at that point.

May I draw the attention of this committee to some of the federally constructed dams in the Columbia Basin, which presumably included flood control as a part of their functions, such as Grand Coulee and Hungry Horse. According to proponents, they evidently are of no flood-control value whatsoever.

Let me quote from another proponent:

"In 1948 the Columbia River produced a flood of proportions exceeded only once since the river measurements have been taken. The swollen waters, almost without warning, burst through the protecting embankments at the town of Vanport and inundated it in a wall of angry water. Fifty people were drowned. Damage to property exceeded $100 million."

Proponents would have you believe that all this trouble could have been eliminated if Hells Canyon Dam had been built. Such is not the case, and to justify my statements, allow me to refer you to the Department of the Interior bulletin know as Surface Water Supply of the United States, 1948 issue, part 13, Snake River Basin Geological Survey, Water Supply Paper 1123. This bulletin was prepared in cooperation with the States of Idaho, Oregon, Utah, Washington, and Wyoming and other agencies. I quote from that book the following figures regarding the second greatest flood since records were kept:

"During the 1948 flood the highest maximum discharge of Snake River at Oxbow, which is the last gaging station above the presently proposed federal Hells Canyon Dam site, was 55,100 second-feet. Now, compare these figures of the very same time with those of the Salmon River at Whitebird which maximum discharge was 103,000 second-feet; and the maximum discharge of the Clearwater River at Spalding for the same period was 177,000 second-feet."

On which river, then is the flood control needed? You be the judge.

Our fifth point of contention with the proponents of these numerous bills is the place relegated to reclamation in their listing of the purposes for which they wish to have this legislation enacted.

If the time ever comes when this issue is hard pressed and controversies are taken in the federal courts, which is the only recourse and in which our State courts cannot participate, the advocates of water for power could say "Congress gave us preferential use of the water." So, gentlemen, under these bills, there goes our water, Idaho's most valuable natural resource, down the river to build subsidized industries of the Northwest. Is it any wonder that reclamationists are concerned with these future prospects?

Irrigation development under the head of reclamation was not begun by the Federal Government for the purpose of acquiring and operating large amounts of property, or for carrying on a line of businesses as such by the government, but rather to produce food and fiber for man, and for the purpose of reclaiming the arid lands of the west.

We are concerned regarding the motive in the minds of the proponents of these bills, for they have given practically everything in their bills a preferential use ahead of reclamation. We cannot conscientiously feel that it is water for power which they seek, for if it were, there are other sites far less controversial.

There are two sites on the Clearwater River in Idaho which would present no problem whatsoever as far as reclamation is concerned. With the prospects of these proposed dams and the vast store of electric power which they could supply, and the imminent flood danger which these streams furnish to the lower Columbia, is it any wonder that we became alarmed when the big push is always made on Hells Canyon?

Knowing as we do that Snake River's contribution to flood is infinitesimal and that the aforementioned sites for power dams are available, is it not logical to believe that it is not water for power, but power over the waters of the Snake River, with its attendant control of the means of our making a livelihood, that these proponents seek?

This control of the electric power, by the control of the river systems, would result in the control of the industries of the Nation, the control of transportation, mining, and agriculture. Such a succession of events can only result in the ultimate outcome of an unconstitutional, socialistic form of government for the United States of America.

I feel at this time that it is necessary for me to draw your attention to Idaho's disposition of this Hells Canyon matter. Consecutively as this issue has been placed in the hands of the people, which is their constitutional right, it has been overwhelmingly defeated. The majorities opposing it have been enormous. After all is considered, we are the grassroots of Snake River. Snake River is our life's blood. Snake River is Idaho.

In conclusion, let me quote from a great statesman of our day, a man whom you revere as one of the great Presidents of the United States, whose thinking is world renowned and whose writings I personally admire, the late President Woodrow Wilson. I think it would be well on this day for our Senators and Congressmen to abide by his philosophy. I quote:

"The history of liberty is the history limitating of governmental power, not the increase of it."

Members of this committee, it has been a privilege for me to represent the reclamation people of Idaho before this fine group.

Mr. ASPINALL. Thank you, Mr. Coleman.

Senator JORDAN. Do you think the language you have suggested here gives adequate protection?

Mr. LEE. Yes, sir; coupled with two points: Number one, another agreement that the project would be operated to aid, not inhibit, irrigation development in the future plus the fact that after payout the project is subject to relicensing consideration by the Federal Power Commission and the whole issue of operation is then opened again to judge at that time how the facility should best be used.

Senator JORDAN. I see estimates in your own statement of installed capacity of proposed Snake River plants of 2,145,000 kilowatts for the plant at Appaloosa-Low Mountain Sheep. That kind of output must be predicated on a flow which is reasonably assured, isn't it?

Mr. LEE. Yes, sir; during the winter months. However, as time goes on, the plant would be used more and more for peaking operation and the quantity of water that you need for that kind of operation is substantially less, but during the winter, to meet that winter peak they need water.

Senator JORDAN. That is right. If I understand it, it is a product of head times volume.

Mr. LEE. That is right.

Senator JORDAN. The result is the same whether you put it all through your generators at one site, have generators strung down the river, or whether you put it through in an hour or use 24 hours to put it through.

Mr. LEE. It depends on what part of a load curve you are trying to meet with a particular structure.

Senator JORDAN. That is right. It depends on where you put this plant on the load curve on the system.

Mr. LEE. If you are meeting infrequent peaks with an operation, in fact—well, you do not need a great quantity of water. In fact, some pump storage operations run with very little water because of the return cycle operation.

Senator JORDAN. The greater the installed capacity, of course, the greater the investment in the project.

Mr. LEE. That is right.

Senator JORDAN. And the more pressure will be on to be sure there is enough water coming down to justify that additional investment.

Mr. LEE. Yes, sir.

Senator JORDAN. I am glad you helped me make the point I wanted to make. I appreciate your testimony. Thank you.

Senator CHURCH. I just want to say, Mr. Chairman, in reference to the testimony, that I personally think it is a serious error to base a decision that has to do with a great national resource so heavily upon what the tax revenues may be from it, whether those revenues flow to a particular agency such as the one the witness represents, or to the State government generally.

After all, I don't think Idaho is as poor a State as the witness has made it out to be. I think we are growing with the Nation. Idaho is solvent, the State government is solvent. There are many, many sources for tax revenues, new and growing sources.

When it comes to determining the criteria for making a decision that permanently alters a great natural resource of this kind, I think we should look at all of the factors. The broad public interest at stake extends beyond that of any given agency. We must determine what will be best for the people.

I happen to believe that one of the things that makes Idaho a particularly great State is its wilderness areas. I think the wild rivers will prove great assets to Idaho in the future, and I believe it will be a grave error to rush to judgment on the Middle Snake before we have all of the data before us, and can be certain that the decision finally taken will serve the interest of all our people.

In making that determination, I think the tax revenues should not play so large a part as the witness has given them in his testimony.

That is my personal opinion of the matter. I wanted to make it part of the record.

Mr. LEE. Senator, could I respond to that?

Senator CHURCH. Of course.

Mr. LEE. The Board, I am sure, shares in what you have just said and does not mean to imply by its support of development on the Middle Snake if substantial benefits accrue to the State that broader considerations are not involved. We tried to spell those out.

Certainly, one of the reasons I went back to Idaho from Washington was to be able to enjoy Idaho, my home State, and the beauty of it.

The Board feels, however, that with the large amount of wild rivers, with the large amount of the State preserve, that the development of the Middle Snake must be for the future long-range water resource development of the State, as Senator Jordan has aptly pointed out.

If we are not able to diminish those flows that come down the Middle Snake River, it is as if we exported that water to California as far as availability to use for development, there is no question about it, if we commit that irrevocably down the stream. If there are minimum flows that must go down the stream specifically for navigation interest to supply a demand to get into the Middle Snake River, it may be an irrevocable commitment.

This Middle Snake must be the workhorse for water resource development, laying aside the economic benefits that you mentioned.

There is a fear that no development may take place and that if no development takes place, based on everything we have available, the facts and figures that Senator Jordan has referred to that we have laid out here, that our water planning effort and the State economic development is severely jeopardized.

Senator CHURCH. This takes me back 10 or 12 years when I first came to the Senate. The controversy, then, raged around the high Hells Canyon Dam. The chairman remembers that well. But at that time, those who expressed the most concern over the future of irrigation in Idaho laid great emphasis upon the need to build dams upstream where storage would be secure, and where the water could be safeguarded. They saw a danger in creating a large reservoir at Hells Canyon which might, for electrical purposes, lay a burden upon the river that could actually hamper future upstream development.

Now let me make it clear that I then favored the construction of the high Hells Canyon Dam as the best utilization of the resource. Now, however, we seem to have come full cycle, and spokesmen for upstream development in Southern Idaho are calling for a high dam in this reach of the river.

I think that this illustrates how easily arguments can be marshaled one way or another and, therefore, I am less confident that the position you take today will necessarily hold up.

I am not at all convinced that it is necessary to build a dam on the Middle Snake in order to secure the upstream development toward which the Board is working.

I think that to watch this cycle of opinion come all the way around is rather interesting, and it has affected my own thinking. That is why I cannot be so certain now as to what we should do on the Middle Snake.

Senator ANDERSON. Thank you, Dr. Lee.

Mr. LEE. Thank you, Mr. Chairman.

Senator ANDERSON. Mr. Brandborg.

STATEMENT OF STEWART M. BRANDBORG, EXECUTIVE DIRECTOR, WILDERNESS SOCIETY

Mr. BRANDBORG. I am Stewart Brandborg, executive director of the Wilderness Society, a national citizens conservation organization of some 60,000 members with headquarters in Washington, D.C.

I am a native of Idaho and attended public schools in the State. I did my graduate work in wildlife and forestry at the University of Idaho and for several years I was employed in Idaho by the U.S. Forest Service and as a wildlife biologist by the wildlife research unit of the University of Idaho Fish and Game Department.

As a former resident of the State, I am firmly convinced that the State will see great economic benefit from its wilderness areas, its wildlife designations, and that the question before this committee today, that of preserving the free-flowing stretch of the Snake River is one which deserves the attention which you are so generously giving at this time.

I think that we can preserve the free-flowing part of the Snake that is left as well as our other candidate wild rivers and wilderness areas with a great economic benefit to the State.

I think we face a real need to plan carefully, to finance the studies of these alternatives in a relatively short time. Certainly we have plenty of studies that are applicable to the Snake River Canyon, itself. But to answer some of these questions within the next year, to come up with proposals that will protect the economic benefits of our State as well as its priceless wild land, wild river, wild life resources, Idaho contains the finest unbroken wilderness that we have in the lower 48 States.

In fact, it has the largest unbroken unit of wilderness this side of Alaska if we put the great Idaho primitive area, Salmon River, Bitterroot together as one unit.

We have striven long and hard to keep this unit intact. I think with this resource and the other wild land values in the State we are in a period of seeing a great new development for recreation, for wildlife that will accrue to the great economic advantage of the people in Idaho.

I am accompanied here today by Boyd Norton, western field representative of the Wilderness Society, who is a recent resident of Idaho and who will present our formal statement.

STATEMENT OF BOYD NORTON, WESTERN FIELD REPRESENTATIVE, THE WILDERNESS SOCIETY

Mr. NORTON. I thank you. My name is Boyd Norton. I am the western field representative of the Wilderness Society, and as Mr. Brandborg mentioned, until recently a resident of Idaho of 9 years.

I am here today to make a statement on behalf of the Wilderness Society concerning the bill S. 940 for a moratorium on FPS licensing a dam on the Middle Snake River.

Mr. Chairman, my statement is rather lengthy, so I will summarize and I will read only portions of it.

Senator ANDERSON. I am glad you started out with a quote by Dr. Leopold.

Mr. NORTON. I would like to begin by quoting from an article by Dr. Luna Leopold that appeared in the October 1969 issue of Natural History magazine, entitled "Landscape Esthetics."

In this article, Dr. Leopold develops a valuable technique for quantizing certain esthetic qualities for purposes of comparison.

He chose Hells Canyon and the Middle Snake River as his test case and ended his article with the following statement:

> This analysis shows that the Hells Canyon of the Snake River, the site proposed for a hydropower dam, has unique characteristics that give it an exceptional esthetic rating and place it in a category shared by few other landscapes within the United tSates.

With all due respect for scientific objectivity, I might observe that Dr. Leopold understates the case. In his own observation earlier in the article, Hells Canyon was rated only slightly below the Grand Canyon of the Colorado as being one of the outstanding landscape features of the Nation.

It is difficult to describe to someone who has never been there the incredible scope—and magnitude—of the beauties of Hells Canyon.

Even the cold eye of the camera is inadequate because it cannot totally capture the stimulation of all senses; the sights and sounds and smells.

Hells Canyon is the scenic climax of a river that Washington Irving once called "one of the most remarkable for varied and striking scenery of all the rivers on this continent."

The river is the Snake, a thousand miles of splendor stretching from Yellowstone to the Columbia.

For almost 200 miles along the border of Idaho and Oregon it has carved this gorge, the deepest in North America. Hells Canyon is nearly 8,000 feet in total depth, 6,600 feet at one point from rim to river.

And if numbers alone are meaningless, consider this: You could take the whole Teton Range, its length, breadth, and height, and drop it into this gorge with room to spare.

But Hells Canyon is more than a mere statistic or freak of geology. It is a continuum of life and land forms unique on this continent and perhaps on any other.

Compressed within it, from the alpine tundra of the Seven Devils Mountains to the desert environment at river level are all the life zones of North America.

In wildlife alone, Hells Canyon possesses an amazing variety and quality: elk, deer, black bear, otter, mink, raccoon, bobcat, cougar, coyote, and many others.

The variety isn't just limited to terrestrial habitats. Peregrines and prairie falcons soar in the hights along with golden eagles, spreys, sparrow hawks, kingfishers, and cliff swallows.

Some 150 species of birds are found in the canyon, though the precise number doesn't seem to be known. Canada geese and other waterfowl nest along the river in many places, and even wild turkey are seen here.

Twenty-five species of fish inhabit this section of the Snake River. There are steelheads, Dolly Varden, chinook salmon, and catfish among them. And this is the last stronghold of the ancient white sturgeon, which thrives in the swift-flowing Snake and grows to lengths in excess of 10 feet.

As one of the Nation's outstanding wildlife biologists, Dr. Frank Craighead, said in a hearing last year:

> It is especially desirable to have an ecological bench mark in the Hells Canyon area because it contains aquatic, terrestrial, and atmospheric habitats that are biologically unique. Nowhere else in the Nation are all these species found together in such collective abundance.

And yet, Hells Canyon is also more than a catalog of plants and animals. It is a strange and beautiful place where ebony walls rise from the river, a place of steep grassy hillsides that lie brilliantly on the somber undertone of rock.

The sheen of river-polished boulders is a part of it and so is the glare of sandy beaches, the green of fern, or the brightness of cactus blossoms.

Hells Canyon is a color and a qualify of light that changes with the day. It is a blue gash of sky caught between steep walls. It is a wild

river living its early name, "Accursed Mad River." It is a quiet and reassuring place, and at the same time awesome and frightening.

It is somewhat paradoxical that the earliest explorers, the men who had reason to dislike the land that they struggled against, the land that presented such hardships to them, were often the most eloquent in their praise of Hells Canyon. Modern man, who can visit the Canyon with relative ease and little hardship, too often looks upon it with disdain.

Thus we find the contrast of Capt. Benjamin L. E. Bonneville, who wrote in 1833:

> The grandeur and originality of the views presented on every side beggar both the pencil and the pen. Nothing we had ever gazed upon in any other region could for a moment compare in wild majesty and impressive sterness with the series of scenes which here at every turn astonished our senses and filled us with awe and delight.

Now 135 years later, the following terse words were penned:

> It is Pacific Northwest Power ompany's considered judgment that the Middle Snake River should be developed and not left as an idle resource.

But, fortunately, the situation is changing. Hells Canyon is no longer a well-kept secret from the American public. Today, there is a tremendous growth of public feeling toward the values of wilderness and wild rivers, and this groundswell of environmental concern is demanding that we use our once-reckless technology to solve, rather than create, our environmental problems.

The problem is, however, that the momentum of certain bureaucratic-industrial complexes is difficult to change. In this time of environmental crisis, there are agencies and corporations who still operate on a this-is-the-way-we-have-always-done-business philosophy.

We are here today, then, pleading for the life of a river—several rivers, actually—and for the amazing diversity of life and land that makes up the whole of this place called Hells Canyon.

The question at hand is: How do we save this place?

We feel that we know enough now, at this point in time and space, to say that Hells Canyon, the Snake River, the Seven Devils Mountains, the Salmon River, the Imnaha River, the Grande Ronde River, and all that is part of this superlative place, is worthy of protection.

If, for reasons of deterring the actions of insensitive private or public agencies concerned more with kilowatts than ecological values, we enact a moratorium, we urge that this moratorium not be allowed to deflect us one bit from the task of moving ahead with the necessary legislation, S. 3329, introduced by Senator Robert Packwood, that would establish a 719,000-acre Hells Canyon-Snake River National River.

This bill not only preserves the 120 miles of Snake River from Hells Canyon Dam to Asotin, Wash., but establishes nearly 400,000 acres of wilderness areas on the Oregon and Idaho sides of the river. This wilderness is a vital part of the total Hells Canyon ecosystem.

We are concerned, also, that the Asotin Dam authorized in 1962 could pose a serious threat to parts of the national river proposal by flooding the lower stretch of Snake River and the Grande Ronde Rivers.

We ask, then, that this moratorium bill be amended to deauthorize the Asotin Dam.

While we support the concept of a moratorium, we feel that it is only an intermediate step toward the ultimate goal of establishing the Hells Canyon-Snake National River to preserve the continuum of life and land forms of Hells Canyon.

We hope, therefore, that nothing in the moratorium bill would explicitly or implicitly stall, even briefly, the great momentum building up for the establishment of a Hells Canyon-Snake National River.

The Wilderness Society joins with the many local organizations and individuals in asking that this moratorium measure be broadened to prevent not only Federal Power Commission licensing of private dams, but to state the present intent of this committee and the Congress that there should be no construction of Federal projects as well.

We realize that we cannot bind a future Congress by something done here but we would like perhaps a statement of intent.

In summary, Mr. Chairman, the Wilderness Society is firmly behind and committed to the concept of establishing a Hells Canyon-Snake National River, and we wish to urge this committee to move ahead with all possible speed to bring about this objective.

We support the moratorium measure, S. 940, as a short-range step to protect the river from the threat of immediate dam construction.

We emphasize, however, that this should bring no delay in expediting the passage of S. 3329 to establish the Snake National River.

The goal of preserving the Hells Canyon environment must become, in the final analysis, the main concern of this committee and the Congress.

A moratorium on dam building can be considered only a temporary expedient toward this main objective which is now given first priority by the people of Idaho and the Nation.

I do have one thing additional—I see that Senator Hatfield has left—in connection with a comment that he made earlier regarding the broader picture.

Senator ANDERSON. He will be back here at 2 o'clock.

Mr. NORTON. I was going to ask as an amendment to my statement to include in the record a small editorial I wrote entitled, "Cool Water, Wild Rivers, Clean Air, and Solar Power," because I feel that there are technological alternatives in addition to nuclear power that we should be pursuing.

Senator ANDERSON. Without objection, that will be included in the record at this point.

(The document referred to follows:)

COOL WATER, WILD RIVERS. CLEAN AIR, AND SOLAR POWER

(By Boyd Norton)

Private power companies, public utilities, federal power projects, all are in business to sell a product—the flow of electrons along a wire. Other companies invent ever more ingenious ways of consuming more of this energy per capita, all in the name of Progress. How the electricity is generated has been of little concern until recently. The cheapest way was considered the best way, and the environment be damned (or dammed!).

The power companies, private and public, have been peculiarly and acutely susceptible to a common organizational disease: resistance to change. Paradoxically, in an age of technological achievement built on change, we still suffer from technological myopia and the stumbling block of planning inertia.

An excellent example of this shortsightedness is the current devotion to large, centrally located generating plants. Whether coal-fired, nuclear-fueled, or hydro-

generated, their function is to produce large amounts of electricity for distribution over wide areas. Generally, the larger the plant the more efficient it is—especially in the eye of its manager. But so, too, are its repercussions enlarged.

Many of today's environmental problems stem from this simple relationship. Big dams destroy whole river systems. Coal-fired plants are major contributors to air pollution. Like large coal-burning plants, nuclear plants threaten our rivers and estuaries with biologically damaging thermal "additions." But also, they create even more insidious hazards from radioactive wastes. No matter what kind of plant, the once beautiful land becomes crisscrossed with wire tentacles to tie the plant to the consumer.

Inflated power "needs" aside, do we need large, central generating plants? First, we must place all future plants in more appropriate sites. But equally, we must rethink our whole concept of supplying energy to the nation.

Solar power offers exciting prospects. Even grade-school science tells us that an average of 1.67 kilowatts of solar energy falls on every square yard of the Earth's surface daily. By comparison, according to a recent computation by LaMont C. Cole, man produces only 25/1000th of 1 percent as much energy. The problem is to utilize the sun's energy. Solar cells, much like photographic light meters, can convert sunlight directly into electricity. They are used to supply power for satellites. But it takes many cells, and they are expensive. Further, for practical use, there is the problem of efficiently storing the energy for use at night or in adverse weather.

All this, however, is possible. Ultimately, most of our homes, offices, or factories could be self-sufficient in power requirements. No more wires need be draped across the land; no more fumes spewed into the atmosphere, or waste heat dumped into water, or wild rivers forever stilled by dams.

Although we must not delude ourselves into thinking that solar power is a cure-all, we must pursue it because, when all the resource, energy, and ecological balance sheets are tallied up, solar power will almost certainly be the most efficient way. The fiscal balance sheets are a matter of social policy. We will need massive investments in research and development, but when you can put a man on the moon, there is little you can't do—technologically, that is.

Senator CHURCH. I want to say, Mr. Chairman, that I have read this particular article and found it so intriguing that I included it in the Congressional Record. I want the witness to know this.

It certainly does take a long-range view on potential sources for electricity, as contrasted with the present methods of generating and distributing electricity.

It makes a recommendation of novel interest.

Senator ANDERSON. I have one question. Are you for or against the bill?

Mr. NORTON. The moratorium bill?

Senator ANDERSON. Yes.

Mr. NORTON. We are in support of the moratorium bill.

Senator ANDERSON. Also, the other bill?

Mr. NORTON. The Hells Canyon-Snake National River bill?

Yes, we feel that that is the ultimate goal, Mr. Chairman. We feel that the moratorium is a short-range measure to prevent the immediate threat of dam construction. We feel that the Hells Canyon area should be preserved by establishing a Hells Canyon-Snake National River.

Senator ANDERSON. Thank you.

Mr. NORTON. Thank you.

(Mr. Norton's complete statement follows:)

STATEMENT OF BOYD NORTON, WESTERN FIELD REPRESENTATIVE, THE WILDERNESS SOCIETY

Mr. Chairman: My name is Boyd Norton. I am the Western Field Representative of The Wilderness Society. I'm here today to make a statement on behalf of The Wilderness Society concerning the bill, S. 940, for a moratorium on FPC licensing a dam on the Middle Snake River.

I'd like to begin by quoting from an article by Dr. Luna Leopold that appeared in the October 1969 issue of *Natural History Magazine*, entitled "Landscape Esthetics." In this article, Dr. Leopold develops a valuable technique for quantizing certain esthetic qualities for purposes of comparison. He chose Hells Canyon and the Middle Snake River as his test case and ended his article with the following statement, ". . . this analysis shows that the Hells Canyon of the Snake River, the site proposed for a hydropower dam, has unique characteristics that give it an exceptional esthetic rating and place it in a category shared by few other landscapes within the United States."

With all due respect for scientific objectivity, I might observe that Dr. Leopold understates the case. In his own observation earlier in the article, Hells Canyon was rated only slightly below the Grand Canyon of the Colorado as being one of the outstanding landscape features of the nation.

It is difficult to describe to someone who has never been there the incredible scope—and magnitude—of the beauties of Hells Canyon.

Even the cold eye of the camera is inadequate because it cannot totally capture the stimulation of all senses; the sights and sounds and smells.

Hells Canyon is the scenic climax of a river that Washington Irving once called "one of the most remarkable for varied and striking scenery of all the rivers on this continent."

The river is the Snake, a thousand miles of splendor stretching from Yellowstone to the Columbia. For almost two hundred miles along the border of Idaho and Oregon it has carved this gorge, the deepest in North America. Hells Canyon is nearly 8,000 feet in total depth, 6,600 feet at one point from rim to river. And if numbers alone are meaningless, consider this: you could take the whole Teton Range, its length, breadth, and height, and drop it into this gorge with room to spare.

But Hells Canyon is more than a mere statistic or freak of geology. It is a continuum of life and land forms unique on this continent and perhaps on any other. Compressed within it, from the alpine tundra of the Seven Devils Mountains to the desert environment at river level, are all the life zones of North America. In wildlife alone, Hells Canyon possesses an amazing variety and quantity: elk, deer, black bear, otter, mink, raccoon, bobcat, cougar, coyote, many others. The variety isn't just limited to terrestrial habitats. Peregrines and prairie falcons soar in the heights along with golden eagles, ospreys, sparrow hawks, kingfishers, and cliff swallows. Some 150 species of birds are found in the canyon, though the precise number doesn't seem to be known. Canada geese and other waterfowl nest along the river in many places, and even wild turkey are seen here.

Twenty-five species of fish inhabit this section of the Snake River. There are steelheads, Dolly Varden, chinook salmon, and catfish among them. And this is the last stronghold of the ancient white sturgeon, which thrives in the swift-flowing Snake and grows to lengths in excess of ten feet.

As one of the nation's outstanding wildlife biologists, Dr. Frank Craighead, said in a hearing last year, "It is especially desirable to have an ecological bench mark in the Hells Canyon area because it contains aquatic, terrestrial, and atmospheric habitats that are biologically unique. Nowhere else in the nation are all these species found together in such collective abundance."

And yet Hells Canyon is also more than a catalog of plants and animals. It is a strange and beautiful place where ebony walls rise from the river, a place of steep grassy hillsides that lie brilliantly on the somber undertone of rock. The sheen of river-polished boulders is a part of it and so is the glare of sandy beaches, the green of fern, or the brightness of cactus blossoms. Hells Canyon is a color and a quality of light that changes with the day. It is a blue gash of sky caught between steep walls. It is a wild river living its early name, "Accursed Mad River." It is a quiet and reassuring place, and at the same time awesome and frightening.

Hells Canyon is a living page in history, both near and distant. It is a place visited early in the exploration of the West, then nearly forgotten. In 1811, only five years after the return of Lewis and Clark, Wilson Price Hunt explored and described its depths, nearly perishing in them on his journey to map a route from Missouri to the mouth of the Columbia for John Jacob Astor. Then came Robert Stuart in 1812, retracing Hunt's route but avoiding his near-tragic mistakes. And sometime later came the great influx of fur-trappers, with Captain Benjamin L. E. Bonneville writing in 1833: "The grandeur and originality of the views presented on every side beggar both the pencil and the pen. Nothing we had ever

gazed upon in any other region could for a moment compare in wild majesty and impressive sternness with the series of scenes which here at every turn astonished us with awe and delight."

Greed for fur later gave way to the lure of gold and silver, but these too were elusive and the canyon resisted any large or permanent developments.

Before the explorers and the fur-trappers and prospectors were the Indians—northern Shoshoni in part, but mainly the Nez Percé. They knew the canyon well and it was useful to them not only for its bountiful game, but for defenses as well. In 1877 Chief Joseph, leader of the peaceful Nez Percé, rebelled against the treaty-breaking United States Government. Leading his people safely across the treacherous Snake River in Hells Canyon, Joseph outwitted and outfought a "superior" U.S. Army across a thousand miles of Rocky Mountain terrain before he was trapped thirty miles short of refuge in Canada.

The earliest of men lived in the canyon and left their strange petroglyphs on dark and hidden places throughout its depths. To archeologists, Hells Canyon is an untapped treasure of early history. Only a handful of the estimated 200 archeological sites have been investigated. Lying at the juncture of two early cultures—the Columbia Plateau and the Great Basin—the canyon may hold answers to the puzzle of man's arrival and migration in North America.

Hells Canyon is all of these things, seen and unseen. It is a place that defies a complete description. And the cold eye of the camera does little better, for it captures only those small finite slices in time while the total flow of life and land continues on here as it always has.

And I would like to say "always will."

But Hells Canyon is doomed.

Twentieth-century man, with his appetite for kilowatts and obsession for taming wild places, has already destroyed the upstream reaches of Hells Canyon with the Oxbow, Brownlee, and Low Hells Canyon dams. Now, the deepest and wildest part of the canyon that remains is threatened by what has been called "the last storage project on the Columbia River system."

The story has become all too familiar. A canyon, a wild river, the land and wildlife contained within—all threatened with extinction. Hells Canyon, like too many other places before it, may die before many ever discover it. And like the others, its death is unnecessary.

The name of the dam is High Mountain Sheep. Or Nez Percé. Or perhaps Appaloosa or Pleasant Valley. It all depends on whom you talk to, and when. For the brief history of dam proposals in this part of Hells Canyon is probably the most confusing in conservation annals.

The complicated story begins around 1954. At first it was a two-dam complex consisting of Low Mountain Sheep (located just above the Imnaha River confluence) and Pleasant Valley (twenty miles farther upstream). Pacific Northwest Power Company was the applicant, a combine of four private power companies in the Northwest. A license was first granted, but later denied by the Federal Power Commission on the grounds that the best hydroelectric potential of the river would not be utilized.

Pacific Northwest Power reapplied, this time for High Mountain Sheep, located just a half-mile above the confluence of the Salmon River. An engineer's delight, this 670-foot-high dam would create a 58-mile reservoir in the heart of Hells Canyon, flooding twelve miles of the spectacular Imnaha Gorge as well.

By 1960 others had their eye on the hydroelectric potential of the canyon. Washington Public Power Supply System, a joint operating agency composed of eighteen public utility districts in the state of Washington, filed application with the Federal Power Commission for a license to build the Nez Percé Dam. The application touched off the first real controversy, for Nez Percé, located a mile *below* the Salmon-Snake confluence, would not only finish off the Snake, but threatened to flood the lower Salmon River, destroying the anadromous fish runs in this "River of No Return" of Lewis and Clark fame. Killing two great rivers for the price of one, Nez Percé promised to become one of the most destructive dams ever built. Washington Public Power later amended their appliication to substitute High Mountain Sheep for Nez Percé.

In 1962 the Federal Power Commission granted a license to Pacific Northwest Power Company to build High Mountain Sheep. The Department of the Interior, entering the case as an intervenor, filed suit claiming that a federally built dam would best serve the public interest. And Washington Public Power still maintained that it had a claim.

The battle went through the U.S. Court of Appeals, which upheld the Federal Power Commission decision, finally reaching the U.S. Supreme Court. In June of 1967 the High Court handed down a decision that may well represent a landmark in conservation history. Disregarding entirely the question of who might build the dam, the court directed the Federal Power Commission to reexamine more carefully all the arguments, *including the case for no dam at all.* Justice William O. Douglas wrote, "The test is whether the project will be in the public interest, and that determination can be made only after an exploration of all issues relevant to the public interest. These include future power demand and supply in the area, alternate sources of power, and the public interest in preserving reaches of wild rivers in wilderness areas, and the preservation of anadromous fish for commercial and recreational purposes, and the protection of wildlife."

During the years of legal battle, conservationists had nearly given up hope of preventing construction of High Mountain Sheep Dam. Some had even endorsed it, fearing the more destructive Nez Percé. The Supreme Court decision offered renewed hope, and a few months later an alliance comprised of the Idaho Alpine Club, the Sierra Club, and the Federation of Western Outdoor Clubs filed a petition of intervention with the Federal Power Commission to represent the public interest in preserving Hells Canyon.

In the fall of that same year a small group of Idaho conservationists formed the Hells Canyon Preservation Council (P.O. Box 691, Idaho Falls, Idaho 83401) for the purpose of rallying public opinion for this little-known place and helping prepare for the FPC hearings the next year. Working closely with the other groups, the council has compiled an impressive amount of evidence against the dam, evidence provided by interviews and correspondence with fish and wildlife biologists, recreation experts, ecologists, and archeologists. In addition, the council drew upon several nuclear scientists in its ranks and found that nuclear power could provide an economical alternative to the dam (assuming that the increased power production where *really* needed).

The cost of the electricity produced by High Mountain Sheep has been its biggest selling point. Traditionally, electrical power has always been cheap in the Northwest by virtue of abundant hydroelectric sites. But over the years the cost of hydroelectricity has been rising due to higher construction costs, increasing transmission costs, and gradual depletion of the "best" dam sites. This, coupled with technical developments, has allowed other types of energy generation to compete with hydropower. In 1967, a report was published by Battelle Northwest Laboratories, a prime contractor for the Atomic Energy Commission. Done under contract for the Bonneville Power Administration, the report summarizes a detailed study of potential nuclear power in the Pacific Northwest. It projected an average cost of about 3.2 mills per kilowatt-hour for the eighteen potential nuclear plants studied. And this cost included installation of cooling towers on the plants to minimize thermal pollution. (It should be emphasized that conservationists are not necessarily endorsing nuclear power as a desirable alternative. It appears to be an economical alternative *if* indeed more power is needed in the Northwest. But we are faced with a whole new set of environmental damage problems from the use of nuclear power—a fact which power companies also fail to recognize.)

Interestingly, recent figures by the dam-builders place the cost of electricity from High Mountain Sheep at 3.2 mills, though no explanation is offered as to why this figure differs from early Bonneville Power Administration estimates which ran as high as 6 mills per kilowatt-hour (depending on which combination of power dam and reregulatory dam was chosen). To cloud the issue even further, Pacific Northwest Power Company claims that its own economic study of nuclear power showed it to be 60 percent more expensive than High Mountain Sheep. But this study appears to have been heavily biased in favor of the dam by assuming unrealistic load factors for the nuclear plants, and when pinned down on comparative costs the power companies refer vaguely to the peaking power advantages of the dam. And yet even the peaking power arguments are disputed. Interior Department sources assert that there is no shortage of projects that can be converted for peaking loads, such as the additional generators being added to Grand Coulee.

Because of the attitudes and conflicting information concerning costs, there seems to be some doubt as to whether this is a prime factor in the case. The power is fed into the vast network of the Bonneville Power Administration in the Northwest and minor differences in cost probably result in relatively small per-

turbations in the complicated pricing and payment schedules. The main driving force behind the dam-builders seems to be a "this-is-the-way-we've-always-done-things" philosophy.

Some interesting questions arise concerning power "needs." Do power companies provide the electricity to meet a *real* growth pattern? Or do they create most of the needs by their own advertising? (*Live better electrically.*) Power companies and utilities claim their expansions are based on projected or extrapolated curves of increased power consumption. And yet these curves were shaped by the efforts of the companies to sell their product—electricity. Furthermore, these companies, like other businesses, are in competition, albeit on a regional basis. To lure more customers—industries—to their region, they engage in large-scale advertising. There will probably never be a time when there is a large surplus of electricity, for the power companies will seek out new markets or convince old customers to use more electrical products. And then they'll build more power plants justified by these increased markets in order to sell even more electricity to newer markets—ad infinitum.

In the case of High Mountain Sheep, the power companies and utilities claim that further delays of their expansion plans may retard the industrial growth of the Northwest. No one has asked whether more industrial growth for the Northwest is desirable.

One begins to suspect that if the power companies were *really* concerned about meeting future power "demands," they might begin by firing their public relations and advertising staffs.

(*Question: What is the real cost for such things as electric can openers and two television sets? Answer: Hells Canyon, Grand Canyon, Storm King . . .*)

After recovering from the shock of the Supreme Court decision, and sensing the rising tide of opposition, the two applicants sought safety in unification. By early 1968 Pacific Northwest Power and Washington Public Power had resolved their differences and filed jointly to build and share in the spoils of High Mountain Sheep Dam.

Throughout 1968 the battle increased in intensity with several new complexities added. The Department of the Interior announced that its studies showed the Appaloosa site, twelve miles upstream, to be superior. High Mountain Sheep, the department contended, would still be detrimental to the fish runs up the Salmon River. Its proximity to the confluence could create confusing turbulence and the dissolved nitrogen formed in large quantities in the reservoir would add to the problems. (Recent biological studies have indicated that increased river temperatures and dissolved nitrogen content from all the existing dams on the Snake-Columbia system have contributed largely to the impairment of anadromous fish runs in the last several years.)

Also, the China Gardens reregulatory dam an integral—an often hushed-up—part of the total High Mountain Sheep development located about twenty miles downstream, would still create slack water partway up the lower Salmon River forming an additional barrier to the salmon and steelhead migrations. Therefore, Interior's plans called for building the Appaloosa Dam with a regulatory dam at the Low Mountain Sheep site just above the Imnaha River confluence. But this combination, though somewhat better than the High Mountain Sheep complex from the standpoint of minimizing impact on fish, would still destroy the heart of Hells Canyon.

The Idaho Water Resources Board, a junior-sized Bureau of Reclamation created in fear and haste several years ago, has also intervened in the case to build High Mountain Sheep itself. Inflated by its own self-importance in the case, the board seeks to use revenues derived from the sale of this electricity to "develop" other water resources in Idaho, resources that include the most magnificent remaining wild rivers in the nation. The board has rallied much support in the state by promoting the philosophy that Idaho must "use" its water resources before they are "stolen," and that Idaho is somehow destined to become an industrial power by virtue of its water resources. And too many people believe that it is an unholy sin to allow water to leak out of the state unused.

In September of 1968, the Federal Power Commission held public hearings in Lewiston, Idaho, and Portland, Oregon, where scores of: people testified against the dams. The Hells Canyon Preservation Council presented petitions of opposition totaling 6,000 signatures to the FPC (the number has now grown to more than 10,000) and hundreds of letters poured in from across the nation.

For the legal hearings with the FPC, the conservation groups rounded up their

numerous experts to testify, including economists and a psychiatrist. In total, an impressive amount of evidence was compiled against many dams.

Again sensing the rising tide of opposition, the dam-builders once more sought to strengthen their position. In November 1968 an anouncement was made of a unique three-way coalition between Interior, Pacific Northwest Power, and Washington Public Power Supply System. According to this plan, the utilities were to prepay Interior for fifty years worth of power and, using these funds plus a Congressional appropriation, Interior would build the Appaloosa Dam. With great fanfare this trio announced that the long-standing dispute over Hells Canyon had finally been "solved." The dam-builders hoped to ram through Congress a bill authorizing Appaloosa Dam. But fearing to burn their bridges after them, the power combines left open the option of renewing their license application for High Mountain Sheep from the Federal Power Commission by asking for a six-month postponement of the case.

The plan failed. Congress was apparently in no mood to fund another costly project—however inexpensively it may have been disguised. After several extensions, the postponement of the FPC case expired in September of 1969. And at that time Secretary of Interior Walter J. Hickel announced that his department was dropping its plans for Appaloosa Dam in favor of a three- to five-year moratorium.

The Hells Canyon Preservation Council, together with the Sierra Club and Wilderness Society, has formulated a plan calling for the establishment of a 714,000-acre Hell's Canyon-Snake National River to permanently preserve not only the 120 miles of the Middle Snake, but the adjacent Seven Devils Mountains in Idaho and the rugged plateau and mountains on the Oregon side of the canyon. It would also include preservation of the lower 85 miles of the Salmon River, a section already mapped for damming by the Corps of Engineers. The Hells Canyon-Snake National River would protect the total unity of three major rivers—the Snake, Salmon, and Imnaha—three great canyons, and two superb mountain ranges with a total of 395,000 acres to be added to the National Wilderness Preservation System.

In the meantime, the Federal Power Commission case resumes in January with Pacific Northwest Power and Washington Public Power Supply System jointly applying for a license to build High Mountain Sheep Dam or Appaloosa Dam or even Pleasant Valley Dam. They're not fussy. Arguing against, as intervenors, will be the trio of conservation groups. Also arguing against, presumably, will be the Department of the Interior.

While the canyon awaits its fate there will be more hearings, cross-examinations, witnesses, and more pages for the record. In the end the FPC will grant the license because it understands nothing else. There will be appeals, then, and more court cases, all costing conservationists heavily.

And yet, through it all the basic question will remain unanswered: Why build this dam, whether it be High Mountain Sheep, Nez Percé, Appaloosa, or Pleasant Valley? The real answer has been lost among years of fighting, pages of testimony, hours of hearings, and thousands of printed words.

It isn't the electricity, for we can produce it by alternate means. The power companies agree that High Mountain Sheep or Appaloosa is the last major hydroelectric development in the Northwest—if not the nation—and most power companies already have plans for thermal plants in the future. This one dam will ultimately contribute little to the long-range needs, and the Bonneville Power Administration has admitted in hearings that it is not essential.

Flood control? The Snake River has become an engineer's dream. Nearly thirty dams impound the flow of the Snake and its tributaries in a thousand-mile staircase of slack-water reservoirs. Any flood control claims for the dam, in light of all these other concrete plugs, are absurd.

A newer rationale was developed for the Appaloosa Dam—water quality control. The proliferation of dams on the Snake-Columbia system has altered temperatures and dissolved gas content with detrimental impact on migratory fish. In its conceptual design, Appaloosa would theoretically allow control of downstream river temperatures and dissolved oxygen to maintain optimum environment for migrating fish. But the concept is unproven, and a number of biologists doubt that it would be effective. Besides, they argue, why not modify one of the existing dams, such as Low Hells Canyon Dam, to try this out? One Idaho conservationist summed it up well: "Building another dam on the Snake-Columbia system to help the fish is like taking another drink of whiskey to sober up."

The *real* reason for the continued push to build this "last great dam" is much more obscure. Perhaps it is a mixture of professional pride, technological arrogance, and bureaucratic inertia. There is undoubtedly a reluctance to give up a project that has already cost several millions of dollars in engineering design and planning, legal costs, and just plain propaganda efforts.

But whatever the reason, the building of any dam here would mean another tragedy on the order of Glen Canyon. And how many such tragedies can we afford as a nation? Unlike Glen Canyon, however, we have the time and the experience to know what the loss will be and the time to prevent it.

It is somewhat paradoxical that the earliest explorers, the men who had reason to dislike the land that they struggled against, the land that presented such hardships to them, were often the most eloquent in their praise of Hells Canyon. Modern man, who can visit the Canyon with relative ease and little hardship, too often looks upon it with disdain. Thus we find the contrast of Capt. Benjamin L. E. Bonneville, who wrote in 1883: "The grandeur and originality of the views presented on every side beggar both the pencil and the pen. Nothing we had ever gazed upon in any other region could for a moment compare in wild majesty and impressive sterness with the series of scenes which here at every turn astonished our senses and filled us with awe and delight."

One hundred and thirty five years later, the following terse words were penned: "It is Pacific Northwest Power Company's considered judgment that the Middle Snake River should be developed and not left as an idle resource."

But fortunately the situation is changing. Hells Canyon is no longer a well-kept secret from the American public. Today there is a tremendous growth of public feeling toward the values of wilderness and wild rivers, and this groundswell of environmental concern is demanding that we use our once-reckless technology to solve, rather than create, our environmental problems.

The problem is, however, that the momentum of certain bureaucratic-industrial complexes is difficult to change. In this time of environmental crisis, there are agencies and corporations who still operate on a this-is-the-way-we've-always-done-business philosophy.

We are here today, then, pleading for the life of a river—several rivers, actually—and for the amazing diversity of life and land that makes up the whole of this place called Hells Canyon.

The question at hand is: how do we save this place? We feel that we know enough *now*, at this point in time and space, to say that Hells Canyon, the Snake River, the Seven Devils Mountains, the Salmon River, the Imnaha River, the Grande Ronde River, and all that is part of this superlative place, is worthy of protection.

If, for reasons of deterring the actions of insensitive private or public agencies concerned more with kilowatts than ecological values, we enact a moratorium, we urge that this moratorium *not* be allowed to deflect us one bit from the task of moving ahead with the necessary legislation, S. 3329 introduced by Senator Robert Packwood, that would establish a 719,000-acre Hells Canyon-Snake National River.

This bill not only preserves the 120 miles of Snake River from Hells Canyon Dam to Asotin, Washington, but establishes nearly 400,000 acres of wilderness areas on the Oregon and Idaho sides of the river. This wilderness is a vital part of the total Hells Canyon ecosystem.

We are concerned, also, that the Asotin Dam authorized in 1962 could pose a serious threat to parts of the National River proposal by flooding the lower stretch of Snake River and the Grande Ronde Rivers. We ask, then, that this moratorium bill be amended to deauthorize the Asotin Dam.

While we support the concept of a moratorium, we feel that it is only an intermediate step toward the ultimate goal of establishing the Hells Canyon-Snake National River to preserve the continuum of life and land forms of Hells Canyon.

We hope, therefore, that nothing in the moratorium bill would explicitly or implicitly stall, even briefly, the great momentum building up for the establishment of a Hells Canyon-Snake National River.

The Wilderness Society joins with the many local organizations and individuals in asking that this moratorium measure be broadened to prevent not only Federal Power Commission licensing of private dams, but to state the present intent of this Committee and the Congress that there should be no construction of federal projects as well.

In summary, Mr. Chairman, The Wilderness Society is firmly behind and

committed to the concept of establishing a Hells Canyon-Snake National River, and we wish to urge this Committee to move ahead with all possible speed to bring about this objective. We support the moratorum measure, S. 940, as a short range step to protect the river from the threat of immediate dam construction. We emphasize, however, that this should bring no delay in expediting the passage of S. 3329 to establish the Snake National River.

The goal of preserving the Hells Canyon environment must become, in the final analysis, the main concern of this Committee and the Congress. A moratorium on dam building can be considered only a temporary expedient toward this main objective which is now given first priority by the people of Idaho and the Nation.

Thank you.

Senator ANDERSON. The committee will now recess until 2 o'clock this afternoon.

(Whereupon, at 12:40 p.m. the subcommittee recessed, to reconvene at 2 p.m. the same day.)

AFTER RECESS

(The subcommittee reconvened at 2 p.m., Senator Frank Church presiding.)

Senator CHURCH. The hearing will please come to order.

Our first witness this afternoon is Mr. Tom Kimball.

STATEMENT OF THOMAS L. KIMBALL, EXECUTIVE DIRECTOR, NATIONAL WILDLIFE FEDERATION, WASHINGTON, D.C.

Mr. KIMBALL. Thank you, Mr. Chairman.

In the interest of time, could I submit my statement for the record and summarize?

Senator CHURCH. Very well.

(The statement referred to follows:)

STATEMENT OF THOMAS L. KIMBALL ON BEHALF OF THE NATIONAL WILDLIFE FEDERATION

Mr. Chairman, I am Thomas L. Kimball, Executive Director of the National Wildlife Federation which has its national headquarters at 1412 Sixteenth Street, N.W., here in Washington, D.C.

Ours is a non-governmental organization which seeks to attain conservation goals through educational means. The Federation has independent Affiliates in 49 states. These Affiliates, in turn, are composed of local groups and individuals who, when combined with associate members and other supporters of the National Wildlife Federation number an estimated 2½ million persons.

We welcome the invitation to comment today upon S. 940, which would declare a moratorium on the licensing of hydroelectric projects on the Middle Snake River below Hells Canyon Dam for a period of ten years.

The National Wildlife Federation long has been interested and concerned about the conflict between uses of the waters of the magnificent Columbia River Basin. This interest and concern has been heightened throughout the years as more and more dams and diversionary works have created profound and lasting changes upon natural resources in the area, particularly upon the superlative anadromous fisheries of such great sport and commercial value to the entire Pacific Northwest. In 1961, the National Wildlife Federation went on record as opposing any additional dams on the Middle Snake River, including and particularly that at the Nez Perce site. In 1968, the National Wildlife Federation went on record as opposing any dams on the Salmon River, supporting its designation as a wild or scenic river. Again, in 1969, the organization went on record as opposing dams on the Snake River downstream from Hell's Canyon dam. And, we are an intervenor in the dam application case currently before the Federal Power Commission. Thus, our interest and concern is amply demonstrated.

First, before proceeding, Mr. Chairman, one fact should be made abundantly clear: the entire conservation movement regards the Salmon River as absolutely indispensable to the continued production of anadromous fisheries and we will go to any lawful lengths to prevent the diversion of water or the construction of dams at the Nez Perce or Lower Canyon sites or anywhere else which will bar the passage of fish to, or endanger the natural quality of this outstanding stream.

Second, as already outlined, the National Wildlife Federation believes the stretch of the Middle Snake downstream from Hell's Canyon Dam should be preserved from impoundment or diversion and we will support the concept of a national river for it when given the opportunity.

In order to become familiar with this situation, I deliberately went into the Hell's Canyon area. I have ridden and walked trails in the Canyon and on the rim above it. I have floated portions of the stream. And, I have fished in it. As a native of California, reared in Arizona, and educated in Utah, it has been my privilege to administer State wildlife agencies in both Arizona and Colorado. As a consequence, I have traveled extensively in the West. And, in my opinion, the Hell's Canyon area of the Middle Snake River ranks among the very best natural river canyon attractions on the continent. It grandeur and uniqueness inspire and educate. The recreational aspects of the stream are highly valuable for themselves as an outstanding example of a natural asset which is becoming increasingly rare as more and more moving water is impounded into placid lakes. Many of these values, of course, are of the intrinsic and intangible type which really cannot be compared to electrical power generation benefits, especially comparisons on a dollar-and-cent basis.

Now, after having made these points clear, I wish to endorse the Moratorium concept in the full understanding that this should not be construed as an alternative for the permanent protection which will be accorded by designation as a national river, but hope the Subcommittee will clarify any doubts which may exist on this score. We view the Moratorium as a directive by the Congress that it is recapturing its authority from the Federal Power Commission to decide which of the conflicting uses shall be given priority.

In closing, Mr. Chairman, I should like to make one comment which has a bearing upon the situation under consideration here today. Much discussion has been directed to potential values of a dam or dams on the Middle Snake for hydroelectric "peaking power." I should like to take the liberty of calling the Subcommittee's attention to a statement presented before the Federal Water Resources Council last fall (Sept. 9–10, 1969) by Herbert B. Cohn on behalf of Edison Electric Institute. He said: 'most likely' alternative to peaking hydro capacity which may frequently be the most appropriate alternative for consideration, if this approach is to continue to be used in project evaluation, would be a gas turbine unit. In many areas today, electric utility companies are installing gas turbines to meet peaking requirements. In 1967, 75 units totaling 1.6 million kilowatts of gas turbine generation were installed throughout the United States. In 1968, the figure went up to 131 units amounting to 2.5 million kilowatts, and this year those already installed and scheduled for installation come to 162 units representing 4.3 million kilowatts." My point is this: the gas turbine is a tried and proven alternative for hydro peaking facilities. Even if it costs somewhat more to produce the peaking requirements by gas turbines or other alternate means, so be it. We implore: protect this reach of the Middle Snake. Do not impose an irreversible situation upon future generations by a decision now based solely upon economic factors which can change within a matter of months or few years.

Thank you for the opportunity of making these remarks.

Mr. KIMBALL. The National Wildlife Federation supports the moratorium as presented in the bill which is now before the committee.

We, of course, are interested in preserving the undammed, and hopeful that when the Congress recaptures from the Federal Power Commission its authority to make these determinations, that eventually we can have it in a free-flowing condition.

We are also hopeful that the committee could look into the matter of alternate sources of peaking power.

We have information that the gas turbine is a tried and proven

alternative for hydropeaking facilities, and even though it costs somewhat more to produce the peaking requirements, that the other scenic and recreational values of this area are so great that it may be well worth the additional funds to explore this aspect of providing the Nation's peaking requirements.

That pretty well summarizes my statement, Mr. Chairman.

Senator CHURCH. Thank you very much, Tom.

First of all, let me say that your written statement has been included in full in the record.

In the Northwest we have generated electricity for so many years from hydro that we tend to think exclusively in those terms.

Unless we break the habit, we will continue to do so, until we run out of dam sites and must turn to alternative means.

It has often been our view that a given dam should be built at a given place because it represents the most efficient or the most economical method for generating more electricity.

That argument has frequently had persuasive force before the regulatory commissions and other agencies charged with overseeing power production.

I have often wondered why it never occurred to anybody to ask the people how they felt about it. They have been regarded as an irrelevancy and those who make decisions assume that they know best what criteria to apply.

I rather think that if the people were asked whether they would prefer to have a mighty canyon left in its natural state or see a high, hydroelectric dam built there, knowing that they might have to pay a few cents more for electricity as the cost of preserving the site, that they might very well prefer to pay that price.

Mr. KIMBALL. I think this, Mr. Chairman, was the principal thrust of the position that was presented in my testimony in the hopes that the moratorium would give the Congress time to explore all of the alternatives and to give the people a chance to participate in decisions of this import.

I certainly agree with you, Mr. Chairman, that decisions nowadays should be based more on other considerations than solely on economic values; that there are so many esthetic, scenic and recreational values that are becoming so much more important to our country that deserve consideration, that certainly this should be considered fully by the Congress.

Senator CHURCH. I agree that we should explore all alternatives in terms of providing necessary peaking power.

I am in agreement with the position which you take.

Senator Jordan?

Senator JORDAN. Thank you.

Tom, it is good to have you back before the committee.

I think we are all agreed that there are a lot of ways to produce kilowatts besides hydroelectric generation. However, I have never found a way, and I don't think anyone else has, to make the desert bloom without the application of water.

I have never found a way to satisfy the domestic needs of a community but through potable, clean supplies of water.

Looking ahead, we had some figures before the Finance Committee last fall from the Census Bureau indicating that by the turn of the century we would have to find homes or living space for another 100 million people here in the United States.

This puts a tremendous responsibility on the resources of this country. We are looking ahead only another 30 years to that point.

I am eager and willing, as I have been, to go along with the Wild Rivers Act to set aside in my own State 50 percent of the total mileage of the Wild River System in the United States.

But, someplace or another, we have to balance the use of these resources against the need. As I see it, the need for this moratorium is to give the people a chance to look at the whole picture and to make their own judgment.

Would you agree that this is a fair estimate?

Mr. KIMBALL. Certainly. I think that is one of the principal thrusts, that the people should be given the opportunity to explore all of the alternatives and to participate in the final judgment as to what use the rivers should be put.

Senator JORDAN. Thank you.

Senator CHURCH. Thank you very much, Tom.

Our next witness is Mr. Gerald Jayne.

STATEMENT OF GERALD JAYNE, SECRETARY, HELLS CANYON PRESERVATION COUNCIL

Senator CHURCH. We are happy to have you with us this afternoon, Mr. Jayne. I invite you to proceed as you like.

Mr. JAYNE. Thank you, Senator Church.

My name is Gerald Jayne, and I certainly want to thank you for this opportunity to appear before your committee.

I live near the upper end of the Snake River in Idaho Falls, Idaho.

I am secretary of the Hells Canyon Preservation Council, and I appear here today to present the council's statement.

I am also president of the Idaho Environmental Council, and expect that a statement will be submitted from that organization within the next few days for the hearing record.

As secretary, I am aware of a great deal of information which I would like to see incorporated into the hearing record. However, I have limited myself to three additional items which I would like to request be included in the hearing record.

The first is a list which we compiled, the Hells Canyon Preservation Council, on the bibliography of articles and books which have been written about Hells Canyon over the last 30 years, and attached to that is a chronology of the controversy over the dam-building question in the canyon.

The second item which I would like to have included in the record is the article which was referred to earlier this morning, "Landscape Esthetics," how to quantify the scenics of a river valley, by Luna Leopold, in the October 1969 Natural History magazine.

Senator CHURCH. Without objection, those items may be included in the record.

(The documents referred to follow:)

BRIEF CHRONOLOGY OF THE MIDDLE SNAKE RIVER CONTROVERSY

1954: Pacific Northwest Power Co. (PNPC) files for preliminary permit to build Low Mt. Sheep and Pleasant Valley Dams. Permit granted.

1955: PNPC files license application for those 2 dams.

1955–58: Corps of Engineers prepares report, recommending High Mt. Sheep (HMS) Dam and Nez Perce Dam as alternatives on the Middle Snake.

January 20, 1958: Federal Power Commission (FPC) denies PNPC license application.

March 31, 1958: PNPC files license application for HMS.

March 15, 1960: Washington Public Power Supply System (WPPSS) files license application for Nez Perce and later amends it to HMS.

March 15, 1961: Secretary of Interior recommends against any dams on the Middle Snake because of conservation considerations.

March 14, 1962: Secretary of Interior recommends that any dams be deferred pending detailed study, and that any project be built by the Bureau of Reclamation.

October 8, 1962: FPC Presiding Examiner grants license to PNPC for HMS.

December 3, 1962: Secretary of Interior intervenes in FPC proceedings.

Februray 5, 1964: FPC grants license to PNPC for HMS.

March 24, 1966: U.S. Court of Appeals affirms FPC decision.

June 5, 1967: U.S. Supreme Court reverses Court of Appeals decision, turns the considerations back to the FPC.

August 1967: Hells Canyon Preservation Council formed.

September 28, 1967: PNPC & WPPSS patch differences, enter into a joint agreement to apply for license for HMS or an alternate dam.

Early 1968: Sierra Club, Federation of Western Outdoor Clubs, and the Idaho Alpine Club intervene in the FPC proceedings.

April 1968: Dept. of Interior releases its "Resource Study of the Middle Snake," which extolls the virtues of the Appaloosa Dam site.

July 1, 1968: The Idaho Water Resource Board applies to the FPC for a preliminary permit to study the Appaloosa Dam site.

September 4, 1968: FPC hearings reopen in Lewiston, Idaho.

September 12, 1968: Senators Church and Jordan of Idaho introduce Moratorium Bill, which calls for a 10 year study period.

November 8, 1968: Dept. of Interior, PNPC, and WPPSS form a 3-way agreement to construct Appaloosa Dam. A worried coalition of private, public, and federal dam builders.

November 8, 1968: Secretary of Agriculture recommends to the FPC that no more dams be built on the Middle Snake.

August 12, 1969: Secretary of Interior Hickel pulls Interior out of the 3-way bid for a dam, recommends a 3 to 5 year moratorium on any development.

January 6, 1970: FPC hearings resume.

January 19, 1970: John Saylor introduces Hells Canyon—Snake River Bill in the House, H.R. 12025.

January 23, 1970: Senator Robert Packwood of Oregon intorluces the identical HC–SNR Bill into the Senate, S. 3329.

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From Natural History Magazine, October 1969

Landscape Esthetics

How to quantify the scenics of a river valley

by Luna B. Leopold

There are an increasing number of bills before Congress that in one way or another affect the landscape or the environment. Each of these requires seemingly endless numbers of congressional hearings, which are recorded upon endless reams of paper.

And if, for some reason, you happen to read the voluminous testimony surrounding one of these environment-affecting proposals, you will generally find a marked contrast between the volume and kind of information presented by those who are pressing for technical development—building a dam, constructing a highway, installing a nuclear power plant—and the testimony of those who either oppose the development or wish to alter it in some way. The developer usually employs numerical arguments, which tend to show that there is an economic benefit to be obtained by constructing something —whatever that something may be. The argument is usually expressed in terms of a "cost-benefit ratio." It is typically argued, for instance, that the construction cost of a given project will be repaid over a period of time and will yield a profit or a benefit in excess of the development costs by a ratio of, let us say, 1.2 to 1. The argument is further supported with great numbers of charts, graphs, tables, and additional figures.

In marked contrast, those who favor protection of the environment against development are fewer in number, their statements are based on emotion or personal feelings, and they usually lack numerical information, quantitative data, and detailed computations. Perhaps this is the reason why this latter group seems to be continually fighting rearguard actions—losing battle after battle.

The time has come when the argument of the environmentalist might best be presented by (1) separating facts from emotions in relation to the environment, and (2) by providing him with a means of quantifying his arguments: using numbers to talk about the landscape. While to some of us this may be a little like using a computer to describe Shakespeare, it seems that society still has the right to have all aspects of any proposed development presented in a way that is as objective as possible.

One strategy used by environmentalists or conservationists to combat this paucity of statistical barter involves an attempt to describe society's interest in landscape integrity in monetary terms, which make a region's esthetic attributes appear to be similar to the kinds of benefits ascribed to the planned development. From this has arisen the unfortunate and unsound procedure of evaluating recreation in terms of what is called the "visitor day." This argument is based on the idea that the average visitor to a particular place spends one dollar a day (or some other amount) there, which he would not have spent had he not visited the spot, and that the enjoyment derived therefrom is in direct proportion to the amount of time or money spent in the given area. To me, this procedure misses the whole point of recreational activity since we know, by experience, that recreational enjoyment is by no means dependent upon either of these factors. Rather, it appears more sound to develop a way of directly describing the quality of the recreational experience. A first step toward this goal is to objectively describe the landscape itself, which the recreationist visits for enjoyment without regard to expenditure of money or time.

Toward this end, in August, 1963, I began a study designed to produce a method that would quantify the esthetic features of the environment so that the resultant data could be used in many planning and decision-making contexts. Such data could be especially useful when choices must be made among alternative courses of action. They would tend to provide a more prominent consideration of nonmonetary values to society.

The event that gave rise to this report was the application made several years ago to the Federal Power Commission for license to construct a hydropower dam in the Hell's Canyon area of the Snake River in Idaho. Three dams are already operative in the upper parts of Hell's Canyon, but there is still about a hundred miles of undammed river that retains a special character because it is not easily accessible. The river in this section flows through a deep, narrow gorge whose rocks and vegetation give it a particular grandeur. Proposals for damming of the Snake have been vigorously opposed by the country's leading conservation organizations. In the ensuing controversy over this issue, the following alternatives have been proposed: to dam another, nearby river instead of the Snake, to change the size and location of the proposed dam, to abandon the dam proposals altogether, and so on—the usual gamut of moves and countermoves.

The problem posed, then, was to determine objectively if (and in what sense) Hell's Canyon is indeed esthetically unique. The answer to this question would hopefully guide the decision as to whether the river should be dammed in this area. The study thus undertook to evaluate the factors influencing the esthetic appeal of Hell's Canyon. Toward this end, a comparison was made between Hell's Canyon and other river valleys in central Idaho. Then another comparison was made between Hell's Canyon and several well-known valleys in presently established national parks.

Three types of factors appear relevant to landscape esthetics. These groupings of factors and their "subfactors" are listed in table 1. The first group involves the physical features of an area—the presence of mountains and valleys, width of valleys, height and type of mountains. The second group includes those features that have to do with the region's biology, especially—in the case of river valleys such as Hell's Canyon—the vegetation near the stream and on the mountainsides, and the biology within the water itself. A third class encompasses what I have called "human interest factors." These are often more intangible than either the physical or the biological ones, but they are nevertheless influential in determining how the landscape impresses us. For example, if one is at the point on the Delaware River where George Washington is supposed to have thrown the silver dollar, that historical incident, however apocryphal, gives that place a distinct meaning. The phrase "Lincoln slept here" is of a similar sort—there is a human interest associated with the sites where certain phenomena exist or where unusual events have occurred.

Another set of circumstances, also related to the human interest factors, is the presence or absence of vistas or scenic outlooks. The many travelers who pull off to the side of the road at a turnout marked "scenic viewpoint" or "scenic outlook," are an indication that the ability to look from some vantage point across great distances, often to mountains or into far valleys, gives the landscape some special character—whether at a mountaintop or in a river bottom.

The question of access also falls within the realm of human interest. In the listing of criteria I have broken accessibility down into two parts: access to the individual, especially the hiker, and separately, mass use, meaning availability to motorized transport.

Human interest is affected by the general level of urbanization; it can make a piece of landscape more interesting or the opposite. The view from the Berkeley hills, for example, across the bay to San Francisco is made attractive by the skyline of San Francisco itself. In this case, the presence of the city seen from afar seems to make the landscape more interesting. On the other hand, in certain kinds of mountain country the presence of a great many cottages along a road may tend to detract from its inherent character, and have the opposite effect.

Within the list of human-interest criteria, I have included the term "misfits." One often remarks on how certain kinds of architecture fit into a particular landscape; probably one of the things that makes the Swiss mountain landscape so appealing, especially to American visitors, is that the type of architecture and the handling of building location seem to fit especially well into the particular environment. On the other hand, if you were to put a flashing neon sign, advertising hamburgers on one of the Swiss chalets, it would be a cultural shock, and I would call it a misfit. So, also, in American landscapes one might be enjoying a drive through a rural countryside and suddenly be confronted with a tremendous dump of car bodies or even an obnoxious roadside billboard. These I consider to be misfits: they are out of character with natural surroundings. One does not mind seeing a large neon sign in the city nearly so much as seeing it in the countryside where it seems out of place.

The other two classes of factors are less complicated than the human-interest group. The physical factors are the easiest to measure in the field. Such factors as river width, river depth, and certain other characteristics require only a recording device or an elementary observation of the river channel. Under biological factors the list includes water color, turbidity, amount of algae, and the kind and extent of water plants, which are often indicative of stream purity or pollution. Under the three categories, a total of 46 criteria were chosen to describe a landscape's esthetic character.

After the factors were chosen, twelve river valleys in central Idaho, including Hell's Canyon, were chosen for evaluation sites that would have some potential for power development. Locations with such potential were selected in order to restrict the sites under discussion to those having something in common with Hell's Canyon. Each site was physically evaluated by standing at the edge of the river, thus providing uni-

Table 1: *In this study, the esthetic qualities of sixteen river valleys are described by means of the 46-factor checklist at right—a first step in determining the relative uniqueness of each site.*

FACTOR NUMBER	DESCRIPTIVE CATEGORIES	EVALUATION NUMBERS 1	2	3	4	5
	PHYSICAL FACTORS					
1	River width (ft.)	<3	3-10	10-30	30-100	>100
2	Depth (ft.) at low flow	<.5	.5-1	1-2	2-5	>5
3	Velocity (ft. per sec.) at low flow	<.5	.5-1	1-2	3-5	>5
4	Stream depth (ft.)	<1	1-2	2-4	4-8	>8
5	Flow variability	Little variation		Normal	Ephemeral or large variation	
6	River pattern	Torrent	Pool & riffle	Without riffles	Meander	Braided
7	Valley height/width	≦1	2-5	5-10	11-14	≧15
8	Stream bed material	Clay or silt	Sand	Sand & gravel	Gravel	Cobbles or larger
9	Bed slope (ft./ft.)	<.0005	.0005-.001	.001-.005	.005-.01	>.01
10	Drainage area (sq. mi.)	<1	1-10	10-100	100-1000	>1000
11	Stream order	≦2	3	4	5	≧6
12	Erosion of banks	Stable		Slumping		Eroding large-scale deposition
13	Sediment deposition in bed	Stable				
14	Width of valley flat (ft.)	<100	100-300	300-500	500-1000	>1000
	BIOLOGIC & WATER QUALITY FACTORS					
15	Water color	Clear colorless		Green tints		Brown
16	Turbidity (parts per million)	<25	25-150	150-1000	1000-5000	>5000
17	Floating material	None	Vegetation	Foamy	Oily	Variety
18	Water condition (general)	Poor		Good		Excellent
	Algae					
19	Amount	Absent				Infested
20	Type	Green	Blue-green	Diatom	Floating green	None
	Larger plants					
21	Amount	Absent				Infested
22	Kind	None	Unknown rooted	Elodea, duck weed	Water lily	Cattail
23	River fauna	None				Large variety
24	Pollution evidence	None				Evident
	Land flora					
25	Valley	Open	Open w. grass, trees	Brushy	Wooded	Trees and brush
26	Hillside	Open	Open w. grass, trees	Brushy	Wooded	Trees and brush
27	Diversity	Small				Great
28	Condition	Good				Overused
	HUMAN USE & INTEREST FACTORS					
	Trash & litter					
29	Metal no. per 100 ft. of river	<2	2-5	5-10	10-50	>50
30	Paper no. per 100 ft. of river	<2	2-5	5-10	10-50	>50
31	Other no. per 100 ft. of river	<2	2-5	5-10	10-50	>50
32	Material removable	Easily removed				Difficult removal
33	Artificial controls (dams, etc.)	Free and natural				Controlled
	Accessibility					
34	Individual	Wilderness				Urban or paved access
35	Mass use	Wilderness				Urban or paved access
36	Local scene	Diverse views and scenes				Closed or without diversity
37	Vistas	Vistas of far places				Closed or no vistas
38	View confinement	Open or no obstructions				Closed by hills, cliffs or trees
39	Land use	Wilderness	Grazed	Lumbering	Forest, mixed recreation	Urbanized
40	Utilities	Scene unobstructed by power lines				Scene obstructed by utilities
41	Degree of change	Original				Materially altered
42	Recovery potential	Natural recovery				Natural recovery unlikely
43	Urbanization	No buildings				Many buildings
44	Special views	None				Unusual interest
45	Historic features	None				Many
46	Misfits	None				Many

KEY: < less than, > greater than, ≦ less than or equal to, / divided by

SITE NO.	LOCATION	TOTAL UNIQUENESS RATIO
1	Wood River, 6 miles above Ketchum	11.07
2	Salmon River, ¼ mile above Stanley	11.00
3	Middle Fork Salmon River at Dagger Falls	11.87
4	South Fork Salmon River, near Warm Lake	13.93
5	Hell's Canyon, below Hell's Canyon Dam	16.09
6	Weiser River at Evergreen Forest Camp on Highway 95	11.17
7	Little Salmon River, 6 miles north of New Meadows	23.10
8	Little Salmon River, 4 miles south of Pollock	13.78
9	Salmon River, 2 miles below Riggins	10.25
10	Salmon River, at Carey Falls, 20 miles above Riggins	14.31
11	French Creek, 1 mile above junction with Salmon River	11.95
12	North Fork Payette River, near Smiths Ferry	10.21

Table 2: *"Total uniqueness value" (see text for full explanation) is an objective measure of how different each site is from other sites studied, without regard to "positive" or "negative" esthetic values. River pollution at Site 7, for example, makes this area relatively unusual and gives it the highest "uniqueness ratio."*

formity in the way the observer looked at the environment. One could just as well have chosen evaluation sites that were part way up the valley sides, but this would have had the disadvantage of putting the observer at varying distances from the river.

At each site the checklist of 46 items was filled out. It can be seen from table 1 that most of the physical factors could actually be evaluated with some common unit of measure. Others, however, had to be estimated in terms of categories—erosion of stream banks, for example. In all cases there were five evaluation categories specified in the checklist. During evaluation, each site was described by assigning to each factor a number from 1 to 5, according to its physical, biological, or human interest characteristics. Where physical measurements were involved, the five categories varied in their span in an unbroken progression. For example, the five categories of river width were: less than 3 feet, 3 to 10 feet, 10 to 30 feet, 30 to 100 feet, and more than 100 feet. In this way, the categorization of a given site with regard to one of the factors could always be fitted into the category quantities.

One of the purposes of the study was to eliminate personal subjectivity in landscape analysis. Accordingly, the "evaluation numbers" for each of the 46 factors in the checklist serve a descriptive function only; evaluation number 5, for example, is not to be interpreted as "superior" to evaluation number 1, or vice versa. If a given site has a river width of more than 100 feet, our analysis does not rank this area above one whose river width is, let's say, less than 3 feet, but merely assigns different evaluation numbers to each of these locations.

The results of such a comparative study depend in part on the sites chosen for comparison. This being the case, another set of comparisons was made between Hell's Canyon and a series of rivers in four national parks of the United States. In this way I could find out not only whether Hell's Canyon is very different or rather like other river sites in Idaho, but also how the region compared esthetically with some of the great beauty spots that the nation has already recognized by giving them national park status.

Any scheme for comparing landscapes must rest on some philosophical framework. The philosophy underlying the scheme I used is the following: *Landscape that is unique either in a positive or negative way is of more significance to society than one that is common.* A place of great scenic beauty is of importance because of its scenic qualities. On the other hand, one could imagine a unique site which is extraordinarily unattractive—a large, neglected, pestilential dump, for example. This also has significance for society, but in the opposite sense.

Having obtained the checklist data from 12 river valley sites in the Idaho region, the next step was to compare the sites factor by factor in order to determine the relative uniqueness of each factor at each site. Let us take river width, for example. As mentioned, with regard to this factor each site would be placed in one of five categories. Most of the sites had river widths falling into category 4—somewhere between 30 and 100 feet. A small number had widths greater than 100 feet, and a few fell in category 3, having a width from 10 to 30 feet.

To discover the relative uniqueness of each site's river width, we then determine how many among the 12 sites had river widths falling within each of the 5 categories. If it happened, for example, that there was only one river more than 100 feet wide, no other sites would share the 5 categorization, and this would determine what I call the "uniqueness ratio" of this one river. The uniqueness ratio for the river in question is equivalent to the reciprocal of the number of sites sharing the category value. The number 1, or unity, divided by the number of sites sharing the value, in this case 1, gives a

uniqueness ratio for that particular site of 1.0. If there were two sites that shared category 5 in river width, each would be assigned a uniqueness ratio for river width of unity divided by 2, or ½ (.50). If, for a particular factor, all 12 sites fell in the same category, each of the 12 would be assigned a uniqueness ratio of 1 divided by 12, or .08.

By this method, then, each site had a uniqueness ratio for each of the 46 factors that were measured in the field. Adding uniqueness ratios for all 46 factors for a given site yields a "total uniqueness ratio." In this way, the total uniqueness ratios for the 12 sites may be compared one with the other; the higher the ratio, the more unique the site. This is a way of measuring numerically the relative uniqueness of each of the sites chosen for comparison. The results of this uniqueness ratio technique, when applied to the 12 Idaho river valley sites, are given in table 2 on the page opposite.

There is a technical difficulty involved with the simple addition of the uniqueness ratios for the 46 factors at a given site. By the process of addition, each of the 46 factors is given essentially equal weight in determining the total uniqueness ratio. On further consideration of the list of 46 factors, one may decide that some are far more important than others, and therefore, for certain purposes, selected groups of the factors can be used for other analyses. Nevertheless, the uniqueness ratios for the 46 factors present a general means for quickly comparing a group of sites.

The uniqueness ratio techinque is objective in that it does not distinguish whether a given site is uniquely esthetic or uniquely unesthetic. The valley of the Little Salmon River near New Meadows (Site 7), for instance, was indeed the least attractive, most uninteresting, and unspectacular of the 12 sites surveyed. But because this site was different from the others in being a stream that was sluggish, algae-infested, murky, and slow flowing, it rated a high uniqueness ratio—the highest of all the 12 sites. It was unusual in a negative sense.

As can be seen in the table, the second largest total uniqueness score

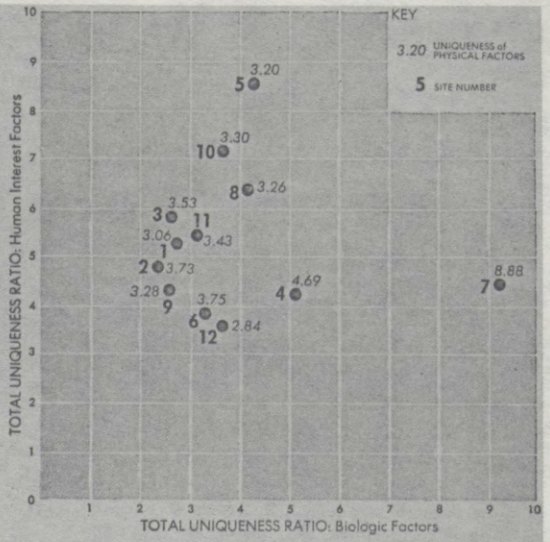


Figure 1: *The graph provides a measure of the relative uniqueness of each of 12 Idaho river valley sites in terms of the three groups of esthetic factors listed in table 1—biologic uniqueness is measured on the horizontal axis, human interest uniqueness on the vertical axis, and the physical uniqueness ratio is listed alongside each site number.*

is Site 5, the Snake River in Hell's Canyon. In interpreting its rank order in total uniqueness score, one can say that Hell's Canyon was different from all others in ways that made it scenically interesting and therefore unique in a positive sense. Surprisingly, then, the two highest uniqueness scores represented the two sites that might be called the two opposite ends of the scale of esthetic interest.

A visual picture of the position of the various sites in the uniqueness scale can be obtained from the graph in figure 1 in which the ratios of human interest and biological uniqueness form, respectively, the ordinate (vertical, or *y*-axis) and abscissa (horizontal, or *x*-axis) with the physical uniqueness ratio written in numerical form next to each plotted point. It can be seen that Site 7 stands alone on the graph, primarily because of its uniqueness score on the biological scale—a result of its being the only polluted river among the sites surveyed. It can also be seen that Sites 5, 10, and 8 stand more or less alone because of low values in the biological factors and high values on the human interest scale. The graph, then, is an easy way of seeing that the total uniqueness score of Hell's Canyon, Site 5, and the polluted river, Site 7, are indeed at the opposite ends of a scale of landscape desirability.

Having demonstrated that the total uniqueness score does not involve personal preference or preference bias, one can now proceed to select combinations of factors from the checklist in order to perform additional types of analyses. In this study, checklist factors were chosen for their particular significance with regard to the impression that the

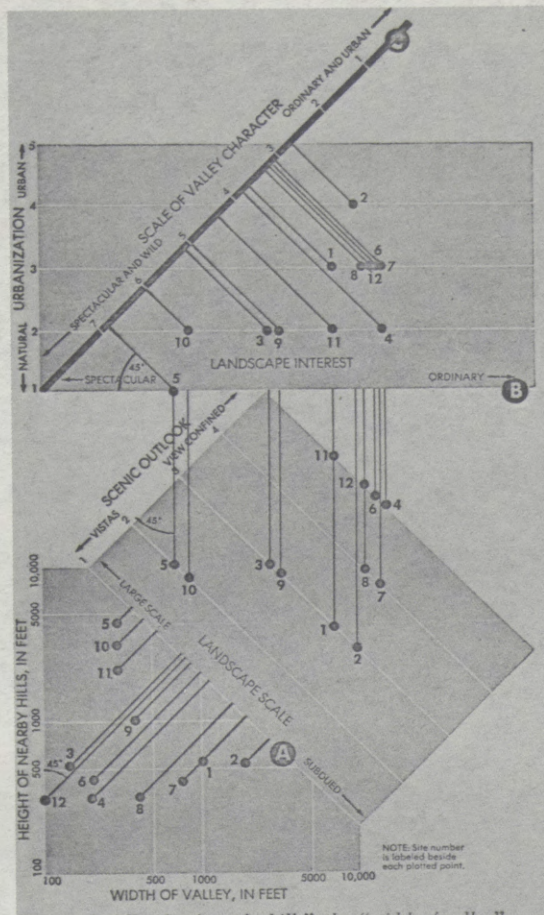


Figure 2: *"Height of nearby hills" plus "width of valley" equals "landscape scale." This value plus "scenic outlook" equals "landscape interest," which, combined with "degree of urbanization" yields "scale of valley character," a measure of the viewer's esthetic impression of the landscape at each site. See text for complete explanation.*

site gives to the viewer. The *selection* of factors does involve personal judgment as to which ones appropriately describe the landscape characteristics; but the selected factors themselves remain independent of this judgment. Factor selection may therefore be thought of as a subdivision of the objective basic data.

In this step factors were selected from the 46-factor checklist for the purpose of evaluating each site in terms of two characteristics—valley character and river character. Valley character I conceived as a *combination* of the scale or grandeur of the landscape, the availability of distant vistas, and the degree of urbanization. Valley character is certainly influenced, in part, by the bigness of landscape features. The spectacular character of many of the grandest scenic views in the world comes in large part from the presence of high peaks in close proximity to the valley floor from which the viewer is seeing the landscape. Specifically, where the valley floor is narrow and the adjacent hills or mountains exceptionally high, the viewer has the concept of a large-scale landscape. Where, in contrast, the valley floor is very wide and the adjacent hills low, the impression is one of flatness—the opposite of grandeur. The Swiss Alps are so spectacular because the valleys are narrow and the mountains are nearby and extremely high. The same can be said of the Teton Valley, in the Jackson Hole area of Wyoming. One, therefore, can make a scale that shows the combination between two of the measured factors, the width of the valley floor and the height of the adjacent hills or mountains, in order to evaluate this grandeur aspect of each site, or what I have here called "landscape scale."

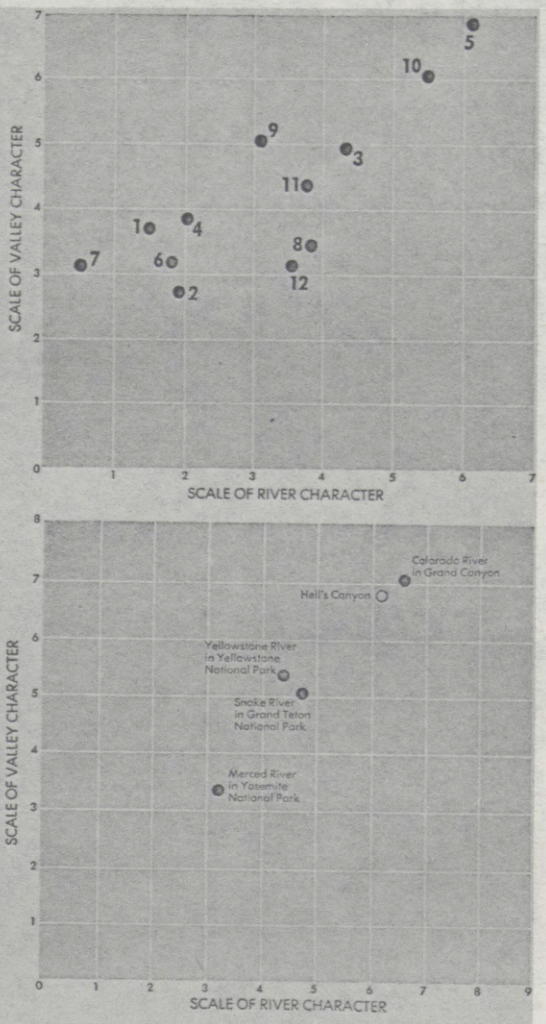
The method of obtaining a value for landscape scale for each of the 12 Idaho river values is dependent upon a diagram, as shown in figure 2. For each of the sites, the height of the mountains was plotted as ordinate and the width of the adjacent valley floor plotted as abscissa on the bottom graph of the diagram. On this graph, Sites 5, 10, and 11 fall in a zone of large-scale landscapes (high mountains, narrow valleys) and other sites fall near the other end of the scale, which I call a "subdued landscape." To simplify the combination of height of hills and width of valley to the single value, landscape scale, the position of each plotted point in the bottom graph in figure 2 is projected orthogonally onto a diagonal line (line A). (The projection of each point is indicated by those lines leading from the points at a 45° angle upward and to the right in the lower graph.) Line A now serves as the line on which the sites are ranked according to their respective landscape scales. Having

a value of landscape scale for each site, this joint value can be used for the construction of a new graph, as has been done in the central portion of figure 2, using line A as a horizontal, or *x*-axis.

At this point, it was reasoned that the impression of a landscape on the viewer is partly determined by this factor just derived, landscape scale, and partly by the "degree of view confinement." Where distant vistas are available in large-scale landscapes, one has the impression of spectacular scenery. In contrast, where the view is confined by heavy cover or by adjacent hills, the result is esthetically ordinary from the scenic point of view. Again this is one of the reasons why the Alps give a strong impression of scenic grandeur; not only is one looking out from a narrow valley to the high mountains immediately adjacent, but one can see up and down the valleys for long distances, viewing ranges of mountains as background vistas. In contrast, when one is in the bottom of a narrow, tortuous gorge, with no distant outlooks, as in certain portions of the Black Canyon of the Gunnison River in Colorado, the impression of the view is distinctly less spectacular.

On the central graph of figure 2, then, scenic outlook (the presence or absence of distant vistas) serves as the *y*-axis and landscape scale as the *x*-axis. And the position of each point on the graph is again projected upward at a 45° angle onto line B providing a scale which I have labeled "landscale interest." The position of each site on the landscape interest scale is thus a ranking of the individual sites using a combination of three factors: width of valley floor, height of adjacent mountains, and availability of vistas.

The scale of landscape interest can now be combined with another factor—degree of urbanization—which also affects the viewer's impression of the total landscape. The degree of urbanization is defined as the totality of buildings, houses, roads, utilities, and other earmarks of man-made change present in a given site. As before, using the scale of landscape interest as the *x*-axis, an ordinate, or *y*-axis, is constructed representing the degree of urbanization. This pro-



Figures 3 & 4: *The viewer's esthetic impressions of Idaho river valleys and river valleys in national parks are evaluated in terms of "valley character" and "river character." Relative to other locations, numbered sites falling in the upper right-hand portion of the graphs tend to have large rapid-flowing rivers, large-scale landscapes, scenic vistas and little urbanization. On the basis of this assessment, Hell's Canyon ranks second only to the Grand Canyon of the Colorado.*

vides the final or upper graph in figure 2. The sites having a combination of spectacular scenery and minimal urbanization fall in the lower left-hand zone of the upper graph, whereas those having ordinary and urban conditions fall in the upper right. The combination of landscape interest and urbanization, each given equal weight, is represented by another 45° projection onto the diagonal in the upper graph (line C), yielding a scale of what I call valley character. We thus constructed a ranking scale called "scale of valley character" representing a combination of four of the factors from the checklist in table 1: width of valley, height of adjacent mountains, availability of vistas, and degree of urbanization.

When the position of each of the 12 sites is considered on this final scale of valley character, we see that Sites 5 and 10, Snake River at Hell's Canyon and the wild reach of Salmon River at Carey Falls, are highly unusual. They are characterized by narrow valley floors, high adjacent mountains, availability of distant vistas, and little or no urbanization. All of the other sites in figure 2, fall to the right of Sites 5 and 10.

After combining the four factors contributing to valley character, we can perform a similar analysis on the rivers themselves, obtaining a measure called "scale of river character." Experience indicates that the grandeur or majesty of a river is dependent upon a combination of its size and apparent speed. Rivers tumbling over a succession of falls tend to be more impressive or esthetically appealing than those that appear sluggish. The latter characteristic is not so much dependent upon true velocity, which is usually poorly estimated by the untrained eye, as it is on the *appearance* of speed judged mostly by waves and surface riffles caused by rapids or falls. We therefore wish to find a combination of factors that gives the viewer the impression of the river's grandeur itself. For this we use river width, river depth, and the presence or absence of rapids, riffles, and falls, chosen from the checklist factors.

Eventually we arrive at a ranking of the sites according to river character; those rivers that are wide, deep, and have rapids, falls, and riffles rank high on this scale. In this instance, Sites 5 (Hell's Canyon) and 10 (Salmon River at Carey Falls) again outrank the other locations. As the last step in our analysis, we use a graph to compare the 12 sites according to both valley character and river character (figure 3), and thereby obtain a final rank reflecting a total of 7 of the factors chosen from among the 46 on the initial checklist.

It can be seen that on this graph Hell's Canyon is indeed unique, for it falls in the farthest position in the upper right-hand part of the graph. Nearest to it again is Site 10, the wild reach of the Salmon River near Carey Falls. Nearly all of the other sites fall in the central cluster in the center of the graph. Site number 7 (Little Salmon near New Meadows), the least interesting of all those surveyed, falls at the opposite end of the scale, appearing in the lower left-hand portion of the figure.

Having evaluated the Idaho sites, a new comparison was made in which Hell's Canyon of the Snake was viewed along with rivers in four areas officially recognized as having great natural scenic beauty. These are the Merced River, in Yosemite National Park in California's Sierra Nevada; the Grand Canyon of the Colorado River; Wyoming's Yellowstone River near Yellowstone Falls in the national park; and the Snake River in the Teton National Park below Jenny Lake, again in Wyoming. How does Hell's Canyon compare with them?

The same kinds of data that were used in the construction of the graphs just described were tabulated for Hell's Canyon in combination with these four national park rivers. A similar set of graphs was derived, the results of which are shown in figure 4. In this comparison, it can be seen that the points representing Hell's Canyon and Grand Canyon fall nearly together in the upper right-hand portion of the graph. They are comparable in the combination of valley character and river character and stand in exceptional positions. By comparison, the Merced River in Yosemite is of a lower order of interest. Truly the Yosemite Valley as a whole is one of the great scenic beauty spots of the world, but the river within the valley is not of a special character. As far as the Snake River in Teton Park is concerned, its position in the center of the graphical comparison can be attributed in part to the higher degree of urbanization present there than in the Grand Canyon or Hell's Canyon, and to the comparatively large width of the valley floor, a characteristic that makes the Snake River at that point less of a grand spectacle than either Hell's Canyon or the Grand Canyon. Relatively great urbanization, along with the absence of scenic vistas, also diminishes the site of the Yellowstone River.

The result of the data collection and analysis indicates that it is possible to set up a list of factors that influence the esthetic nature of a given location. The factors can be considered all together, in this case by the computation of a total uniqueness ratio, or they can be selected and used in various combinations to express certain aspects of a landscape's characteristics. It is hoped that the study will indicate both the need for, and the possibilities of, objective description of landscape. Specifically, this analysis shows that the Hell's Canyon of the Snake River, the site proposed for a hydropower dam, has unique characteristics that give it an exceptional esthetic rating and place it in a category shared by few other landscapes within the United States.

Common scenery? Above average? Unique? The Leopold study seeks to answer these questions by assigning numerical values to "landscape scale," "degree of urbanization," and to other features that contribute to a region's esthetic impression. The study concludes that Hell's Canyon, right, is an area whose superb esthetic qualities are shared by few other landscapes within the United States.

Mr. JAYNE. Finally, if I may include this in the hearing record, this is the testimony of Dr. Frank Craighead, Jr., to the Federal Power Commission, October 1968, concerning the ecological and biological description of the Hells Canyon region.

Senator CHURCH. That testimony will also appear in the record at this point.

(The material referred to could not be reproduced and was retained in the committee files.)

Mr. JAYNE. I might also ask at this time how long will the hearing record be kept open for statements?

Senator CHURCH. The committee has agreed that the hearing record will be kept open for 2 weeks to accommodate requests of other witnesses this morning. No action will be taken on the matter until after the hearing record is closed.

Mr. JAYNE. Thank you.

The Hells Canyon Preservation Council is a national organization which has led and coordinated the effort of the last 2½ years to protect one of the most magnificant canyon in North America from further dam building.

While the majority of our 900 members live in the three Northwestern States which contain the Hells Canyon region, many of our members reside in other regions of the country.

We have members in 42 States.

The Hells Canyon Preservation Council supports S. 940, the middle Snake River moratorium bill, with these recommendations:

1. The period of time should be shortened from 10 years to a 3-to-5-year period.

2. The language in S. 940 should be altered so that not only FPC licensed dams are precluded during the moratorium period, but all dams, including those funded by Congress or by Federal-private or joint financing.

3. The Asotin Dam should be deauthorized by Congress.

4. That the moratorium be understood as a first step in providing permanent protection for Hells Canyon and the remaining undammed stretch of the Snake River, a unique national treasure.

The moratorium bill does not prohibit the Congress from enacting preservation legislation to protect Hells Canyon in its unspoiled state.

It should, however, be clearly established that its enactment by the Senate will not make it more difficult to get needed preservation legislation passed during the moratorium period.

One of the reasons we are advocating a shortened moratorium period is that we fear the dam-building interests may form coalitions which will be very difficult to combat.

For instance, the reclamation and power interests may join. We see that in a 10-year period we may very well be faced with not only power interests striving to build a dam, but also reclamation interests such as the Idaho Water Resource Board and the Bureau of Reclamation, itself.

While we recognize that Secretary of Interior Hickel has very admirably withdrawn the Interior Department from the three-way bid to build the dam in Hells Canyon, he advocated a 3- to 5-year moratorium, but we do not know what the Bureau of Reclamation might be doing 10 years from today, given a 10-year moratorium period.

It is just a fact of life that it seems to be the case that plans for dams do not get thrown away as long as there is a potential damsite.

The moratorium must not be regarded as a solution itself, but as a step in providing for permanent protection. The constructive measure for providing this protection, and the measure which conservationists will vigorously advance, is the Hells Canyon-Snake National River; identical national river bills were introduced last month by Senator Robert Packwood and Congressman John Saylor (S. 3329 and H.R. 15455, respectively).

The council urges that the Senate Interior Committee give the Packwood bill immediate attention and that you schedule field hearings in the near future.

There is already a great deal of support for this bill; it comes from nearly all the national conservation organizations and from many regional ones.

The goal of the Hells Canyon Preservation Council is a Hells Canyon-Snake National River designation within a period of 2 or 3 years.

The Hells Canyon-Snake National River bill provides that:

1. Dams will be prohibited on the Middle Snake from the existing low Hells Canyon Dam, through Hells Canyon, downstream to Asotin, Wash., a distance of about 110 miles, on the lower 100 miles of the world-famous Salmon River, on the lower end of the Imnaha River, and on the lower 35 miles of the Grande Ronde River.

I would like to illustrate on the map where this area is.

Here is the proposed Hells Canyon-Snake National River, from the low Hells Canyon Dam, down and to Asotin, Wash.

Also, on the lower 100 miles of the Salmon River, and on the lower end of this river (indicating), and on approximately 35 miles of the lower Grande Ronde River.

2. The entire 720,000-acre area, which is marked here in red, composed of the Middle Snake River, the canyon walls, and adjacent high country, plus a ¼-mile strip along each bank of the other river sections, will be administered primarily with regard to scenic, recreational, and cultural values.

3. The areas within the green lines, which are proposed wilderness areas, nearly 400,000 acres, will be designated as wilderness areas, where there is pristine country.

The fourth point is two river access roads will be improved for all-weather access to the canyon.

The fifth point is the existing established uses of hunting, fishing, powerboating, ranching, and grazing would be maintained under the bill.

In regard to what was said earlier here, I have a newspaper clipping from the Idaho Falls Post Register of February 10 this year reporting on the high recreational use of the Hells Canyon area. It is entitled "Recreational Use High for Hells Canyon Area."

The fish and game departments of Idaho and Oregon have coordinated a study with the Forest Service. Counting the number of man-days spent on the river at Pittsburg Landing and other locations, the use last year was over 50,000 man-days.

The statistical study done on a pool of fishermen found that a check of the Snake River below Hells Canyon Dam found 322 angler fishing hours per mile compared to 30 hours per mile on Hells Canyon Reservoir.

The claim sometimes is made that we need more time for studies to determine the "highest use" of Hells Canyon. This we dispute. We already know that this canyon is worth permanent protection.

It is not merely the deepest canyon in North America; it is a unique ecological and geological system where all the life zones in the Western United States can be walked through in 1 or 2 days. It deserves protection as surely as Yellowstone Park does.

Here, if I may take a few quotes from the statement of Dr. Craighead to the Federal Power Commission, Dr. Craighead says:

> My experience and training as an ecologist and familiarity with this specific area which would be inundated by either the reservoir beyond High Mountain Sheep Dam, Appaloosa Dam or Pleasant Valley Dam, have led me to the belief that there are combinations of features in this area unique to Hells Canyon only and nowhere else.
>
> First, a community of riparian plants growing at the river edge at the bottom of the canyon, on the beaches, bars, and at the mouths of the several tributary creeks.

Then he goes on to list several species of plants which do grow there. He comments:

> Seven species of plants are endemic, that is found only in the Hells Canyon area.
>
> Another unique feature of the reaches of the Snake River under consideration is the remarkable variety and abundance of wildlife species. In my experience and knowledge, nowhere else in the nation are all these species found together in such collective abundance, and due to the rugged and wild character of this part of the country, they are likely to remain so if undisturbed by man-made developments.

Then he lists several species of wildlife which are found there. He goes on:

> Another near-unique feature of this stretch of the river is the unusually high population and variety of fish and the existence of the white sturgeon (Acipenser transmontanus), a large primitive-type fish which must have running water and gravel bars to spawn.
>
> There are 25 species of fresh water fish in the river and the sport fish are so abundant that there is no closed season.

As to recreational uses of this area, Dr. Craighead makes the following observation:

> In 1961, I rated this canyon river along with numerous other rivers in the Pacific Northwest utilizing the river-recreation evaluation system we developed and published in the Minnesota Naturalist, Vol. 13, No. 2, 1962. For outdoor recreational purposes including boating, hunting, and fishing, this section of the Snake River rated among the three finest in the Northwest along with the Upper Selway and the Middle Fork of the Flathead—and perhaps the finest in the nation.

The feeling among environmental-minded people is that dams are not the harmless structures we once imagined they were, nor is a river a mere piece of natural plumbing. People are beginning to realize this.

In Idaho, for example, the public is showing signs of having had enough major dams. It is probably safe to predict that Dworshak Dam, an impending environmental disaster now being constructed on the Clearwater River system by the Corps of Engineers, will, if completed, be the last large dam built in Idaho.

In determining the fate of Hells Canyon, the production of electrical power is simply not a relevant question. In fact, economics must not be used as the sole criterion in determinations of any aspects of future power production.

We must pay the costs of protecting our environment, and not continue to allow power to be produced at a low rate when hidden costs are passed from power producers to society in the form of environmental degradation.

In the Pacific Northwest, for example, the projected increase in future electrical power demands is based on a past philosophy of providing low-cost power indefinitely to encourage industrial growth and economic development.

How much more growth do we need?

How much more can our environment stand?

To quote from Lord Ritchie-Calder, writing in the January 1970, issue of Foreign Affairs:

> The danger of prediction is that experts and men of affairs are likely to plan for the predicted trends and confirm these trends. "Prognosis" is something different from "prediction."
>
> An intelligent doctor, having diagnosed your symptoms and examined your condition, does not say (except in novelettes), "You have six months to live." An intelligent doctor says, "Frankly, your condition is serious. Unless you do so-and-so, and I do so-and-so, it is bound to deteriorate."
>
> The operative phrase is "do so-and-so." We don't have to plan for trends; if they are socially undesirable, our duty is to plan away from them; to treat symptoms before they became malignant.

This broad statement applies, of course, to probably the underlying problem for all of our environmental problems, which is population growth. Most conservation organizations will now agree that this is the underlying problem and that something has to be done within the next few years.

For many people, it is difficult to see the connection between the necessity for the control of pollution and the necessity to protect the few remaining wild areas.

The effects of pollution are dramatic, and threaten to kill us all if we do not clean up within a few years. Open space is looked on as desirable, but not essential, for our survival.

Yet both aspects of conservation are important, and both are related by our attitudes toward the land. Arrogance and ignorance have characterized our misue of the land. It is an interesting commentary on our society's attitudes toward the relationship of man and nature to note that private citizens must contribute so much personal effort just to have the few remaining natural areas left alone. It is high time we, as a people, begin showing evidence of possessing a land ethic.

One of the greatest of ecologists and conservationists, Aldo Leopold, said several years ago that we must regard land not as a commodity, but as a community to which we all belong. Only then, he said, will we begin to treat the land with love and respect.

An excellent opportunity for demonstrating that we have begun to acquire this love and respect for the land is Hells Canyon and the possibility of giving this beautiful wild area the permanent protection it so surely deserves.

Senator CHURCH. Thank you very much. You have been organizing and directing a council which has grown very rapidly and has come to receive national recognition in recent months.

I don't think I have any questions on your testimony.

Senator Jordan?

Senator JORDAN. I have just one or two.

Mr. Jayne, you live in Idaho Falls?

Mr. JAYNE. Yes, sir.

Senator JORDAN. Where are you employed?

Mr. JAYNE. I work at the reactor testing station, Senator.

Senator JORDAN. Does your group endorse nuclear fuel power development as an alternative to hydropower?

Mr. JAYNE. The Hells Canyon Preservation Council?

Senator JORDAN. Yes.

Mr. JAYNE. We have not become directly involved because it is a little outside of our domain. However, 2 years ago we were arguing that nuclear power was a feasible alternative and is a feasible alternative.

Since then things have happened to indicate that perhaps there are questions regarding nuclear reactors which need to be answered before we proceed full-steam ahead with those; yes.

Senator JORDAN. Well, you have answered the next question I was going to ask. We are running into some difficulties.

Mr. JAYNE. Yes.

Senator JORDAN. Tell me this: I go to Idaho Falls as often as I can. One of the things I have enjoyed there very much is that scarcely a time goes by that I don't jump a bunch of wild antelope on that preserve. Have you seen them out there?

Mr. JAYNE. Yes.

Senator JORDAN. Senator Church and I are pushed hard by our constituents out there when a new project comes up having to do with nuclear investigations and research, to see if we can't get it for the site, to get it for Idaho.

I am an antelope kind of fellow. I like wild antelope. If we had to forgo the ranging of these antelope on the atomic energy site, should we go ahead and try to get more of our share of more research projects for the site?

Mr. JAYNE. I don't understand your question.

Senator JORDAN. If it costs us the antelope that presently enjoy that domain, if this is their range and by the addition of more nuclear research projects to that site they would be driven off, would you be in favor of us exerting ourselves to get more projects?

Mr. JAYNE. It is difficult to imagine that we would have so many projects on the site. I don't really know how you would have enough projects on there to keep the antelope off, unless you are talking about putting up a fence or something like that.

Senato JORDAN. Assuming you could, would you say that we should give the highest priority to the antelope or to atomic research?

Mr. JAYNE. This I couldn't answer until I studied it. I just don't know. I don't know which you would need the worse. You say you like to see antelope. We all do, I am sure. I don't think the question of "either/or" is really the case.

Senator JORDAN. It is in a lot of these areas that we are discussing. Often it isn't a question of either/or. It is a question, possibly, of having more research and antelope, too. It is a question of having abundant recreation and some development, too. It isn't a clear-cut case of either/or in any instance.

Mr. JAYNE. I will make this comment: I think the large animal species that have been hurt in Idaho are not so much the antelope but

the deer and the elk which have lost so much winter range to projects such as dam projects.

Senator JORDAN. I know that country pretty well. You might be surprised to know that the elk and deer do not winter in the area that would be inundated by the reservoir. They winter up on the benches.

Mr. JAYNE. The Forest Service report, the impact study of the High Mountain Sheep area, said, in essence, that in a critical winter, one out of 10 or so, they would actually be driven down to the river level and if the pool were there they predicted up to 50 percent mortality.

Senator JORDAN. I will not argue with you. I will argue with the Forest Service.

Mr. JAYNE. All right.

Senator CHURCH. Thank you very much, Mr. Jayne. Our next witness is Mrs. Annette Tussing, director, Hells Canyon Preservation Council, Clarkston, Wash.

STATEMENT OF MRS. ANNETTE TUSSING, DIRECTOR, HELLS CANYON PRESERVATION COUNCIL, CLARKSTON, WASH.

Mrs. TUSSING. Thank you, Senator Church. I always enjoy a hearing which you chair, as your wild rivers hearing.

I am a director, as you said, of the Hells Canyon Preservation Council, the national council, a charter member of the Idaho Environmental Council, a member of the Washington State Environmental Council, the Wilderness Society, and the Washington Chapter of the National Federation of Press Women. I am just relating these so that you know I do come in contact with quite a few people through the years.

Incidentally, I live above the middle Snake, look down upon 2 miles of it every day in the year, so I speak with heartfelt sympathy for it.

The name of Lewis Bell, the Everett attorney, came up here earlier. I believe he sent a letter stating the position of the Washington Environmental Council. I might add a little aside about Lewis Bell. As you probably know, he is the Governor-appointed head of our State Interagency Committee for Outdoor Recreation which is composed of the heads of all these different departments of the State concerned with outdoor matters. Lewis Bell is much an admirer of the Snake and the Grande Ronde River, which he delights in fly fishing.

He asked me recently to plan a trip up the Middle Snake May 23 for the Interagency Committee, which I have done, and on which I would like to have you and Senator Jordan join, if you could.

I want to thank both of you for this opportunity to appear before you and share some of my convictions and some of the opinions of the people with whom I come in contact.

I have a rather lengthy statement. With your permission, I will summarize as much as I can. The rest can be entered into the record.

I studied the two bills before the Senate, the moratorium bill, which I think is very fine, and Senator Packwood's Hells Canyon-Snake National River bill, Senate 3329. I feel, as those before me have said, that we must give a full evaluation of all aspects for this river because it is such a priceless and unique asset.

I thank you, Senator Church, for all of the description of it and the support of it that you have already given at this hearing, and the others who have.

While the moratorium is vastly preferable to the open danger of a license for a dam being granted by the Federal Power Commission, I, along with many other members of the Hells Canyon Preservation Council, and other outdoor organizations of which I am a member, feel that the moratorium does not in its present wording offer the full and permanent protection we must have.

At best, it seems to me, as I interpret it, that it can offer only temporary protection. But we who live on and know the river, and Hells Canyon, feel there is no alternative to the absolute insurance against dams that the national rivers status would give.

This is not a wild river, as you may known. It is a national river and allows all present public and private uses. It would allow the use of the two roads which penetrate the lower ends of Hells Canyon. This bill also provides for improvements of these roads for public use.

We feel that the Middle Snake and the Canyon, deeper, as it has been said before, than the Grand Canyon of the Colorado, have been studied long enough. We feel that the biologists, archeologists, hydrologists, bioecologists, recreation, wildlife and fishery experts and the thousands of other users of the river, have already spoken out loud and clear for its preservation.

Another important ommission of the moratorium bill is that it provides no provision nor protection whatsoever for the contiguous wilderness areas of Hells Canyon. Any logging or other changes in these giant hills would so depreciate the views and character of the canyon as to immeasurably reduce the experience of going there.

I am sure, since both of you, Senator Jordon and Senator Church, have been there, you can appreciate this.

Our bill, as I said, would allow all present uses of the canyon, and it would also give to these vulnerable, unspoiled areas on each side of the canyon—these are lands too steep to be for any use other than for ecological research or recreation—it would give these lands the protection of being in the wilderness system. We feel that this is a very important part of this whole concept of Hells Canyon.

I have encountered in my work as a feature writer a wonderful cross section of visitors drawn to Hells Canyon and the Middle Snake because of its natural appeal.

Dr. Richard Daugherty, head of the Department of Archeology at Washington State University, regards Hells Canyon as a vault of the earth's formation because of the exposed strata recording geologic evolution there, and there are others, many more. Increasingly, as Hells Canyon is publicized in national magazines, such as Life and Reader's Digest, it becomes a magnet to those who wish to see a part of the world as it was created before the meddling of man.

I don't know if we are going to have a chance to show the film on the Middle Snake River. Do you know if we will have a chance?

Senator CHURCH. We hope so. We are planning on showing it at the conclusion of testimony. It depends on how long the testimony lasts.

Mrs. TUSSING. I thank you for offering us the opportunity. It is an excellent film. I thought if we were not going to see it, I would take a capsule, imaginary trip, up the river for those who have not had the opportunity to do so. But I will just hit the highlights on the chance that we may be able to see the film.

We start out at Lewiston and Clarkston, which are twin cities connected by the unbilical of the Snake River. These are 120 miles south of Spokane.

We board a 24-foot jet boat and we see below us the interstate bridge. The Clearwater River flows in here and this was one of the important junctures for the Lewis and Clark Trail which, as you know, was one of the milestones of our national history.

So this whole area, from these twin citeis on up to the low Hells Canyon Dam, is rich in history of every kind. So we embark on our journey and the first thing we see two miles up the river is the second largest monolith in the whole Columbia drainage, Swallow Rock. It is a giant nose of salt rock jutting about 200 sheer feet above the river.

Things like this would be much depreciated by the slack water reservoir.

In 5 miles we pass the county seat of Asotin. This means place of eels. The eels, I might add, no longer are there, because of the dams leading up to this area.

Here, unless it is deauthorized, the river-ruining Asotin Dam could be built. As you know, it has been authorized and needs only funding fort he Corps of Engineers to choke this singing river and back water up over hundreds of these white sand beaches which dot the river and which are free for anyone to use.

So we would like some specific defense against this Asotin Dam written into the moratorium bill, if you please.

A survey currently being made by the Idaho, Washington, and Oregon Game Departments, the personnel doing this on their own time so it has not yet been released officially, will indicate, I am told by the fisheries biologist for the Lewiston region of the Idaho Game Department, this survey will certainly tally over 150,000 man-days of recreation currently in this Asotin Dam area each year.

So we think this is worth getting more protection against the Asotin Dam.

Twenty miles up the river we enter Buffalo Eddy. This is where generations of Indians wintered. They liked the mild climate and good fishing here, and they wrote about their exploits on the rocks. These are right by the road for everyone to see. I am sure that you have seen them, Senator Church, and agree that they are a very valuable asset. These would be flooded if Asotin Dam were to be installed.

Also, your children playing along the sands here might easily kick up an arrowhead or primitive tool. This is kind of a thrill for any youngster.

We have been in roadless country or will be after we reach the Grande Ronde. This is 30 miles from Lewiston and Clarkston. This is the end of the road. Beyond that there are no roads except the small primitive road that comes down to Pittsburgh Landing on the Idaho side and the equally small, primitive road that follows the Imnaha River on the Oregon side. These do allow vehicle access for those who wish to come into the lower canyon. There would be funding allowed for improving these roads in the national river bill.

Frequent creeks lace into the Snake, each a microcosm of the balance of nature. They are beautiful to see. There are many kinds of recrea-

tion areas provided and some of them are like Hurricane Ridge in Olympic National Park, where masses of people come on a good road and where the transistor radios drown out the songbirds. This is one type of recreation. This is fine for those who like this. But for those of us who seek spiritual renewal and retreat from the noise and crush of civilization can there not be provided by thoughtful legislators such as you permanent protection for a place such as Hells Canyon?

Eight miles upstream from the mouth of the Salmon River, and we are now 58 miles above Lewiston and Clarkston, lovely Imnaha River spears down out of the Oregon hills. This would also be protected by the national rivers bill. There are trails in this area provided by the Forest Service so that one may have a variety of recreational opportunities here.

Of course, the panoramic view from these trails are spectacular. No wonder Arthur Godfrey, after he took his July 1969 trip into the canyon, returned to his broadcast and started his report of that trip with, "I have been to paradise and back." He went on for 20 minutes extolling the beauty of this area and implicitly implying that he wished no dams would ruin it.

Leading bioecologists, like Dr. Frank Craighead, who has devoted most of his life to the study of wildlife and recreational aspects of American river systems, reports firmly that many features of Hells Canyon are unique there. This is another reason we feel no further study is needed. For the past 15 years the river and canyon have been traveled, written about, argued over, and threatened by so-called development promoters.

Hells Canyon has been the focus of magazine articles since 1939 when R. L. Neuberger wrote "Hells Canyon, Biggest of Them All."

The momentum of interest is growing nationally, as we have already recognized here, and it has become the subject of at least 20 publications, most of them national publications, within this last year.

I think one species which has not been mentioned in the wildlife is the s sturgeon, which is a holdover of the Meozoic age 300 million years ago. The sturgeon would be one of the first sacrifices to be sacrificed if, for instance, High Mountain Sheep is built. This ancient species cannot reproduce in a reservoir or any impoundment of water. As it is now, one can fish for sturgeon and to be believed they have to be photographed because they run up to 10 feet and several hundred pounds.

I understand in the old days, before any dams, they ran up to 1,500 pounds and 12 feet in length, which must have been something to see.

I hope that we can hang on to the remnant of them that we do have through Hells Canyon and the place to reproduce.

Then, of course, as Gerry Jayne pointed out, if we are ambitious and hike up the sides of the hills of Beacon Hills Canyon, we can pierce through 10 biotic zones, all of them representative of the biotic zones on this continent. We might encounter mule deer, bear, elk, even many a wary cougar. I checked this out before I came to see if we might encounter a cougar still in the Hells Canyon area, and he said this was true, that we might, on the higher elevations. I think, though, setting aside all of the fishery and the wildlife bonus of this area, the prime gift that Hells Canyon has to give to any of us or to our descendants is fulfillment, renewal, a restored sense of oneness with one's parental world—that has been largely lost in our jangling society.

So I think when you say, Senator Church, that it is difficult to put a price on this very intangible value, you are so right. We can't put a price on beauty, on serenity, on easily reached remoteness; on refuge from the everyday worries; on privacy in which to rediscover one's personal values.

I am only a small constituent from a little city far from these political centers of power. But it occurs to me that perhaps the Congressmen from the Eastern States might be getting a little tired of dumping money into the West for endless reclamation and power projects. I rather hope they are.

So, if you feel, gentlemen of the committee, that the moratorium bill is the only political possibility now as protection for our canyon, I ask that you give it stronger, wider, clearer wording, that states firmly that this document shall prohibit all dams in the Middle Snake by whatever authority, from the city of Clarkston to the existing low Hells Canyon Dam operated by Idaho Power Co., 120 miles south of Clarkston, and I urge that the record on this bill indicate clearly that its implementation will not inhibit the passage of subsequent legislation such as our Hells Canyon-Snake National River bill, Senate bill 3329, that will insure stronger and permanent protection for the river.

To gain this protection, we hope that these steps will be taken early.

I thank you, and my descendants thank you. I believe that yours will, too.

(The complete statement follows:)

STATEMENT OF ANNETTE TUSSING, DIRECTOR, HELLS CANYON PRESERVATION COUNCIL, CLARKSTON, WASH.

I am Mrs. Frank (Annette) Tussing. I am a free-lance feature writer and photo-journalist and active member of the Outdoor Writers Association of America.

I am director of the Hells Canyon Preservation Council, a charter member of the Idaho Environmental Council, a member of the Washington (state) Environmental Council, The Wilderness Society, and of the Idaho Chapter of the National Federation of Press Women.

I live on a cliff top overlooking two miles of the free-flowing Middle Snake River, which extends from my city of Clarkston, Washington, upriver, south, 120 miles into the depths of Hells Canyon, deepest gorge in North America.

I want to thank you, Chairman Anderson, and you Senator Church, for this opportunity to appear here before you and the Subcommittee, and share my convictions and some opinions expressed to me by other residents of Washington and Idaho.

For a year and a half, both in solo thinking and in mental concert with other concerned residents of our region, I have deliberated over which legal vehicle would offer the best and surest protection of the yet-unspoiled Middle Snake and its Canyon.

I have studied the two bills now before the Senate: the Moratorium Bill and Packwood's Hells Canyon-Snake National River Bill, S. 3329.

We must consider these for a full evaluation of all aspects: the outstanding scenic qualities of the river; the evolution of attempts to dam the Middle Snake, the continuing pressures to steal this priceless natural laboratory from future generations and the wide variety of recreation for all ages, afforded by the free-flowing river and its related wild lands.

While the Moratorium is *vastly* preferable to the open danger of a license for a dam being granted by the Federal Power Commission, I, along with most of the other members of the Hells Canyon Preservation Council and the outdoor organizations of which I am a member, feel the Moratorium does *not* offer the full and permanent protection that we *must* have!

At best, it can only offer temporary protection!

We who *know* the river and Hells Canyon feel there is *no* alternative to the absolute insurance against dams that Senator Packwood's Hells Canyon-Snake National River Bill will give.

We urge its early, favorable consideration by this Committee!

We feel that the Middle Snake and its dramatic Canyon, deeper than the famed Grand Canyon of the Colorado, have been studied *long enough.*

We feel that the *many* biologists, archeologists, hydrologists, bioecologists, recreation, wildlife and fisheries experts, and the thousands of layman-enjoyers of the river and its related lands have *already* spoken out loud and clear—to document without equivocation both the tangible and *intangible* values of the unique area.

Another important omission of the Moratorium Bill is that it provides *no* provision nor protection whatsoever for the contiguous wilderness of Hells Canyon. Any logging or other changes in these giant convoluting hills would so depreciate the views and character of the Canyon as to immeasurably reduce the experience of this remote Canyon!

Bill H. 3329, introduced by Senator Packwood, would establish a *new* kind of protection for the Middle Snake River and Hells Canyon.

It would allow all present uses of the Canyon, and yet protect the river from dams. It would give to those vulnerable unspoiled areas on each side of the Canyon, lands too steep to be of value for uses *other* than recreation or for ecological research—the protection of being included in the Wilderness System. We feel this is a very important and integral part of the whole concept of this area!

In my profession of contacting and interviewing people who come to the river, I talk to some from foreign countries, many from other states and a steady, year-round local parade of fishermen, boaters, hunters, hikers, picnickers, water skiers, sun bathers, nature lovers, and researchers in the natual sciences.

I have encountered a wonderful cross section of visitors drawn to the Middle Snake, because of its fascinating *natural* appeal.

A case in point is a tall, ruddy Scotsman, Jack McKenzie, owner of a 10,000-acre sheep station near Gore on New Zealand's South Island. He is one of that nation's top trophy hunters and photographers of wildlife, a director of the three-million acre Fjordland National Park. McKenzie, photographing elk and mule deer in seven western states, called our Middle Snake country a living jewel of ecology.

Dr. Richard Daugherty, head of the Department of Archeology at Washington State University, regards Hells Canyon as a vault of the history of the earth, where exposed strata records geologic evolution.

And there are others—many more. Increasingly, as it is published in national magazines such as Life and Reader's Digest, the Middle Snake is a magnet to those who wish to see a part of our world as it was created, without damage by the meddling of man.

Sitting here in the hub of this bustling Capitol city, may I use the next few minutes to transport you with me in imagination to the twin cities of Clarkston, Washington on the west bank, and Lewiston, Idaho on the east shore of the Middle Snake at the point where Highway 12 crosses the Snake, some 120 miles south of Spokane.

As we board a 24-foot jet boat, we see, below us, the interstate bridge, and just downstream from that, the Clearwater River flowing into the Snake.

It was at this confluence that explorers Lewis and Clark, leading President Jefferson's Corps of Northwest Discovery, passed on their history-making trek from St. Louis to the Pacific.

Today, the Clearwater River and the Middle Snake are about the only segments of the Lewis and Clark Trail that still look like they did in 1804 and 1806 when the explorers braved the fierce currents of these then-uncharted rivers.

The Middle Snake is *rich* in living history! Its rocks still display petroglyphs, its river sands still yield frequent arrowheads and other primitive tools fashioned by hands who passed out of the scene centuries ago.

So we embark on our vicarious journey upstream. Within a mile of leaving the dock, we see ahead a great jutting nose of sheer rock, Swallow Rock, second largest monolith in the Snake-Columbia system.

In five miles, we pass the county seat hamlet of Asotin, "Ah-so-tin" or "place of eels" in the Nez Perce tongue.

Here, unless it is de-authorized, the river-ruining Asotin Dam may be built. It needs only funding for the Corps of Engineers to choke the singing river and back water up over the hundreds of white-sanded natural beaches, upstream.

A survey currently being made jointly by the Idaho, Washington, and Oregon Game Department personnel indicates that this area, close-in to the cities of Lewiston and Clarkston, will tally well over 150,000 man days of use each year.

Yet, unless it is de-authorized, this small Asotin Dam, which, it is apparent to us living nearby, is being built *only* to provide barge transportation for lime deposits at the mouth of the Grande Ronde, 30 miles upstream, will ruin the large anadromous fish runs that are famous throughout the world—the steelhead and salmon and other appealing species that attract anglers from as far as England and Scotland.

Mr. Chairman, I ask de-authorization of Asotin Dam as further protection for the irreplaceable Middle Snake River, one of the prime water and wild-land recreation assets of the West!

Twenty miles up river we enter wide Buffalo Eddy, where generations of Indians recorded their exploits on the ancient greenstone rocks bordering the big eddy. Here archeologists and anthropologists and their students come in increasing numbers each year, to study the still-remaining open-record of man's past.

Here, children sifting the sands along the river can still have the big thrill of finding an actual arrowhead or other primitive tool.

Up to now, we've been on a pleasant boat ride, with only an occasional swirling rapid. We continue, with both water and land getting wilder—50 miles, to the mouth of the famed River of No Return, the Salmon, charging down out of the Idaho wilderness country . . . a turquoise beauty of a wild river.

We've been in roadless country since we left the mouth of the Grande Ronde, and it's a great feeling!

Beaching, we see the feathery tracks of otter, chukar partridge, quail, racoon; the strike marks where a great horned owl or a peregrine falcon took a rabbit. *Already*, we're in a different world!

Frequent creeks lace into the Snake, each a mircocosm of the balance of nature, protected by lack of roads from the damaging heavy foot of mass use.

Surely, to serve so many kinds of interests, there must be all *kinds* of recreation areas . . . beautiful scenic sites and viewpoints like Hurricane Ridge in Olympic National Park, where the country is so breath-taking, and a good road carries great numbers of people. Many of them come with the amusement-park attitude, and the whole site is, in summer, raucous with blaring transistor radios, bristling with milling crowds devouring hot dogs, seemingly oblivious to the thrilling views on all sides.

This is fine for those who wish such an outing.

But for those of us who seek spiritual renewal in serenity and retreat from the noise and crush of civilization . . . can there not be provided by thoughtful legislators such as *you*, *permanent protection* for such few remaining isolated, yet attainable areas as Hells Canyon of the Middle Snake?

So, in thought, here we are—on the Snake.

The great glittering cliffs of black basalt, which rise ever higher as we progress farther upstream and thus deeper into this awesome chasm in the rocky hide of earth, diminish our boat to toy size in perspective to the size of the flowing hills.

Eight miles upstream from the mouth of the Salmon River, lovely Imnaha Creek spears down out of the Oregon hills. It is another fine trout and steelhead stream like the Grande Ronde.

A primitive road parallels the Imnaha, affording vehicle access to those who wish to enter this lower canyon of the Snake. The Hells Canyon-Snake National River Bill would improve this road for public use.

Trails lead up from the Snake offering uncrowded hiking with panoramic views of the canyon and river. But who can *tell* beauty? The 100 species of plants and wild flowers, glimpses of golden eagles overhead and high backcountry . . . the majestic wilderness country leading up to Oregon's Wallowa Mountains, on the west, and Idaho's Seven Devils to the east.

No wonder Arthur Godfrey began his report of his trip to Hells Canyon with: "I've been to paradise—." He is a firm advocate for its preservation!

This is why we strongly prefer the Hells Canyon-Snake National River Bill. There is *much* at stake in the Middle Snake and Hells Canyon.

Leading bio-ecologists like Dr. Frank Craighead, who has devoted most of his life to the study of wildlife and recreation aspects of American river systems, reports firmly that many features of Hells Canyon are unique there.

We feel that there is no need for *further* study of the Middle Snake and Hells Canyon.

For the past 15 years, the river and canyon have been traveled, written about, argued over, and threatened by so-called "development" promoters.

Hells Canyon has been the focus of magazine articles since *1939*, when R. L. Neuberger wrote *Hells Canyon, Biggest of Them All!*

The momentum of national interest in the Middle Snake is growing—it was the subject of at least 20 publications within the last year, including Life magazine's piece in their new Environmental section.

We proceed up river; eighty miles upstream from Clarkston and Lewiston we see Pittsburgh Landing, the name given to a long strip of white sanded natural beach.

The second of the two primitive roads into the otherwise roadless Middle Snake threads down the great hills here.

This beach is a favorite of fishermen and in use most of the year, in the Snake's mild climate.

Provisions of the Hell's Canyon-Snake National River Bill allow for improvement of this road also, for easy use by the public.

Now we are at the jet boat camp 93 miles up river.

Behind us the towering basalt hills dwarf the human to the small speck in creation that he physically is.

Before us flows the ceaseless surge of the green-gray river, a rolling tide of motion, hypnotic in its perpetual, primordial rhythm.

Glittering, weather-sheened cliffs thrust perpendicular, hundreds of feet from the escalating water. In the band of blue sky, caught between cliff tops above, a golden eagle soars.

A whisk of movement down the beach reveals an otter, playing on a water-swept rock.

The rusty-pump call of the chukar partridge sounds out of the thicket up on the hill. Someone in our party yells exhuberantly as he hauls out on the sand an eight-foot sturgeon, holdover of the ancient armored fish of the Mesozoic Age. This spectacular species would be one of the first sacrifices to any further impoundments on the Middle Snake.

The sturgeon, which before *any* of the 30 dams already throttling the Middle Snake River and its tributaries, attained sizes up to 15 feet long and 1200 pounds, *still* grow to nine or more feet, a fish that is believed *only* if you photograph him. Keepers are allowed now in only the three-to-six foot size.

The sturgeon *cannot* reproduce in impounded water, so this ancient species would be lost. Eventually, so would most of the other prime game fish now abundant in the Middle Snake: fighting steelhead, smallmouth bass, trout, salmon and channel catfish, to name the favorites of fishermen in my family.

Now, let's leave the two-mile, long, white beach, and take a brief but *steep* climb up the hill that rolls down from the Idaho high country.

If we are ambitious and hike far enough, we would ascend through the ten life zones of this continent. We might encounter muledeer, a bear, elk; even higher up, an occasional wary cougar, and a scuttling variety of game birds. Some of these valuable species require wildrness or near-wilderness habitat if they are to prosper. *This* is *why*, to retain the whole character of Hells Canyon, there must be early provisions made to protect the related land areas, as well as the river. There is no such provision in the Moratorium Bill as it is now written.

All of this scenery and wildlife is the *bonus*—but the *prime* gift that Hells Canyon in its natural state imparts is *fulfillment;* renewal; a restored sense of oneness with one's parental world—that has been largely lost in our crowded, jangling society.

Who can put a price on beauty, on real serenity, on easily-reached remoteness; on refuge from the everyday worries; on privacy in which to rediscover one's personal values?

Surely Luna Leopold, in his recent evaluation of the Middle Snake as one of the still-remaining great rivers of the world, took all of these priceless intangibles into account.

This is the conservationist, the concerned environmentalist's side of support for permanent protection for Hells Cayon and its river.

I am only one constituent from a small city far from the centers of power, but it occurs to me that possibly the Congressmen from the Eastern states may

be getting a little tired of dumping money into the West for endless reclamation and power projects. I hope they are.

And just maybe residents of the population-pressured states want to insure that their children will some day still have a few unspoiled, natural cathedrals to which to retreat from our burgeoning society.

I beg you to remember that no matter how technical man becomes, there still remains in him an inherent hunger to, at least once in a while, touch his origins, get a few serene and unimpeded views of his earth and sky and their wild inhabitants.

If you feel, gentlemen of the committee, that the Moratorium Bill is the *only* political possibility, then I ask that you demand a stronger, clearer wording of it, that states firmly, this document shall prohibit *all* dams, by whatever authority, in the Middle Snake River, from the city of Clarkston, to the existing Low Hells Canyon Dam operated by Idaho Power Co., 120 miles south of Clarkston.

And I urge that the record on this bill indicate clearly that its implementation will *not* inhibit the passage of subsequent legislation such as the Hells Canyon-Snake National River Bill, that will insure stronger and enduring protection for the Middle Snake.

I hope, that in your final consideration, however, you will conclude that the free-flowing Snake River and Hells Canyon have been evaluated by enough experts over enough years to prove conclusively that it is worthy of permanent protection against dams and other inroads of man.

To gain this protection, steps must be taken now to assure early consideration of S. 3329, Sen. Packwood's bill for the establishment of the Hells Canyon-Snake National River. I thank you; and my descendants will thank you.

Senator CHURCH. Thank you, Mrs. Tussing.

Before you leave the stand, let me say you have certain given us some eloquent testimony. I know that you speak from the heart. Like Senator Jordan, you are a resident of the area. You both know it better than any other witness we have heard.

You are the second or third witness who has mentioned the importance of prohibiting any dam in the area, even one authorized by Congress, and who has expressed concern because the present language in the bill does not go that far. Let me give you a word of explanation about that.

There is no way for one Congress to bind another. If we were to write the bill in such a way that it prohibited the Congress from authorizing a dam for the next 10 years, we would be really engaging in an exercise in futility, because it is always open to the next Congress to make a different decision if it chooses, to revise or to repeal the law. So we have written the bill to prevent the Federal Power Commission, which now has the authority, and, indeed, is presently renewing hearings on the pending application for a dam, to prevent that agency from licensing a dam. But even though no specific reference to congressional action is included in the bill, for the reasons I have explained, if the bill were passed, the Congress would then have declared policy against any dam for the moratorium period. Then I would think it doubtful that a subsequent Congress would undertake to undo the moratorium. I really believe that the fear you express is not as justified as you might think.

Mrs. TUSSING. Good. May I ask you a question?

Senator CHURCH. Yes, of course.

Mrs. TUSSING. Does this moratorium bill as it is written prohibit the later implementation of a national river bill?

Senator CHURCH. The moratorium as it is written would establish a 10-year period during which no dam could be constructed. In fact, during which the canyon would remain in its present natural state, in

order that studies now underway may be completed and an assessment made as to the canyon's highest possible use.

When the moratorium period expires, whatever the length of that period may be in the final bill as approved, then, of course it is open to the Congress to make some determination as to what is the highest and best use, whether it is that in the bill proposed by Senator Packwood, whether it is a national park as suggested by Stewart Udall this morning, or whether it is the construction of a dam of multipurpose character that might contribute to upstream irrigation in the future—the options are left open. That is our purpose. We want to be sure that all of the data are carefully assessed, so that when we come to a decision we can be assured that it is a wise decision in the best interest of all the people of the Northwest. This bill does not decide the fate of the river, it does not forecast what the final decision should be. But it gives us more time during which the river will be left alone for these studies to be completed and for a final assessment to be reached.

You made a statement about the sturgeon. I surely do concur in your view. This is a fish of great rarity. It is to be found here in the Snake River, one of the last remaining sturgeon fisheries in our country. The first job I ever held was out on the Idaho desert on a survey crew. I pounded stakes. It was a highway department crew. I always remember the fellow who carried the transit. He used to go around singing a little song that went "The virgin sturgeon is a very rare fish, and that is why caviar is a very dear fish." Have you ever heard of that?

Mrs. TUSSING. Arthur Godfrey used that on his broadcast. I thought how clever he was. Now you reveal this.

Senator CHURCH. I remember the song well. This fellow on the crew would hum it to himself while walking over the desert. Really, the virgin sturgeon is a very rare fish. I hope we can preserve some waters for the sturgeon that are left.

I have no questions.

Senator Jordan?

Senator JORDAN. Thank you, Mrs. Tussing, for a fine statement, and thank you also for coming early enough to give some of us a better chance to get acquainted with you.

Mrs. TUSSING. Thank you.

Senator CHURCH. Senator Hatfield.

Senator HATFIELD. Mr. Chairman, I just want to compliment the witness. I read that book on the "Life on the Snake River."

I believe you have given us quite an accurate description of that very magnificent river, showing your professional writing skill and your ability to create word pictures.

Perhaps for the record, because these records are read and carefully studied by many people, I would like to ask one question. Having just recently appeared before appropriations committees asking for certain appropriations for the reclamation projects in Oregon, I would like to make sure, when you speak about eastern Congressmen getting tired of dumping money into the West for endless reclamation and power projects, you are speaking primarily there of the Bureau of Reclamation power projects and not such reclamation projects as water conservation, land rehabilitation, and environmental programs generally, which reclamation sometimes involves.

You also speak of the chukar. As you know, the Oregon State Game Commission, along with the support of the Idaho Game Commission, really reintroduced the chukar which had been totally lost to the area. This I say in the broadest sense of the word is a reclamation type of project, in terms of either natural or other resources. I assume though that you are talking specifically about the Bureau of Reclamation and not the reclamation projects that involve land rehabilitation, river bank rehabilitation, reforestation, or reviving watershed projects which can be interpreted in the broadest sense of the word as reclamation projects.

Mrs. TUSSING. I am glad you caught that. Yes; I mean the impounding of natural streams and related areas.

Incidentally, the chukar is our favorite game bird. We have many of them each year.

Senator HATFIELD. And one of the hardest to shoot, too.

Mrs. TUSSING. Yes.

Senator HATFIELD. Thank you very much.

Mrs. TUSSING. Thank you.

Senator CHURCH. Our next witness is Capt. Floyd Harvey.

Senator HATFIELD. Mr. Chairman, I wonder if Mr. Kimball and Mr. Brandborg are still in the room.

Senator CHURCH. If they are present, you may certainly ask them any questions.

I am informed they are not here.

Mr. Norton is here. He appeared for Mr. Brandborg.

Senator HATFIELD. The question I have is the one which was asked this morning of one of the other witnesses. That is in terms of our projected and developing needs for energy without being restricted to the hydro resource. Do you support the projects which now are being programed in the thermal field for the energy development for the needs of the Northwest?

Mr. NORTON. Yes; provisionally, Senator Hatfield. I think you were missing this morning when I presented my statement because I added a short piece to my statement that was in the form of an editorial I had written. I have forgotten the exact title. I think it was "Wild Rivers, Pure Water, and Solar Power." The point of that article was, let us not put all of our technological eggs into one basket, the nuclear basket, because we recognize that many types of power generation can be as environmentally damaging as, for example, a large dam or a coal-fired plant if we are not careful. In other words, I am sure you are aware of the concern about nuclear plants, about waste disposal and about thermal pollution.

Personally, and I speak now as a physicist with 9 years of experience in nuclear energy research, I feel that we must look upon nuclear power development only as an interim development. I think there are other technological alternatives that can provide us the energy for our society that are less damaging in the long run. So my point was that we should look at the broad scope of all the technological alternatives and not just nuclear energy or hydroelectricity. I think we can, to get back to your question, provide all the energy needs for our society, but with the provision that you pointed out this morning: We have to recognize somewhere along the line, and hopefully soon, that we have to limit our population growth, too.

Senator HATFIELD. But unrelated to population at this point, if we can hypothetically detach those two, which really are not detachable, you do recognize that there is a continuing requirement for the production of energy for the needs of existing and projected populations, short of some more effective population growth program.

Mr. NORTON. Yes.

Senator HATFIELD. And you also recognize that at this point hydro is our main source, and to make it more efficient and within the scope of protecting water temperatures and other technical matters the thermal offers us the most immediate possibility for that source of energy.

Mr. NORTON. Yes.

Senator HATFIELD. We never assume that our technology has ended, that is, our technological advancement and discoveries have ended, short of new sources. We are forced into a situation, if we put a moratorium on this middle Snake, where we must look to thermal as the source of additional energy.

Do I state the situation as you view it?

Mr. NORTON. Yes.

Senator HATFIELD. Thank you very much.

STATEMENT OF FLOYD HARVEY, HELLS CANYON EXCURSIONS, INC., LEWISTON, IDAHO

Mr. HARVEY. Mr. Chairman.

Senator CHURCH. Captain Harvey, you are the captain of the only Navy Idaho has, I guess. We welcome you here.

Mr. HARVEY. My name is Floyd Harvey. I am actually a life insurance agent in Lewiston, Idaho. I am a director of the Idaho Outfitters Guides Association, and a director of the Inland Chapter of the Hells Canyon Preservation Council. I am the owner of Hells Canyon Excursions, a summer business in which I personally pilot a jet boat from Lewiston into Hells Canyon, the deepest canyon in North America. My guests have often included well-known national figures like Arthur Godfrey, Phil Harris, and Curt Gowdy, as well as people from foreign countries and nearly every State of the 50 United States.

At this point, Mr. Chairman, I would like to insert a letter for the record, a letter from Arthur Godfrey to Secretary Hickel, 5 days after his trip of last July 4, with me, through Hells Canyon.

Senator CHURCH. Without objection, the letter will be included at this point in the record.

(The letter referred to follows:)

New York, N.Y., July 9, 1969.

Hon. WALTER J. HICKEL,
Secretary of the Interior
Washington, D.C.

DEAR MR. SECRETARY: As I promised, here is my report on my trip last week to the Snake River country. I knew, of course, that it would be beautiful because I have often flown over Oregon and Washington and Idaho. Even so, I was totally unprepared for the really stunning spectacle I found.

But before I tell you all about it, permit me to also tell you of my enormous misgivings, and the sinking feeling in my heart because we may be on the threshold of another man-made ecological disaster!

I flew a sleek little Learjet which I borrowed from Torch Lewis to make the trip. Flying at 45,000 feet, I was able to confirm once again the lamentable fact that the pollution of our atmosphere is now 43,000 feet thick! If we don't do something drastic about it soon, even we oldsters will still be here at the finish!

At my request, there had been no advance publicity of my visit, but Mayor Wise made me an Honorary Citizen of Lewiston at a small dinner that night to which only a handful of conservationists had been invited. Next morning, they broke me out at 5:30 and by 6:30 we had breakfasted and Floyd Harvey was whizzing me in his jet-powered boat up-stream (hence South). Even at 25 MPH, it was late afternoon when we had traversed the 93 miles to his camp at Willow Creek having battered our way through 30 thrilling rapids, each successfully more challenging than the last.

Mr. Secretary, in addition to flying airplanes, I have handled boats all my life and am considered an expert deep water sailor. Except for one hurricane, and several lesser but formidable blows, however, I have never experienced anything like the endless ecstacies of "white-water" boating. The view at each succeeding bend in the river surpasses the last. Crystal-clear, blue water sailing in the Bahamas or off Hawaii, affords a paradisaical serenity difficult to describe. The extra treat now and then of sighting an enormous green turtle or a school of dolphin or some other denizen of the deep, adds fascinating variety, but none of it provides the endless display of the Hell's Canyon region.

In Lewiston and for several miles up-stream, the water is brown with the wastes of man and his heedless technology. But above Pittsburgh Landing, the highways cease, the ranches get farther and farther apart and the pollution gradually fades as the water gets clearer and clearer and colder and colder. One begins to spot fish joyfully leaping into the air like children jumping up and down in their play in the sunlight. Now and then a huge sturgeon wallows lazily to the surface, his great tail reminiscent of the giant Mako sharks off Montauk.

The walls of the canyon grow steep and towering, rising often to six thousand feet. Here, one reflects, are God's own cathedrals. What puny, foolish counterfeits seem even the most elaborate imitations fashioned by man.

And the ever-changing parade of the species: here a golden eagle, perhaps an osprey. There a mule-deer doe and her spotted fawn. Swallows swarming like bees around their thousands of nests which they have somehow miraculously attached to the sheerest rocks high above the torrent raging below. One conjectures that fledglings cannot possibly avoid tumbling to their deaths upon leaving the nest, but is assured that incredibly the babies emerge completely equipped for solo flight soaring fearlessly forth as agilely as their nimble parents.

As the day wore on, Wednesday, July 2nd, it became more and more evident that literally hundreds of privileged folk were beginning the long, happy 4th of July week-end. As if by design, at perfectly spaced intervals, the action of the swift current and the varying stages of flood and decline in spring and fall, have carved hundreds of small sandy beaches out of the rocky canyon walls. Thus have been provided dozens of practically private, individual camping, swimming and fishing areas available on a first-come, first-served basis. Here is real quality recreation! Here is some of the last remaining unspoiled, completely natural environment available for the taking to the hardy, worthy souls willing to make the venture.

Here is the last 100 miles of the once entirely and magnificently free Columbia-Snake river complex up whose thousand miles of foaming, tumbling rapids, millions of anadromous salmon and steelheads used to race to spawn in the remotest creeks and tributaries of even Jackson Lake and Yellowstone!

Nowadays, the end of all this is just below the lowest dam in Hell's Canyon. Ever fewer salmon and steelhead get through the artificial raceways condescendingly provided by the engineers in the already too numerous dams below Lewiston. I am told by observant fishermen that despite these gateways, the anadromous fish in large numbers are confused by the swirling waters either side of the sluiceways and never make the jump. Hence, little by little, the number reaching the spawning areas is being reduced each year.

On Thursday, July 3, we went sturgeon fishing. I had never seen one before except in pictures and was totally unprepared for the monster I caught which measured seven feet from nose to tip of tail. The length limits, within which sturgeon may be taken legally, are over three feet and under six, since is is believed that sturgeon do not reproduce until they are at least six feet long. Those under three feet are also thrown back.

We took three sturgeon that day, all over six feet, returning them unharmed to their deep pools between the rapids. Therefore, I have yet to taste sturgeon meat which I am told is boneless and absolutely delicious. No one eats caviar up there because it doesn't appear in species less than six feet and, anyway, believe it or not, the natives are vehemently prejudiced against it!

At 6:00 a.m. on July 4, Charlie Gruber took me in his boat with "Mac" Blakely, Bob Williams and Jim Pope (who does a thriving helicopter business up there) up to the mouth of Sheep Creek (pronounced "crick", of course). This is the heart of Paradise, believe me. I would willingly attempt to swim the entire 96 or 7 miles up that cold river from Lewiston just to see it again. The Creek rises in Sheep Lake high in the Seven Devils peaks at an elevation of some 11,000 feet where the snow clings all year long. Thousands of gallons per minute of icy, crystal-clear, sparkling water comes tumbling down over the rounded stones into the Snake. I drank deeply of it from a tin cup.

There is no beach there, but nosing Chuck's steel jet-boat in among the rocks, we were able to disembark and stand happily sometimes knee-deep in the water so thrilled we hardly noticed the 38°! We cast our night crawlers into the eddies formed by the cold water from the creek flowing into the Snake. Within an hour, I had caught six of the most beautiful 2½ to 3 pound Rainbow Trout I have ever seen. We cleaned the fish then and there and kept the stringer in the icy water and I learned the difference between the delicious, pink texture of the native trout and the white flesh of the stocked variety. I had never known about this before

By noon, we had returned to camp, had a final plunge into the tingling river, and with my trout safely iced in a styrofoam box, took off in Jim Pope's helicopter for the return trip to Lewiston. Enroute, we deviated to fly a short ways up the Salmon River which is now the only place left where the Chinook Salmon come to spawn from the Snake River.

Mr. Secretary, I implore you, I beg of you: make that trip out there as soon as you possibly can see this place for yourself. I understand that it lies within the power of your post to permit or refuse the building of dams. Mr. Secretary, you must not allow anyone to build another dam in that river! The last 100 miles must be preserved for posterity! I hope you will fly as I did, before heading North, over the Hell's Canyon Dam in the chopper and see what happens when that beautiful river is raised 600 or more feet! Gone are the anadromous fish and the sturgeon. Only trash fish remain such as we can grow in any farm pond.

Gone are the birds and the beaches! Only steep, muddy, slimy banks remain. Gone forever the historic Indian petroglyphs and caves and other priceless relics. Gone would be another of the last fragments of nature as yet unspoiled by man. In its place, a deep sluggish polluted lake full or hordes of faint-hearted outboard motor nuts spewing ⅓ of their fuel—unburned!—into the waters along with their beer cans and other people droppings!

Please go and see it! Better still, permit me to arrange a trip for you such as I took. I will personally fly you out there and introduce you to the warm, wonderful people who laid on the trip for me. I beg you to see it personally because I believe no one who has ever beheld its priceless, irreplaceable beauty would dream of building another dam there.

In all respectful sincerity, I beg to remain,

Yours truly,

ARTHUR GODFREY.

These people often come thousands of miles and from every walk of life. Often in the same group, we will find a millionaire and a schoolteacher or house painter, or a doctor or attorney and his family, along with a secretary or service station attendant who has saved for a year or two to make the trip. They share the same experiences for the 2 or 3 days they are together at Willow Creek Camp. This gives me an excellent chance to become well acquainted with my guests. We eat together, fish together, hike together, swim together, and run rapids together.

Most of these new friends are from the great megalopolis, the sprawling expanses of asphalt and concrete. They know about air and water pollution, gas fumes, and blaring electric lights because these

things are so evident where they live and work and spend most of their lives. They come to the Pacific Northwest to be outdoors and enjoy a vacation in unspoiled wilderness country. I am able to show them a new life of adventure and excitement and free flowing, pure water in an area where there is no easy communication with the outside and our transportation is the river.

I have received hundreds of letters from my friends who return to their homes, encouraging me to save the canyon, offer their support for this effort to reserve its wildlife, its fisheries, and its scenic grandeur. They, like we, hope that Hells Canyon can remain "forever wild" for their children and their children's children. They want them to enjoy the free flowing water, the white sand beaches, the great white sturgeon, the natural environment much the same as it has been for 20 million years.

Already the mighty Snake River is dammed more than 18 times. The hundred miles from Hells Canyon Dam to Lewiston is the last remaining stretch of white water, free of dams. It has been said by the power companies that the canyon has "little to offer" and that only 400 to 500 of the most affluent and idle rich have an opportunity to use it. The real fact, however—according to a recent combined study by the Oregon Game Commission, Idaho Department of Fish and Game, and the Wallowa-Whitman National Forest—is that the 1969 recreational use of the area that would be impounded by High Mountain Sheep Dam was 50,107 user days, an increase of more than 8,000 over the previous year. This represents about 25,000 visitors per year, which were counted by electronic and visual methods. Thus we are basing our reports on hard and factual information, not wild guesses pulled out of a hat by public relations representatives of Pacific Northwest Power Co. and Washington Public Power Supply System.

Other exaggerations by the developers are equally as extreme. They wish to destroy forever the natural beauty, wilderness, and other irreplaceable natural resources provided by mother nature.

Mr. Chairman, we do not want any more dams on the Snake River. We do not want a 116-mile-long, 200-foot-wide mudflat throughout all of the late summer and fall months. We do not want the loss of winter big game range, elimination of irreplaceable anadromous fisheries and the great white sturgeon. We want steelhead, trout, small mouth bass, and salmon, instead of crappie and carp, like those in the Brownlee impoundment above Hells Canyon—an artificial lake filled with algae and dirty brown water that produces stunted fish. This reservoir provides very little and low-quality fishing. The dams have killed the runs of salmon and steelhead despite all of the research to correct the unsolved problem of fish passage.

Mr. Chairman, we, the Inland Chapter of Hells Canyon Preservation Council, the Idaho Outfitters & Guides Association, and Hells Canyon Excursions, Inc., wish to support Senator Packwood's Hells Canyon-Snake National River bill, S. 3329. This preservation measure is the best means of assuring enduring protection and preservation of the river and its unexcelled canyon. We feel that there has been more than enough study now to clearly establish that this area must be free of further dam construction. As a temporary step, we would support Senator Len Jordan's and Senator Church's moratorium bill, S. 940, provided that it be amended to read that no dam—either

privately or publicly financed—be built between Lewiston, Idaho, and Hells Canyon Dam.

I remember what you said to Mrs. Tussing.

Thank you, Mr. Chairman. I would like to extend a personal invitation to any and all of the Senators on this committee to visit with me this gorgeous, indescribably beautiful Hells Canyon country. I believe you, like Arthur Godfrey, will say, "this last remaining section of the Snake River must be preserved for posterity." I urge this committee to move quickly to hold hearings and take favorable action on S. 3329, the Hells Canyon-Snake National River bill.

Senator CHURCH. Thank you very much, Mr. Harvey. I would like to take that trip with you some day on your boat. I hope we will have the chance to make it together.

Senator Jordan?

Senator JORDAN. I have no questions, Mr. Chairman.

Captain Harvey's headquarters on the upper river are on some of the range I occupied when I was there. We have enjoyed reminiscing about the country. He enjoys it as I do. I don't agree with him altogether, but that is an area where people of good will can disagree.

Mr. HARVEY. It was a pleasure to have been with you and your wife at lunch today and yesterday. We often stop by your old homestead at Kirkwood and point out to my guests where the Jordans used to live. I have been running the river for 12 years now, or 1 year longer than the Jordans were in the Canyon.

Senator CHURCH. Senator Hatfield.

Senator HATFIELD. How much is your boat trip?

Mr. HARVEY. My boat trip is $85 for 2 days.

Senator HATFIELD. For my wife and four children it would be $510?

Mr. HARVEY. Yes, it would, Senator; except the children——

Senator HATFIELD. Are there any cut-rate days?

Mr. HARVEY. Children get to go for half fare.

Senator HATFIELD. Does that include the food?

Mr. HARVEY. Everything is included.

Senator HATFIELD. That is for a 2-day excursion.

Mr. HARVEY. Yes. We are finding, however, now that a lot of our passengers are going for a lot more than the 2 days, merely because the people have told them about it, have gone back home and said how much they enjoyed it and would like to stay longer.

Senator HATFIELD. I think we can get a pretty good trip down the Rogue for a little less than that.

Mr. HARVEY. Yes, you can, and I took the Rogue River trip last year. It was a fabulous trip.

Senator HATFIELD. Did you go with the Pruitts?

Mr. HARVEY. No, the Koons, I think. It was the mail boat trip. I found that my passengers, after going with me on one of the trips say there is no comparison. They are both equally great in their own right.

These are quite the wild type rapid ride instead of the smooth ride on the Rogue. I am sure after you see the film which will be shown later, if there is time, it will show you some of that.

Senator HATFIELD. If we can get the Democrats who run the Senate to adjourn this session on July 31, which is Senator Scott's target date on the Republican side, I will take that trip with you.

Mr. HARVEY. Fine, I will hope for that.

Senator CHURCH. Thank you very much, Captain, for your testimony.

Our next witness is Mrs. Ed. Holland of Richland, Oreg.

Mrs. Holland.

STATEMENT OF MRS. ED HOLLAND, RICHLAND, OREG., REPRESENTING OREGON FISH AND GAME COUNCIL, NORTHWEST STEELHEADERS' ASSOCIATION, AND THE EAGLE VALLEY PANHANDLE CLUB

Mrs. HOLLAND. I also report for the Oregonian and perform several other different chores. I have lived in Hells Canyon over 20 years. We feel the moratorium is a good first step but our mind is made up in favor of Hells Canyon preservation. We endorse the principle of Senator Packwood's National Canyon River bill. This is the last of our anadromous fishery unless we have alternate means of producing power.

My testimony will deal mostly with the use of the river on the reservoirs and free flowing stretch. I would like to say that I have no financial benefit to gain in any way by having this preserved.

Another thing, before I go ahead I would like to say that I wish that someone would bring a hearing to Baker County where the people who live there can come out and listen, can talk and hear, and tell you how they feel. We have no communications out of our area. It seems like we are just in a different State, or something is the matter that we are not getting heard back in our part of the country.

We have a dam in Hells Canyon today and where are all of these people who are supposed to run in and live and play and have such a big time on a dam, if it is built in Hells Canyon? They certainly have not come from Imnaha. They might come over and see it once, but they don't frequent down there. They have their own fish down on the Imnaha and Snake Rivers below. This dam in the river might give them some property tax but it is not going to bother their fisheries. They have that figured.

Now we don't have anybody on these reservoirs. I have in my use book 709 vehicles on the first. The second up to date record shows a total of 1,127 vehicles. I have that many vehicles full of people to back up every word I say about there not being any recreation to speak of on those dams, all three of them.

Now this low Hells Canyon dam is 22 miles long. It has 100 parking spots at Copperfield. It has 10 acres in the low Hells Canyon. The restrooms are heated and there are showers. It has a beautiful lawn and floodlights. It is everything that a park should be. All winter long I have been down there all but one weekend. We have an 18-foot glass jet boat down below the dam. We have to drive 64 miles to get around those dams to get back down to where we can go fishing. This is about as disgusting as it can be. The people from Baker are driving over a hundred miles to get back to the fishing. We go by those dams and you will do good if you see one boat on those reservoirs. That thing is dead. It is a dead, dirty reservoir. People don't have any interest to go there. They want the salmon

and the steelhead that are down in that main river. They are lining the banks, they are standing shoulder to shoulder as far as they can climb down the rocks and through the rim to get back to the old river to fish for those old steelhead and sturgeon. Now they can't keep the sturgeon. You have to throw them back. But there are still trout in there. You can't keep over five over 16 inches—I am not really sure of that. But these great big trout are down in that main river and you can get them if you want to stay down there and fish, but you cannot catch them in those great big dead reservoirs.

You might get around where a little freshet comes in. You can get a few little fish there but there isn't enough interest to go down there and sit on that thing to try to get them.

When a dam is first dammed up—this has been the experience with all three of these dams, you seemed to get quite a few fish there. But in 2 or 3 years you don't get very much. People know when it is first dammed up it is pretty good. After 2 or 3 years then if you would compare those river reservoirs with reservoirs in the mountains and all of them are stocked you would find that even with all of these parks, these great big beautiful parks that Idaho Power has developed, if they were all full you would still not have even one-tenth of what you have in that Black Wyatt reservoir 350 feet long and 150 feet wide, 50 people sitting on the stock. Bonfret Reservoir is not over 2 miles long. On the Fourth of July and holidays, any weekend in the summer, you can wrap up 200 people up there easy. You consider your distance around these little high mountain lakes where it is cool in the summer and compare that to the reservoir, but then there won't be anybody on this reservoir to speak of.

Then you go down to the free-flowing river where they have other different species to fish for, and the other things that drive them there, like running the rapids and treasure hunting or anything like that, you have many or more people down there.

On the Brown Lee Reservoir, which is in the top of Hells Canyon, here we have marinas, there are two commercial businesses on this reservoir, first Kilpatrick owned them. They have been financial disasters. They have been closed most of the time and never open in the winter because you never get a boat to water and people don't frequent the Richland Marina at all. On Fairwell Bend you might get down to the river with a boat if you went above me, you can't right out of the marina because this is soft.

The point is, for instance, on the marina at Richland the first thing, they want $50,000 for it. Now in 2 or 3 years he has decided to take less. The year before last they let the county have it if they could get them to take it for $12,000. Last fall they auctioned off all the boats, all the motors. I don't know if they did anything at all to the buildings yet, if they sold them off as private homes. The State owns the grounds. The State furnishes a caretaker to take care of these grounds. He cleans them up. He takes care of the restrooms and all. All the concessioner has to do is sit there and rake in the money from what he sells. There is no money and there is nothing open at all.

Fairwell Bend was closed in 1967. I went to Baker and I checked this out. Most of the time in 1967 it was closed. In 1968 there were long periods when it was closed. It may not open again this year.

Now as far as people coming expressly to see the reservoir, they all seem to bring their steelhead and salmon poles with them. There are not very many that just come down to look at the reservoir. Often a reservoir in an area creates a great opportunity for water oriented recreation. This is not true in our area.

The Columbia is one reservoir from the Bonneville Dam up the Snake River to the end of Little Goose Falls. The hydropower dams upstream a hundred miles. Recreation on these dams is light, far less than the free flowing river before creation of the reservoir. Surely we should not believe that another reservoir would attract more use than those now existing, especially when users would have to pass existing reservoirs in order to reach it. Also, consider other Columbia reservoirs have steelhead and salmon in them.

Now this came from an Oregon biologist. We have a very serious problem in the Columbia River system. The dams that are proposed for the Snake River in Hells Canyon are designed so that they will have multilevel outlet gates. This will let the cooler water underneath go on down the river instead of the hot water on top of the reservoir. So, when your cool water comes out it is deficient in oxygen. It is also concentrated nitrogen. Every dam farther up the river makes more concentrated nitrogen as the water flows downstream. So when the steelhead and salmon come up from the bottom they are in the largest concentration of nitrogen in the lower part of the river. The farther up they come the more they get of it until they are dying now of nitrogen embolism.

Down at the McNary Dam 3 years ago the water down there was floating with steelhead and salmon, at least it seemed to me. Even the fish that hadn't died yet, the seagulls were landing on them and pecking out their eyes. They might have lived if they didn't have so many seagulls landing on them. It was pretty bad. So they went in and they gave these fish autopsies, everything they could do, and nitrogen embolism is the problem.

Now if there are any more dams—we have here the Little Goose Falls dam just going in now. We have the Dworshak that will still go in yet. If the Asotin would go in and what have we, put all four of these dams upstream to concentrate the nitrogen in the water going downstream, how many fish are going to be able to keep coming up through there. There is the chance of losing the entire anadromous fishery of Idaho in this section of Oregon.

This is from the Fish Commission biologists themselves. I don't have the knowledge to make up anything of this nature. This is their belief. This is one reason that they are more in favor of preserving the canyon as it is than to risk losing the entire rest of our fish that we have left. We do have salmon and steelhead yet but there is not any promise of it in the future, especially if there are any more dams put in that river.

Here are records we keep for one day. This man takes this when he goes by in a new boat. This is a record he writes each day. This is just one man of quite a few.

This is January 25. Eleven vehicles, parked in the parking area. He just puts the vehicles on here that are parked in the area with the fishermen standing along the banks fishing. He counts the people who are

actually fishing. We have 36 people fishing on the free flowing river below the dam. He also has water flood stage, and we lost a car off the ramp. A car trailer went backwards into Snake River.

Saturday, the 31st, 26 fishermen, 12 vehicles. They caught three steel head and one trout this one day.

February, Wednesday, 4th, six vehicles, nine fishermen, two trout, clear and cool, 30,000 cubic feet.

February, Thursday, 5th, four vehicles, nine fishermen, one steelhead, seven trout, cloudy, 30,000 cubic feet.

February, Friday, 6th, three vehicles, six fishermen, two trout, cloudy, cool.

Saturday, five vehicles, 27 fishermen, one steelhead, one trout, 28,000 cubic feet.

This is just a sample of this record that he makes. He counts only the people that he sees on the dock. When he takes out a load of fishermen he leaves around 8 or 9 o'clock and he does not come in until they want to come in. This may keep him away all day. This keeps him from seeing anyone who comes fishing off the dock while he happens to be down the river. I have come in there, Ed and I, driving down practically every day. Every weekend some of the cars parked up by the dam farther, they walk down the first road access, it is not a dock, it is just a little road down to the river, and this is a real popular place for them to go down. Then on the other side of the river where the old diversion tunnel was, you would never fail to see at least five or six, or maybe a dozen people on this. Deep Creek is the name of it. That comes down by the low Hells Canyon Dam They hang all over the entrance of the diversion tunnel and around the creek and they sit clear back on the rim as far as they can. They have Idaho licenses, so they must fish in Idaho.

Here is the record for January 17 that I copied out of my diary. I keep quite a record too at times.

This is what I saw as we drove along. It is spread out. I had a low, 16-foot boat, three fishing. Idaho, three fishing diversion tunnel.

Oregon, one Scout, one camper at sign "no parking" Forest Service has a sign "no parking here". One camper on upper level and 13 cars were there January 17.

No. 2, 16 boats. I saw another boat. Two men down the river, two men fishing. Above dam no fishing on 22-mile area at low Hells Canyon Dam, Hells Canyon Park.

Now I shop at Ontario because their prices are usually lower. I drive up and down the reservoir. It is a gravel dirt road. We are trying to get this paved. The boys are really working on it. It is pretty tough up there. But you never see any boats on that part of the reservoir. This part is completely inaccessible except for very tiny boats you might carry out and put in the water. We could never get our boat in there. In drawdown this just eliminates most everything.

Oh, yes, on Pine Creek, there were two or three fishing off Pine Creek between two dams on Copperfield Park.

I will leave you this piece that I have taken from the Forest Service. I turned this in to the Oregonian and Don Homis is putting this in.

Through concerted effort and tabulation, and by use of sampling units, the Oregon State Game Commission, the Idaho State Game

Commission, and the U.S. Forest Service have arrived at the following figures of visitor days of use in the controversial area of the Middle Snake River. The standard visitor day being defined by the U.S. Forest Service as a 12-hour period, or 12 man-hours.

A boat checking station on Cache Creek, approximately 37.5 river miles upriver from Lewiston, Idaho, and 11.1 miles below the mouth of Idaho's famous Salmon River, counting over 800 different individual boats only once, regardless of how many additional times they passed, recorded 28,132 visitor days of use above the Oregon-Washington State line.

From Eureka Bar, at the mouth of the Imnaha River, up Snake River to Dug Bar, 4.53 river miles, up the Imnaha River to Horse Creek, 9.7 miles, and accessible by a steep, narrow winding road grading over Cactus Mountain, a total of 14,517 visitor days were recorded.

All of these river areas would be inundated by the proposed High Mountain Sheep Dam or it alternates, beginning 49.3 miles upstream from Lewiston.

At Pittsburgh Landing, an Idaho road access from Highway 95, junction near Whitebird, Idaho, approximately 76 miles above Lewiston, 13,464 days were recorded. This is a total of 57,113 days.

There was no record available as to the number of regularly chartered scenic trips being made over the area, and no data available on the rate of trail use, of either hiking or horseback riding, on either side of the river.

Of 451 anglers interviewed, in fishing use surveys only, steelheading led the list with 35.5 percent, salmon next with 15.7 percent, sturgeon 13.5 percent, and bass, catfish and trout constituting the remaining 35.3 percent.

Approximately 107.4 miles upriver from Lewiston, Idaho, in the head of Hells Canyon, is the last constructed dam of the Idaho Power Co.'s T. E. Roach project, the low Hells Canyon Dam, 22 miles long, and above it the Oxbow.

Studies completed in 1969 by the game commissions and cooperative agencies compared the use of the free-flowing Snake River through Hells Canyon to the use of these reservoirs in part of this same remote area.

Figuring hours per lineal mile of water, a total of 53.6 hours was arrived at on the most popular Oxbow Reservoir, and 30 hours on the low Hells Canyon Dam, each complete with their respective beautiful expansive, modern parks.

Below the reservoirs, in the undeveloped area providing access to the free-flowing river, records revealed that 322 angler hours had been spent per mile, in the 1.6 miles of river's edge which is only usable by walking the water's edge or crawling through the rims.

Complimentary figures tallied 9,559 anglers fished from the bank, in that area, and 2,472 more fished by boat within the 7-mile distance between the dam structure and the Wildsheep Rapid, where four guides are now operating.

By questioning fishermen in the field, it was found that 88 percent of the fishermen expressed a preference for the species of fish living in the free-flowing river as opposed to that in the reservoirs.

Heavy use for the free-flowing river still goes on, especially for steelheading, despite only fair success, verified by traffic counters be-

low the Hells Canyon Dam registering a total of 709 vehicles between December 1, 1969, and January 9, 1970.

This one man that helped me get this figure out of the file said three people per car would imply that 3,381 people were on the free-flowing river during the 67 days involved.

Senator CHURCH. I think you have given us a very good comparison of the use of the river below the dam and above the dam. It is important information for us to have.

Mrs. HOLLAND. We have a serious problem on this below the dam, there are no facilities, no camping facilities, no toilets, no nothing. We have all of these people in there in campers. Now there is a sign out there, Glen Hetsel, pine ranger, puts the sign up and it says for everybody to stay out of that area, no overnight camping. Here we have all of these campers in there throwing their fish water on the rocks. Well, you can imagine what it is without any toilets. You cannot force them to go upstream just 6 miles and get on the Idaho Power land. They want to be there early in the morning so they can get to the steelhead and salmon fishing. We can't get anybody to provide any money to put up facilities down there. It is less than 10 miles to go back to this Hells Canyon Park and stay with these electrical hookups and parking places and lunch and heated showers.

You can imagine how nice it would be to go up the river this 10 miles but they won't do it. Now there will be strict fines put on anybody parked overnight, to try to get rid of them.

Dr. Lee made a remark on taking salmon from the Snake River because of conditions in the Snake. I went to the Federal Power Commission meeting at Lewiston in 1968 and I complained about these salmon being taken away and steelhead being taken away, and Don Branick, manager of Idaho power, about 30 days later advised me that they had brought several truckloads of fisherling steelhead and salmon and replanted them back in our river, the week before where I thought they should belong. Now they have removed the traps so that our salmon don't leave there to spawn. This is very good, I really appreciate that, and I think he should be commended for that.

The Northwest Steelheaders have a brief they are preparing to attack the Lower Granite Dam. This dam is authorized and I read a piece in the paper that said that Nixon is appropriating this money for this dam. Our sentiment is so high against any more dams in this part of the country that they believe, and I really am convinced that they are right, that they can institute a case against the Lower Granite Dam and get enough free contributions to hold that dam up indefinitely. I really think there is that much animosity in this community. I think they can get free contributions to keep a court case going.

On the Idaho Power, I have a little display showing all the things on Idaho Power's brochure. It says "Steelheading below Hells Canyon Dam." We have four permittees grazing 12,000 sheep in Hells Canyon. These lamb right on the banks of the Snake River. They lamb wild to save them money. They could not hire even enough to take care of those sheep the way the people in the valley usually do with their lambing pens and all. They leave their sheep to lamb wild. They don't go around them. This is a very successful way to keep the sheep industry going they could not otherwise do.

If a dam goes in there they are going to cover up these bottom bank benches. The weather is such that any higher up in elevation in those mountains you have ice and snow until it is pretty miserable. You are looking at sheep standing there at 300 yards and less than 50 yards away. It is right out on rims. The sheep actually graze on the little rims sticking out over the river. It take binoculars to see all the sheep, but in the middle of your rim up there there is snow on up. This makes the winter ground right down below where it is warm very, very valuable to the sheep industry.

I have a piece here on the predators. These people went to Portland and they are telling about—I will make a copy of it to put that in the record.

Senator CHURCH. Let us include that piece in the record at this point.

(This material was not supplied by time the record was closed.)

Senator CHURCH. Do you have anything else you would like to include in the record?

Mrs. HOLLAND. I do want to put in the record the Oregonian piece that I reading.

Senator CHURCH. Very well.

Mrs. HOLLAND. Could I send in some more things later? I have a lot more material.

Senator CHURCH. The record will be open for 2 weeks. Please make certain that anything you send gets to the committee before the end of the 2-week period.

(The additional material referred to by Mrs. Holland follows.)

OREGON FISH AND GAME COUNCIL

Members of the Senate Interior Committee; on behalf of myself, the Oregon Fish and Game Council, the Northwest Steelheaders Association, and the Eagle Valley Panhandle Club, I wish to go on record as in favor of the Moratorium against dams on the Middle Snake River.

This is an excellent first step in complete preservation of the free-flowing river through Hells Canyon.

As far as this being the last major development site left, then what demands that we destroy it also? Obviously, it is the only one left of its kind.

We favor the Hells Canyon-Snake National Rivers Bill.

Our local residents here, immediately to the river, finding ourselves dissatisfied with the recreation and other so-called "benefits" derived from the dams now in our doors, in a last ditch effort, organized our "Save Hells Canyon" group to try to stop dams between Lewiston and the Low Hells Canyon Dam to preserve our reach of the Anadromous resident fishery.

In direct response, Enterprise businessmen organized their "Development of Snake", to counter-act our efforts.

A year after our program was begun, we discovered another group, the Hells Canyon Preservation Council, of Twin Falls, and through correspondence, we joined them in petitioning the Federal Power Commission to refuse licenses for dams on the Middle Snake River and in Hells Canyon.

Of 500 people approached by the Chairman of our group, less than twenty-five refused to sign the petitions, and only three of those were in favor of dams. One of the objectors owned stock in five power companies, three of which were involved in the Middle Snake dispute.

The second man owned land near Enterprise that he thought would sell for a good price in event of a dam construction.

The third man had a house for sale, and immediately upon sale of same, returned professing readiness to sign.

Of Eagle Valley and Pine Valley people, over half were contacted, and out of that group, only four refused to sign in favor of dams, six or seven refused to sign any kind of petition regardless of its nature.

Locals-200 signed during the Baker County Fair. Being asked as they filed in the door, there were no refusals. Most met the petitions with eagerness. Candidates running for every office that attended the Fair signed with their "consituents" as the FPC record will show. Four people are witness to this. Approximately another 200 signatures were taken at the Baker County Fair from people from Baker, Ontario, and out of area residents.

Petitions sent to Heppner, Portland, Keno, Klamath Falls, and nearly every other section of Oregon came back filled as the FPC record will verify.

At the Lewiston FPC Hearing of 1968, officers of Wallowa County were contradicted immediately by fellow residents when they stated they were ALL for dams in their area.

Sentiment is becoming so bitter against dams that Trout Unlimited, with support from the Northwest Steelheaders (4000) members, are preparing to attack the Lower Granite Dam on Snake River that is already authorized and financed.

They feel ample support is available to keep a lawsuit going indefinitely from free contributions.

The major objection to more dams in the Middle Snake is coming from Oregon and Idaho's organized sportsmen. Even though this appears to label them as a certain group, it is well for one to realize that nearly everyone is involved with outdoor recreation of one sort or another, therefore, the entire population, especially in the rural areas, have a pronounced leaning in this one direction, and the sportsmen groups could not operate with their present freedom without solid backing on the entire home front.

It is glaringly obvious from hearings held by the FPC in Lewiston and Portland, that every person testifying in favor of the dams had something to gain financially from their construction. I wish to state here that I have nothing to gain financially by my position in favor of preservation of Hells Canyon.

Often times a reservoir in an area created a great opportunity for water oriented recreation. This is not true in our area. Water is abundant, as the Columbia is one long reservoir from Bonneville Dam to the Snake River, and up the Snake River to the upper end of the Little Goose Dam's pool.

Then, with Idaho Power's pools beginning at the Low Hells Canyon Dam to Weiser, Idaho, over a hundred miles of reservoirs, we are completely "surrounded" by reservoirs.

Surely, we should not believe another reservoir will attract MORE USE than those now existing, whose Use is so light, when users would have to drive so far around the existing reservoirs to reach it.

Revulsion to the dams and a preference for the type of fish that is available in the old free-flowing river is reflected in the resident use of the area.

The dams have been almost completely abandoned by sport users. Already the popularity of the newest impoundment has begun to wane and interest fall away as evidenced by the lack of activity to be seen through surveillance.

It is sufficient to point out that during the construction of the last Low Hells Canyon Dam, the two dams above were capable of distributing a stable stream of water through the diversion tunnel below for several years.

Concerning all the "increased recreation that a dam will provide," as the power interests insist:

All of the camp areas will be inundated, just as they have been by the three IPCO dams above. Terrain will prohibit all but nominal access, and the obvious unpopularity of the reservoirs in the larger rivers make the development of practical facilities both uneconomical and undesirable. The dam we have in Hells Canyon today is living proof of this.

Reservoir fish are scarce and the lack of vegetation as shrubs and trees do not enhance the reservoir fisherman's comfort on hot or windy days.

Steep terrain inhibits planting of ground cover, and steep terrain curtails foot travel along the reservoir edges. All of numerous disadvantages related to environment add up to a climate of unsatisfactory recreation.

The only two Marina businesses, fifty miles apart on the 100 mile stretch of river reservoirs have both been financial disasters. Both are at present closed. On IPCO projects.

Objection was raised at a local PTA meeting to have children receive swimming lessons given by Red Cross workers locally, because of filth of the Brownlee Reservoir in the immediate valley, the only available water supply. Children were transported 60 miles away to Radium Hot Springs.

Newest plans developed to prevent overheating the rivers so that fish life will not be destroyed, include releasing the water from outlets in the lower part of the dam where the water is cooler, thus leaving the hot water on top.

However this water from the depths of the reservoir is defficient in oxygen. One "ill" is cured by the creation of another.

We still have steelhead and salmon now, but many are now dying from supersaturated nitrogen from already existing dams. Game Commission biologists are finding many fish killed by nitrogen embolism.

It is too much to increase a risk of losing the entire anadromous fishery of the Columbia River by building these last few dams. This last stretch of free-flowing river is being greatly recognized as a major spawning area.

Idaho Power in 1968 replanted fingerling steelhead and salmon and have now removed the traps thus allowing the fish to remain and spawn.

Out of 14 steelhead tags returned to the fish commission from tagging operations in the Deschutes River area, 7 were returned from Snake River.

Steelhead, salmon and sturgeon, resources that were once taken for granted, has now become very precious.

It would be well for anyone to consider, if they are politically minded, just how popular they will be, should they completely destroy a resource that gives so many people so much abundance of joy and satisfaction.

I would also like to add to the record the following, as each one deserves its own unique place of prominence as exceptional items and irreplaceable recreational attractions, all of which would be destroyed by more dams in the Middle Snake.

1. Many ancient earth lodges of Primitive Indian tribes
2. Smoked caves, which served as shelters centuries ago
3. Petroglyphs and other hieroglyphics under overhanging ledges and within caves, written in blood substances
4. Historical site of the Nez Perce Crossing, where Chief Joseph led his people across the Snake on their flight to Canada, only to be captured 3 mos. later, 30 miles from sanctuary
5. Site of Deep Creek Massacre, where 31 Chinese were slain
6. Wild Sheep Rapid, now the most challenging rapid in Hells Canyon
7. Granite Rapid
8. Sluice Creek Rapid
9. Waterspout Rapid
10. Rush Creek Rapid
11. Bernard Rapid
12. Sheep Cr. Rapid
13. Steep Cr. Rapid
14. Willow Creek Rapid
15. Roland Bar Rapid
16. Copper Creek Rapid
17. Davis Creek Rapid
18. Upper Pleasant Valley Rapid
19. Lower Pittsburgh Rapids
20. Lower Kirby Rapids
21. Middle Kirby Rapids
22. Upper Kirby Rapids
23. Rocky Point Rapid
24. Brush Creek Rapid
25. Imnaha Rapids
26. Eureka Bar
27. Whitehorse Rapids
28. Appaloosa Rapids
29. Deep Creek Rapids
30. Van Poo Rapids
31. Zig Zag Rapids
32. Warm Springs Rapids
33. Lower Dug Bar Rapids
34. Robinson Rapids
35. Five Pine Rapids
36. Wolf Creek Rapids
37. Pleasant Valley Rapids
38. Cache Creek Rapids
39. Durham Rapids
40. China Rapids
41. Stud Creek Rapids
42. Battle Creek Rapids

The above cannot be replaced or duplicated.

Hells Canyon thrives on its rugged reputation. Dangers of the unknown are its primary attraction.

In its present wild state, it has a hypnotic power that can separate one from the outside world.

Its inhabitants and visitors grow possessive of it, jealous of it, and are very proud to be able to say they have been there.

In the minds of most of us, the part that has been transformed from the river to a reservoir is no longer truly a part of Hells Canyon.

Our Hells Canyon contains a wild river that knows no restraint.

As state and federal records show, the reservoir use is light compared to that of the free-flowing river below. Use on the reservoirs is concentrated in not over a dozen spots the whole entire length of the three reservoirs.

41-855 O—70——10

IPCO promotion brochures list "Steelhead *Below* Hells Canyon Dam and Chukars, deer, elk, and bear, to entice visitors.

Beautiful, expensive parks are vacant the largest part of the year, and the major use is during summer months only.

At this time, I wish the record to show, that although I disapprove of Idaho Power Company's policies, I have no complaints whatsoever, against local officials and employees.

Concerning the sheep industry, I would like to correct my previous statement to show 24,990 sheep grazing in Hells Canyon, instead of the 12,000, I first stated.

On power shortage and urgent need for more electricity in the near future; Last fall, in Hells Canyon, there were dozens of us fishing the free-flowing river and it was very low water. We questioned IPCO employees and they said they were holding up because they *could not sell the electricity*. There is yet another generator to be installed. A good example of how much more electricity we can get out of existing dams.

ASOTIN DAM

The main argument in favor of the small Asotin Dam is for slack water navigation. We do not believe there is adequate need for slack water navigation, there, nor farther up into Hells Canyon. There is not an advantage of route, or are there any centers to connect.

The Middle Snake River as a free-flowing river, has a much higher tourist value and interest for all, being boated in the present various ways, many of which would be impossible without moving water.

Any recreational area of any value is worth routing business traffic around.

In conclusion I would like to express my own personal feelings and opinion concerning the Hells Canyon's future.

If this Canyon is made into another reservoir or series of reservoirs, its recreational value will be nil. Half, or even all of its main attraction, the Wild River, will be destroyed.

Left in its present free-flowing state its value will continue to rise phenomenally, and there will be a time when people will look back and shudder when they consider how close it came to being destroyed for purely financial gain.

Mrs. HOLLAND. Now on these dams down here and the power, and the irrigation, if you allow dams to be put in the Snake River system and what the game biologists fear comes to pass, that it kills every bit of our anadromous fishery, is that going to affect the tourist trade of Idaho and Oregon less or will it make any difference? Idaho is a tourist industry mostly, I believe. Isn't that right? Don't they depend on the tourist trade mostly for their——

Senator CHURCH. It is an important industry in our State. We have other important industries, too, but tourism is our fastest growing industry.

Mrs. HOLLAND. If they lose their salmon and steelhead, and what little recreation that results from the other dams and the irrigation more than make up for the loss of their anadromous fishery? This is the thing that everybody has to start thinking about.

Senator CHURCH. This is one of the questions we want to pursue in the moratorium period.

Mrs. HOLLAND. Then here on the archeology, I have traded Indian writings that have been written underneath the ledges. They are several hundred years old. Maybe you have seen these yourself.

Senator CHURCH. Yes.

Mrs. HOLLAND. I have kodachrome slides in my camera bag. The writing will definitely be covered. There is information that is going underwater if they ever put a dam in there.

Here is what happens when they tried to save these by putting up the coffer dam. This is the site where bones 13,000 years old were dug

up. They put a coffer dam around it to protect it so that they could get more out of it. So there are now two lakes instead of one. They have one inside the coffer dam.

Now this one guide in Hells Canyon, Jim Zanelli, was going to build two dude places, one on the reservoir and one on the main river, if there was business there to do it. But he says that there just isn't very much to be gained by putting anything on the reservoir. The business below the reservoir is getting too much for him to handle. He is getting more business given to him out of Lewiston. So the main river is the main interest. It is supporting four guides down there. There is Robins and Bramer and Jim and Page. They are making pretty good money down there. They have got only 6 miles of river to divide up among the four of them. You know that is really booming on the free flowing river on the steelhead and salmon.

Senator CHURCH. If this is a good stopping point for you, we had better move on because of the lateness of the hour. It is 10 minutes to 4 now. Is there anything else you would like to submit?

Mrs. HOLLAND. I will send it in.

Senator CHURCH. We will be very happy to have it. I do admonish you to be sure that the committee receives it within the 2-week period.

Mrs. HOLLAND. Yes. If I could have gotten into the offices in Baker I could have picked it up but it was Saturday before I knew that I could get around to coming.

Senator CHURCH. You have done a good job in pointing out the recreational use of the free-flowing part of the river in comparison to the use of the reservoir.

Mrs. HOLLAND. This thing on the fish about the nitrogen embolism, that is the thing that is most serious as far as I am concerned. Thank you.

Senator CHURCH. Our next witness is Mr. Michael Frome, conservation editor, Field & Stream.

Mr. Frome, it is a pleasure to welcome you here to the committee again. We have known you for your excellent testimony in the past.

STATEMENT OF MICHAEL FROME, CONSERVATION EDITOR, FIELD AND STREAM MAGAZINE

Mr. FROME. Thank you, Mr. Chairman. I am glad to appear before this committee of western Senators because we have so many of our readers out there who are your constituents and our constituents too, and they expect a lot of service from us as they do from you and they are looking over our shoulders every day of the year.

As the lady from Baker County indicated, the sportsmen of America are quite angry about the continued degradation of the environment and the failure of Congress to face up to it and say no, it has to stop and it has to stop on specific issues such as Hells Canyon on the Snake River. Therefore, I am proud to stand foursquare with the people of the community and enforce the Hells Canyon national river, moratorium or no.

I went out there a year ago in October and I wrote it up in the July issue of Field & Stream. I am just going to read the last two paragraphs and then stop.

Conservationists are pressing for establishment of a Hells Canyon Snake National River. This would embrace 721,000 acres, including a quarter mile shoreline along the Snake and Salmon, a Devils Unit of 250,000 acres in Idaho and an Imnaha unit of 335,000 acres in Oregon. Existing activities would be protected as far as part of the historic tableau but no contrary developments would be allowed to compromise the scenic value of the rivers. Virtually all the land involved lies within national forest boundaries and the Forest Service has for years recognized the Snake for its special management considerations. It costs virtually nothing but disciplined restraint to protect the vital records of geology, archeology and ecology as compared with a half billion dollars or more for a scrubby dam and rancid reservoir that would submerge irreplaceable treasures under 500 feet of water.

The boosters of power and concrete speak in almost lustful terms of Hells Canyon as "The last major hydroelectric site in the United States", as though it is indecent and sinful to leave alone the work that God has wrought. But Americans with ethics, morality and good sense may build a monument of this age by preserving the wonders of nature so that all this will not be lost to the sight of man.

I want to add, Mr. Chairman and gentlemen, that Hells Canyon and the middle Snake do not belong to Idaho, Washington State or Oregon, that this is a national river and a national resource which we are considering. I feel that your discussions should not concern itself with the middle Snake but for the entire drainage of the Columbia River. I feel that your discussion should concern itself with protection of the whole Salmon from its head waters to its meeting place with the Snake.

Thank you very much.

I would like to insert my article for the record.

Senator CHURCH. Very well.

(The document referred to above follows:)



HELLS CANYON PRESERVATION COUNCIL, INC.
P. O. BOX 691 — IDAHO FALLS, IDAHO 83401

The following text, which appeared with pictures in the July 1969 issue of FIELD and STREAM, is reprinted with permission of the author and the editor.

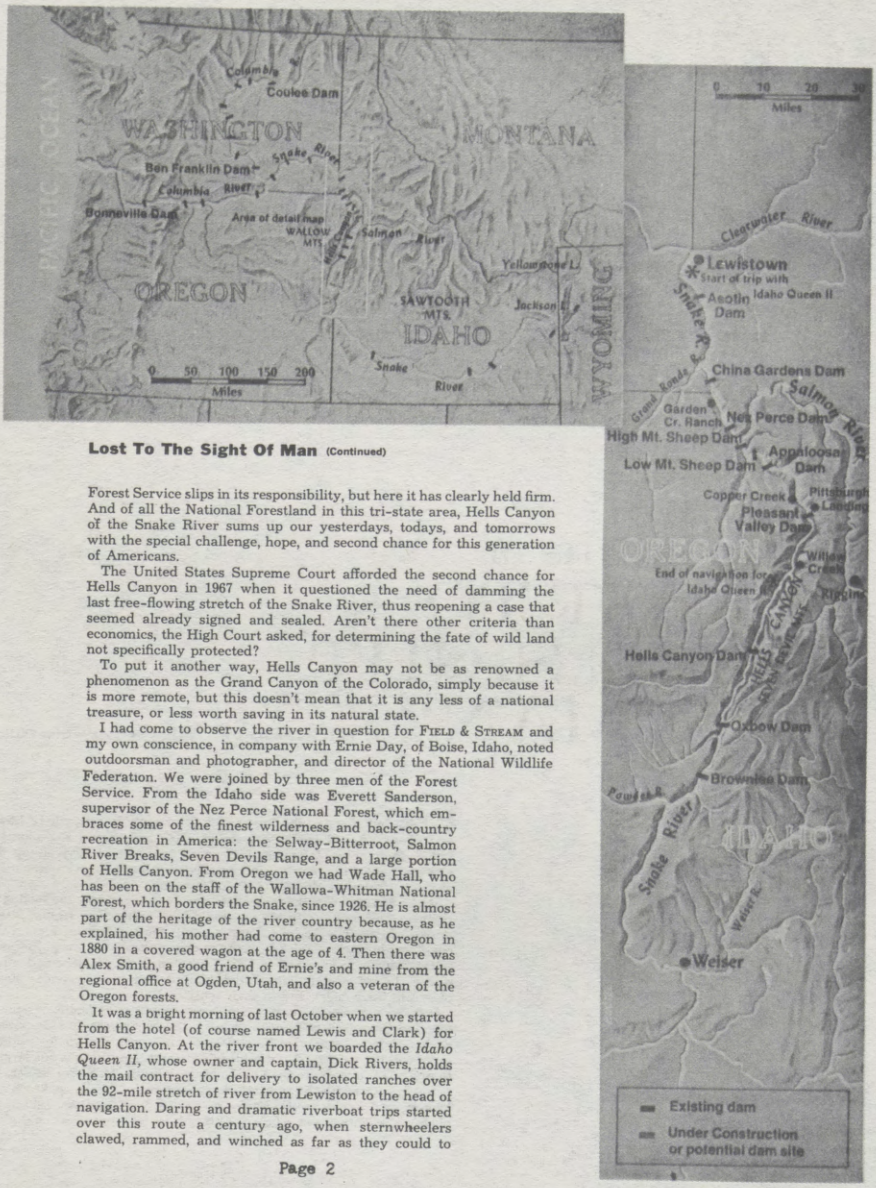
MUST THIS BE LOST TO THE SIGHT OF MAN?

By MICHAEL FROME / Conservation Editor

AT THE confluence of the Snake and Clearwater Rivers, where Lewis and Clark pitched camp in October 1805, and where the pioneers found shelter the following year enroute home, I arrived at the gateway to glad tidings, the kind we need in this age when emasculation of the landscape is almost a national psychosis.

It was not precisely the immediate setting that gave me the feeling of promise. The community of Lewiston, Idaho, seemed far from a fitting mirror of its heritage. An old logging mill town, rundown around the edges and bursting planlessly at the seams, with sulphurous pulp fumes drifting down the narrow canyon, Lewiston recalls a thousand other places that absolutely ignore the natural and historic endowments placed in their midst, and in their trust.

But the surrounding region, embracing portions of Idaho, Washington, and Oregon, is wide open country, the Northwest that Easterners dream about—uncrowded, uncluttered. Here one can go for endless miles without running out of pride in the native land. This is due largely to protection over more than half a century by the U. S. Forest Service —which began with the homesteaders, hard-rock miners, stockmen and loggers, and found itself growing up with hikers, hunters, fishermen, boatmen, scientists and scholars. Critics may feel that occasionally the



Lost To The Sight Of Man (Continued)

Forest Service slips in its responsibility, but here it has clearly held firm. And of all the National Forestland in this tri-state area, Hells Canyon of the Snake River sums up our yesterdays, todays, and tomorrows with the special challenge, hope, and second chance for this generation of Americans.

The United States Supreme Court afforded the second chance for Hells Canyon in 1967 when it questioned the need of damming the last free-flowing stretch of the Snake River, thus reopening a case that seemed already signed and sealed. Aren't there other criteria than economics, the High Court asked, for determining the fate of wild land not specifically protected?

To put it another way, Hells Canyon may not be as renowned a phenomenon as the Grand Canyon of the Colorado, simply because it is more remote, but this doesn't mean that it is any less of a national treasure, or less worth saving in its natural state.

I had come to observe the river in question for FIELD & STREAM and my own conscience, in company with Ernie Day, of Boise, Idaho, noted outdoorsman and photographer, and director of the National Wildlife Federation. We were joined by three men of the Forest Service. From the Idaho side was Everett Sanderson, supervisor of the Nez Perce National Forest, which embraces some of the finest wilderness and back-country recreation in America: the Selway-Bitterroot, Salmon River Breaks, Seven Devils Range, and a large portion of Hells Canyon. From Oregon we had Wade Hall, who has been on the staff of the Wallowa-Whitman National Forest, which borders the Snake, since 1926. He is almost part of the heritage of the river country because, as he explained, his mother had come to eastern Oregon in 1880 in a covered wagon at the age of 4. Then there was Alex Smith, a good friend of Ernie's and mine from the regional office at Ogden, Utah, and also a veteran of the Oregon forests.

It was a bright morning of last October when we started from the hotel (of course named Lewis and Clark) for Hells Canyon. At the river front we boarded the *Idaho Queen II*, whose owner and captain, Dick Rivers, holds the mail contract for delivery to isolated ranches over the 92-mile stretch of river from Lewiston to the head of navigation. Daring and dramatic riverboat trips started over this route a century ago, when sternwheelers clawed, rammed, and winched as far as they could to

unload supplies for gold seekers and homesteaders, who had no other link with the outside world. The 48-foot *Queen*, powered by twin 260-horsepower diesel engines, was clearly a work boat, but not unattractive, nor unpleasant to be aboard. Nor were we alone. A snug cabin had accommodations for about forty passengers and every seat seemed filled. Many were older people, derived from the group of travelers sometimes called "the tennis-shoe set." And around us along the wharf were jet-powered boats of various sizes, which also carry sightseeing passengers and fishermen. I was reminded of the popular trip on the Rogue River from Gold Beach to Agness in western Oregon. Such excursions afford a great many people an exciting run, a glimpse into wilderness without depleting the resource or depriving others of enjoyment.

This was my first trip into Hells Canyon, though I had become acquainted over the years with the Snake River in other portions of its thousand-mile journey from the Rocky Mountains to its merger with the Columbia. The second longest river in the Northwest, the Snake rises in western Wyoming, motherland of glorious rivers—including the Green, which becomes the main stem of the Colorado; the Madison and Gallatin Forks of the Missouri; and the Yellowstone. After joining the waters of little streams from high lakes and forests in the Teton and Yellowstone country, the Snake flows through a beautiful forested canyon south of Jackson, then winds across the sagebrush plains of southern Idaho before turning sharply north along the Oregon border for its final journey. Captain William Clark named it the Lewis River, after his intrepid partner, and the tributary now known as the Salmon River, a great stream in its own right, he called the South Fork. But others insisted on using the Indian name of *Shoshoneah*, which translated into English as Snake, and Snake it is.

In recent years, the Snake has been plugged by twelve major dams and reservoirs of varying sizes, shapes, and purposes. In the lurid dam-building orgy of the past decade that destroyed beautiful stretches of river and canyon all over America, in the name of profit, politics, and progress, the Corps of Engineers imposed four impoundments downstream from Lewiston. And upstream, in the deep series of gorges along the Idaho-Oregon border, carved by the river in the last twenty-five million years, the Idaho Power Company added three more, named Brownlee, Oxbow, and Hells Canyon. Today, only a little more than one hundred miles remain of the native river, untamed, unspoiled, approaching the natural conditions in which man found it. This area is in the very middle and embraces the wildest stretches of white water, flowing through the deepest canyons. And even this is threatened, for still another dam, Asotin, has been authorized at the upstream edge of Lewiston, and that will reduce the free-flowing segment of the river to 75 miles.

Such is the tragedy of the Northwest. The mighty Columbia, once the proudest river on the continent, is only a shadow of itself, almost entirely bottled by eleven main dams. Stream habitat for game fish and wildlife has been consistently destroyed. Only fifty miles of the whole Columbia River above tidewater remains free-flowing, and proposals have been actively advanced to construct dam No. 12. Named generously for Ben Franklin, No. 12 would eliminate the last natural steelhead fishery, as well as wipe out a trout and whitefish fishery, plus spawning areas of summer-run steelhead. Turbulence, temperature changes, and oxygen-deficient releases from reservoirs are a constant threat. Fishermen may be promised tailrace fishing below such projects, but with pumped-storage peaking operations a fact of the future, these fishing areas will vanish also under violent water fluctuations. In the name of power production for industrial development, the Ben Franklin dam would also flood wildlife and waterfowl habitat, mule deer fawning areas, and nesting areas which produce 15 percent of Washington's Canada geese. No wonder the Washington Department of Game, sportsmen, and other conservationists are up in arms against this project of the Corps of Engineers.

The issues are parallel on the Snake River, which leads one to ask: Must the entire face of America be reshaped to look alike—overindustrialized, overpolluted, overpopulated?

The stubby *Idaho Queen II* headed upstream, for the first thirty miles between low hills on the flanking Idaho and Washington shores. A road paralleled our course on the Washington side to the Grande Ronde River, and then it stopped; I learned that other roads furnish access to points on both banks below the deepest part of the gorge, while hiking trails run forty or fifty miles along the river and numerous connecting trails feed in from side canyons.

At the mouth of the Grande Ronde, we saw fishermen casting from a gravel bar. Wade Hall mentioned that in summer water skiers come out in numbers. The hills grew higher as we continued upstream, with 3,000 foot cliffs rising from the water and white beaches.

It's the annual flooding action of the river that builds and refreshes these sand beaches and gravel bars, and that flushes the algae which accumulate during warm summer months. And it's the erosive power of the river in flood stage that sculptures and colors the striking canyon walls and midstream boulders. Such is life in a natural environment. Light-green broadleaf foliage growing on the beaches, bars, and at the mouths of tributary creeks contrasted softly with the walls of basalt and granite. On the warm canyon floor were white alder, wild cherry, and elderberry, while on the slopes were bitterbrush, serviceberry, blue bunch wheatgrass, western hackberry, mountain mahogany, and maple—the lower brushy draws furnishing ideal cover for game birds, as well as winter feed for the big game, with the timbered slopes as excellent deer country.

The canyon scene changed. Black rocks glistened beneath the sun. The scenery grew more towering. It changed with the hours as sunlight turned from one feature to another. It responded to clouds, shading first one, then another portion of the landscape. "It changes with the seasons, too," said Wade.

At Garden Creek Ranch on the Idaho side, facing the Washington-Oregon border, the *Queen* made her first stop, the first of about a dozen. The ports along the way are bits of beach into which a boat can ram its bow and back off again after letters, magazines and parcel post are put ashore. The schedule being purely flexible, we stopped to fish a while. A few fish were caught at our several stops. I noted that periodically the canyon would relent and fall back, allowing a bench on which some pioneer once staked his future. The various ranches that now survive actually began as either mining claims or homesteads operated by hardy souls struggling to survive.

The voyage through the turbulent stream was an adventure. The boat crashed headlong through rapids and ripples, the skipper heading straight for one bank, cutting close to a jagged boulder, then whirling the wheel. Rivermen once had to learn and memorize the rapids and channels, but now they have target boards on shore, which they line up like gunsights, enabling them to work their way upriver in switchbacks.

In due course all of us were impressed by the depth of Hells Canyon. The maximum measurable depth is 6,550 feet. It is deeper than Yosemite, and more than a thousand feet deeper than the Grand Canyon. Kings Canyon in California is rated

its equal, but the great gorge of the Snake River is considered by scientists as the deepest canyon formed by any major river in America.

Presently the boat came abreast of the most celebrated stretch in the river, the battleground, which engineers, lawyers, planners, profiteers, and politicians seem about to destroy.

In quick succession we passed the site of the proposed Nez Perce Dam, the confluence with the Salmon River on the Idaho side, marked by spectacular facing of metamorphic basalt; and, a half-mile above the confluence, the site of the proposed High Mountain Sheep Dam; followed by the Imnaha River, flowing in from the Oregon side down a steep narrow valley with rocky grandeur, and then Dug Bar, the point where Chief Joseph and his Nez Perce followers crossed the Snake on their historic flight for freedom.

A veritable concentration of treasures, indeed. The Salmon River flows from its source in the Sawtooth Mountains and Whiteclouds north across the heart of Idaho, then west through rocky canyons between North Fork and Riggins before turning north again, without a single dam to mar its way. The Salmon is noted for its recreational value, as well as for being a spawning ground of steelhead and salmon, important to fisheries in the Northwest, Canada and Alaska. Little wonder the Sport Fishing Institute proposed recently that the Salmon be designated as the first National Anadromous Fish Spawning Sanctuary, with restrictions on any diversions and downstream development that might adversely affect its natural function. The Imnaha is also a major migratory fish stream. In fact, half the steelhead still caught in the Columbia are produced in the Snake River system. Chief Joseph was of this country, born near the mouth of the Imnaha. He and his people wintered here. The Nez Perce came down the breaks and smooth benches of the Imnaha in 1877, then retreated over the river before the cavalry, without loss of a single human or animal. Archaeologists have reported that native Americans have lived along the Snake for 8,000 years. Rock shelters, caves, carvings, paintings in nearly 200 villages and campsites are available for investigation—one of the last opportunities for such studies in the entire Columbia Basin.

This section and the whole river have a magic fascination for scientists, boatmen, fishermen, hikers, hunters, photographers, botanists, and archaeologists, all who love the outdoors. The Middle Snake presents an array of free-flowing pure water, rivershore trails, campsites, and canyon scenery. The word "unique" is often overdone, but there is no doubt that in fisheries alone this river is superb, not only for its anadromous fish, but for the resident species of smallmouth bass, channel catfish, and the immense white sturgeon, the largest fresh-water fish in North America.

The trouble with such values is that you can't measure them in terms of economic profitability, or market them for the glory of the Gross National Product. Accordingly, for many years assorted boomers of Federal, private, and public power have been competing for the privilege of desecrating the scene on the theory that nature must be controlled, harnessed, distorted, but never left to God's own simple ways.

In 1964, a syndicate of four private utilities called Pacific Northwest Power Company (PNP) was awarded a license by the Federal Power Commission to construct the 670-foot High Mountain Sheep Dam. However, it was opposed in a legal dispute by a combine of eighteen public power utilities, the Washington Public Power System (WPPS), which placed its bets on the Nez Perce site for best hydropower development, although blocking access to the Salmon River fishery. The issue ultimately went to the Supreme Court, which in June 1967, handed down one of the most important resource-related decisions in its history. The Court directed the FPC to reconsider its license to PNP on the grounds that it had not adequately considered the feasibility of the Federal role, as provided by the Federal Power Act. Then the Court raised the question of whether any dam should be built on the Middle Snake. In a decision written by Justice William O. Douglas, a veteran Northwesterner, champion of law, human rights, and of the outdoors, the Court declared: "The test is whether the project will be in the public interest and that determination can be made only after an exploration of all issues relevant to the public interest. These include future power demand and supply in the area, alternate sources of power, and the public interest in preserving reaches of wild river in wilderness areas, and the preservation of anadromous fish for commercial and recreational purposes, and the protection of wildlife."

The Court decision gave heart to conservation groups, both local and national—the Idaho Wildlife Federation, Idaho Alpine Club, Federation of Western Outdoor Clubs, Sierra Club and Wilderness Society. The Hells Canyon Preservation Council was organized to fight any dams. It was the second chance come alive, after all had seemed lost.

The other side was not inactive. The old rivals, PNP and WPPS, patched up their differences. Deciding there would be enough to divide between them, they applied for a joint license to build the High Mountain Sheep Dam. Then in May 1968, the Federals jumped in. Secretary of the Interior Stewart L. Udall generously proposed instead that his outfit build and operate a dam at the Apaloosa site, about eight miles above the mouth of the Salmon, on grounds that it would afford better protection to the fishery resource and make more use of the Snake for recreation. And besides (as he might have mentioned), Interior's dam builders, having been frustrated at the Grand Canyon, were in need of work. Anybody who thinks of Interior as a "Department of Conservation" has another think coming. While a few of its bureaus truly endeavor to safeguard natural resources, other bureaus and many political appointees are devoted to the cause of everlasting construction, development, exploitation of oil, gas, metals, water, and land.

In building dams for power these days, the principal structure is often accompanied by a secondary, or re-regulating, dam placed downstream in order to recycle water. Thus the Apaloosa dam would require a re-regulating dam at the Low Mountain Sheep site, just above the mouth of the Imnaha. Another dam under consideration upstream at a site called Pleasant Valley also would need a reregulating dam. High Mountain Sheep dam would not only block the Imnaha itself, but require another dam at China Gardens, twenty miles below the mouth of the Salmon River, which would possibly have as much adverse affect as Nez Perce itself. And all kinds of complicated devices were offered with the competing designs in order to prove compliance with the Supreme Court order.

Hearings were held by the Federal Power Commission at Portland, Oregon, and Lewiston during 1968, but the dam proponents failed, and rather dismally, I think. They produced the usual assortment of economists, power technicians, and planners to warn gloomily that the Northwest must have every potential kilowatt of hydropower or face peril. Yet Northwest utilities and Bonneville Power have launched a multi-billion dollar nuclear power program for the next twenty years. As the Vice President of Portland General Electric admitted, "If High Mountain Sheep does not become available in any particular assumed year, it does not follow that the lights in the Northwest will be turned out, but merely that in the planning process we will advance an alternate nuclear plant

by seven months to a year to fill the gap." The Assistant Administrator of the Bonneville Power Authority conceded further when he said, "Viewed as merely an additional 3 million kilowatts in the regional power growth, Apaloosa is hardly distinguishable from the approximately 25 million kilowatts of hydro and 16 million kilowatts of thermal that will be added by 1987." But the developers must have Apaloosa for other reasons, he insisted; like all dams, it is guaranteed to control floods, boost payrolls and taxes, expand recreation, and bring a flood of tourists. The Bureau of Outdoor Recreation obligingly produced a plan full of everything a chamber of commerce would dream of: picnicking, swimming, boating, water skiing, sightseeing, fishing, hunting, horseback riding, hiking, nature study—precisely what people can do at a thousand other places. The BOR failed to mention that water fluctuations of as much as 170 feet would leave Hells Canyon biologically barren and unsightly, with stained canyon walls and mudflats—degrading to recreational concepts, and equally degrading to a quality environment in which the natural river serves as an ecologic lifeline. It neglected to mention the superabundance of reservoir-type recreation already in the Northwest, including nearby Brownlee which is in sharp contrast with the critical shortage of recreation forms which only wilderness and wild rivers can fulfill.

The Supreme Court made such considerations important. It forced recognition of the natural environment, of the values of fish and wildlife. The Interior Department obliged by proposing expensive, complicated multi-level devices for the Apaloosa design in order to reintroduce oxygen and remove nitrogen,which it claimed would actually increase productivity. But a reading of the testimony indicates the Department's biologists did not have their hearts in it. They admitted that any dam would have harmful effects on fish production, that the whole project was an immense game of guesswork, without precedent, and certain to cost many millions of dollars. There might be an outside chance of saving part of the production for commercial fishing, but to maintain the sport fishery in a "pooled-up" river would be virtually impossible. The river would be changed to an impoundment and, quite apart from steelhead and salmon, the native sturgeon, smallmouth, and catfish would be essentially lost—even though nowhere else does a fishery of such excellent quantity and quality exist for all three species in the same water. "The project would inundate and otherwise destroy about 11,900 acres of big-game habitat, 5,430 acres in Oregon and 6,480 acres in Idaho," one Federal official reported. "Any one of the three projects would cause substantial damage to wildlife resources, even if all apparent potential measures to reduce or offset detrimental effects were assured with the projects."

Professional experts of Oregon, Idaho, and Washington fish and game departments were unanimous in their testimony that no dam could possibly benefit the sports resources. After all, with the construction of each new project, additional habitat and spawning areas of Oregon, Idaho, and Washington have been wiped out. Despite the application of all known measures, and the expenditure of $250 million for anadromous fish passages in the Columbia Basin, the fishery resource has gone steadily downhill. Clearly, the perpetuation of salmon and steelhead doesn't rest in mechanics and machinations but in honoring the life-cycle of the fish as they travel thousands of miles from the mountains to the ocean and home again, and in respecting the natural laws. With more than 50 percent of the Snake no longer accessible to anadromous fish, the remaining areas are more important and more critical.

"If all the dam construction projects now under construction, authorized, or seriously considered are completed," John R. Woodworth, Idaho's Director of Fish and Game, declared at the Lewiston hearing last September, "it will not be very long until the entire Columbia River within the United States upstream from Bonneville Dam, the entire Snake River from its mouth upstream to Weiser, Idaho, and major portions of the Clearwater and Grande Ronde River drainages will be impounded. It is our opinion that under the theory of true multiple-use development of water resources, maintenance of a stretch of the mid-Snake River in a free-flowing condition, coupled with its unique fishery and scenic attractions, would be in the best interest of the public and future generations hereafter."

Officials and the dam promoters were not alone at these hearings. The spokesmen for the people came, too, citing the interests and values of natural science, history, outdoor sports, the therapy of nature to man. It's tough to battle big industry and big government, with their resources and paid staffs, but at the Hells Canyon hearings the people were represented by their own technical experts, many with national reputations, who came to testify without pay.

Dr. William L. Blackadar, of Salmon, Idaho, was a star performer. He turned up after riding thirty-five miles in his kayak through huge waves and rapids from Hells Canyon to Pittsburgh Landing. "We do not realize the potential of this area," he testified. "Eight years ago the first fiber-glass slalom kayak was designed. At that time less than 500 people were rafting the Middle Fork of the Salmon River annually. Now over ten times that number run the river and for the first time sizable numbers of kayaks have appeared. This area will soon be alive with these 'banana' boats. Isn't it great that these challenges await us? Wouldn't it be sad to think that these bigger waves might be hidden under hundreds of feet of water? There are few areas left and these will become priceless."

I said earlier the dam builders had failed in their presentation. They made this plain last November, when the old enemies, PNP, WPPS, and the Interior Department, joined in a three-way bid to finance, build, and operate the Apaloosa Dam—rather ironic considering earlier complaints of the latter concerning the troubles with "intervening non-Federal ownerships" in Northwest power projects. Almost at once the new partners requested a delay in FPC proceedings, preferring to seek Congressional approval and avoiding the whole license question. Fortunately, the only conflict they resolved was the one among themselves, and not the issue of principle before the people.

"Any dam," said Wade Hall, "changes this river from a vibrant stream into a placid pond where water movement appears only vertical as elevation rises and falls. Gone forever are the camp spots where the visitor may enjoy isolation and which allow free choice as to length of journey each day." We had lately passed Dug Bar Ranch, a successful base for stock operations since the early 1880's. If the dam were built, it would be flooded out completely, along with the rest of the ranches.

In late afternoon we pulled in at Copper Creek, our home for the night, where Rivers operates a camp for use on the midweek scheduled run. It was a pleasant setting with several furnished cabins clustered in the meadow. After we were settled, we all fished a while and watched an osprey upstream diving for his dinner. The number and variety of birds along the river is amazing. Eagles and falcons use the high canyons for their necessary isolation in breeding. Herons soar high overhead and gather food along the riverbanks. Canada geese nest in the cliffs. Hungarian partridge, quail, and grouse are common. But if any one game bird stands out as numerous, it's the chukar. Apparently foodstuffs little utilized by other species make this an ideal habitat, for coveys of these rugged birds seemed to pop out everywhere, although the species was introduced only fifteen years ago.

The next morning we continued a little while with Rivers and the party on the boat, then were put ashore on the Oregon side where arrangements had been made for saddle horses. The horses were waiting. So were Jack Hooker, a well-known outfitter of northeast Oregon, and a wrangler. Continuing our journey in this way we'd be able to get another perspective of Hells Canyon and also to travel beyond the end of navigation.

We rode past the Circle C Ranch at Pittsburg Landing (the Pleasant Valley damsite) on the Idaho side which is an oasis of green alfalfa fields surrounded by dry hillsides. This is one of the main access points, reached by road from Riggins and Whitebird. A jet boat zipped upstream. It was named fittingly *Hell's Angel*, which Everett explained is the craft operated by Floyd Harvey between Lewiston and his fishing camp at Willow Creek, which we would reach soon. The feeling of wild places increased. Looking across into Idaho, for a time we saw little except sheer solid walls, rising almost vertically from the river bank. Then the dramatic topography yielded into stairsteps, great benches, and terraced cliffs. Snow-patched mountains towered against the sky. They were part of the Seven Devils, comprising a famous recreation area. "You can see the trails," said Everett, "that any ordinary citizen can use to hike or ride into the bottom of Hells Canyon within a day."

The river flowed swift and deep, winding through bend after bend of great gorges, with rapids seeming like boiling water. We passed a ranch on Kirkwood Creek, where Senator Len Jordan once lived, and then rested opposite the location of Harvey's tent camp. It was an ideal wilderness setting, sheltered beneath a cliffside. Our interest was in the stream, for here the sturgeon find a running-water habitat of deep holes, swift-flowing rapids and shallow riffles it needs for spawning and survival. We watched closely and spotted two sturgeon near the surface. They looked about 9-feet long. One came floating to the top, then both vanished.

The great white sturgeon once was common in the United States. Fish were caught commercially weighing a thousand pounds and more. Records indicate that fish 10- to 15-feet long were not uncommon before the dams were built on the Snake and Columbia. Now the sturgeon is reduced to its last stronghold in places like the Middle Snake, a fishery that technology cannot match.

Beyond Johnson Bar, the end of navigation, the river became much rougher, apparently too dangerous except for extraordinary boatmen. Our trail seemed to take full advantage of every possible break in topography, one moment at water level, almost within feel of the spray, then climbing hundreds of feet to skirt huge rims. We crossed a dramatic stretch aptly called Eagle's Nest, then another, Devil's Slide, where the trail was carved out of solid rock.

We rode through semi-desert and foothills covered with cactus, hackberry, grasses, juniper, and pinyon pine. A rattlesnake crossed our trail. I became more conscious of wildlife. A whitetail deer bounded through the timber, then a larger mule deer skirted over a dry open hillside. A coyote "topped out" over the crest. Because it is remote, Hells Canyon is blessed with a variety and abundance of wildlife. That night, while camping at a site where a person could enjoy the same atmosphere as the first white man to see the place, we talked about this point.

"I believe that hunter success is about as high here as anywhere in Oregon," the outfitter, Jack Hooker, said. "Sixty-six percent on deer, 25 percent on elk. I've had people hunt deer and upland birds and fish all on the same trip."

While we talked, an eagle rode the evening breeze, broad-winged, silent, patient.

It takes patience to shape the land, to balance the life forms, and to absorb the true meaning of life, and perhaps the appreciation of patience is God's gift to man at Hells Canyon. Such were my thoughts when we adjourned and I crawled under canvas flaps that night.

We rode out next morning into big country. The elevation changed rapidly—5,000 feet in five hours—as we rode through ponderosa pine and Douglas fir cloaking steep, narrow-sided valleys, high plateaus of spruce and fir, and finally topped out in a breezy world of alpine sedge and grass, before meeting our ride to the town of Imnaha and another world.

As for the future of Hells Canyon, the Department of Agriculture recently gave support to the Forest Service position against any dam on the Middle Snake. This is heartening. Both Idaho Senators, Frank Church and Len Jordan, have proposed the so-called Moratorium Bill, providing for a 10-year study period. Their reasons differ, Church hoping to save the anadromous fish runs and the recreational resource, Jordan apparently wanting time to decide whether Idaho should claim the water for downstate irrigation.

There is still another way. Conservationists now are pressing for establishment of a Hells Canyon-Snake National River. This would embrace 721,000 acres, including a quarter-mile shoreline along the Snake and Salmon, a Seven Devils Unit of 256,000 acres in Idaho, and an Imnaha Unit of 335,000 acres in Oregon. Existing activities, such as ranching and grazing, would be protected as part of the historic pioneer tableau, but no contrary developments would be allowed to compromise the scenic values of the rivers. Virtually all the land involved lies within National Forest boundaries and the Forest Service has for years recognized that the Snake merits special management consideration. In 1963, it designated the 130,000-acre Hells Canyon-Seven Devils Scenic Area, and judiciously administered it primarily for recreation, scenery, and scientific values. Under the National River plan, an enlarged system of trails, campsites, and boat ramps would make the area more usable, and would disperse use in order to eliminate concentrations and conserve the atmosphere. Some of the steep slopes, canyon breaks, and rugged terrain appear suitable to reintroduction of mountain sheep, which once ranged here and were observed as recently as fifteen years ago.

The price of all these would be minimal. Indeed, it costs virtually nothing but disciplined restraint to protect the vital, rich records of geology, archaeology, and ecology, as compared with half a billion dollars or more for a scrubby dam and rancid reservoir that would submerge irreplaceable treasures under 500-feet of water. The boomers of power and concrete speak in almost lustful terms of Hells Canyon as "the last major hydroelectric site in the United States," as though it's indecent and sinful to leave alone the works that God hath wrought. But Americans with ethics, morality and good sense may build the monument of this age by preserving the wonders of nature —so that all this will not be lost to the sight of man!

FIELD & STREAM JULY 1969

Must All This Be Lost To The Sight Of Man

Senator CHURCH. Are there any questions?
Senator JORDAN. Thank you, Mr. Frome.
Senator CHURCH. Mr. Hatfield.
Senator HATFIELD. Thank you very much.
Senator CHURCH. Our next witness is Mr. Lloyd Tupling, Washington representative of the Sierra Club.

STATEMENT OF LLOYD TUPLING, WASHINGTON REPRESENTATIVE, THE SIERRA CLUB

Mr. TUPLING. I thank you, Mr. Chairman and members of the committee.

I am Lloyd Tupling, Washington representative of the Sierra Club, with some 90,000 members in 28 chapters throughout the United States. One of the principal objectives of the Sierra Club is to preserve scenic resources of the United States and its forests, waters, wildlife and wilderness. We see within the framework of S. 940, the bill pending before your committee, another opportunity for furthering this objective.

We firmly believe that a moratorium should be placed by Congress on action by the Federal Power Commission to license hydroelectric generating facilities in Hells Canyon of the Snake River. We see the moratorium on licensing as a step toward the eventual, full protection of the scenic and spectacular Hells Canyon area. The total public interest in this valuable resource will be enhanced by the proposed moratorium legislation.

Hells Canyon is the deepest gorge in the North American Continent. The river and surrounding area is the home of great populations of fish and wildlife. The Hells Canyon reach of the Snake is one of the great free-flowing, living rivers of America. The moratorium will give time for adequate consideration of the area's environmental, recreational, wild river, and natural landscape values.

As members of the committee are aware, legislation has been introduced in the House of Representatives and in the Senate to establish the Hells Canyon-Snake National River, which takes into account the scenic, recreation and environmental values of the area. Passage of S. 940 would afford the Congress an opportunity for due deliberation of these proposals for protection of Hells Canyon. If the Federal Power Commission proceeds with licensing, this opportunity will be foreclosed to Congress, and one of our Nation's great scenic treasures will be lost for all time.

The Congress should be able to make this decision. The licensing procedure under the Federal Water Power Act is an action to appropriate water resources from the public domain. But this is not a decision which should be left totally to the discretion of the Federal Power Commission. The act itself recognizes this by providing that the Commission can remand back to Congress the decision on the manner in which a stretch of navigable water should be utilized. S. 940 is consistent with the rationale of the act in that respect. Time is allowed for a proper judgment.

In conclusion, Mr. Chairman, I would like to present for inclusion in the hearing record an article entitled, "Landscape Ethics" by Dr. Luna B. Leopold. Dr. Leopold discusses means of quantifying the

scenic, recreation, and environmental values of the area. Passage of Canyon is an area whose superb esthetic qualities are shared by few other landscapes within the United States—perhaps second only to the Grand Canyon of the Colorado.

(The document referred to appears previously in the record.)

Mr. TUPLING. Thank you.

Senator CHURCH. Thank you very much.

I think you have come up with an important evaluation when you say that—

> Passage of S. 940 would afford the Congress an opportunity for due deliberation on these proposals for protection of Hells Canyon. If the Federal Power Commission proceeds with licensing this opportunity will be foreclosed to Congress, and one of our Nation's great scenic treasures will be lost for all time.

This bill preserves our options. We are proposing legislation to prevent a decision by the Federal Power Commission that will result in the construction of a dam.

Senator Jordan.

Senator JORDAN. Thank you, Lloyd.

Senator CHURCH. Mr. Hatfield.

Senator HATFIELD. I want to say each time Mr. Tupling comes before the committee he has usually said his piece in one page or two pages in very fine summary fashion. I commend you for your statement today.

Mr. Tupling, let me ask you this question. Let us assume that this committee is favorably disposed toward the moratorium and let us assume that perhaps we can get this past both Houses of Congress and not build any more dams on the Snake River, what would be your belief or feeling as to where we would find our additional source of energy necessary for the projected populations in the Pacific Northwest?

Mr. TUPLING. I think, Senator Hatfield, there are a number of sources and there are a number of things that probably should be done. Dr. Norton mentioned some of them earlier. Research what you might call more exotic sources of power such as solar energy. There are in addition in the Pacific Northwest deposits of low-grade coal that might be utilized.

Senator HATFIELD. You mean for steam generation?

Mr. TUPLING. For steam generation, yes.

Senator HATFIELD. What about thermal?

Mr. TUPLING. You mean nuclear?

Senator HATFIELD. Hydrothermal power agreements that we have now approved in the executive branch. Would you support this?

Mr. TUPLING. I think that I would want to know more about the details of it.

Senator HATFIELD. They have approved a couple of the projects already for this development. Do you support this program for developing a source of energy within the hydrothermal agreement which is the nuclear power program? We are building one in Washington, and one in Oregon.

Mr. TUPLING. I think there is some serious consideration that should be given to nuclear power development. This is an area that we launched into with the assumption that their side effects were negligible. The further technology advances and the more that the utili-

ties turn to this production the more we find that there are perhaps some serious environmental questions involved in this as an alternative. I don't think we have all the answers on nuclear power.

Senator HATFIELD. Are you aware of the programs that they have in process, particularly on the temperature of the water, research on cooling towers, research going into the irrigating of soil with this water to even greater crop yields and reducing the threat of frost to a great extent?

These are not just gone into haphazardly, for there has been a good deal of study made by the scientists in this matter of environment in relation to nuclear development.

What I am asking you is: The Bonneville Power Administration is not renewing direct user contracts that are expiring because of their projected power shortage and energy shortage in the Pacific Northwest. The fact is that the population is continuing to increase. They are projecting a power shortage in the seventies and we are now in the seventies. We have the immediate problem of maintaining a source of energy. I need not tell you that this is not merely a matter of Oregon, Washington, or Idaho.

The only nickel mine that operates in the whole United States today is in Riddle, Oreg., which is a direct user. I need not tell you that 35 percent of the Nation's aluminum output is produced in the Pacific Northwest, on a direct user basis. We have this shortage today, not 10 years from now or 20 years from now. Some of us who are willing to subscribe to the moratorium on the dams of the river as a source of hydroelectric energy therefore, should push hard to get approval of a hydrothermal agreement so that we can provide energy from another source.

Now I think we have to understand this is not a question just of industry, it is a question of irrigating acreages of land, a question of heating schools, it is a question of providing energy for homes. It is not a question of direct users—it also is residential. It is everything else in the Pacific Northwest. I don't think the people of the Northwest are going back to the bonfire as far as reviving a primitive society. So I think we have to be realistic. What I want to know is, if we support this whole moratorium program here and then move into the thermal, then I don't want to see groups like yours coming around the same circle saying, "No, we don't support thermal development either." I think it is easy for you and your officers to say we must maintain this beautiful environment, of which I was a supporter, long before ecology became an important word, but at the same time we have to face reality that people are here and babies are being born and hospitals have to have power and schools have to have power and energy, and homes have to have energy, and farms have to have energy, and industry has to have energy. I want to see your group face up to that and say we are for continuation of power development, energy development—even though we are opposed from this source we do support something. What source do you support?

Mr. TUPLING. Well, I think there can be a combination of sources for production of energy.

Senator HATFIELD. Where?

Mr. TUPLING. This dam in the Middle Snake itself is going to provide only an infinitesimal amount in relation to the total problem.

Senator HATFIELD. For the sake of argument, let us erase further hydro develoment. Where else are we going to find a source of energy?

Mr. TUPLING. I mentioned one, for instance. In southern Oregon as a matter of fact there are extensive sources of energy there from low-grade coal which would be generated at mine mouth in a developing technology.

Senator HATFIELD. With the pollution of air.

Mr. TUPLING. Not necessarily. I think that the technology may be able to resolve this problem.

Senator HATFIELD. Do you or do you not support the hydro or the hydrothermal program?

Mr. TUPLING. I could not say that I would endorse every facet of it, no.

Senator HATFIELD. You really then don't offer us any immediate source of new energy for the requirements of the Northwest at this point except to suggest possible low-grade coal and steam? Is that the only source of energy you offer?

Mr. TUPLING. No. I think there are other sources of hydropower. Better use of the existing generating facilties.

Senator HATFIELD. That is infinitesimal compared to what our projected needs are.

Mr. TUPLING. This may be so.

Senator HATFIELD. What about birth control?

Mr. TUPLING. I think birth control goes very much to the point. Another thing that I think is very much to the point is the promotion of excessive consumption. This is one of the things——

Senator HATFIELD. Do you want to limit consumption of power?

Mr. TUPLING. Yes. I think we have twice as many lights in the room as we need for the purpose of this hearing.

Senator HATFIELD. Would you think that you could get the ophthalmologists to agree with you?

Mr. TUPLING. I don't know whether I could or not.

Senator HATFIELD. I think the record ought to be made very clear, Mr. Chairman, that this hearing has to be a broad based hearing. I have asked this question and I think it is very pertinent to the whole subject we are discussing. I think it is one thing to talk about abolishing a source of power and I support this particular proposal, but I don't think we can assume that there is not the same responsibility on our shoulders to at least look and discover and determine other sources in lieu of that which we are abolishing, because of a greater value of recreation and scenic value of the Snake. But I can't stop there as a member of this committee, nor as a public official, and not recognize the Pacific Northwest is growing and that we have to be concerned about sources of energy and I don't think that groups which purport to represent vast unmbers of people who probably have air-conditioned offices and write their reports on electric typewriters with too much power showing in their electric light globes can come before this committee and not be interested enough to indicate some other support for other sources of energy.

Senator CHURCH. Senator Hatfield, I think your point is well taken. I, for one, believe that we are moving beyond hydroelectric power to new sources and that nuclear generation must play an increasing role

if we are to furnish the electricity that we clearly will need as in the future, the country, the population and the economy continue to grow.

I do feel, and I will soon advocate on the floor of the Senate, a vastly expanded research program into ways of coping with nuclear wastes, not only the storage and safe-keeping of nuclear waste but also the problem of heated water, the thermal problem we have encountered. I think there are ways that we can solve these problems. We have to get on with them because clearly, as Senator Hatfield has suggested, to urge an increased use of our limited supply of fossil fuels, and filling the air with their smoke, is simply substituting one form of pollution for another. It is quite revealing that the Atomic Energy Commission in its 20 years of existence has spent only $21/2 million a year, on the average, in research on the problems of waste disposal associated with the use of nuclear energy. That is just a fraction of what we spent on the initial bomb, which ushered in the atomic age. It shows what low priority has been placed on this very important aspect of the utilization of the atom.

I think the time will come when we have to address ourselves much more seriously to this question, because the nuclear generation of electricity will soon become the most important single source of electric energy in this country.

Senator HATFIELD. There is already building up now in this country, due much to a lack of information and understanding, a reaction against nuclear power development, the same kind of emotion which was involved in our public versus private power development or our official versus public power development. I think it is important at this point in this committee's hearing when we are talking about phasing out one system of power development, that we do not lay the ground work for the same kind of misunderstanding or reaction that we have gone through, those of use who lived in the Pacific Northwest for many years of general hydropower.

Senator CHURCH. I agree.

Senator JORDAN. Mr. Chairman, may I ask a question?

Senator CHURCH. Senator Jordan.

Senator JORDAN. I am concerned that the witnesses come before the committee and suggest that perhaps we are overselling the use of power. I think the growth in the use of power is an inevitable kind of thing that has progressed at the rate of about 7 percent a year compounded annually. It means that the demand will double every 11 years. I don't think anyone in his right mind is going to suggest that we go back to kerosene lamps, that we do away with electric ranges, that we do away with the home appliances that every housewife has come to depend upon. Yet they come before you and say we are overselling electricity. That thing will grow. The committee members here have to take into account how that is going to be met insofar as the involved use of resources for which we are responsible. I hope that the people won't come here and say that we are overselling the use of electricity.

Senator HATFIELD. Mr. Chairman, may I add one further point, and then I will conclude.

I think what Senator Jordan says is very true. I would like to be on the record as of today in saying that, when that day comes when there is a distinct power shortage or energy shortage and we are going

to start rationing it out, it will be the little fellow who gets cut out. That is always the way the things work.

I, as one from Oregon, which does not have the public distribution that the State of Washington has, worries about the preference clause coming into play. Oregon will be the first to be cut out in any kind of rationing of power. Then, when it comes down to a State ration and the State comes down to individual rationing, I suggest again that the little man is going to be hurt first.

I don't want to see that day come because we in Congress have not been foresighted enough to assert ourselves and give the leadership, as the chairman has said, in developing other sources of power through research. That is the only point I am trying to make today. I think this hearing has to be the basis of something beyond the middle Snake. It has to be on the basis of what we are going to do in the future so far as providing the ever-increasing demand for energy.

Mr. TUPLING. I thought that I had made it quite clear that we do favor research into alternative power supplies. I am not a power expert. I am not a power engineer. I think it would not be proper for me to tell the members of the committee what sources of power should be. I think that there does need to be a great deal of research in this entire field of alternative power sources. I think with the kind of technology and the scientists we have in this country that this field can be opened up.

Thank you.

Senator CHURCH. One thing is certain, the remaining hydro sites will not begin to touch the requirement for power in the future.

Mr. TUPLING. That is right.

Thank you, Mr. Chairman.

Senator CHURCH. Mr. Richard Pardo, administrative assistant, American Forestry Association, is our next witness.

STATEMENT OF RICHARD PARDO, ADMINISTRATIVE ASSISTANT, AMERICAN FORESTRY ASSOCIATION

Mr. PARDO. Mr. Chairman and members of the subcommittee, I am Richard Pardo, administrative assistant with the American Forestry Association, a nationwide citizen conservation organization founded in 1875, almost a century ago, with a current membership of more than 70,000 individuals.

We appreciate the invitation to appear here today to present testimony in support of S. 940, the Snake River moratorium bill.

We favor S. 940 because we oppose the construction of any further dams on the middle Snake River, now or in the future.

We favor the moratorium concept because otherwise it is probable that the Federal Power Commission may soon license the construction of yet another power dam on the middle Snake River.

We favor the moratorium because it will hold open the door for congressional consideration of alternate proposals which have been put forth for preservation of the remaining natural stretch of the middle Snake.

We favor the moratorium because it works in favor of survival of the salmon fishery, a source already overburdened with threats to its existence.

A moratorium such as is here proposed establishes no irreversible course of action. It forecloses no options. It eliminates none of the various uses which have been proposed for this stretch of river.

What it does provide is a period in which full consideration can be given to each proposed course of action.

If, as some observers consider inevitable, the Federal Power Commission should approve a pending hydroelectric project application, the options will be eliminated. To reverse direction after the start of dam construction would make the Everglades jetport victory look easy. S. 940 offers the opportunity to avoid getting into such a situation in the first place. It provides time for full study before construction, not after.

The area covered by the moratorium is one of the last free flowing stretches of the main stream of the Snake, and surely one of the most spectacular anywhere in the country. Here the river has carved a canyon deeper than the Grand Canyon of the Colorado. It is a remote wild area, a winter range of deer, elk, and other wildlife and a spawning stream for anadromous fish.

A bill has been introduced to create a Hells Canyon-Snake National River Recreation Area. We support its recreational and protective purposes but favor this moratorium as a means of assuring that a national river proposal receives congressional consideration instead of being vetoed by an FPC decision.

Protection of the salmon fisheries is another of our major concerns. Our position on this was expressed by AFA executive vice president William Towell, a former State conservation director and past president of the International Association of Fish and Game Commissioners, in an editorial statement in the February 1969 issue of American Forests magazine.

I would like to submit a copy of that editorial with my statement for the record if I may, and to quote briefly from it here.

Senator CHURCH. It will be included at this point in the record.

(The material referred to above follows:)

[From American Forests magazine, February 1969]

LO THE POOR SALMON! (OR IS THIS DAM NECESSARY?)

(By William E. Towell, executive vice president, the American Forestry Association)

Conservationists recently were disheartened by the announcement of a three-way agreement between two major northwest power companies and the Department of the Interior on a proposal to seek early Congressional authorization for a multi-purpose dam on the Middle-Snake River between Oregon and Idaho. Assurances that this agreement averted early issuance of a license to build a dam by the Federal Power Commission were only mildly encouraging. Any way you look at it another dam would spell more trouble for salmon and steelhead trout. These poor fish have an uncontrollable biological urge to spawn in fresh water, to spend part of their life cycle in the ocean and then return to the place they were hatched to spawn and die.

The salmon must undergo unbelievable hardships to carry out its life's mission. Its eggs are sought after by innumerable water feeding varmints. Young salmon are prey to every carniverous animal in the river. They must travel hundreds, even thousands, of miles to reach the ocean where they feed and grow to maturity. Then, they must return through polluted bays and estuaries, fight their way upstream against currents of warm and silt-laden waters, sewage discharges, oxygen deficiencies, dams, fish ladders, nets and spears, even clubs, until they reach that one gravel bar high in the mountains where their own life began.

The migration of anadromous fish is itself a mystery, but how they have withstood the obstacles placed in their path throughout the Columbia and Snake River systems is a miracle. One more straw might be more than a "humpback" salmon can carry. Another dam, just one more fish ladder, swift currents below high speed generators, or just a few degrees increase in water temperature could be the final blow to the salmon fishery.

Now that the Pacific Northwest Power Company, the Washington Public Power Supply System and the Interior Department are in agreement, it could mean that another dam on the Middle-Snake River is a probability, almost a certainty. Fortunately, it would be above the mouth of the Salmon River, one of the finest remaining salmon streams in the Columbia River system. Conservationists have fought long and hard to prevent construction of the Nez Perce Dam below the Salmon on the Snake River. But even a dam above the confluence of the Snake and Salmon Rivers could have disastrous consequences.

The proposed High Mountain Sheep Dam would block access to the Imnaha River, another fine salmon stream. It would require a reregulating structure at China Garden below the mouth of the Salmon River, possibly with as much adverse effect as Nez Perce itself.

Either High Mountain Sheep Dam or Appaloosa Dam, another proposed site above the mouth of the Imnaha River, could spell disaster to the salmon fishery.

Frankly, it isn't worth the risk. With all the new developments in thermonuclear power, surely some alternative to another dam on the Middle-Snake can be found. In spite of the arguments supporting the efficiency of hydroelectricity for peaking power and all the energy going to waste in a fast-flowing stream like the Snake River, there are some things that are irreplaceable. We cannot afford to gamble any further with the Columbia River salmon fishery.

Few persons realize the beauty and ruggedness of the Middle-Snake River itself. Deeper than the Grand Canyon, this turbulent river flows between steep cliffs and spectacular scenery considered by many to be the most beautiful in the West. It has been proposed as one of the first additions to our new system of National Rivers under a law passed by the 90th Congress. Senators Len Jordan and Frank Church of Idaho have advocated a ten-year moratorium on any more Snake River dams. Any proposal that would rule out further damming of this river would be welcomed.

If the agreement between the Secretary of the Interior and the power companies implies a reprieve or delay in authorization of a dam, as announced, it would be welcomed, but with everyone in accord as to location, either High Mountain Sheep or Appaloosa dams become frightening possibilities. Conservationists hope that the new Congress will act promptly to safeguard this mighty river. There should be *no* more dams on the Snake River. Since salmon cannot speak, we must speak for them.

Mr. PARDO. I would like to quote briefly from it here.

Mr. Towell wrote, in part:

Frankly, it isn't worth the risk. With all the new developments in thermonuclear power, surely some alternative to another dam on the Middle Snake can be found.

We cannot afford to gamble any further with the Columbia River salmon fisheries.

In commenting on the moratorium concept, Mr. Towell stated:

Any proposal that would rule out further damming of this river would be welcomed.

To dispel any possible doubt as to our position, Mr. Towell concluded by writing:

There should be no more dams on the Snake River. Since salmon cannot speak, we must speak for them.

In conclusion, Mr. Chairman, the American Forestry Association supports S. 940 as necessary to forestall further hydroelectric development on the Middle Snake River in order to protect irreplaceable scenic and resource values which such development would destroy.

Thank you for this opportunity to appear before you.

Senator CHURCH. Thank you, Mr. Pardo, for a clear and succinct statement.

Senator Jordan.

Senator JORDAN. Mr. Chairman, before I forget, may I introduce into the record a statement by our old friend George Crookham in support of the moratorium, and also a statement in the Idaho Reclamation Association opposing the moratorium.

Senator CHURCH. Those two statements will be included in the record.

(The statements referred to above follow:)

STATEMENT OF GEORGE L. CROOKHAM

Members of the Senate Interior Committee, in thirty years of public service I tried hard to apply total responsibility to every important circumstance. Usually my conclusions were more accurate than popular!

Most every practical idea requires attentive husbandry to bring it to fruition. So here are some working thoughts about the Middle Snake Moratorium.

1. Society will best be served by maximum impoundment—more power to negate blackout on massive grid systems, systems whose base load will be principally served from non-hydro energy.

2. Society will gain many fold recreation advantages from placid shores encompassing safe and easy access to the perennial beauty of the Canyon and its ecology.

I have traveled the length of the river as a recreationist.

3. Society and reclamation: Upstream from the Middle Snake are arid plateaus of irrigable lands—areas totaling the size of a small state—all capable of supporting new enterprises and new cities—waiting on coordinated and timely development. The Snake River is the key to unlock these resources of tomorrow.

These three points add up to involvement—social, political, financial, ecological and hydrologic. A moratorium would allow necessary time for the "who, what, why, when and how." Please grant that time.

I hope that in the future resource historians may document: By action of a moratorium on the Middle Snake, the 91st Congress set the deliberative pattern of resource development where all of the needs of a people were reckoned.

IDAHO STATE RECLAMATION ASSOCIATION, INC.,
Boise, Idaho, February 16, 1970.

Re Snake River Moratorium.

Hon. CLINTON P. ANDERSON,
Chairman, Water and Power Resources Subcommittee, New Senate Office Building, Washington, D.C.

DEAR SENATOR ANDERSON: My name is Max Schlottman and I am a farmer in Parma, Idaho. I am the President of the Idaho State Reclamation Association. I respectfully submit this letter statement to the Sub-committee and ask that it be included in the record of the hearing on the Snake River Moratorium Bill.

The Idaho State Reclamation Association was organized in 1937 and has an active membership of more than 200 irrigation districts and canal companies which together operate irrigation works far in excess of two and a half million acres of irrigation land in Idaho. For years, this Association has been the spokesman for Idaho irrigators. The Idaho State Reclamation Association is truly a "grass roots" association of farmers and irrigators. The Association selects its officers at annual meetings and our Board of Directors is comprised of men directly connected with irrigation, either as individual farmers or as officers of the irrigation districts and canal companies. The Board of Directors of the Association is representative of different geographical sections of the State's irrigation acreage. The Association is primarily financed by voluntary contributions made by irrigation districts and canal companies on a prorata acreages basis, and from some contributions from firms whose livelihood is directly related to agriculture, and whose contributions are solicited by the Association.

The Idaho State Reclamation Association wishes to comment on the proposed ten year moratorium on dam building on the lower Snake River. Because of our Association's direct interest in reclamation, and because we are vitally interested in water resource development anywhere in the State, we think it is necessary to suggest to the Sub-committee, that the passage of a moratorium bill at this point, we feel would not benefit the State of Idaho for the following reasons:

(1) We feel that the most positive way to protect Idaho's water for Idaho's use is to utilize the resource in such a manner to obtain the maximum economic benefit therefrom. A license to build a dam on the lower Snake River, which license would provide the protections for present and future upstream irrigation use, is desirable. The construction of a dam in the near future would allow Idaho to make an immediate economic use of the water while protecting a future supply for a higher and more economic use. The present development in this reach of the Snake River, together with an additional $286,000,000 development, would lessen the possibility of any outside entity being able to export Snake River water and be able to reimburse the licensees for the economic loss resulting.

(2) There are positive economic benefits available to Idaho if the lower Snake River were to be developed now. These benefits may never be available to Idaho if a ten year moratorium is adopted. It has been estimated that the proposal of the Pacific Northwest Power Company now before the Federal Power Commission would result in approximately $975,000 of property tax to the State of Idaho and $1,525,000 generation tax, making a total of $2,500,000 of taxes to the State of Idaho yearly. In addition to this revenue, the Idaho Water Resource Board, our State's official water spokesman, has been guaranteed that if the Pacific Northwest Power Company is successful in obtaining a license, that additional benefits will accrue to our Water Resource Development Revolving fund and be available for future irrigation development in our State. Such financing would appear not only appropriate but mandatory in light of reduced federal budget allocations for water resource development projects. It is an alternative mode of funding and it does appear presently available. Such funds would enable Idaho water to be put to use on Idaho land without the necessity of going to the Idaho legislature or the Federal Government for the funds to promote irrigation. The benefit of an expanded reclamation program in our State would result in many dollars added to Idaho's economy. A dam built now with private funds at no cost to the government or the irrigators could be of great economic benefit to any plan for the future use of that water in Idaho desert land.

(3) Recreational benefits will be increased more than ten to one without having any material affect on the Snake River anadromous fish runs. The development of the lower Snake River above the confluence of the Salmon River today would in no way impede the free flowing nature of the Salmon River and likewise would in no way prevent future development of the Salmon River if such is ever found to be desirable.

(4) The proposed construction will not destroy the beauty of the canyon and will in fact increase recreational activity. The canyon is about 8,500 feet deep at its deepest point. The proposed reservoir at that same point would be about 300 feet deep. Consequently about 96.5 per cent of the canyon would not be disturbed, only made more accessible to more people by virtue of the reservoir. Records indicate that there are approximately 250,000 man-days of recreational activity associated with the present Hell's Canyon hydro-electric development. Contrast this with the approximately 22,000 man-days of activity associated with the stretch of the Snake River below Hell's Canyon dam and the confluence of the Salmon and Snake Rivers. Of those 22,000 man-days of activity, approximately 12,000 are a result of the access roads associated with the present Hell's Canyon development, making it possible for thousands of persons seeking recreation to get into the formely inaccessible canyon.

All of the foregoing benefits may be lost to Idaho if a ten year moratorium is placed on developments in the lower Snake River. Assuming an estimated cost today of $286,000,000 for development and the current rate of construction cost escalation, the cost ten years from today could be approximately $422,000,000.

If the project is not built while it is economically feasible, Idaho is the loser. The State stands to lose the tax revenues, the recreational dollars, as well as the benefits from those payments made to the Idaho Water Resource Board Revolving Development Fund.

For the record, the Idaho State Reclamation Association favors the development of the Middle Snake River for the reasons we have outlined. We thank you for the opportunity to include this statement as a portion of the record of the hearing, and ask for your consideration of the ideas we have advanced.

Respectfully submitted,

MAX SCHLOTTMAN.

Senator CHURCH. Our next witness is Mr. Walter Boardman, conservation consultant.

Mr. Boardman?

He is not here. He asked that his statement be placed in the record and that will be done at this point.

STATEMENT OF WALTER S. BOARDMAN, WASHINGTON, D.C.

Mr. BOARDMAN. Mr. Chairman, I am Walter S. Boardman of 3001 Veazey Terrace NW., Washington, D.C., representing an informal group of correspondents on environmental matters.

The future of Hells Canyon and the Middle Snake River country is being examined at a time when thoughtful people are beginning to recognize the serious environmental crisis into which we have drifted. A recent yearbook of the Department of the Interior carried the title, "Man—An Endangered Species?" (There was a question mark as punctuation.) Even as it was being distributed, the observation was made that an exclamation mark would have been more accurate. On all sides alarming evidence is showing up. The state of Lake Erie, the dying ponderosa pine of California, the increasing number of oil spills all underscore the correctness of the exclamation point.

On the brighter side, many have been greatly encouraged by the President's recent words and acts in matters of environmental and pollution control. At the same time we know that those who have profited most by bringing about this sad condition are seeking every possible means to keep the "business as usual" going a bit longer. This is not only true of air and water pollution, but appears in moves to speed up the cutting of the national forests, exploit the public rangelands, and of course, dam every wild stream that can be converted to profit before public indignation forces a halt.

Against this background, the future of Hells Canyon and the Middle Snake River is being considered. It seems unfair to deny that segment of the population of the region which worships the "gross national product" the right to make the same environmental blunders for profit that have been permitted in other parts of the country. There are immediate, short-term benefits from the business that construction contracts would bring in. Real estate developers could have a field day. There would also be some benefits in electric power in the interim years before we must find better and more efficient ways of generating power.

However, in all the values that count for the survival of man, Idaho and the Nation would be poorer. If the net environment, rather than the gross national product is to be taken seriously, then the Middle Snake River must remain free for sturgeon, for wildlife, and for strong, self-reliant people.

The proposal to place a moratorium on all construction of dams on the Middle Snake River is a step in the right direction. As the

values in quality of living, let alone survival, become better understood, we may well expect that no serious proposal for tampering with this great wild river will be entertained by a responsibile Government. Thus the moratorium does spell hope.

On the other hand, perhaps we are far enough along in the recovery from the binge of land desecration to take a hard look at what is the highest and best use of the Snake River now. If such is the case, then the bill S. 3329 by Senator Packwood, to establish the Hells Canyon-Snake National River, should be brought up for consideration in place of this moratorium.

In consideration of the moratorium, it is suggested that an amendment should be inserted to indicate that it is only a stopgap and approval does not prejudice the full consideration of more comprehensive legislation such as S. 3329.

Thank you for permitting me to present this statement.

Senator CHURCH. Our next witness is Mr. Hugh Smith, legal counsel for the Pacific Northwest Power Co., Portland, Oreg.

STATEMENT OF HUGH SMITH, COUNSEL, THE PACIFIC NORTHWEST POWER CO. (PNPC)

Mr. SMITH. Mr. Chairman, Senator Jordan, Senator Hatfield, members of the committee, my name is Hugh Smith. I am an attorney and counsel for the Pacific Northwest Power Co. I have a relatively brief statement which I would ask be copied in the record in whole, together with the appendix attached to it, which is a chronological history of the long proceedings involved here, and with the permission of the chairman I would give some reasonably brief extracts of what my statement is.

Senator CHURCH. Very well, that will be appreciated.

(Mr. Smith's complete statement follows:)

STATEMENT OF HUGH SMITH, COUNSEL, THE PACIFIC NORTHWEST POWER COMPANY

The Pacific Northwest Power Company (PNPC) is a corporation organized by Pacific Power & Light Company of Portland, Oregon; Portland General Electric Company, of Portland, Oregon; The Montana Power Company, of Butte, Montana; and The Washington Water Power Company, of Spokane, Washington, for the purpose of constructing a large hydroelectric project in the Middle Snake River. The four organizing companies provide electric utility service throughout most of the State of Oregon, in eastern Washington, northern Idaho, Montana, Wyoming and northern California.

Pacific Northwest Power Company initiated proceedings before the Federal Power Commission for a license for a major hydroelectric project in November, 1954. These proceedings have been virtually continuous ever since that date, and the Company has prosecuted its application for license at all times with diligence. From the beginning of its activities, the Company's position has been that any major hydroelectric project must take into account all of the interests of the people of the region and all of the uses of the resource, both power and nonpower. Our many presentations before the Federal Power Commission and the state agencies of Idaho, Oregon and Washington have repeatedly and consistently emphasized this point.

The proceedings have been marked by an order of the Federal Power Commission in 1958 denying our initial application for license on grounds that the Commission, in 1964, said were erroneous. The Commission in 1964, granted PNPC a license for High Mountain Sheep, but on the petition of the Secretary of Interior, who said that Interior would promptly construct High Mountain Sheep exactly as designed by the Company, the United States Supreme Court returned the

case to the Commission for further consideration as to the hypothetical advantages, if any of federal construction. When the case reopened before the Federal Power Commission, the Secretary of Interior insisted upon a further year's study in order to discover the advantages of federal construction so confidently asserted before the Supreme Court, and at the end of this period, asserted that Appaloosa, instead of High Mountain Sheep, should be built. Now the Secretary of Interior has announced that he is no longer interested in pursuing federal construction of any project. The remarkable history of this case is clearly demonstrated by the detailed chronology, which I am attaching to this statement as Appendix A, with the request that it be reproduced in the record.

The enormous record accumulated in the repeated hearings before the Commission, the court proceedings, the studies by the applicants, by government agencies, including the Corps of Engineers (with two comprehensive reports), The Bureau of Reclamation, The Fish and Wildlife Service, the fishery agencies of the states of Idaho, Oregon and Washington, the Oregon State Water Resources Board, Bureau of Outdoor Recreation, Bureau of Land Management, the Idaho Water Resources Board, all provide an exhaustive, not to say exhausting, knowledge of the Middle Snake River and of the entire region of which it is a part. We know the power potential of the proposed projects—they represent more than a year's load growth of half of the entire Pacific Northwest region, and the peaking capability will be second only to that at Grand Coulee. We know that the area will need such low cost hydro peaking capability welded with nuclear power to provide a sound energy base for the future. We know that of the alternatives available, in the Middle Snake, we can build a project without serious risk of damage to the salmon fishery resource and that, indeed, the Department of the Interior believes that substantial affirmative benefits to the fishery resource will result. We know what we need and can do in this area for flood control and for navigation. We know that we can build a project that will not add pollution to our streams which, regretfully, no other method of generation can do; on the contrary, we are satisfied that we can actually improve the quality of the Snake River water passing the project.

But there are two other areas which, from the viewpoint of the sponsors of this bill, in one regard, and the viewpoint of supporters of this bill (whose intentions seem to go well beyond that of the sponsors) are of considerable importance. As to those, we are in no position at this point to make a definite statement to this committee.

As some members of this committee may know, we have examined the relationship of the Middle Snake River project to possible future irrigation upstream in the Snake River basin. Studies were prepared to determine just what this relationship was, and we are now in the course of refining those studies so that the results can be presented in the rebuttal testimony that we are scheduled to file before the Commission on March 17. Since this material has not as of this date been completed, we cannot provide the details to the committee. I can indicate to the committee the conclusion of the study which is that, in all respects, present development of the Middle Snake River is compatible with future irrigation upstream in the basin. Indeed, we find that present development would be much better than development postponed.

The second area is the relationship of the Middle Snake River projects to the surrounding environment. This issue was raised by the *obiter dictum* of Mr. Justice Douglas, but prior to the hearings before the Commission, we did not know what alleged facts might be marshalled support this issue even though we knew the emotional arguments of the Sierra Club. Until the close of cross examination at the Commission hearings, at the end of January of this year, we could not know what case would be made. We are now in the course of preparing for March 17 rebuttal to this evidence. Understandably, preparing factual material that seeks to prove an emotional or, at best, an esthetic consideration, presents extraordinary problems. We are not now prepared to forecast how these problems will be resolved, nor can we, in protection of our right to make our presentation of our case before the Commission, suggest at this time what the resolution is likely to be.

Finally, we are also preparing an examination of the social, as well as economic, costs resulting to the citizens of the entire region where a delay of resource development is imposed for either inchoate or invalid reasons. We regard this testimony of high importance. It is far from complete, and it would be quite improper, and quite injurious to our case before the Commission, to sug-

gest to the committee at this time what the evidence is or what it proposes to show.

The committee will, therefore, understand why we have formally requested that a subsequent hearing be scheduled, after the conclusion of the proceedings before the Commission, where we can present, with proper preparation, and without prejudice to our rights under the laws of this country to make a proper record before the Commission, information which is directly and importantly related to the purposes of the proposed bill. We respectfully request that this preliminary statement be filed with this record, and that we be accorded an opportunity to appear later before this committee.

MAJOR ACTIVITY DATES PACIFIC NORTHWEST POWER CO.

April 13, 1954.—Pacific Northwest Power Company incorporates at Salem, Oregon. Investigates Bruces Eddy and Penny Cliffs projects on forks of the Clearwater River under Federal Power Commission preliminary permit.

November 9, 1954.—Files with FPC and Hydroelectric Commission of Oregon for preliminary permits to investigate Pleasant Valley-Low Mountain Sheep project on the Snake River above the mouth of the Imnaha River.

January 5, 1955.—Field investigation starts on proposed project.

February 11, 1955.—Water use and diversion rights granted by Department of Reclamation, State of Idaho.

April 8, 1955.—FPC grants 36-month preliminary permit, effective April 1, 1955, through March 31, 1958.

August 18, 1955.—Hydroelectric Commission of Oregon grants preliminary permit to PNP for proposed project.

September 7, 1955.—Files with FPC and Hydroelectric Commission of Oregon for license to build proposed project.

June 25, 1956 to December 19, 1956.—FPC hearing. Field hearing in Pendleton, Oregon and Lewiston, Idaho. Technical hearing in Washington, D.C.

February 28, 1957.—Water use and diversion rights extended by Department of Reclamation, State of Idaho, for 2-year period.

July 23, 1957.—FPC examiner recommends a license be issued for proposed project.

January 20, 1958.—FPC denies license for proposed project.

March 31, 1958.—Files with FPC for Middle Snake River Project. Subsequent amendments fix location at High Mountain Sheep site on Snake River just above mouth of Salmon River and raise pool elevation to 1,510 feet above mean sea level, conforming to recommendation of U. S. Army Corps of Engineers.

February 24, 1959.—Water use and diversion rights for amended project extended by the Department of Reclamation, State of Idaho, for three-year period.

October 26, 1959.—FPC gives notice of application for proposed project.

January 5–19, 1960.—Oregon Water Resources Board hearing, Salem, Oregon.

February 1, 1960.—FPC orders hearing to commence March 21, 1960.

March 5, 1960.—Oregon Water Resources Board approves PNP's proposed High Mountain Sheep project.

March 15, 1960.—Washington Public Power Supply System files with FPC for license to build Nez Perce project on Snake River below mouth of Salmon River. FPC consolidates proceedings and orders hearing on July 18, 1960. WPPSS is granted requests for delay in May and August. Direct testimony of applicants filed September 2, 1960 and by FPC staff and intervenors October 17, 1960.

April 21, 1960.—Department of Reclamation, State of Idaho, issues PNP permit to construct reservoir and store and appropriate the public waters of the State of Idaho for Middle Snake River project. (Specifies completion of work by April 21, 1965.)

May 10, 1960.—Hydroelectric Commission of Oregon grants license to PNP for proposed High Mountain Sheep project.

November 4, 1960 to March 28, 1961.—Cross examination of witnesses in Washington, D.C., and Portland, Oregon. Rebuttal cases set to open April 24, 1961.

March 15, 1961.—Secretary of the Department of the Interior Stewart L. Udall recommends that FPC stop middle Snake hearing pending results of a 5-year "crash" fisheries research program. The hearing continues.

April 7, 1961.—PNP applies to Securities and Exchange Commission for an order declaring when applicant will become an "electric utility" company within meaning of Public Utility Holding Company Act of 1935. PNP counsel advises that PNP will not become an electric utility until a generating plant has been constructed and is in commercial operation.

April 24, 1961.—WPPSS files motion to amend its Nez Perce license application to include High Mountain Sheep. Hearing recessed with agreement of parties to June 12, 1961.

May 10, 1961.—WPPSS files with Director of Conservation, State of Washington, for order to undertake development of common reach of Middle Snake River by construction of a project at either Nez Perce or High Mountain Sheep. (PNP, PP&L and WWP file objections.)

May 19, 1961.—FPC sustains examiner's denial of WPPSS motion to file on High Mountain Sheep.

June 12, 1961.—Hearing reconvenes for presentation by WPPSS of new evidence on design and cost estimates, and for rebuttal evidence from all parties.

June 20, 1961.—WPPSS files petition for rehearing on May 19 order of Commission denying its motion for leave to file an amended Nez Perce application to incorporate an alternative High Mountain Sheep project.

July 7, 1961.—Without hearing, the Director of Conservation, State of Washington, issues order authorizing WPPSS to construct either Nez Perce or High Mountain Sheep. (PNP, PP&L and WWP file appeal in Superior Court of the State of Washington for Thurston County.)

July 20, 1961.—Commission denies WPPSS motion for reconsideration of its May 19 decision reincorporation of the High Mountain Sheep project.

July 24, 1961.—Presiding examiner closes hearing record, and sets dates from November 15, 1961 to February 1, 1962 for filing briefs by all parties.

July 25, 1961.—Commission sets aside presiding examiner's rulings excluding proposed WPPSS testimony on new designs and cost estimates in revised study of alternative plans of development for the Middle Snake.

July 26, 1961.—Presiding examiner reopens proceedings and sets September 12, 1961 for hearing on the excluded WPPSS evidence.

Presiding examiner suspends dates for filing briefs. New dates to be fixed at the conclusion of the reopened hearing.

August 7, 1961.—PNP petitions FPC for reconsideration of its July 25 order setting aside examiner's ruling.

August 25, 1961.—FPC denies PNP petition for reconsideration of July 25 order.

September 12, 1961.—FPC hearings reopened and previously-excluded WPPSS testimony admitted without cross examination. Record closed and new dates set for filing of legal briefs. (Applicants' main briefs were due in mid-December, but illness of WPPSS chief counsel extended filing dates into 1962.)

December 6, 1961.—Superior Court of State of Washington hears oral arguments and permits additional briefs to be prepared on PNP's appeal of order by Director of Conservation authorizing WPPSS to undertake construction of either Nez Perce or High Mountain Sheep. (Judge John Murray of the Washington Superior Court for Lewis County hears the case as visiting judge to Thurston County.)

January 15, 1962.—PNP and WPPSS file initial legal briefs with FPC.

February 13, 1962.—Judge John Murray of Washington Superior Court files memorandum opinion indicating intention to affirm order of Director of Conservation authorizing WPPSS to construct either Nez Perce or High Mountain Sheep, expressing "serious doubt as to the legal competency of WPPSS to carry on construction projects beyond the State of Washington" but noting that he did "not believe the question can be properly raised or determined before the Director in this proceeding or before this Court on this appeal." (Judgment entered, and appeal filed by PNP.)

March 1, 1962.—FPC legal staff and intervenors file briefs. FPC staff finds High Mountain Sheep project best adapted to comprehensive development of Middle Snake River, but recommends WPPSS as builder under alleged preference and priority rights. All fisheries agencies and sports and commercial fishing interests (except Columbia River Salmon and Tuna Packers Association) oppose Nez Perce and favor High Mountain Sheep. (CRSTPA opposed to both projects.) Idaho Public Utilities Commission recommends that WPPSS be denied a license for any project to be constructed within the borders of Idaho.

March 20, 1962.—WPPSS files suit in United States District Court for the District of Oregon asking declaratory judgment that it be authorized to construct either Nez Perce or High Mountain Sheep.

March 21, 1962.—State of Idaho on relation of State Reclamation Engineer, files complaint against WPPSS in the District Court of the Third Judicial District of the State of Idaho for Ada County, asking the court to declare that WPPSS cannot do business or qualify to do business within the State, and that

it cannot acquire or hold rights to the use of water resources or property within the State. (Disposition pending.)

April 1, 1962.—PNP and WPPSS file final reply briefs with FPC. (Entire case now in hands of FPC presiding examiner for opinion and order.)

April 10, 1962.—WPPSS files petition with the United States District Court, District of Idaho, Southern Division, for removal of the March 21 suit of the State of Idaho from the District Court of Ada County to the U.S. District Court for the District of Idaho. (Disposition pending.)

April 11, 1962.—Department of Reclamation, State of Idaho, grants three-year extension of time on permit to PNP to construct a reservoir and store and appropriate the public waters of the State of Idaho for Middle Snake River project. (Specifies completion of work by April 21, 1968.)

June 28, 1962.—Secretary Udall asks FPC to recommend to the Congress that High Mountain Sheep should be built by the United States.

July 6, 1962.—FPC reopens record to admit "as statement of position only" the letter of the Department of the Interior recommending Federal construction of High Mountain Sheep.

July 6, 1962.—PNP, WPPSS, FPC staff and intervenors file supplemental briefs opposing the Department of the Interior's recommendation for Federal construction of High Mountain Sheep.

October 8, 1962.—FPC presiding examiner William C. Levy issues an opinion and order recommending that PNP be licensed to build High Mountain Sheep, stating that "the High Mountain Sheep plan emerges from this record as the comprehensive plan of development for the common reach which provides for prompt and optimum multi-purpose development of the water resource under the standards of the Federal Power Act." He denies the rival application of WPPSS for Nez Perce as well as rejecting that organization's bid for High Mountain Sheep if the FPC decided it to be the best project. He refused the request of the Secretary of the Interior that FPC recommend Federal construction of High Mountain Sheep.

December 3, 1962.—Secretary Udall asks to intervene in the Middle Snake River case in favor of Federal construction of High Mountain Sheep. All parties oppose the move which came 15 months after the official record closed and two months after the examiner's initial decision.

December 17, 1962.—FPC permits the Department of the Interior "limited participation" to include filing of exceptions to the examiner's decision and participation in oral argument if scheduled.

February 18, 1963.—Parties and Department of the Interior file exceptions to the examiner's decision.

March 11, 1963.—Parties answer Secretary Udall's exceptions to examiner decision, stating that Federal construction of High Mountain Sheep is neither necessary nor desirable.

March 18, 1963.—John F. Kilkenny, United States District Judge, District of Oregon, rules that WPPSS has no authority under State of Washington statutes to construct on its own either Nez Perce or High Mountain Sheep.

March 29, 1963.—FPC orders oral argument on Middle Snake River case May 20, 1963.

April 22, 1963.—SEC orders hearing on May 27, 1963 re PNP's request for declaratory order indicating time the generating firm would become an electric utility company.

April 28, 1963.—Washington State Supreme Court sets June 11, 1963 at date to hear the appeal of PNP, Pacific Power & Light and the Washington Water Power companies re the Washington State Superior Court's affirmation of the order of the Director of Conservation authorizing WPPSS to construct either Nez Perce or High Mountain Sheep.

May 17, 1963.—Reconsideration of Oregon case denied and final judgment entered by Judge Kilkenny.

May 20, 1963.—FPC hears oral argument on Middle Snake River case from applicants, FPC staff, intervenors and the Department of the Interior. This is final step prior to a decision by the Commission.

May 27, 1963.—SEC hears PNP request for determination of its status as an electric utility company.

June 11, 1963.—Washington State Supreme Court hears appeal of lower court's approval of order of the Director of Conservation permitting WPPSS to construct a Snake River project.

September 26, 1963.—Washington State Supreme Court denies (7–2) the appeal of lower court's decision that the certificate granted to WPPSS by the Director of Conservation was valid. The majority makes clear it did not rule whether or not WPPSS was authorized to do business in the State of Idaho and Oregon, with the two dissenting justices finding that WPPSS *does not* have authority to do business outside the State of Washington. (Motion for reconsideration subsequently denied December 21, 1963.)

October 11, 1963.—Three-judge panel of the United States Court of Appeals for the Ninth Circuit, San Francisco, California, hears appeal of WPPSS to reverse decision of Oregon District Federal Judge Kilkenny that it has no right to do business in Oregon. Court orders supplemental briefs from all parties. (Subsequently filed at end of 30-day period.)

October 21, 1963.—Idaho District Federal Judge Chase A. Clark hears arguments by WPPSS and the State of Idaho regarding request of the State of Idaho to remand the case to a state court. State of Idaho, on relation of State Reclamation engineer, questions right of WPPSS to acquire property or do business in that state.

January 9, 1964.—Idaho District Federal Judge Clark denies motion of the State of Idaho to remand pending case to a state court, ruling there appears to be a Federal question involved and that a Federal court will have jurisdiction. The state contention was that WPPSS has no right to do business in the State of Idaho. (Further action by Idaho pending.)

February 5, 1964.—FPC issues 50-year license to PNP to construct and operate High Mountain Sheep, holding that the project was best adapted to a comprehensive plan of development. This opinion was signed by Commissioner Charles R. Ross, joined by Commissioners Lawrence J. O'Connor, Jr., and Harold C. Woodward. Chairman Joseph C. Swidler concurred in the result. Commissioner David S. Black did not participate in this phase of the case. In the second phase of the case, the FPC held that PNP had statutory priority for a license to develop this site by virtue of an FPC preliminary permit. Swidler, joined by Black, dissented on the grounds WPPSS was the party entitled to the license because it had a preference under the Federal Power Act. All five commissioners joined in that part of the opinion which denied the request of the Interior that FPC recommend Federal development of the High Mountain Sheep project.

February 27, 1964.—SEC hears oral argument on PNP's request for declaratory order indicating time it would become an electric utility company.

March 1, 1964.—Effective date of High Mountain Sheep license. (Formal acceptance executed by PNP in documents dated March 9, 1964.) PNP announces it has retained Ebasco Services, Inc., internationally-known consulting firm to handle engineering and construction management, and will undertake field surveys and other preliminary phases of work leading to final design and construction which will be inaugurated within two years and completed within a total of seven years. (See item May 22, 1964.)

March 3, 1964.—SEC declares that PNP will not become an electric utility prior to the time that the FPC license becomes final (until all litigation has been concluded). In its Memorandum Opinion, the SEC states that it will declare "with exactitude", by a later opinion, the point in time when PNP will acquire the status of an electric utility company.

March 6, 1964.—WPPSS, the Department of the Interior and the Washington Department of Conservation file with FPC for reconsideration of its license order to PNP for High Mountain Sheep. WPPSS and the Secretary of the Interior also file motions for stay of the FPC order, the latter party also including a petition to have the record reopened.

March 16, 1964.—PNP files motion with FPC to strike the March 6, 1964 applications of WPPSS and the Secretary of the Interior for rehearing on grounds the applications were not in the form required by FPC regulations.

March 17, 1964.—PNP files answer with FPC to the motions for stay of the FPC order.

March 23, 1964.—WPPSS files answer with FPC to PNP's motion to strike its application for rehearing.

March 25, 1964.—The Secretary of the Interior files answer to PNP's motion to strike its application for rehearing.

March 26, 1964.—The Secretary of the Interior files motion with FPC to strike material from PNP's motion to strike, or in the alternative to reopen the record.

April 3, 1964.—FPC grants rehearing of its license order on High Mountain Sheep for the purpose of "further considering the issues raised" by the applications of WPPSS, the Department of Conservation of the State of Washington and the Secretary of the Interior.

April 20, 1964.—PNP, WPPSS and the Secretary of the Interior file answers to applications for rehearing with FPC. PNP's answer is limited to a review of the Congressional history of the Federal Power Act as it relates to preliminary permits and to preferences for municipalities, to a clarification of the record in certain points respecting the Preliminary Permit, and to a brief discussion of loads and resources. WPPSS and the Secretary of the Interior generally restate positions already taken.

April 30, 1964.—FPC reaffirms High Mountain Sheep license to PNP in denial of applications for rehearing and for stay filed by WPPSS, the Secretary of the Interior and the Department of Conservation, State of Washington. Chairman Joseph C. Swidler and Commissioner David S. Black continue to dissent on grounds that WPPSS has preference for the license. Minor technical modifications of the license include raising initial production of the project to 1,370,000 kilowatts.

April 30, 1946.—United States Court of Appeals for the Ninth Circuit retains the appeal of WPPSS to reverse decision of Oregon District Federal court that it has no right to do business in Oregon, but vacates the submission pending further action of the FPC. The court notes that if the FPC license order becomes final, a declaration on WPPSS status will serve no useful purpose. (FPC final order issued on same day of the court's decision.)

May 22, 1964.—PNP accepts High Mountain Sheep license as modified by FPC Opinion and Order on Rehearing issued April 30, 1964. (*Effective date of license changes from March 1, 1964 to June 1, 1964.*)

June 26, 1964.—WPPSS and the Department of Conservation, State of Washington, petition the United States Court of Appeals for the District of Columbia circuit to set aside the FPC license order of February 5, 1964, as amended April 30, 1964, and remand the case to the Commission with direction to recognize the preference right of WPPSS to a license for the High Mountain Sheep project.

June 29, 1964.—The United States of America on the relation of Stewart L. Udall, Secretary of the Interior, petitions court (U.S. Court of Appeals above) to set aside the FPC license and remand the case to the Commission with instruction to reopen the record to receive relevant facts on present power needs, and to exercise its judgment as to whether to recommend to Congress that development of the water resource should be undertaken by the United States itself.

June 30, 1964.—PNP moves the court (above) that it be granted leave to intervene in the proceeding and be made a party for the purpose of opposing the petitions for review. The company states it has a "direct, vital and substantial interest, and is the real party in interest in the proceedings and in the outcome thereof."

July 5, 1964.—The Idaho Wildlife Federation moves the court (above) for leave to intervene in the case for the purpose of opposing the petition for review filed by the Department of the Interior, and to support the license and orders issued by the FPC to PNP. The Federation states PNP "has shown the utmost good faith towards . . . the anadromous fishery", that it has "demonstrated sincerity" and that its record is "superior."

July 6, 1964.—Acting together, the Washington State Sportsmen's Council, Inc., the Oregon Wildlife Federation, the Fishermen's Cooperative Association, Inc., the Northwest Fisheries Association, the Alaska Fishermen's Union, the Pacific Fish Conservation League and the Makah Indian Tribe move the court (above) for leave to intervene for the purpose of opposing the petition for review of the Department of the Interior and support of the license and orders issued by FPC to PNP. The moving parties state they "must in the public interest, participate in this proceeding in order to urge that the license be granted to the licensee which demonstrates the most concern toward the fishery resources, and that licensee is the Pacific Northwest Power Company."

July 9, 1964.—The State of Idaho on relation of the Idaho Fish and Game Commission, moves the court (above) to intervene in the case for the purpose of "protecting its present rights under the license for the High Mountain Sheep project granted to PNP" and "to make any presentation to assure protection of the involved fish and wildlife resource of the State of Idaho which might not be included in the presentation of the case by the present parties."

July 17, 1964.—FPC, PNP, WPPSS and Department of the Interior file joint notice with court (above) fixing dates for filing briefs. Briefs of petitioners op-

posing license due November 9, 1964. Briefs of FPC, PNP and intervenors supporting license due December 21, 1964. Reply briefs due January 11, 1965. Court is asked to docket oral argument as soon as possible after February 1, 1965.

July 21, 1964.—The State of Idaho on relation of the Idaho Public Utilities Commission moves the court (above) to intervene for the purpose of opposing the petitions for review and in support of the license of the FPC authorizing construction, operation and maintenance by PNP of the High Mountain Sheep project.

July 21, 1964.—The State of Oregon acting by and through the Public Utilities Commission of Oregon, the State Water Resources Board, the Oregon State Game Commission and the Fish Commission of Oregon by the Attorney General of the State of Oregon, acting through the Assistant Attorney General, moves the court (above) for leave to intervene in the review proceeding in support of the FPC license to PNP.

July 28, 1964.—PNP issues invitations for bids on program of additional foundation exploration at High Mountain Sheep dam site. Work will supplement earlier investigations made by the company and furnish data to complete final design of the project. PNP states it is maintaining construction and other schedules required by its FPC license.

August 4, 1964.—Idaho District Federal Judge McNichols hears argument on the motion of WPPSS to dismiss State of Idaho's declaratory judgment action (in which the State had asked the court to declare that WPPSS cannot do business or qualify to do business in the state) on grounds that WPPSS was not subject to the jurisdiction of the court. The court overrules the motion but takes the case under advisement pending the outcome of the U.S. Court of Appeals decision on the FPC license order on the grounds that if the appeal is denied, the Idaho case becomes moot.

August 7, 1964.—The United States Court of Appeals for the District of Columbia circuit grants PNP its unopposed motion to intervene in the petitions for review of the FPC license for High Mountain Sheep pending before the court.

August 19, 1964.—The court (above) fixes dates for filings relative to pending case in the matter of petitions for review. Petitioners' briefs due November 9, 1964. Respondent's (FPC) brief and briefs of PNP and other intervenors supporting FPC license due December 21, 1964. Petitioners' reply briefs due January 11, 1965. Date for oral argument to be set.

August 25, 1964.—PNP lets contract for additional exploration work at High Mountain Sheep dam site. Program calls for extraction of 3,000 feet of rock core from river bottom and abutments, and opening of tunnels and other exploratory excavations on both the Oregon and Idaho sides of the river. Men and material begin moving into remote Snake river dam site. Independent board of consultants, drawn by PNP from ranks of world's top engineers and geologists, will maintain contact with the work and advise company on its exploration and construction program.

September 10, 1964.—The U.S. Court of Appeals for the District of Columbia circuit grants upopposed motions for intervention in pending case to Idaho Wildlife Federation, Idaho Public Utilities Commission, Idaho Fish and Game Commission, Washington State Sportsmen's Council, Inc., the Oregon Wildlife Federation, the Fishermen's Cooperative Association, Inc., the Northwest Fisheries Association, the Alaska Fishermen's Union, the Pacific Fish Conservation League and the Makah Indian Tribe.

January 11, 1965.—All parties file briefs with court (above).

April 15, 1695.—Court (above) hears oral argument. Panel composed of Judges John A. Danaher, Wilbur K. Miller and George T. Washington. (Judge Washington absent from bench with arrangement to hear recording of argument.) Decision pending.

May 1, 1965.—PNP files Recreational Use Plan with FPC for High Mountain Sheep reservoir area.

September 22, 1965.—U.S. Court of Appeals for the District of Columbia circuit orders reargument of case October 21, 1965. Order does not specify points to be reargued.

October 8, 1965.—Court (above) grants motion of FPC asking postponement of reargument until later date due to conflict of prior hearing schedule for counsel.

October 21, 1965.—Court (above) schedules reargument for November 16, 1965.

November 16, 1965.—Court (above) hears reargument. Panel composed of Judges John A. Danaher, Wilbur K. Miller and Warren E. Burger. (Judge Bur-

ger has replaced Judge George T. Washington who retired from the court November 10, 1965 after an illness.) Decision pending.

January 11, 1966.—The Department of the Interior moves the court (above) that it be permitted to file a copy of December 29, 1965 opinion of the 2nd Circuit U.S. Court of Appeals in *Scenic Hudson et al* v *FPC* in which that court set aside a license granted to Consolidated Edison Co. of New York for its Cornwall project at Storm King Mountain. The 2nd Circuit court ordered the FPC to gather "additional information" in further proceedings.

February 7, 1966.—The U.S. Court of Appeals for the District of Columbia Circuit denies current motion of the Department of the Interior.

March 24, 1966.—Court (above) in 3–0 decision affirms FPC license issued to PNP for the High Mountain Sheep project. Opinion written by Senior Circuit Judge Wilbur K. Miller. The court held as correct the FPC majority interpretation that PNP's preliminary permit was broad enough to cover the project. It stated that the Commission's action "is not unreasonable as a matter of law and not clearly contrary to congressional policy." In its opinion the court stated: "It would be manifestly unfair to one who has expended large sums of money over a long period of time in the necessary investigation if, upon completion and subsequent application for a license, a state or municipality could step in and reap the fruit of his labors by obtaining a license for the site so laboriously determined upon, merely because of the preference granted by (the Federal Power Act)."

Further, the court, in ruling on the petition of the Department of the Interior that High Mountain Sheep be reconsidered for Federal development, said: ". . . the Commission was amply justified in refusing to recommend Federal development and in issuing the license for private construction." The court rejected the Secretary's contention that the Federal Power Act forbids the FPC to license private development that will affect existing or planned Federal development downstream from PNP project. In ruling that the Secretary's "broad assertion . . . cannot be sustained." the court said: "it would, if literally accepted, mean that the existence of one Federal dam in a waterway would require that any future dams therein be federally constructed."

March 31, 1966.—The Washington Public Power Supply System makes public announcement it would ask the U.S. Supreme Court for a Writ of Certiorari (review). Filing deadline is June 22, 1966.

The United States of America on the relation of Stewart L. Udall, Secretary of the Department of the Interior, files with the U.S. Court of Appeals for the District of Columbia Circuit to extend the time for filing a petition for rehearing from April 8 to April 28, 1966. Decision pending.

April 11, 1966.—Court (above) grants the Department of the Interior requested extension of time in which to file for rehearing.

April 28, 1966.—Department of the Interior does not file petition for rehearing with court (above).

May 25, 1966.—Federal Power Commission on motion of PNP issues orders amending the Company's license for the High Mountain Sheep project to permit commencement of construction on or before June 1, 1968 because of pending litigation, and instructs the Company to prosecute "in good faith and with due diligence" construction to "complete the project and place it in operation on or before June 1, 1975."

June 17, 1966.—The Solicitor General of the United States of America on relation of Stewart L. Udall, Secretary of the Department of the Interior, asks the Supreme Court of the United States for an extension of 60 days to and including August 21, 1966 in which to file a petition for a Writ of Certiorari (review) relative to the March 24, 1966 decision of the U.S. Court of Appeals for the District of Columbia Circuit upholding the FPC license granted to PNP for construction and operation of High Mountain Sheep. The "complex and technical nature of the factual and legal issues involved" are cited as reasons.

At the same time, WPPSS asks the Court to grant it a similar extension of time for filing for a Writ of Certeorari in the case (above), stating its petition "will be affected in part by the contents of the Solicitor General's petition . . . because the cases are inter-related . . ."

June 21, 1966.—Supreme Court of the United States grants petitions (above) extending to August 21, 1966, the time for filing of petitions for writs of Certiorari.

August 21, 1966.—Delayed filings of petitions for writs of Certiorari submitted to the Supreme Court of the United States by the Secretary of the Department of the Interior, and by WPPS.

October 18, 1966.—Respondent FPC files brief with the Supreme Court of the United States in opposition to petitions for writs of Certiorari (above). Commission urges writs be denied.

Other respondents also file briefs with the Court in opposition to petitions (above), asking that writs be denied. They are: PNP, State of Oregon acting by and through the Public Utilities Commissioner of Oregon, State Water Resources Board, Oregon State Game Commission and the Fish Commission of Oregon; State of Idaho for Idaho Fish and Game Commission; and acting together, the Washington State Sportsmen's Council, Inc., Oregon Wildlife Federation, Fishermen's Cooperative Association, Inc., Northwest Fisheries Association, Alaska Fishermen's Union, Pacific Fish Conservation League and the Makah Indian Tribe.

November 7, 1966.—The Supreme Court of the United States grants Certiorari. Petitioners WPPS and the Department of the Interior to file briefs in February 1967. FPC and other respondents to file briefs in March 1967.

April 11, 1967.—The Supreme Court of the United States hears oral argument. Decision pending.

June 5, 1967.—The Supreme Court of the United States rules 6–2 that the Federal Power Commission should reconsider its order licensing PNP to build and operate the High Mountain Sheep project. Justice William O. Douglas delivered the opinion of the court. "We express no opinion on the merits," the court said. "It is not our task to determine whether any dam at all should be built or whether if one is authorized it should be private or public." The court said: "The test is whether the project will be in the public interest. And that determination can be made only after an exploration of all issues relevant to the 'public interest' including future power demand and supply, alternate sources of power, the public interest in preserving reaches of wild rivers and wilderness areas, the preservation of anadromous fish for commercial and recreational purposes, and the protection of wildlife." The court did not rule on WPPSS's preference claim. In that matter it vacated the judgment and remanded the case to the Commission. In the case brought by the Secretary of the Interior relative to Federal construction, it reversed the judgment and remanded the case to the Commission. Justice Abe Fortas took no part in the consideration or decision of the cases.

In dissent, Justice John M. Harlan, joined by Justice Potter Stewart, said: "I had thought it indisputable, first, that a court may not overturn a determination made by an administrative agency upon a question committed to the agency's judgment unless the determination is 'unsupported by substantial evidence,' and, second, that the substantiality of the evidence must be measured through, and only after, an examination of the 'whole record'." Noting that "extensive material" had been submitted, the dissent concluded: ". . . the court, despite its self-serving disclaimer, has, in its haste to give force to its own findings of fact on the breeding requirements of anadromous fish and on the likelihood that solar and nuclear power will shortly be alternative sources of supply, substituted its own preferences for the discretion given by Congress to the Federal Power Commission."

June 19, 1967.—All parties stipulate that a review by the court will not be asked, thus permitting prompt issuance of a mandate.

PNP asks the FPC to set the case down for rehearing on the issues raised by the court as soon as practical. The company notes that the multi-purpose project it plans at the High Mountain Sheep site would provide every possible public benefit and should be brought on the line promptly to fit the region's orderly schedule of resource development.

July 6, 1967.—High Mountain Sheep case formally remanded to FPC for further proceedings consistent with the Supreme Court's opinion.

July 31, 1967.—FPC order provides for further hearing, directing a pre-hearing conference in Portland, Oregon, September 28, 1967, to expedite orderly conduct and disposition of further hearing. All parties to make statements of position and outline scope of future evidentiary presentation.

September, 1967.—Department of the Interior through its Bureau of Reclamation starts exploratory drilling program at the Appaloosa damsite on the Snake River some five miles above the mouth of the Imnaha river tributary.

September 25, 1967.—FPC grants previously-filed petitions for intervention by the State of Idaho on relation of the Idaho Water Resources Board, the National Wildlife Federation, the Federation of Western Outdoor Clubs, the Idaho Alpine Club and the Sierra Club.

September 28, 1967.—FPC convenes pre-hearing conference in Portland, Oregon. PNP and WPPSS announce agreement to undertake as a joint venture the development of the High Mountain Sheep reach of the Snake river. Stated objective "is to prevent possible delays in the project's construction and to minimize financial and other risks resulting from the prosecution of competing license applications by the parties." The agreement recognizes the interests of Idaho and Oregon. The parties also invite Interior to "join in whatever extent possible."

A task force organization is suggested by WPPSS to explore various aspects of the case and arrive at as much stipulation as possible to save future hearing time.

FPC Examiner William C. Levy proposes a schedule in which the amended joint application be filed by January 1, 1968; the applicants' direct testimony by March 1, 1968, and that all other direct testimony including that from all intervenors and the FPC staff be filed by May 1, 1968. His goal is to have cross examination start September 9, 1968.

Department of Interior is unable at this time to state its position beyond "*Tabula Rasa*" (empty table).

October 9, 1967.—Interior appeals to FPC to delay filing of testimony by the Secretary for at least four months—to September 1, 1968, pleading lack of time to evaluate studies still under way.

October 30, 1967.—FPC denies Secretary's plea for delay.

November 21, 1967.—Second pre-hearing conference held in Washington, D. C. Task Force organization perfected with participation of all parties, and meeting and report schedules set.

January 4, 1968.—PNP and WPPSS file amended joint application for license for Middle Snake River project. Installation designed for High Mountain Sheep is a third larger than originally licensed to PNP: initially 1,470,000 kilowatts—ultimately 3,430,000 kilowatts. Initial cost including transmission is estimated to be $260,000,000.

A 670-foot high dam at the High Mountain Sheep site (the world's second highest arch) would create a reservoir extending 58½ miles to Hells Canyon with a total storage capacity of 3,600,000 acre feet.

The application includes extensive plans for recreational use of the reservoir (which also extends nine miles up the Imnaha river tributary in Oregon), and facilities to handle a small run of salmon and steelhead in the Imnaha.

WPPSS says it would no longer maintain application for the Nez Perce project on the Snake below the mouth of the Salmon river, and would not assert any claim of public preference to a license. PNP says it would not assert any claim of priority against WPPSS.

The joint applicants note two other alternative projects in the Middle-Snake river area representing "lesser resource development at higher costs than High Mountain Sheep." They are: a combination of Low Mountain Sheep and Pleasant Valley above the mouth of the Imnaha river; and the newly-identified site called Appaloosa plus a re-regulating dam at the Low Mountain Sheep site. FPC is told if it should be demonstrated that either alternative is superior to High Mountain Sheep, the present filing should be "deemed an application for license for such alternative."

April 1, 1968.—Joint applicants file direct testimony of 13 witnesses. Conclusions emphasize urgency of completing full development of Middle-Snake river, and not leaving it an idle resource. Testimony stresses that power from a nuclear plant—the closest competitor to the Snake river project in production of electrical energy—would cost 60 per cent more than power produced by High Mountain Sheep.

May 15, 1968.—Secretary of the Interior Stewart L. Udall urges the FPC to recommend to Congress federal construction of the alternative Appaloosa project above the confluence of the Snake and Imnaha rivers. This is official position.

May 23, 1968.—Following various requests by intervenors for additional time to file direct testimony, FPC Examiner Levy provides revised schedule: Filing of testimony by all parties except Interior's testimony on Appaloosa and reasons for federal construction, July 1, 1968; Interior's Appaloosa testimony, August 9, 1968; general public hearing in Lewiston, Idaho, September 4, 1968; cross examination of technical witness of FPC relative to recreational values at Lewiston, Idaho, September 5 and 6; additional general public hearing at Lewiston, Idaho, September 7, 1968; and continuation of cross examination of technical witnesses

relative to fish and wildlife and scenic values, starting September 10 in Portland, Oregon. No date set for applicant's rebuttal.

July 11, 1968.—Idaho Water Resource Board files with FPC for preliminary permit on the Appaloosa and Mountain Sheep damsites on the Snake River above the tributary Imnaha River.

August 9, 1968.—Idaho Water Resource Board by resolution indicates possible future filing for license application for Appaloosa and Mountain Sheep.

September 4–1, 1968.—Hearings held in Lewiston, Idaho with two sessions devoted to public statement, the remainder to technical cross examination. (Of 125 public statements, 6 favored development, 10 indicated desire for a moratorium and 49 were opposed to building.)

September 9–19, 1968.—Technical cross examination continued in Portland, Oregon with one session held for public statements. (Of 39 public statements, 9 were in favor of development, 30 were in opposition. The states of Washington and Oregon favored development.)

Hearings recessed until October 21, 1968 for remainder of technical cross examination in Washington, D.C.

October 16, 1968.—Applicants ask the FPC examiner to reschedule resumption of hearing to November 12, 1968 to permit further negotiation between themselves and the Federal government for possible sharing in a Snake River construction program. Such negotiations have been in progress a year.

November 8, 1968.—Interior joins PNP and WPPSS in a motion for a six-month stay of hearings to May 1, 1969 to enable Interior to seek congressional authorization for a cooperative plan of construction by Federal agencies of a Middle Snake River project with non-federal financing of a major share of the cost.

February 7, 1969.—Idaho Senator Len B. Jordan and Frank Church reintroduce legislation calling for a 10-year moratorium on any further dam building on the Snake River between the Hells Canyon project and the Asotin damsite. Stated purpose is to keep Idaho's water option open pending further study on use.

April 23, 1969.—PNP and WPPSS concur with a request of Interior to postpone hearings an additional 60 days to July 1, 1969. (Later set over to July 8, 1969 for convenience of parties.) Interior cites "investiture" of the new administration a reason for the added delay.

July 3, 1969.—Interior asks another 30-day delay to arrive at statement of position. Hearing set to resume August 12, 1969.

August 11, 1969.—Interior issues a press release featuring its belief that a three to five year moratorium should be declared on the licensing of any dam on the Middle Snake River to permit further study before coming to a definite decision. It opposes the High Mountain Sheep dam but says if the FPC decides to license a dam, the Department would recommend certain conditions be met to protect Federal interests.

August 12, 1969.—FPC examiner convenes procedural hearing. Interior submits its statement indicating the Federal government would not seek building of a project. Interior's spokesman says request for considerations is not a formal motion, but intended only to present issues in the proceedings to be passed on finally as a decision is reached by the FPC staff and examiner.

The hearing examiner sets November 1, 1969 for filing of revised direct testimony by the applicants (which will reflect updated cost estimates) ; December 1, 1969 for filing of revised direct testimony by other parties, and January 6, 1970 for resumption of cross examination in Washington, D. C.

Mr. SMITH. The Pacific Northwest Power Co. initiated proceedings before the Federal Power Commission in November 1954. These proceedings for all practical purposes have gone on ever since, continuously.

Considerable studies have been prepared by the company and by other parties to the proceedings and by Government agencies. The proceedings are now before the Federal Power Commission under a mandate from the Supreme Court, which mandate requires the Commission to examine, substantially speaking, three questions: one is whether there should or should not be Federal construction; two, whether there should be no construction whatsoever, a question pre-

sented by a number of the supporters of the moratorium bill; and, three, whether or not the record is adequate to make an intelligent decision. Which is essentially the issue raised by the bill before this committee.

The rather enormous record accumulated in the hearings before the Commission, in the court proceedings study by the applicant, by Government agencies, Corps of Engineers, Bureau of Reclamation, Fish and Wildlife Service, fishery agencies of the States of Idaho, Oregon, and Washington, the Oregon State Water Resources Board, the Bureau of Outdoor Reclamation, Bureau of Land Management, Idaho Water Resources Board, all of these studies provide an exhaustive, not to say exhausting, knowledge of the Middle Snake River and of the entire region of which it is a part.

We know and we can tell this committee what the power potential of the proposed projects are—they represent more than a year's load growth of half of the entire Pacific Northwest region, and what the peaking capability will be, it will be second only to that of Grand Coulee when the third powerhouse is in. We know that the area needs low cost hydropeaking capability together with nuclear power if we are to have a sound power base for the future.

We know that of the alternatives available to provide this in the Middle Snake we can build a project without serious risk to damage to the salmon fishery resources, and that, indeed, the Department of the Interior believes that very substantial affirmative benefits to fishery resources will result.

Now we know what we need and can do in this area for flood control and for navigation. We know that we can build a project that will not add pollution to our streams or our air, which regretfully no other method of generation can do. On the contrary, we know even more than that, we are satisfied that we can actually improve the quality of the Snake River water passing the project.

All of these matters are matters of record, they are matters of proof, and we can submit all of the material that support these statements to the committee, although they are the results of a perfectly enormous record that has been accumulated before the Commission. But there are three areas which today unfortunately we cannot present to the committee, which seem to be of very considerable importance to the proceedings.

As some members of this committee may know, we have examined the relationship of the Middle Snake River project to possible future irrigation upstream in the Snake River Basin. Studies were prepared to determine just what this relationship was, and we are now in the course of refining those studies so that the results can be presented in the rebuttal testimony that we are scheduled to file before the Commission on March 17.

Since this material has not as of this date been completed, we cannot provide the details to the committee. I can indicate to the committee the conclusion of the study which is that, in all respects, present development of the Middle Snake River is compatible with future irrigation upstream in the basin. Indeed, we find that present development would be much better than development postponed.

The second area is the relationship of the Middle Snake River projects to the surrounding environment. This issue was raised by the

obiter dictum of Mr. Justice Douglas, but prior to the hearings before the Commission, we did not know what alleged facts might be marshaled to support this issue even though we knew the emotoinal arguments of the Sierra Club.

As a participant in the proceedings before the Commission we are under the mandate of the Court to prepare a full record. We have had considerable problems with that because this must be an evidentiary record, not merely opinion and emotional testimony. And it is difficult to know how to complete that evidentiary record until the main proceedings are terminated. Until the end of January we did not know what the evidence was going to be.

Understandably, preparing factual material that seeks to prove an emotional or, at best, an esthetic consideration, presents extraordinary problems. We are not now prepared to forecast how these problems will be resolved, nor can we, in protection of our right to make our presentation of our case before the Commission, suggest at this time what the resolution is likely to be.

Finally, we are also preparing an examination of the social, as well as economic, costs resulting to the citizens of the entire region where a delay of resource development is imposed for either inchoate or invalid reasons. We regard this testimony of high importance. It is far from complete, and it would be quite improper, and quite injurious to our case before the Commission, to suggest to the committee at this time what the evidence is or what it proposes to show.

We have filed with the chairman of the committee a formal request that we be permitted to appear before this committee at a later time to present material that I have briefly outlined.

The purpose of my statement is to explain at greater length to the committee so that the committee will understand our reasons why we do request that we later present, with proper presentation and without prejudice to our rights to proceed under the laws prescribed by Congress for presentation of applications for license, information which we are preparing which we believe to be quite important to this committee and to Congress related to the purpose of the proposed bill, I respectfully request this preliminary statement be filed with this record and that we be accorded an opportunity to appear later before this committee.

Mr. Chairman, I regret that my statement as to the direct issues must be so limited but I would be prepared to supply any information or answer any questions of the committee within the limitations I have indicated.

Senator CHURCH. Do you know when this bill was first introduced?

Mr. SMITH. I don't remember the date. It has been something over a year.

Senator CHURCH. February 7, 1969.

Mr. SMITH. Yes, sir.

Senator CHURCH. Prior to that, an earlier version of the bill was introduced, so this hearing should not come as any surprise. The time between the introduction of S. 940 and the present hearing is nearly 12 months.

Mr. SMITH. Senator, I hope that I have not left with the committee any suggestion that we were caught by surprise. What I am suggesting to the committee is rather that we are caught in a bind. We have

essentially two proceedings going on. One before the Commission, one in which my clients have invested a great deal of time, effort, and money, one which we have been following the procedure required by Congress as described by the Supreme Court and it is essential I think to the rights of our people that we protect that proceeding. We find ourselves merely because of the action, of the timing, if you will excuse that term, of this hearing, in a position where we cannot present to you now what we think is quite important information that the committee should have.

I recognize that any suggestion of delay sounds self-serving. I am not asking for substantial delay in view of the history of this proceeding.

As you know, the proceedings before the Commission are not themselves noted for necessarily speed in arriving at their decision. We would expect this record to be closed by the end of March. We would expect as soon as the record is closed we could at the convenience of the committee be prepared to make our presentation.

Senator CHURCH. As you know the bill, itself, interferes in no way with the regular proceedings before the Commission. You will have full opportunity to proceed with the presentation of your case there regardless of what decision this committee might make with respect to moving forward with the legislation.

Mr. SMITH. Senator, the bill of course does not purport to require the Commission to dismiss our application. You have heard earlier a statement that the Commission has said that they would not believe they could act 10 years from now on the record made this date. I do think the committee should know that as a practical matter they can scarcely expect that these applicants will still be interested in pursuing their application 10 years from now because we don't have the slightest idea what that will be.

The purely practical matter, let me point out that we have been involved in a controversial project now for 14 years. We have continued that project today not because it is necessary for the profits of our stockholders or that it is necessary literally for supply of power in the area. We have continued it because we believe it is in the public interest that that development go forward. But there comes a limit to the extent which we can continue in this matter.

I assure you, sir, that if the moratorium bill is adopted, so far as the supporters of Senator Packwood's bill are concerned and the Wilderness Society and the Sierre Club, they have prevailed over the Northwest Power Co. because we will not return to this kind of battle 10 years from now.

Senator CHURCH. As for your testimony, which you have indicated you cannot now give to the committee, but will later present to the Federal Power Commission, you will have a full opportunity, will you not, to present that testimony to the House committee should the Senate proceed to a consideration of this bill?

Mr. SMITH. This, of course, is true Senator, but I would be sorry if the senior Chamber would be deprived of the opportunity of considering the information.

Senator CHURCH. I just wanted to make the point that the congressional forum will not be denied to you for a full presentation of your case before any final enactment of the moratorium bill could occur.

Senator Jordan.

Senator JORDAN. I only want to add this: It has been 18 months since we first introduced this legislation, and we knew at the time of the introduction, in September 1968, it was too late in that year to hold hearings. But at the beginning of the session in 1969 and later for one reason or another, probably my fault, hearings have been postponed. I got embroiled in the committee consideration of the Tax Reform Act of 1969. It took all of the last 3 months of the 1969 session.

Consequently, these hearings were put off until the members of the committee who have a real interest could give it some time. Comes now that day. We are faced with a very difficult situation here. As you know, this is a year of another campaign. This is the year when all the leadership on both sides of the aisle are driving for early adjournment so that the Members can get to their States and do whatever is necessary to try to insure their return here.

So we are up against a timetable just as desperate, just as insistent, in our particular situation, as yours is in your own situation. Because if we postpone another month or 6 weeks to get additional information before the Senate committee, it could very well be said and probably will be said, it is now too late to do anything in the House or Senate.

So we go around and around another Congress and another session, probably because I have been responsible for some postponement back in the fall of last year, because of my responsibilities on the Finance Committee.

I don't see how we can meet that request for delay without being unreasonable, how we can delay to go down the line to the point where we endanger the prospect of a thorough and complete hearing and action on this bill.

Senator CHURCH. Senator Hatfield.

Senator HATFIELD. Mr. Chairman, this disturbs me, too. This committee has received confidential information relating to the financial status and reports of people we have been asked to confirm appointments by the President. I am just asking these questions because I am not familiar enough with the long history of the proceedings, as you are. But could committee receive a confidential statement, or could we have an executive session to hear the information and the material which Mr. Smith feels he cannot at this point on behalf of his clients make public? I just ask this question.

As you know, Mr. Smith, this committee before we confirmed any of the top appointments of the Interior Department, including the Secretary of the Interior, goes into executive session and goes over a detailed statement of that man's financial position, his debts, assets, liabilities, what he owns, so forth, and so on.

I am not aware that even any of the gossip columns have ever picked up any information as to what we have discussed in those executive sessions. Perhaps this might be a way to get your case over, because very frankly, I cannot help but agree with our colleagues we are either forced into a position of going ahead and passing this or disposing of it and letting you try to retrieve your position over on the House side. Once the momentum of the Senate has passed something, it is difficult trying to retrieve your position over in the House.

Mr. SMITH. From the viewpoint of due process, it makes it difficult, Senator. Let me say that if the committee were to conclude that they

wished to get around what you may conclude is a dilemma through the process of taking this evidence in executive session, I will still have the problem that I have not completed assembling it. But we will certainly do everything that it possibly could do. I should say that I believe that the evidence that we are going to produce for the Commission is the type of evidence on which the conclusion is that it is in the public interest to go forward with development and to do it now and do it promptly.

It is in the public interest that all of the things that have been discussed by the witnesses today in terms of the environment and its effect on the environment, the development of high quality recreation resource, the general areas of avoiding pollution, the problems of the conservation resources, these are the broad areas I am covering.

Senator HATFIELD. You appreciate that this committee has to have something more than your conclusions. We have to have some evidence to support those conclusions. I know that you are a man of great integrity and I certainly will not challenge your veracity in any respect, but there is just a certain procedure that a committee has to have, supporting data to any conclusion. To accept just broad conclusions would be next to useless as far as I am concerned, as a member of this committee, unless I have the supporting data to go with it.

I would imagine you have been involved with the Commission up to this point, I would think, unless I am terribly wrong, that you would be in a position to give us that supporting data even, if necessary, in executive session. I only am tossing out the suggestions. The chairman and my colleagues have to make that decision whether they want to receive it in that way.

I was merely offering that as a possible way to circumvent your particular problem and get before this committee the kind of information we should have to make our judgment.

Mr. SMITH. Senators, the only reason that I described the evidence was that I wanted the committee in considering this as a possibility to understand the nature of the evidence that I would be producing because that is exactly what we would hope to do in some manner, to place before this committee the evidence that we are assembling that we think is important evidence and we think is very persuasive evidence.

If the committee wished to proceed in executive session procedure I think that this meets most of my problems in terms of the problems before the Commission.

Whether or not the committee wishes to do it that way, is entirely up to the committee.

Senator HATFIELD. I have nothing further.

Senator CHURCH. This is a question that we will have to take up with the chairman of the full committee. In the interest of equal treatment for all our witnesses, we should stand by the rule we have announced and keep the record open for a 2-week period. If in that interval you find that the evidence is sufficiently well prepared and want to ask for an executive session, do so, and the matter can then be properly taken up with the chairman of the full committee, because your request is at odds with our normal procedures in the consideration of legislation.

Mr. SMITH. Very well, Senator Church.
Senator CHURCH. Thank you very much.
Mr. SMITH. Thank you.
Senator CHURCH. Our next witness is Mr. Owen Hurd, Washington Public Power Supply System.

STATEMENT OF OWEN W. HURD, MANAGING DIRECTOR, WASHINGTON PUBLIC POWER SUPPLY SYSTEM

Mr. HURD. My name is Owen W. Hurd. I am managing director of the Washington Public Power Supply System. As those members of the committee present, I am sure are aware, our organization has undertaken Hanford Nuclear Steam Plant as well as hydroelectric projects.

The Hanford project was undertaken in cooperation with the Bonneville Power Administration and 76 utilities of the Northwest, five private and 71 public agencies.

Since the hour is late I will submit my statement which outlines the background and interest of our organization in this project and explains the interest of our consumer-owned systems in obtaining low-cost power and discharging their responsibility for the utilization of our water resources in a manner that is in the best interest of our utilities and region.

We are dedicated really to a regional concept of power development which has been so well carried out by the Bonneville Power Administration in the marketing of the surplus power from the Federal plants on a postage stamp rate which gave the less dense areas such as southern Idaho, northern Idaho and some parts of our own State the benefit of the same rate that the industrial users and the residents of the metropolitan areas enjoy.

We hope that that can be preserved. I would like to speak on that a little later, specifically, in regard to the interest Senator Hatfield has expressed in his questioning and his comments regarding the hydrothermal program.

We have outlined in this statement of mine the reasons that we think are valid and certainly deserve the consideration of the committee and others with respect to acting upon this matter of the moratorium.

Now to supplement that statement, I would like to speak to a matter which was discussed earlier with regard to Bonneville Power Administration load forecast and schedule of projects. In developing these load forecasts for the region it represents the cooperation of all the public agencies, the cooperatives, the public utilities districts, the private utility companies and municipalities.

The one factor that does not show up in the load forecasts is the variations that might occur due to temperature. It is a problem that we are faced within the Northwest due to the large percentage of electric heating that is used. A variation of a few degrees in the temperature during the winter months can add a requirement to power load equal to the size of the projects that we are talking about.

Now my point with regard to the load forecasts is that there is agreement on it. I want to make another point with respect to the schedule

of projects that Bonneville has used in making the statement that if these projects are accomplished, then the loads will be met.

This brings us to the point of the importance of the implementation of the hydrothermal program. I think one of the reasons that the people who support our Middle Snake project are not back here in greater numbers at this time is because of their preoccupation with the things that we consider essential, pertinent, and urgent with respect to getting on with this hydrothermal program.

I think, and many of us think, that this is in a very critical stage with regard to planning and timing and scheduling and if prompt action is not taken this year and significant steps taken to implement that program, there will be a brownout, a blackout and a shortage of power in the mid-1970's. I say this from the experience not only of what we had during the Northwest but elsewhere in the United States with regard to the siting and the acceptance of nuclear power as a source of energy.

In addition to that, we are making the transition from a period in which we relied upon Federal power from these multipurpose projects to meet our power requirements. We have come to the end of that happy trade and we are now facing the need to go forward on a non-Federal basis and using thermal power.

So the amount of time that could be provided by the licensing of this project is by its very nature an act of conservation and anti-pollution because it will not pollute the air, it will not pollute the water, and that is not a conclusion that is readily accepted with respect to either fossil fuel or nuclear plants.

So I would think that this subcommittee and full committee, and the Members of Congress should take a long hard look at what the realities of the power supply situation are in the Northwest today and see how this thing gets into the picture.

It is not a risk that we can take or can afford to take. I think that the record that is being made by expert witnesses under sworn testimony before the Federal Power Commission, I think, are quite persuasive that this is a project that is in the best public interest and should be undertaken right away.

(Mr. Hurd's prepared statement follows:)

STATEMENT OF OWEN W. HURD, MANAGING DIRECTOR, THE WASHINGTON PUBLIC POWER SUPPLY SYSTEM

My name is Owen W. Hurd. I am Managing Director of the Washington Public Power Supply System. The Supply System is a municipal corporation of the State of Washington whose membership includes 17 Public Utility Districts and one city; it was formed in 1957 for the purpose of undertaking projects to provide electric power for the future needs of its members and others.

Since its formation the Supply System has completed a hydroelectric project under license by the Federal Power Commission known as the Packwood Project located in southwestern Washington. It has also undertaken, in cooperation with 76 consumer and investor owned utilities of the Pacific Northwest and the Bonneville Power Administration, the Hanford Electric Generating Plant. The Hanford Generating Plant is currently the largest nuclear steam plant in the world.

The interest of the Supply System in the Middle Snake River dates back to 1960 when it filed an application to undertake the Nez Perce Project. This application was in direct opposition to the application of the Pacific Northwest Power Company for a license to build the High Mountain Sheep Project. The Nez Perce Project site located below the confluence of the Snake and Salmon Rivers,

was then considered by all federal agencies as the project best adapted to the comprehensive development of those Rivers. The Mountain Sheep Project above the Salmon River in combination with the Lower Canyon Project on the Salmon River would accommodate a delay in use of the Lower Salmon River until fish passage problems were resolved. After extensive hearings before the Federal Power Commission, a license was granted to the Pacific Northwest Power Company for the High Mountain Sheep Project. This decision was subsequently appealed by the Supply System and the Department of Interior to the Supreme Court of the United States with the result that the Supreme Court remanded the hearing to the Federal Power Commission to determine whether a project should be built in this reach of the river and in the event a project should be constructed to determine what project and by whom it should be undertaken.

The Supply System is now a joint applicant with the Pacific Northwest Power Company for a Federal Power Commission license to undertake a hydroelectric project best adapted for the utilization of the water resources of the Middle Snake River. S–940 if enacted would prevent any license for such a project for ten years. In our opinion if the bill is enacted it would make it uneconomic for any nonfederal entity or federal agency to undertake such a project following a 10 year moratorium.

In order to minimize further delays in obtaining a license to undertake a Middle Snake Project, the Pacific Northwest Power Company and the Washington Public Power Supply System agreed to amend their respective license applications to seek a joint license for the project to be undertaken and share the project costs and output on a 50–50 basis. After the hearing resumed a recess was agreed upon by the parties to permit the then Secretary of Interior to explore the possibilities of authorizing participation in a federal project to be undertaken in cooperation with the applicants. After a year's delay during which extensive studies were undertaken and completed by the Department of Interior their conclusion was that a project should be constructed and that the project best adapted to the development of the river was the combination of Appaloosa and Low Mountain Sheep dams. The present Secretary of Interior has subsequently decided against any further delay in the hearings for purposes of seeking federal development in the Middle Snake. The hearings were resumed in January and direct testimony completed and the rebuttal phase of the hearings is now scheduled to commence on March 17. We can reasonably expect that unless delayed by some unforseen circumstance, the Commission could render a decision some time in 1971.

Affiliated with the Supply System in this undertaking are 46 consumer owned electric systems in the states of Oregon, Idaho, Montana and Washington. These 46 utilities serve over 400,000 customers and have a combined peak power requirement at the present time of nearly 3,000,000 kilowatts and the estimated peak requirement of these utilities in 1977 will exceed 4,500,000 kilowatts.

The consumer owned systems which have joined together in an effort to obtain a license to undertake a project in the Middle Snake River are all customers of the Bonneville Power Administration and with a few exceptions obtain their entire power requirements from BPA.

Although these public agencies are currently obtaining most of their power requirements from BPA it is recognized that BPA will not have sufficient power to meet the growing requirements of the public agencies after 1976. As a result of joint planning by public and private utilities with the Bonneville Power Administration a Pacific Northwest hydro-thermal program has been agreed upon and is now in process of implementation. Under this plan Bonneville will acquire power from non-federal thermal plants for integration with peaking power supplied from federal hydro projects and thereby extend the date of federal power insufficiency with which to meet the requirements of the preference customers.

In the event that a license is granted to the joint applicants, it will be the intention of the Washington Public Power Supply System and its affiliated consumer owned systems to integrate the Supply System's portion of the project output into the federal system in the same manner as anticipated by the hydro-thermal program. In the event that such arrangements are not possible the Supply System and its affiliated consumer owned systems would expect to enter into agreements with Pacific Northwest Power Company that would result in the Company's use of the Supply System's portion of the project

output until such time as it was needed to meet the requirements of the public agencies. In any event and regardless of the marketing arrangements used, the net effect would be to add to the region's power resources in a manner which would, to some degree, postpone the construction and operation of nuclear or fossil fueled steam plants. Any available substitute source would be higher in cost and would substantially increase environmental problems.

From the outset the Supply System has been motivated in its efforts to obtain a Federal Power Commission license for a project in the Middle Snake by its statutory responsibility to develop and utilize water resources in a manner which would result in the lowest cost power and at the same time make maximum use of water resources for other purposes. Testimony before the Federal Power Commission by the applicants has established that: (1) power costs from a Middle Snake project would be substantially less than power from any alternate power source, (2) such a development would result in substantial non-power benefits including recreation, navigation, flood control and, (3) due to potential water quality control capabilities of the proposed projects the downstream fisheries resource would be enhanced.

The Supply System and its 46 affiliated consumer owned electric systems are opposed to the enactment of S–940 for the following reasons:

1. It would deny the consumers of the region the benefits of low cost source of power needed as soon as the project can be completed.
2. It would violate the concept of conservation of energy resources by requiring the use of non-renewable fossil or nuclear thermal power sources rather than the utilization of the continually renewable hydro resource.
3. It would deny forever, or at least postpone, the benefits of increased recreational opportunities for a substantially greater number of visitors, improved road access for all purposes, water quality enhancement for the downstream fishery resource, tax benefits to the states of Idaho and Oregon, and irrigation benefits resulting from potential pump back capabilities and post amortization fiscal contributions.
4. It would result in a substantial economic loss to power users due to the need for substituting power from higher cost power from alternate sources. Due to cost escalation that can be expected during the moratorium period as well as other considerations, in all likelihood, a project in this reach of the river would never be constructed if S–940 is enacted.
5. S–940 would prevent the beneficial use of the only energy source that does not add to air or water pollution at a time when all segments of our society and economy are giving top priority to anti-pollution measures in every facet of our environment and energy production and utilization.

For these reasons and in the light of the results of the most extensive and comprehensive studies ever given to any river, we sincerely believe the enactment of S–940 will serve only to compound and continue the adverse consequences of delays that already have occurred and contribute nothing of identifiable value for the future.

My primary reason for making the long trip across the country to appear before this Committee was to insure the opportunity for members of this Committee to obtain the views and objectives of the Supply System with regard to our opposition of this S–940. Accordingly I will welcome and do my best to answer any questions you have.

Thank you.

Senator CHURCH. Thank you, Mr. Hurd, for your testimony.

Since you did lay considerable stress upon the hydrothermal agreement and the extent that the public districts are involved, and since Senator Hatfield questioned witnesses on that particular aspect, I think I would like to defer to Senator Hatfield. Do you have any questions, Senator?

Senator HATFIELD. Mr. Chairman, I have one or two brief questions.

Mr. Hurd, you had a sliding reference to a source of power from fossil fuel commonly referred to by Mr. Tupling as low-grade coal. Is there any present device which would eliminate the pollution problem, the air pollution problem from such steam generating plants?

Mr. HURD. Progress is being made on devices to remove the particu-

lates and the sulfur and the other compounds that result from the stack gases of these thermal plants.

Senator HATFIELD. But as compared to the source of thermal power what is the relative pollution problem as of today because we are still talking about brownout problems in the seventies and not in the eighties.

Mr. HURD. If you use fossil power you have to accept air contamination. You also have to accept a water thermal problem.

Senator HATFIELD. Those of us who have been in this battle for 15 or 20 years on air pollution then cannot buy that as an alternative source of power to the thermal source for example.

Mr. HURD. If you do so you do it with the acceptance of the amount of air pollution and water pollution that will automatically occur.

Senator HATFIELD. Why do you say that the hydrothermal agreement is under threat today if there is not some action taken this year?

Mr. HURD. Well, the long lead time that is required for either a hydro plant but particularly for a nuclear thermal plant makes it essential that we get on this year with the planning of nuclear plants to supply power in 1976 and 1977. Our own organization is charged with the responsibility of undertaking one of these plants to implement the hydrothermal program. We have a schedule of being on the line in 1977 and we must get started this year if we are to meet that schedule.

Senator HATFIELD. Otherwise we do face the reality of a brownout probability?

Mr. HURD. That is correct.

Senator HATFIELD. Now, Mr. Hurd, coming from the State of Washington and representing the public power supply system, if there is a shortage in the Northwest pool how would the preference clause affect Oregon as compared to Washington, as far as source of supply of power is concerned?

Mr. HURD. I think every area in the Northwest is going to be affected by the brown-out.

Senator HATFIELD. But you would be less affected because of your public distribution system, as compared to Oregon with its major private power distribution because of the preference clause, is that correct?

Mr. HURD. We might have a basis for making that contention. As a matter of reality, I think if anybody's lights are going out they are all going out.

Senator HATFIELD. You heard what I said a while ago about the little man getting hurt first.

Mr. HURD. That is right.

Senator HATFIELD. Would you agree with that?

Mr. HURD. I would agree, yes.

Senator HATFIELD. Thank you.

Senator CHURCH. Senator Jordan.

Senator JORDAN. Perhaps you can supply for the committee the relative cost in today's interest money market between fossil fuel and thermal fuel compared to the Snake River development.

Mr. HURD. I can do that. I can briefly state that those figures will indicate that the cost of a mix of Middle Snake and peaking capacity

to be provided and the base load energy that it will provide with nuclear power will be more attractive than nuclear power by itself or fossil fuel by itself.

Senator JORDAN. I understand the difference in the types of plants. I understand the difference in where you would use, for instance, the hydro development on the load curve as compared with the fossil fuel generation or nuclear fuel generation which would be in the baseload. But isn't it likely that even so the cost of hydro generation will be much greater than thermal generation, either by fossil fuel or——

Mr. HURD. Of course the terrific advantage that hydro has is that there is no fuel cost, it is a renewable resource. Fossil fuel or nuclear fuel is not only expendable but it is a large percentage, a significant percentage of the total cost of power, fuel cost.

Senator JORDAN. In the money market for AAA utility bonds what does it cost to borrow money now, 8½ to 9 percent?

Mr. HURD. The most recent public agency tax exempt financing in the State of Washington was 6.9 percent.

Senator JORDAN. Now this is public body. Now take a taxable AAA utility

Mr. HURD. At least 2 percent higher.

Senator JORDAN. That would be between 8 and 9 percent.

Isn't it quite likely that the additional cost of the hydro in that kind of money market would offset to some measure at least fuel cost of fossil fuel for a thermal plant or for nuclear fuel for a nuclear plant?

Mr. HURD. Only to the extent of your capital cost for the nuclear plant with the escalation and increased cost that nuclear plants have experienced and are experiencing, that advantage does not appear to be very significant.

Senator JORDAN. At the moment fossil fuels have the advantage over nuclear.

Mr. HURD. That is right.

Senator JORDAN. Thank you.

(Subsequent to the hearing, Mr. Hurd supplied the information requested by Senator Jordan on the comparison of nuclear and fossil thermal plant and Middle Snake Project costs. The data is in the appendix.)

Senator CHURCH. Looking ahead in the Northwest for the next 20 years, what proportion of the new generating facilities to meet the increased powerload will come from thermal plants, whether fossil fueled or driven by nuclear reactors? And what proportion will come from hydro, from new hydroelectric dams?

Mr. HURD. After the mid-1970's, 1975 when the Trojan nuclear plant will come on the line, we will be looking to thermal power to supply the baseload energy requirements. We will continue to have low cost or hydro peaking for a substantial period of time.

Senator CHURCH. But as we look ahead, the baseload is going to shift from what heretofore has been hydropower to thermal plants.

Mr. HURD. Beginning in the midseventies. As a matter of fact, it begins really with the time we brought the Hanford project on the line in 1963 and when the Trojan plant comes on the line and fossil fuel plants in Centralia in 1972, beginning in the midseventies from then on out there is no interlude of going back to hydro.

Senator CHURCH. Based upon your experience with the Hanford plant do you think that the environmental liabilities involved with nuclear generation can be overcome?

Mr. HURD. No one engaged in the problem of planning nuclear plants can underestimate the seriousness of the people's concern with respect to thermal pollution and the thermal effects that result from cooling water, whether it be on the ocean or whether it be direct cooling from the streams or whether it be from cooling towers. How serious those problems will be only time will tell.

Senator CHURCH. Are you presently experimenting with new methods for dealing with the thermal heat problem at Hanford?

Mr. HURD. The Hanford steam plant, as you know, uses waste heat from the plutonium production reactor. Those reactors were put in at a time when it was the judgment to put the heat back in the river. There have been large quantities of heat put back in the river over the years with very little identifiable adverse effects. As a matter of fact, it is argumentative whether there have been any serious effects or not. But due to the standard that have now been established which the utilities will have to follow in building plants we will not be able to put any heat back into the Columbia River.

Senator CHURCH. That is in the future.

Mr. HURD. In the future. Now we hope that we will be permitted, if and when we have to convert the plant to power only, to enjoy a grandfather's use of the river for cooling purpose.

Senator CHURCH. As you look ahead, really, these problems connected with nuclear generation of electricity by thermal plants will have to be faced and solved one way or another regardless of the dam on the Middle Snake, isn't that so?

Mr. HURD. That is right. The Middle Snake project will buy us some time and it will utilize a low-cost resource that is renewable, it does not consume, and it should be used now, not later.

Senator CHURCH. Thank you very much for your testimony, Mr. Hurd. We appreciate it.

The subcommittee has received telegrams from the Washington Public Power Supply System and the Pacific Northwest Power Co. regarding their position. The full text of the telegrams will be included in the record at this point.

The record will remain open for 2 weeks for the inclusion of other relevant written statements.

(The telegrams referred to above follow:)

PORTLAND, OREG.

Re S. 940, scheduled for hearing February 16, 1970.
Senator CLINTON P. ANDERSON,
Senate Office Building,
Washington, D.C.:

The Washington Public Power Supply system requests that the hearings scheduled for February 16 be postponed or if that is not now feasible, further hearing at a later date be scheduled.

The supply system is an applicant for a license from the Federal Power Commission, which license would be delayed by S. 940 if adopted. We are presently in the course of preparing evidence for presentation to the Federal Power Commission which goes directly to questions raised by S. 940, but it is not possible for this evidence to be presented by next Monday. Furthermore, we feel strongly that it is unfair to us as applicants before a Federal commission, following pro-

cedures prescribed by Congress, to be forced to state evidence not yet adequately prepared and not yet presented to the Commission. Accordingly, we respectfully request that your committee provide for a later hearing for presentation of this evidence after the conclusion of the proceeding before the Commission.

Yours very truly,

RICHARD Q. QUIGLEY,
Counsel for Washington Public Power Supply.

KENNEWICK, WASH.

PORTLAND, ORE.

Re S. 940, scheduled for hearing February 16, 1970.
Senator CLINTON P. ANDERSON,
Senate Office Building,
Washington, D.C.:

Pacific Northwest Power Co. is an applicant for license for a project on the Middle Snake River in current proceedings before the Federal Power Commission, for which testimony is to be shortly filed with a resumption of the hearings scheduled for March 17, 1970. Much of the testimony now under preparation is relevant to the issues raised by S. 940, but the material cannot be prepared in time for presentation on February 16, nor is it fair to Pacific Northwest Power Company to require it to present prematurely material prepared in accordance with the law for presentation in the Commission proceedings. We respectfully request, accordingly, that we be given an opportunity at a date subsequent to the conclusion of the Commission proceedings to present testimony and material for the consideration of your committee. The Pacific Northwest Power Company has been actively engaged in engineering investigations and analyses of the Middle Snake River continuously since 1954 and would be prepared, at such time as it properly can do so following presentation of its case before the Commission, to provide this considerable fund of relevant information to the Committee.

Yours very truly,

HUGH SMITH,
Counsel for Pacific Northwest Power Co.

PORTLAND, OREG.

The next witness is Dr. Spencer M. Smith, Jr., secretary, Citizens Committee on Natural Resources.

STATEMENT OF DR. SPENCER M. SMITH, JR., SECRETARY, CITIZENS COMMITTEE ON NATURAL RESOURCES, WASHINGTON, D.C.

Dr. SMITH. Mr. Chairman, members of the committee, I am Dr. Spencer M. Smith, Jr., secretary of the Citizens Committee on Natural Resources, a national conservation organization with offices in Washington, D.C.

We appear before you today in support of S. 940. The purport of the measure is to prohibit the granting of a license by the Federal Power Commission for the construction of any dams on the Middle Snake River in Idaho.

The controversy over possible impoundments on the Middle Snake River has been long and complex. The issue of public versus private power has occupied the attention of many—also the uses to which the structures would be put has been argued—and finally, though not defintively, the site at which such structures should be constructed has been discussed at length.

It is not our purpose to detail this long and complicated history but rather to suggest to the committee that the 10-year moratorium on dam building on the Middle Snake River be adopted. I am well aware that support for this measure may be motivated by a variety of reasons, all of which are not compatible. This may be one of the most cogent arguments in support of the proposed legislation.

The various proposals have, for the most part, claimed the distinction of multiple purpose. These are significant problems that must be sorted out, however, for despite the long conflict the issue of true multipurpose results are open to serious doubts. There appears to be efforts to include "improved" recreation opportunities among the various uses. This contention, however, appears to attract all but the recreationists—fishermen, wild river enthusiasts, wilderness devotees. That recreation will take place, no one would argue, but the issue is the quality of recreation afforded. The abundance in the area and the country of flat water recreation is evident but the qualities offered by the Middle Snake River are rare indeed and unfortunately they are becoming more rare by the moment.

If, despite the enthusiasm for the Middle Snake River to be a part of the wild and scenic rivers program, it is determined that for the balanced consideration of all factors for the specific area and the country as a whole, another course should be pursued, such an option is available if the proposed legislation is enacted. No attempt has been made herein to evaluate either the respective merits of irrigation, navigation, flood control, and/or hydroelectric power, nor have we attempted to pursue the merits of S. 3329, introduced by the junior Senator from Oregon, Mr. Packwood, and which would provide for the establishment of a scenic national river.

We reiterate, if the prohibition of licensing dams on the Middle Snake River for a period of 10 years is approved, the priorities of the various uses can be sorted out in an orderly fashion. If specific areas are committed to specific uses at this time, however, the appropriate and unanswered questions may well be answered incorrectly and if this is so there will be no recourse—no undoing a wrong that could prove egregious indeed.

We thank the committee for the opportunity to offer our views on this important legislation and we hope the measure will be reported out at an early date and enacted with dispatch.

Senator CHURCH. We have come now to the end of our witness list this afternoon. We have promised Senator Packwood that we would put this remaining time to the purpose of showing the film of the Middle Snake stretch of the river.

While the projector is being set up I will take this opportunity to insert a number of telegrams which we have received from many interested parties for and against the moratorium bill in the record at an appropriate place, together with some written testimony by witnesses who could not appear personally. (The material referred to is included in the appendix.) The record itself, as I have indicated earlier, will remain open for the next 2 weeks for receipt of additional material.

(Whereupon, at 5 p.m. the committee was recessed subject to call.)

APPENDIX

(Under authority previously granted, the following statements and communications were ordered printed:)

WASHINGTON PUBLIC POWER SUPPLY SYSTEM,
Kennewick, Wash., February 20, 1970.

Senator LEN JORDAN,
Senate Office Building,
Washington, D.C.

DEAR SENATOR JORDAN: You will recall that while testifying on S-940, I was requested to supply for the hearing record a comparison of nuclear and fossil thermal plant and Middle Snake Project power costs.

Enclosed are tabulations and curves showing the annual savings of Middle Snake power and units costs for various interest rates for Middle Snake projects and nuclear based-hydro peak alternates. For reference is shown the existing BPA rate for power at the assumed load factor.

Since fossil thermal power is not considered as a realistic alternate to Middle Snake power, we have not developed the same comparisons for such a hypothetical alternate. However, our economic comparison prepared for the FPC hearings do include such cost comparison and could be summarized in a similar manner if you so desire.

We believe the enclosed report by Mr. Sporn is germaine to nuclear-fossil comparisons, not only from the cost standpoint, but also from their impact on environment and other considerations. It will be noted from Table I of the enclosed copy of this report that fossil fueled plants currently have a cost advantage over nuclear power.

We hope the material furnished herewith is responsive to your request. If not please let us know and we will attempt to provide the information desired.

Very truly yours,

OWEN W. HURD,
Managing Director.

[Enclosure]

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DEVELOPMENTS IN NUCLEAR POWER ECONOMICS JANUARY 1968 - DECEMBER 1969

A Report Prepared for the Joint Committee on
Atomic Energy, Congress of the United States
by
Philip Sporn, Retired President, Consultant
American Electric Power Company

PART I

The Retrogression in the Competitive Position of Nuclear Power vis-a-vis Fossil-Fueled Power

During the past two years there has taken place a remarkable and ominous retrogression in the economics of our nuclear power technology. The light-water-moderated reactor, which two years ago offered potentials for nuclear power generation competitive with fossil fuel at 22¢ to 24.8¢ per million Btu, has today lost position where it is competitive at 28¢ to 29.5¢ per million Btu fossil fuel cost.

This in turn makes it difficult to accept without something more than a grain of salt the statement of the Atomic Energy Commission (1) "the outlook for the future for nuclear power continues to be very promising (because) of the continuing economic competitiveness of nuclear power in spite of increasing costs as prices for both nuclear and fossil plants increase.

How did this come about? The reasons for that are many. Among the most important, but nowhere near all, are higher costs of nuclear components, higher cost of turbines, higher construction costs, continuing escalation during the entire construction period due to the inflationary cycle, longer construction time which results in higher interest and overhead charges, higher capacity charges in view of the current coupon rate of approximately 9.5% on AA utility bonds which brings the necessary capital charge to give an adequate return up to 16%, lower capacity factor due to the recognition that with the growth of atomic power which will take place between now and 1980 no atomic plant can, except for the shortest time, be expected to operate at a capacity factor as high as 80% and that, therefore, a more rational capacity factor is one five points lower, or 75%.

It is true that fossil fuel costs also have gone up, but even so, nuclear power has lost position vis-a-vis fossil fuel (mainly coal). This can be seen very clearly in Table 1, which shows costs of both coal-fired and nuclear-fueled plants, the former in terms of an 800-MW unit and the latter in terms of an 1100-MW unit, as of July 1, 1969, for completion

(1) The Nuclear Industry, 1969, page 11, U.S.A.E.C.

in the case of nuclear in 1976, and in the case of coal in 1975. All the figures in that tabulation are significant and striking but two stand out in particular--the cost of switchboard delivered nuclear energy of 7.06 mills per kwh as against 6.65 mills for coal-fired energy with coal at 25¢ per million Btu. On the basis of these figures, the competitive break-even point for nuclear power is 29.7¢ per million Btu coal cost.

I believe these are in a sense idealized costs, but yet they have in them the element of being hardheaded and pragmatically attainable figures based upon achieving every legitimate economy.

I am further convinced of their soundness in the light of:

1. Actual costs of a nuclear project completed during the year involving a 600-MW unit where the capacity factor employed was higher--80%--and the capital charge lower--15%--which yielded an expected production cost at the switchboard of slightly over 8 mills per kWh, and

2. On a second job undertaken during the past year and carefully evaluated where the nuclear unit was in the 800-MW range and where the capital charge employed was higher--16.6%--and the capacity factor was slightly higher, the expected levelized cost obtained was very close to 7.8 mills per kWh.

It is not surprising that all these developments have already had a significant effect on the recent experience of the nuclear industry. It has caused cancellation of one or two previously announced projects, delay in scheduling of other units committed for; it has brought about interposition of fossil fuel units to be completed ahead of what might have been scheduled atomic units, and in some cases it has brought about plain decisions to go fossil when, if things had gone differently, atomic units would have been ordered. In connection with the last, it needs to be pointed out that every time a fossil-fueled unit is ordered for whatever reason, where an atomic unit might have been ordered under conditions more favorable to nuclear power, the particular nuclear unit is lost for approximately 30 years.

Such developments obviously go beyond the loss of domestic orders. Their effect can be and most likely will be worldwide, but this will be discussed in more detail later. Regardless of the effect, it is obvious that we have had a slowdown in the ordering of atomic generating capacity. As against a peak of 25,780 MW placed on order in 1967 and 19,150 MW average capacity placed on order in the three years 1966-1968, orders declined in 1968 to 16,044 MW and in 1969 to 7,190 MW.[2] This, of course, does

(2) On the basis of information available December 29, 1969.

not mean that the figures for orders will not be better in 1970 than they were in 1969, but the utility industry, being young, has as yet not taken to heart the fact that in the long run it cannot safely order more capacity than is represented by its growth plus the necessary reserve.

Since the long-term growth has been running over the last ten years at a rate less than 8%, as is clearly seen from Table 2, it is obvious that in an ideal situation, if a balance between capacity and load were maintained, the industry should order under normal competitive conditions, without the stimulation of white sales and other high sales pressure techniques, an amount of capacity equal to the percentage of its long-term growth multipled by its existing capability.

Table 2 makes clear that the industry has somehow managed to pile up orders some 90,000 MW greater than it need have ordered to take care of its growth. And since the near-term increase in the elasticity of demand for electric energy is hardly influenced by extra reserves, and reliability of supply is negligibly affected by reserves that reach beyond properly evaluated requirements, it is obvious that we are merely confounding things when we pile up orders inordinately advanced beyond needs. Eventually this will straighten itself out, but at the expense of an apparent slower rate of orders in future years. In actuality it will only represent a balancing out of an inflationary order spree by less orders over a series of years than would normally be expected.

In Electrical World of December 1, 1969, there appears a statement by the Director of the Division of Industrial Participation of the AEC to the effect that, in spite of the slowdown, he still predicts 150,000 MW of nuclear capacity installed by 1980. One naturally would hesitate to express a view differing substantially from that of one having his finger on the pulse of this ordering situation as has the Director, but one can express the hope that he will prove to be completely wrong since otherwise it will merely demonstrate that the utility industry still has not settled down to its normal balanced posture in matters as important as load and capacity, whether nuclear or conventional.

The Significance of the Retrogression in the Competitive Position of Nuclear Power vis-a-vis Fossil-Fuel Power

The significance of the loss of competitive position of nuclear power is greater than would be indicated by the status of atomic orders of our reactor manufacturers or by the mere statement that in the two-year period 1968-1969 the competitive position of atomic power went from 22¢-24.8¢ to 28¢-29.5¢ per million Btu bituminous coal equivalent. The

reasons that this constitutes a large and disturbing loss are many. Among them:

1. The phenomenal progress in the application of atomic power, hailed by some of our scientific enthusiasts, was based on an expectation of Oyster Creek performance in the production of electric energy at about 3.5 mills per kWh. But the nuclear energy revolution which was hailed not only became aborted in December 1965, as I previously indicated(3/4) but it has since become a continuing corrupting influence on our continuing evaluation of atomic economics. All one needs to do is look at Table I, showing a 1976 cost of atomic power of over 7 mills per kWh--double what Oyster Creek was expected to have ushered in.

If we assume that the additional costs above the original contemplated Oyster Creek costs constitute a burden on the national economy, then this extra cost will amount to $3.5 billion in the year 1980. This, I submit, is no performance to wax enthusiastic about or to start handing out achievement medals for.

2. This performance was attained in the face of the fact that between 1965 and 1969 conventional power costs increased by approximately 48% at 25¢ per million Btu coal. On top of that, as will be brought out later, coal has been plagued with unnecessary mining shutdowns resulting in loss of productivity and loss of production, and sharp increases in costs of development of new mines, all of which has resulted in substantial increases in cost of coal at the pithead. And the carriers of coal have not helped, with railroad car shortages and with freight increases. Thus the competitive effect of coal on nuclear power has not been half as damaging to the economic status of nuclear energy as it might have been. But with both atomic and coal-fired power falling on their economic faces, so to speak, they have completely destroyed the grand design of one challenging and stimulating the other in a continuous feedback relationship so that better performance in coal would lead to improved performance in atomic power and improved performance in atomic power would lead to better performance in coal. The nation would thus receive a power supply outstandingly efficient and economical. But, as will be seen later, it may be that more is in trouble than the grand design--indeed, it may be that the country is in trouble.

(3/4) Nuclear Power Economics--1962 through 1967, JCAE Report

3. The country's pending trouble stems from the fact that it is now on a trend line which projects a slope of increasing use of total energy, increasing the electric share of the total energy, all to achieve greater production for the coming support of the 100 million of additional population that the country will acquire in the next 30 years. Greater productivity for the 50% enlarged population is also needed to improve the standard of living and enable it to complete its incomplete social structure and help improve the lot of the vast majority of the people of the world who are underprivileged, underfed, underclothed, unhappy, and in need of help. To continue on the trend line, a large percentage of the additional energy will have to be supplied atomically and electrically, but this achievement will be hindered by high energy costs and high electric energy costs. For many uses in our society 7 mill electric energy is far too high.

Seven mill nuclear power at the switchboard at 75% capacity factor is simply not good enough to heat water, to heat houses, to make electric steel or ammonia or chlorine, to reduce alumina to aluminum, to smelt ferroalloys, to desalt sea water, and to convert to electricity the many other energy operations our society needs to have done so as to eliminate environmental pollution. By electrifying we make possible elimination of combustion of fuels except in large-scale, highly regulated and controlled fossil-fueled operations. Of course, atomic reactors take care of this matter even better.

Inevitably, these higher costs bring about the unavoidable reaction in the form of higher rates. Higher rates are anti-dynamic and growth hindering; they retard the conversion of our energy uses into the electric form.

4. One of the great end products of the atomic takeoff, which started in the United States with the Oyster Creek job and its sequels, Dresden 2, and Browns Ferry 1 and 2, and all the other nuclear plants committed by the American power industry amounting to some 58,000 MW in the three years 1966-68 alone, was the position it gave American nuclear power technology as a practical, fully-to-be-relied-upon and economic electric energy producer. It gave both the light-water and pressurized-water reactor, operating on slightly enriched uranium, the most solid kind of economic foundation. This has

led to an almost complete monopoly for the American type reactors in the foreign markets. Consequently, at the present time 33 enriched uranium reactors of the American type, totaling close to 16 million kW, are in operation or under construction in 12 countries outside the United States.(1) This is not only important from the standpoint of support to the American nuclear power industry, but it represents no mean contribution to the maintenance by the United States of a proper balance of trade. But with further demonstration of large advances in prices and resultant operating costs of our current American reactors, the question is how well rooted in Europe will the tree of American practice prove to be. The least pessimistic fear would still be cause for considerable concern. The most pessimistic fear would be to visualize the foreign market disappearing or at least heavily damaged.

5. The two most important sources of primary energy entering into 1969 production of close to 1.5 billion kWh are coal and natural gas. Together they account for almost 75% of our electric energy generation. By the year 2000 it is estimated(4) that coal and nuclear fuel will account for over 85%, with coal accounting for 35% and nuclear for 50%. Coal and nuclear fuel thus have an unavoidable affinity. Between them they will dominate almost completely, more and more with each year, the sources of our electric energy supply for the balance of this century(5) which will quintuple in the 31-year interval ahead.

If something serious happened to the continuing supply on a rapidly expanding basis of coal, and nuclear energy were called upon to pick up the burden on three to five years' notice, the nuclear industry would simply fall flat on its face. What would be even more tragic would be that the American economy, the most generously endowed from the standpoint of energy and electric energy, would be badly crippled for years to come.

The coal industry has for years fought and attempted to put blocks in the path of the development of the atomic industry. It has, in fact, claimed that atomic energy is

(1) op. cit. page 161.

(4) op cit.

(5) This disregards the possible effects of the Prudhoe Bay oil discovery discussed later in this report.

an unnecessary intruder in the energy scene(6) -- indeed as reference (6) indicates, it asserts that "coal alone could provide the nation with economical and dependable fuel for generations." This presumably includes the fuel needed to operate the 102 million motor vehicles that will be under registration by 1970.

This fantastic claim is not only wholly untenable, but in a very large measure it is pathetic. It is my judgment, and this has been reinforced by recent discussions with a number of highly knowledgeable coal people, that a simultaneous request for bids on a coal supply for four different plants of 4 million kW each (three 1333-MW units) calling for an annual coal supply of 10 million tons for each plant and therefore requiring reserves of between 250 and 300 million tons in each case, would not be met with interested bids in more than two of these prospective jobs if the plants were to be located either in that part of the United States lying east of the Mississippi River or in any one of the five states immediately west of the Mississippi which together account for over 60% of electric energy generated in the United States.

The main reason for this is the lack of integrated reserves. Only two companies in the United States have coal reserves in the range of 6 billion tons. They are Consolidation Coal and Humble Oil and there is grave question how much of the latter's reserves are available for use under boilers. Even in the case of the former, the question of how high a percentage is available to electric operations within the area immediately contiguous to the western bank of the Mississippi and all the area east of it.

Two possible sources of significant reserves are intriguing but with very little information available as to their location, ownership, and quality. These are the coal reserves in the possession of the country's steel and lumber companies. They may be important.

With the cessation of economic pressure by atomic power, it is obvious that the acquisition of reserves so important to the coal industry's continuing its competitive

(6) "So vast are the unmined reserves of coal in the United States that if all other energy sources disappeared bituminous coal alone would provide the nation with economical and dependable fuel for generations." Bituminous Coal Facts 1966, Page 41.

position is not being followed up with half enough intensity. The reserve situations are not the coal industry's only difficult problem. As I briefly mentioned earlier, it is in difficulties on production, on productivity, and cost. The most important of these areas is productivity, and its underlying fact can best be seen from an examination of Table 3. This shows the history of productivity in bituminous coal for the years 1949 through 1966.

It will be seen that the average percentage increase in productivity for the ten-year interval 1949-1959 was 6.6%, a rate that doubles in 10.9 years. For the seven-year period 1959-1966 the rate was 6.18%, a rate that doubles in 11.7 years. Further the average rate of increase in the three years 1964-1966 was 5.59%, a rate that doubles in 12.9 years. This has become even more accentuated in the three years 1967-1969. The causes of these losses in productivity are again quite deep. To mention some of the most important:

> People--as one mine owner put it, you can get bodies but you cannot get good coal miners.
>
> Labor turnover--Due to constant agitation about safety, people, after they have been trained and brought down into the mines, leave in too large numbers.
>
> Wildcat strikes--Part of the reason for that is failure to grasp the importance of adjudicating grievances by following procedures provided for in labor agreements.
>
> More stringent safety measures - - Such items as more rock dusting, closer roof bolt spacing, etc.

Production goes down with loss of productivity and absenteeism and costs go up with decreases in production, decreases in productivity, increases in capital costs, wages and supplies. To show a recent exemplification of that: in a typical West Virginia-Pennsylvania mine, where a new mine brought to full production in 1968 gave in that year a productivity of 23 tons per man per day (as against 18.7 tons per man per day in 1962) and a price at the mine of 18.9¢ per million Btu, a late 1969 projection for 1975 operations was made on the basis of 22.5 tons per man per day and a price at the mine mouth of

24.6¢ per million Btu, or an increase of over 30% against the 1968 costs.

Such increases make relatively easy competition for nuclear power. Where, in spite of unfavorable factors, coal prevails, the high cost of nuclear power obviously destroys the competitive spirit in coal.

There are other difficult problems in coal such as mine safety, transportation, and pollution. But the first and last of these are also tough for nuclear power. Yet, in the face of this, the two fuels continue to treat each other as enemies. This may be good short-term competition, but it is certainly not a good long-term posture and it is bad from the standpoint of the common customer of the two fuels--the people of the United States. The attitude of nuclear power toward coal that is so difficult to understand is best expressed by the following, "despite these difficulties (which are discussed) the outlook for the future of nuclear power continues to be very promising. Among the many factors leading to this conclusion are the following...the new problems being encountered in connection with fossil plants such as need to comply with air and water pollution controls and new legislative requirements relating to mine safety which, together with strikes by miners, threaten serious difficulties in the production of coal." (7)

It is obvious that such an item should not be looked upon as a gain in economic position for nuclear power since many of the difficulties, such as air and water pollution controls and new legislative requirements, can equally seriously affect nuclear power and the problems, therefore, need to be treated on a broader basis than narrow competitive advantage.

In summary, any adverse development in the competitive position of nuclear energy is no gain for coal, but indeed is bound to have an adverse effect on the development of coal as the other of the two great fuels that we need to look to for the next third century in the generation of electric energy. This is a very serious matter from the standpoint of overall energy and electric energy supply.

What do these developments lead to? It is no doubt true that the inflationary spiral, particularly in the construction industry, has nullified much of the technological achievements in the nuclear and coal-fired energy

(7) op. cit. page 17

industries, and in that process doing greater harm to the competitive position of nuclear energy than to coal. While it may not be clear that a solution to the inflationary epidemic is at hand, the issue is obviously receiving a great deal of attention, and, hopefully, the spiral will be arrested soon.

Some Positive Measures to First Halt, Then Reverse the Retrogressive Movement in the Economic Position of Nuclear Power

From an energy standpoint, however, we have got to resume the quest for more reliable low-cost power. This requires a continuing effort for new technology, new sources of competition, and better management of our present energy production tools and techniques. Ominously, however, for short-sighted, budgetary reasons, we may be undercutting sound programs which have been underway for some time and which could lead to better performance than we have witnessed in recent years from the coal-fired energy converters and from the light-water reactor producers.

1. New Technology. For some time the nation's programs to develop improved converter and breeder reactor programs have been grounded in the need to conserve our uranium resources and to produce an inexhaustible fuel source. Without quarreling with these objectives, we have to place on the same level with such objectives the need to develop a lower cost means of energy production. Existing programs should be evaluated with this standard in mind.

The moderate program of an improved converter reactor core offered by the very beautiful work on the molten salt reactor at ORNL can be dropped only with great peril to ourselves. The fact that it is also a low breeding ratio breeder adds both scientific and economic piquancy to the product.

While the program for developing the sodium breeder reactor needs to be pursued with determination, there still remain several difficult and unresolved problems. Sodium breeder development will require time and its success is by no means assured. Here again, therefore, it would seem a rash decision to concentrate, under such conditions, our breeder attack on a single front.

Thus the recent decision of the AEC to allot $1.3 million to each of the three companies, Atomics International, General Electric, and Westinghouse, in 12-month project definition phase (PDP) contracts, is good, in so far as it

includes the ~~three~~ specific reactor manufacturers, but in so far as the work of all three will be confined to the LMFBR, the decision in my judgment is a premature one.

The gas-cooled breeder reactor promises so much in the way of higher specific breeding ratios and lower costs that national prudence almost demands a continuation of work on this alternative in case we run into difficulties, particularly economic, with sodium.

One of the great national interests established by two basic pieces of legislation passed in 1935, the Holding Company Act of 1935 and the Federal Power Act of 1935, and by other actions in that area taken by subsequent Congresses has been, indeed is today, the importance of having, to quote from these two acts, "an abundant supply of electric energy throughout the United States with the greatest possible economy." It seems to me no action can be taken in any part of our atomic development program that disregards this very vital national interest which has so clearly become part of the national will. Since any failure to improve our current atomic position both by improving our converters and by developing a highly successful breeder will mitigate against the continuance of an abundant supply of electric energy throughout the United States with the greatest possible economy, I strongly urge that any contemplated action to sharply delimit the development program in improving our reactor technology not only be carefully considered, but be reconsidered from the standpoint of the influence that such action is bound to have on this vital and established national policy.

2. New Sources of Competition. Among half a dozen developments of importance that have taken place in the last two years to be considered in any comprehensive analysis of nuclear power progress in that period, the one that promises to be of greatest significance from the standpoint of the place of atomic energy in our society over the balance of this century--and indeed the place of all energy and energy sources in our society--is the Alaskan Prudhoe Bay oil field discovery. This has perhaps not yet been fully realized by the atomic energy or the electric utility industry, and it is even doubtful if it has been so by the oil industry. But, hopefully, the time is not far off when this recognition will not be denied this outstanding event.

With the termination of the $900 million sale of oil leases in Alaska, the greatest in the country's history, which took place last September, information on some of the wells drilled on the north slope during the past twelve months is gradually being disclosed. The information has been closely guarded ever since the two oil strikes by Atlantic-Richfield and Humble last year, which were later confirmed by a British Petroleum discovery, and which revealed the significance of the Prudhoe Bay field.

This consists of two separate pools, the lower one in limestone of Mississippian age and the upper one in sandstone of a Triassic age, with recoverable reserves of 5 to 15 billion barrels of oil. According to Petroleum Press Service of November 1969, should the entire structure be uncomplicated by faulting or drastic changes in thickness or permeability of the reducing sand, the recoverable reserves may be in the range of 20 to 30 billion barrels, nearly equal to the current total United States proven reserves. The famous East Texas field, which was the previous biggest single discovery in the United States, had reserves of less than 5 billion barrels.

This oil is still far from a United States market but the Interior Department has begun to clear the way for the construction of a pipeline to bring the oil to the eastern United States markets. Specifically, it has modified the Alaskan land restrictions to allow negotiations to start on buying the right-of-way areas.

The other possible way of moving the Alaskan oil to market is by tanker through the Northwest Passage. Again, according to Petroleum Press Service, following the dramatic test run by the 115,000-ton tanker Manhattan in September, Humble Oil has stated that it will take at least nine months to evaluate the findings before a decision can be made on the feasibility of using this route. Even at this stage, however, earlier transportation estimates of 60¢ a barrel for moving the oil in this way to the east coast of the United States have been revised upwards to between 90¢ and $1.00 a barrel. But 90¢ to $1.00 a barrel to transport to market oil brought to the ground in continental United States is very cheap fuel. It is definitely better than Middle East oil, the current availability of which is such a great concern to the United

States, and indeed to the entire group of Western nations. Middle East oil, starting in very cheap ends up anything but cheap in actuality because, even if the cost of its production is very low, 15¢ or 20¢ a barrel, it is burdened by taxes by host governments which add 90¢ to $1.00 per barrel. To this must be added transport, so that the delivered cost of Middle East oil on the East Coast is generally put at about $1.75 a barrel. Thus, apparently expensive to deliver Alaskan crude, requiring as much as $1.00 for delivery to the East Coast, may be able to more than hold its own against competing crudes hampered by high production costs, as is true of the other native United States oils, or high taxes, as is true of the Near East oils.

If oil can be delivered on the east coast of the United States at $1.40[8] a barrel, it would mean fuel available at between 22.5¢ and 23.5¢ per million Btu. Thus the grand design of highly economical coal stimulating the development of highly economic atomic fuel and this in turn acting as a vital stimulant to the coal industry can be revived again, but with Alaskan oil taking the place of coal and opening up electric generation to oil.

Our national policy should be oriented to assure the rapid availability of Alaskan oil to the domestic electric generating market. The availability of this oil cannot, however, make us complacent. While of great significance the Alaskan oil discovery, unless supplemented by substantial funds, will not by itself have any more than an important transitional effect on the cost of energy.

The immense growth in electric power requirements which will require in the year 2000 the equivalent of 2,125 million tons of bituminous coal equivalent, or almost 9 billion barrels of oil equivalent, limits the potential impact of an oil discovery as great as that of Prudhoe Bay, which, as indicated above, may have recoverable reserves in the range of 20 to 30 billion barrels.

3. Better Management. The deterioration in the last few years in the cost price structure of atomic plants, while due in substantial part to inflation, may be attributable to the softness of our vaunted management techniques. Is it possible that too large a bet has been made on the economic

(8) For the basis of these figures see Petroleum Press Service, October 1969, p. 362, and November 1969, p. 404.

potential of the current generation of light water reactors? Shouldn't we be examining now the real potential, if any, for substantial lower costs, for light water reactors? The marketing stratagems of the light water reactor suppliers, which have yet to show any real profit for the suppliers and which so far have failed to demonstrate any real competitive edge over the fossil fuels, should be subject to soul-searching inquiry. Perhaps this has been too long delayed by the softness with which the utilities and their architect engineers have purchased, and implemented, their purchase contracts, nuclear power equipment and fuel.

More toughness by the utilities in purchasing and implementing their contracts is really in the best interests of the manufacturers. They need to have their performance tested continuously on the anvil of the marketplace. A soft anvil is worse than no test at all; it deceives by the wrong impression it conveys. What the manufacturer of quality needs for his own good and safety is a hard, demanding, and, quite frequently, an abrasive customer. This applies to constructors as well as to equipment suppliers. It's not clear that the utilities with their cozy relationships with special suppliers and constructors have provided such suppliers and constructors with the toughness of requirements that is in the best long-term interest of all.

PART II

The Great Environmental Debate (9)

During the past two years we have been carrying on in the United States the Great Environmental Debate. The part that is perhaps most germane to this analysis of the developments in civilian nuclear power in the same period are the sessions held by the Joint Committee on Atomic Energy at which there were presented the arguments pro and con nuclear power. At these sessions there appeared many able representatives from the government ranks, including the Congress, the AEC, the Office of Science and Technology, Federal Power Commission, Department of Health, Education, and Welfare, and the Department of the Interior. It is heartening to know that further hearings at which industry and other witnesses will appear will begin in January 1970.

(9) I am indebted to Nuclear News, Vol. 12, No. 12, for this heading.

The latest public presentation of the case for nuclear energy was the scholarly speech of Chairman Glenn Seaborg of the AEC presented on December 4 at Portland, Oregon. But excellent as was this and many other more or less similar presentations, they all suffer from the fact that they are presented from too narrow a viewpoint--nuclear energy and its place in the electric energy supply of the country.

Electric energy supply is a very important item in the economic life of the country, but we have witnessed in the past few years the coming into focus of the entire problem of environmental pollution. This embraces a very wide spectrum of areas of concern and specifically the following: air, water, earth, noise and esthetic. The public anxiety about the environmental impact of the operation of electric generating stations is materially inflated by its serious concern for its effect on all of the angles of pollution.

It is thus a mistake to believe that a rational, beautifully presented defense of nuclear power -- as ably carried out as it was in Dr. Seaborg's December 4 speech -- will set public concern at rest. It is even a greater mistake to think that this public agitation is a "flash in the pan" and will soon subside. We need to admit that the concern has solid basis and losing patience with it will solve nothing.

Nor will it help to have members of other commissions admonish the power industry on its need to awaken the public to the "must" of multiplying its installed nuclear capacity 15-fold between 1970 and 1980 and 50-fold between 1970 and 1990. It is, after all, only a projected figure with no godly predestination characteristics, and it is its current size and, even more, its projected size, that worries people a great deal.

People are concerned, worried, and/or are asking questions such as:

1. Why must there be an increase in electric energy production? Can there not be developed a more efficient use of available energy? If not, why not ration the available supply?

2. Is the age-old idea that for man to progress means more people and more energy, solid truth?

3. Are the government and industry more concerned about increasing the supply of electric energy than about the environmental impact of power operations?

4. How realistic are the fantastic projections of growth by the utilities? One company has experienced a doubling of its load every six years for the past 30 years and it has stated that it expects this to continue without setting any time limit. If it continues for 60 years beyond the present at 12%, it will at the end of that period have multiplied 1,000-fold from the current levels.

5. Isn't it time to make a broad attack on the entire problem of energy utilization:

   a. in the home,
   b. in commerce and industry,
   c. in public institutions and installations

   with a view of slowing down current rates of electric energy growth?

6. Is it possible that the environment cannot support unlimited electric energy generation and energy release?

7. Cannot specific energy limitation programs be adopted in the interest of slowing down our explosive population growth?

8. Has a cheap and plentiful electric energy supply become a luxury our environment can no longer tolerate?

9. Isn't it time to face squarely this question:

   If deep study of the environmental pollution problem discloses that increased energy and protection of the environment may be incompatible, are we ready to limit the supply of energy even though this leads to a leveling off of the standard of living, or even a lowering of it?

All these and many more anxieties, (10) concerns, and visceral fears have come into focus from many directions. The answers to most, perhaps even to all of the above questions, may be obviously clear to many of us. But they are not clear to many more people, and among them are many well-meaning and cultured people. Their number includes many academics, even scientists--social and biological as well as physical. It certainly will take a carefully planned long, long-term program of research and presentation to answer them.

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(10) See Editorial in Science, Oct. 31, 1969, and Letters in Science, Dec. 19, 1969.

One thing is certain: the nuclear industry cannot solve the problem for itself by any private, not to say public, exposition of the relatively lesser pollution contribution that the nuclear installation will bring about as contrasted with coal, say. Or to carry the matter even further, a paper such as was presented some years ago by a well publicized representative of the nuclear industry, giving his formula for determining how many human deaths would be caused over a period of years by SO_2 emissions from a coal-fired plant, can only result in the digging up of even less responsible allegations against the safety of nuclear power.

Yet, I believe that the problem of obtaining both increased energy for man and environmental protection can be solved. The two can be made compatible. Just as the former has come about--has been made possible--by a long chain of technological developments in the use of natural resources, in metallurgy, in thermodynamics, in machine design and in electro-dynamic research and development, so can the latter be obtained by a similar program applied to the effluents of the process, to the atmosphere, to relevant water bodies or supplies, and to the landscape and the human and other inhabitants thereof.

There is simply no way of turning back the clock. Surely it is evident that "Increasingly there is but one way into the future: the technological way... Western technology has released irrevocable forces..."(11) It is necessary, however, to clearly demonstrate this.

How can this be done? As a start it must be recognized that it cannot be done by one man or even by one segment of our society. Rather, three distinct segments need to join in this long-term effort. Foremost is the Government of the United States itself. Through its legislative and executive branches it needs to give leadership in research to evaluate the effects of the polluting phenomena and to develop both remedial devices and alternatives such as new sources of energy (for example, controlled nuclear fusion), new methods of conversion, more efficient means of energy utilization, new methods of shielding; and new safety measures and devices.

The scientific and technological community has a vital role to play. It, above all others, is in a position to appreciate the importance to the future of our society of placing no obstacles in the way of providing adequate energy--adequate to provide its population with all the energy it needs to take care of its physical needs with adequate margin to make possible its spiritual development. And it must rise to the scientific, technological and social challenge of achieving, through knowledge enhanced by research, compatibility between expanding use of energy and environmental health.

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(11) Loren Eiseley "The Unexpected Universe" p. 39, Harcourt, Brace & World, Inc., 1969.

The managers of the energy-producing industries must assume their share of the heavy burden of responsibility for providing the means of production, transmission, and distribution of energy to the fullest extent society can use it effectively and without waste. And it must assume the responsibility for maintaining a clean environment, but without sacrificing efficiency, prudent investment, or jeopardizing continuity of supply.

If such a cooperative program can be developed, there is no real occasion for panic provided we set about the task with vigor and determination.

PART III

A Program for Action to Implement the National Interest in "An Abundant Supply of Electric Energy Throughout the United States with the Greatest Possible Economy"

Fully recognizing that analysis of any unfavorable situation is much easier than the prescribing of workable remedies, I still believe that this analysis would be incomplete without at least a strong effort to project the direction of such possible remedial measures. Without indulging in such luxuries as prejudgment as to whether the basic solution to environmental health is "rigid birth control," whether the supply of electric energy can be allowed to triple, quadruple, quintuple, or sextuple in the next 30 years, whether even the lowest of these figures of growth will produce an unavoidable incompatibility between its production and environmental health, or prejudgment of the proper answers to many of the other questions raised on pages 15-16--in good faith, even if sometimes in ignorance--a number of basic facts cannot be denied. For example, almost no program of birth control, no matter how rigid, can arrest the increase of 100 million in the population that we are destined to have by the end of this century. Or that following a program of laissez-faire--specifically, letting each interested economic group in our complex society work out its share of the difficult problems confronting the nuclear and energy industries along the lines of its respective economic interests--simply is not good enough. Because no matter how well socially motivated each individual group's interests are, they cannot be relied upon to lead to the most desirable and acceptable result from a broad overall socio-economic standpoint.

The record is clear that by and large the long list of specific industries and bodies--the fuel miners, millers, converters, fuel element fabricators, reactor manufacturers, pressure vessel manufacturers, turbine and alternator manufacturers, architect-engineers, constructors, the coal mine owners, mining unions, transportation companies, regulatory bodies,

utility organizations--all of them operating from the standpoint of their individual interests--even if they are, in some cases at least, their long-term selfish interests--simply fall far short in contributing all the necessary and interdependent parts to raise a structure that is, on the whole, in the national interest.

The discrete institutionalization of each of the foregoing leaves no entity with authority to feel responsible for, or to undertake action with respect to:

1. The shallowness of design thinking (except for the thinking in the field of safety).

2. The long time taken to engineer and construct.

3. The steep rise in costs of completed plant.

4. The failure of the nuclear-coal competition to hold down electric energy costs.

5. The difficulties with large segments of the population worried about environmental pollution.

But the fact that we have had these failures in performance does not mean that change cannot be brought about. It certainly is not too late to do something about it. The question is, who is to do it? Where is the responsibility to be assigned?

Here, fortunately, we have some experience to guide and help us. For the record is also clear that the great technical and economic position that the American nuclear power industry has attained both domestically and internationally is in no small measure due to the guidance, stimulation, support, and actual work performed by the AEC and the JCAE, and by the former under the wise support and encouragement of the latter. With both fully mindful of their great responsibilities, it would appear as if we can do no better than to entrust the responsibility of performing this Herculean task to the same two bodies. And since it is quite clear that within a very short time--say 50 years--we will be heading into an all-nuclear energy economy (certainly it will become so shortly after we have solved the problem of electrifying transportation), the important thing is to enlarge the scope and extend the time of the work of the two groups to the point where nuclear energy is clearly on the road to becoming the primary energy source of our society.

This will automatically open up new vistas for the AEC and its national research laboratories. It will cover no less than the development of nuclear energy from the current state of having available a less than perfect converter, through a number of new phases involving an improved converter, a successful breeder, and successful fusion. And it will cover the continued electrification of energy utilization to the point where not only will a substantial majority of it be electrical, but it will be well on its way to becoming all electrical (its primary fuel being nuclear). This in turn will make possible the generation, transmission, and utilization of all energy without polluting soil, water, and air.

It will solve the problem of the utilization of the three great AEC national laboratories. With these much enlarged terms of reference, they will no longer need to carry out their divagations into strange areas of public health, education, agronomics, transportation, urbanization, etc. They will have a major task in rationalizing our energy economy.

With broadened authority, the JCAE and the AEC would be responsible for guiding and reviewing the country's energy planning, energy research, energy conversion and transportation, and energy utilization. Review and remodeling of the entire decision-making process with respect to energy in the governmental and private sectors is required. At a time when our requirements are rapidly accelerating, the decision-making process is being extended rather than shortened. This reflects the many institutional interests which call for balancing and resolution. Failure to balance or irresolution helps no one.

PS/mb
12/31/69

TABLE I

Nuclear Versus Coal-Generated Electric Energy
as of July 1, 1969 for Completion
Nuclear - 1976
Fossil - 1975

Capital Cost - 1,100 MW Nuclear $203.5 per kW
800 MW Coal 170.6 per kW

	Nuclear	Coal	Nuclear	Coal
	at 14%, 7,000 hours per year		at 16%, 6,570 hours per year	
Fixed Charges per Year	$28.50	$23.88	$32.56	$27.30
Fixed Charges - mills per kWh	4.07	3.41	4.95	4.16
Fuel Charges - mills per kWh	1.70	2.19@25¢	1.70	2.19@25¢
Operating and Maintenance - mills per kWh	0.30	0.30	0.30	0.30
Insurance - mills per kWh	0.10	-	0.11	-
Total Switchboard Cost- mills per kWh	6.17	5.90	7.06	6.65
Nuclear Competitive @ 8750	28.1¢ per million Btu		29.7¢ per million Btu	

TABLE 2

Growth in Demand and in Generating Capability
Electric Utility Industry[3]

Year	Growth in Demand %	Generating Capability MW x 10^3	Capacity to be Ordered on Basis of 8% Growth MW x 10^3	Actually Ordered MW x 10^3
1960	6.7*	170.6		
1961	4.8	184.7		
1962	3.5	193.6		
1963	6.7	205.3		
1964	9.7**	216.5		
1965	6.4	228.9***	18.15	21.94
1966	9.2	240.7	19.15	42.57
1967	4.9	257.95	20.6	58.78
1968	11.6	278.95	22.2	39.40
1969	10.1	300.0#	24.0	32.46##
	73.6		104.1	195.15
Average	7.4			104.10
Say	8%			91.05 x 10^3 MW Excess Capacity

*December Peak
**Summer Peak
***Non-Coincident Summer Peak 186,300 MW
Reserve Available - 23.0%
#Estimated
##Figures Available as of 12/8/69

[3]Source Edison Electric Institute Statistical Yearbook for 1968.

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TABLE 3

History of Productivity in Bituminous Coal Mining of the United States - Years 1949-1966[7]

Year	Productivity Tons per Man per Day	Increase per Year	Increase Per Cent	
1949	6.43			
1950	6.77	.34	5.28	
1951	7.04	.27	4.00	
1952	7.47	.43	5.77	
1953	8.17	.70	8.55	
1954	9.47	1.30	15.90	
1955	9.84	.37	3.91	
1956	10.28	.44	4.47	
1957	10.59	.31	3.02	
1958	11.33	.74	6.55	66.07
1959	12.22	.89	8.62	Avg. 6.61
Decade		5.79	90.00	Double 10.9 years
1959	12.22			
1960	12.83	.61	4.75	
1961	13.87	1.04	8.10	
1962	14.72	.85	6.13	
1963	15.83	1.11	7.54	
1964	16.84	1.01	6.40	
1965	17.52	.68	4.03	
1966	18.52	1.00	6.33	43.28
7 years		6.30	51.50	6.18
				Double 11.7 years
				Last 3 years
				16.76
				5.59
				Double 12.9 years

[7]Source: Bituminous Coal Facts 1968, National Coal Association, pages 58-59

Quantity and Cost of Middle Snake Power, Supplement to Comments of September 25, 1969

This supplementary data reflects revised construction costs from Ebasco and also the results of power cost computations from Middle Snake Project power with added supplemental nuclear power to deliver project power at 55% load factor.

A comparison of each project and its power supply alternative is shown in the following table:

COMPARISON OF ANNUAL COSTS, 6-PERCENT INTEREST—POWER DELIVERED AT PROJECT LOAD FACTOR

	Middle Snake project	Alternative program	Savings
High Mountain Sheep	$13,800,000	$18,900,000	$5,100,000
Mountain Sheep-Pleasant Valley	15,100,000	18,900,000	3,800,000
Mountain Sheep-Appaloosa	17,400,000	19,300,000	1,900,000

The attached Curve Sheets Nos. 1 through 4 show the above comparison for interest rates from 4% to 6%. The attached Bar Charts Nos. 1 through 3 show quantities of Middle Snake power and the power supply alternatives.

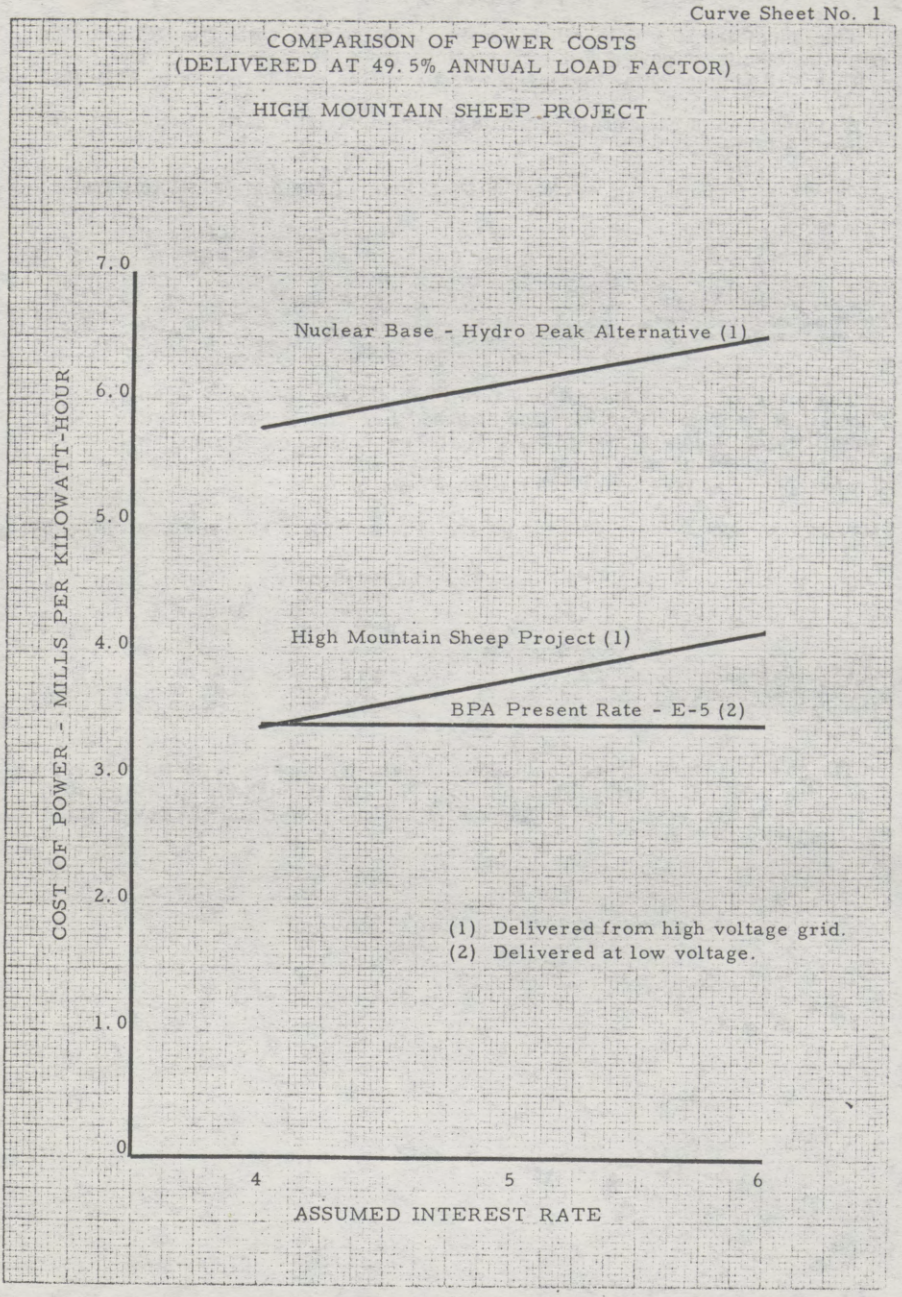
A comparison of each project with supplemental nuclear power to deliver project power at 55% load factor is shown as follows:

COMPARISON OF ANNUAL COSTS, 6-PERCENT INTEREST—POWER DELIVERED AT 55-PERCENT LOAD FACTOR

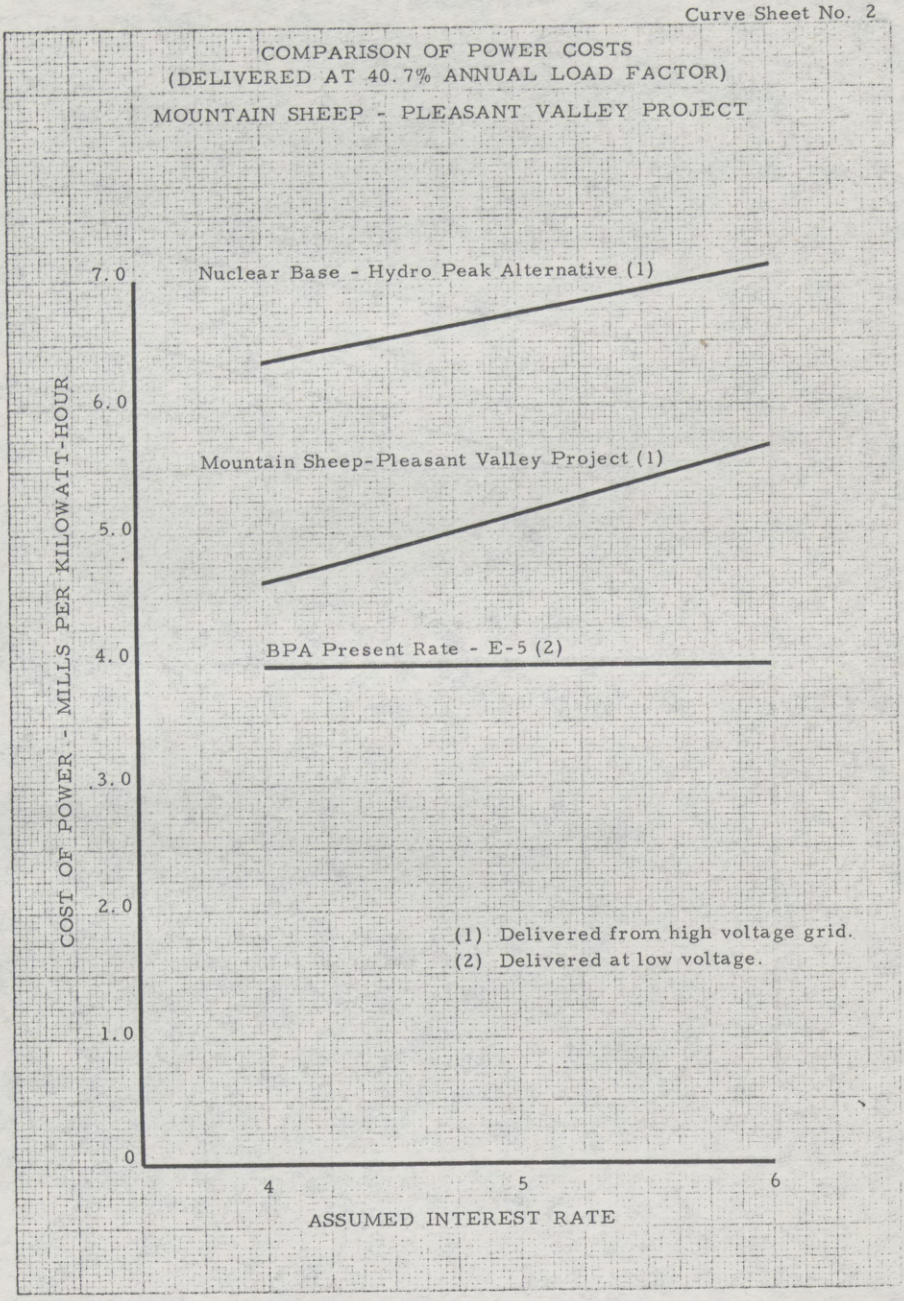
	Middle Snake project plus supplemental nuclear power	Alternative program	Savings
High Mountain Sheep	$23,800,000	$28,900,000	$5,100,000
Mountain Sheep-Pleasant Valley	33,000,000	36,800,000	3,800,000
Mountain Sheep-Appaloosa	35,900,000	37,800,000	1,900,000

The attached Curve Sheet No. 5 shows the above comparison for interest rates from 4% to 6%. The attached Bar Charts Nos. 1A through 3A show quantities of Middle Snake Power plus supplemental nuclear power and the power supply alternatives.

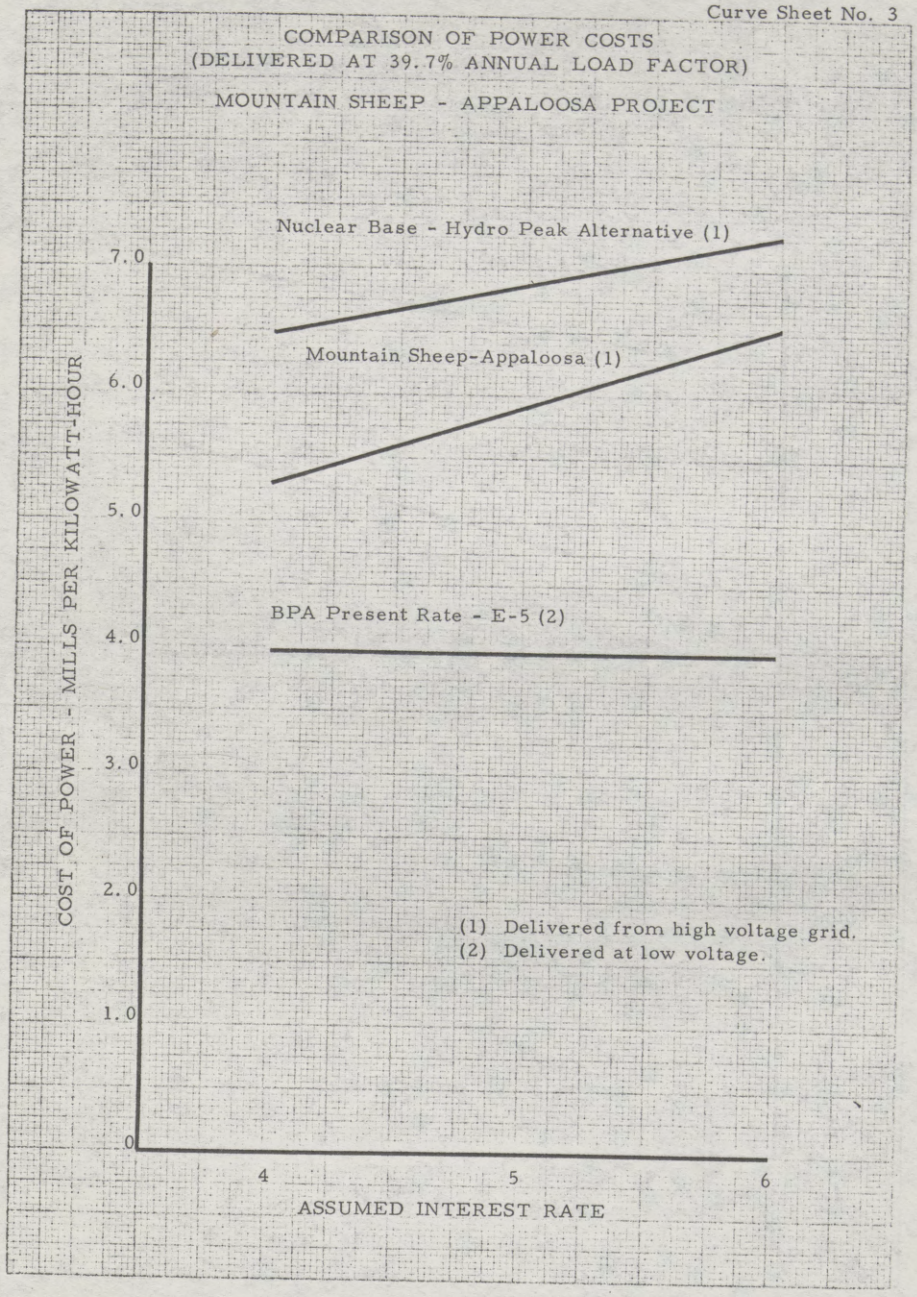
Curve Sheet No. 1



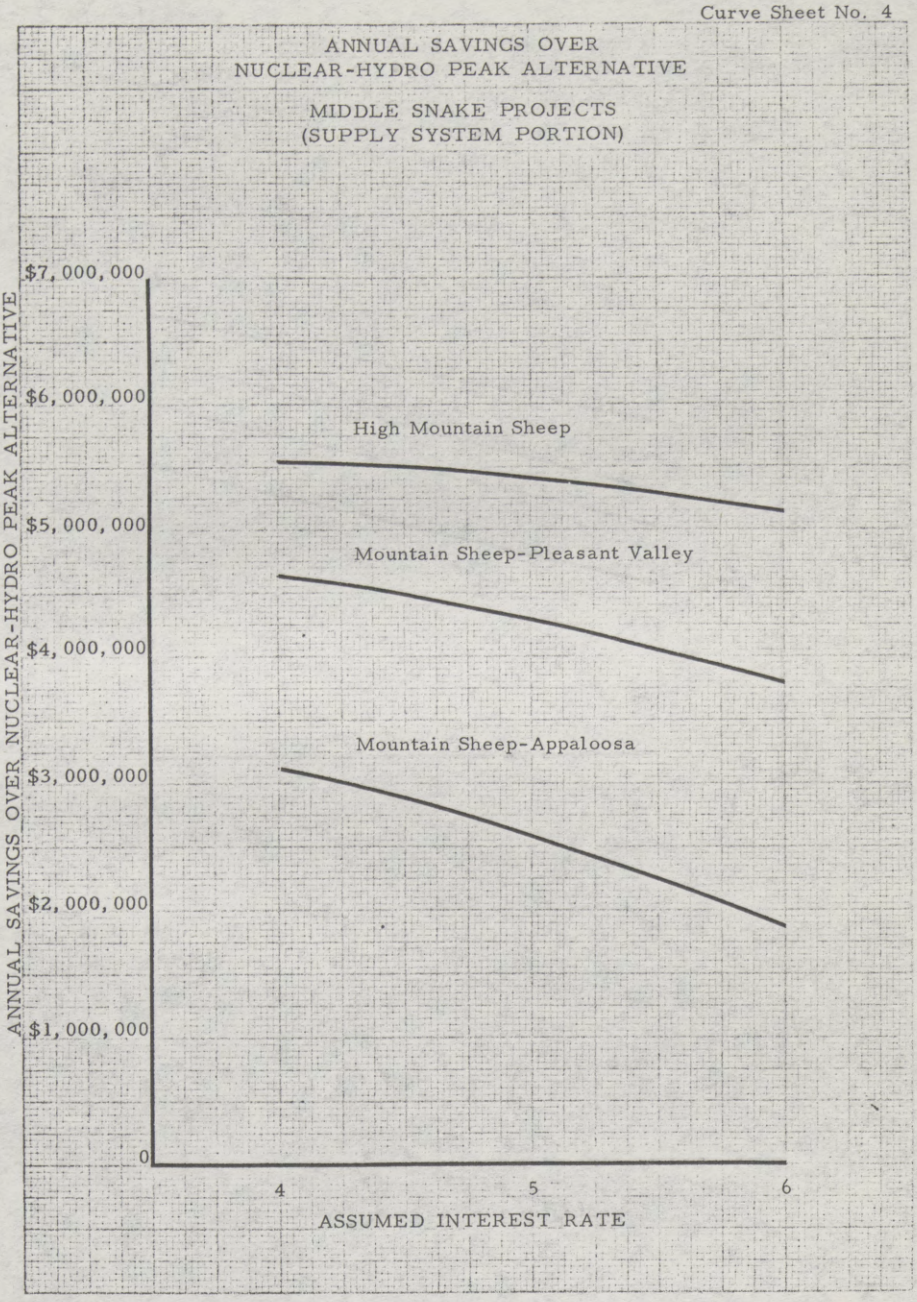
Curve Sheet No. 2



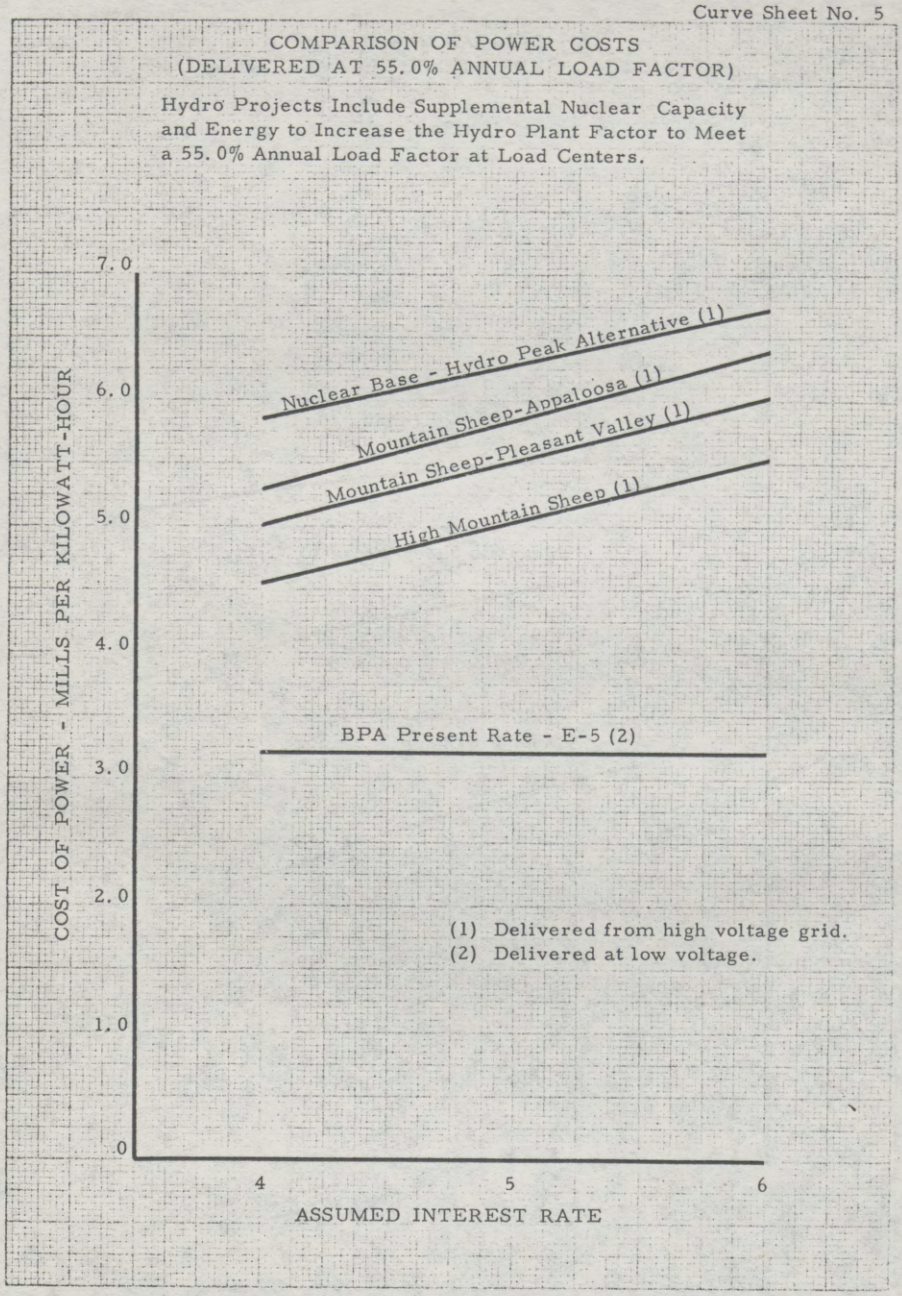
Curve Sheet No. 3



Curve Sheet No. 4



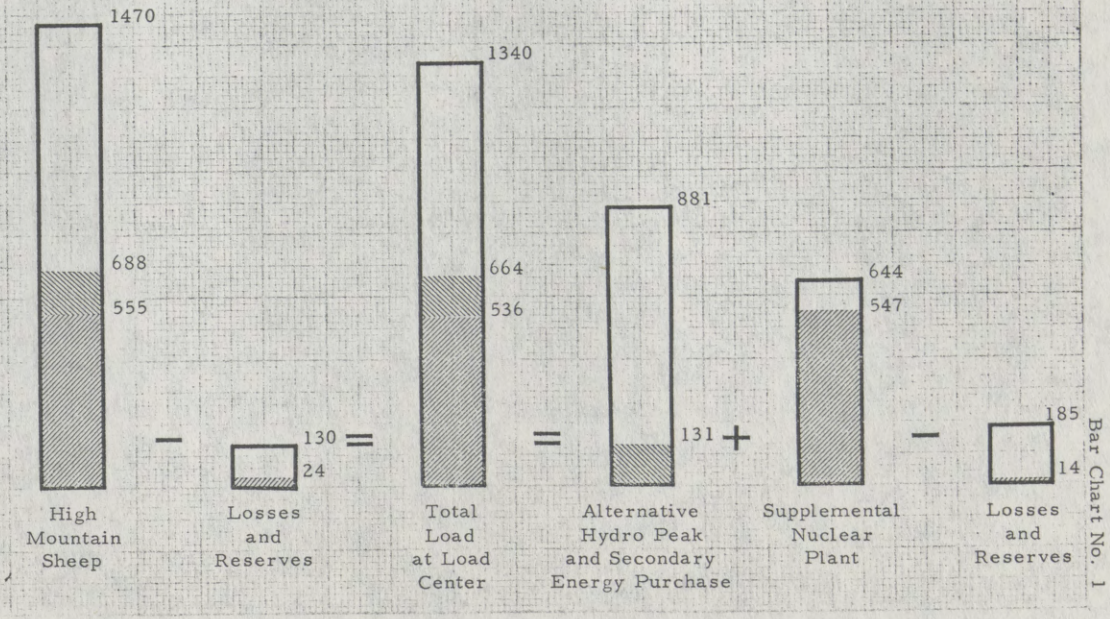
Curve Sheet No. 5



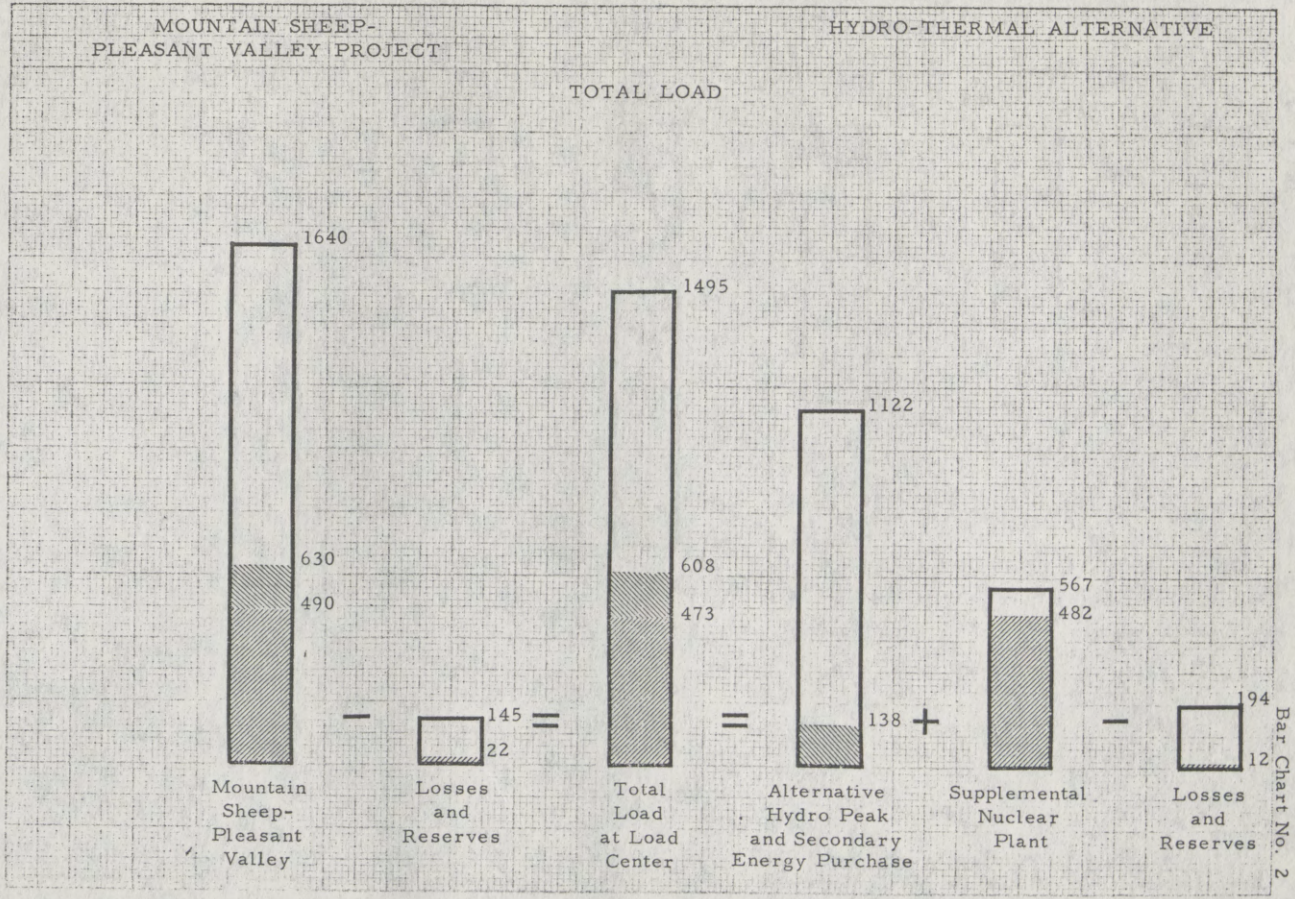
HIGH MOUNTAIN SHEEP PROJECT

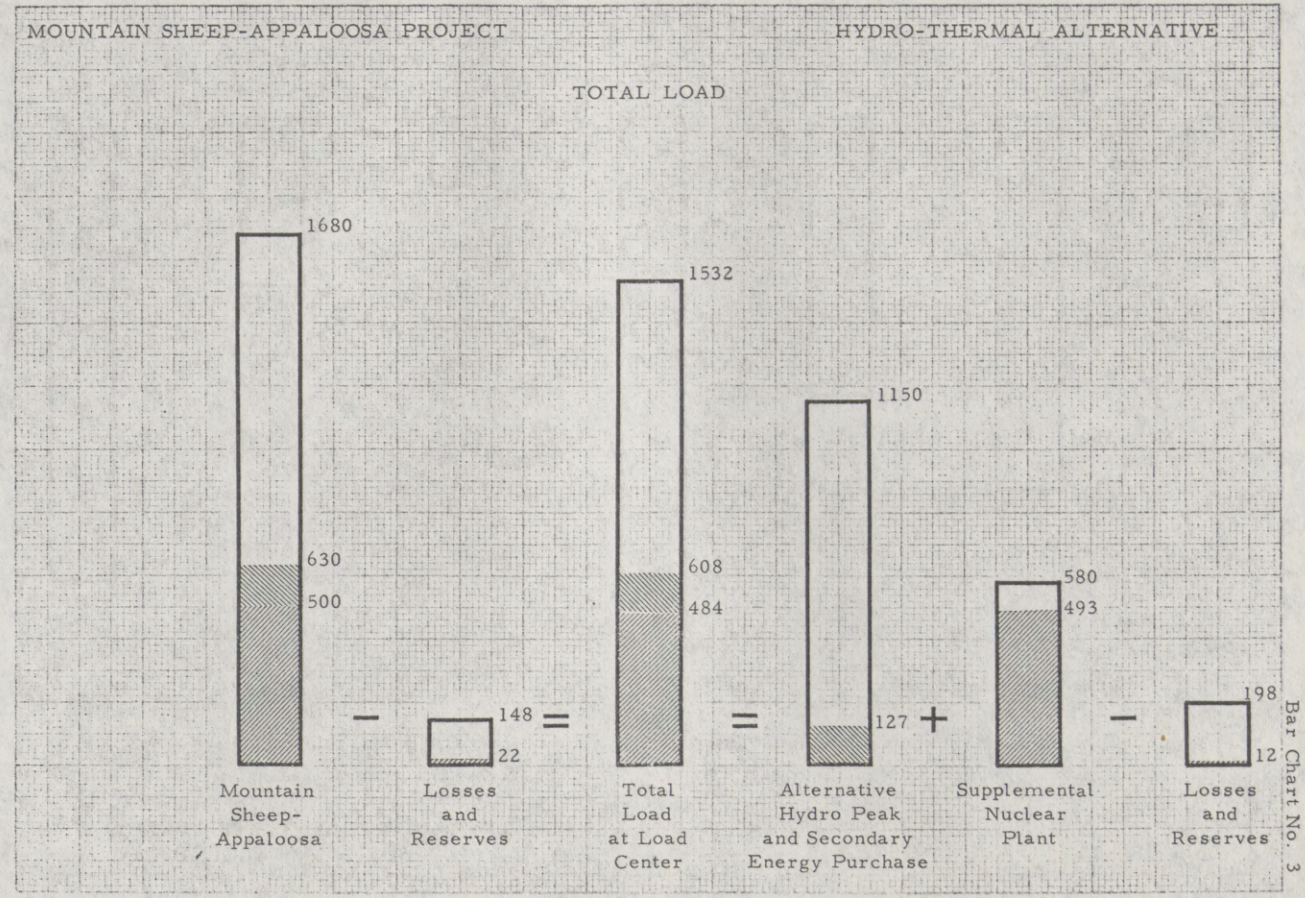
HYDRO-THERMAL ALTERNATIVE

TOTAL LOAD



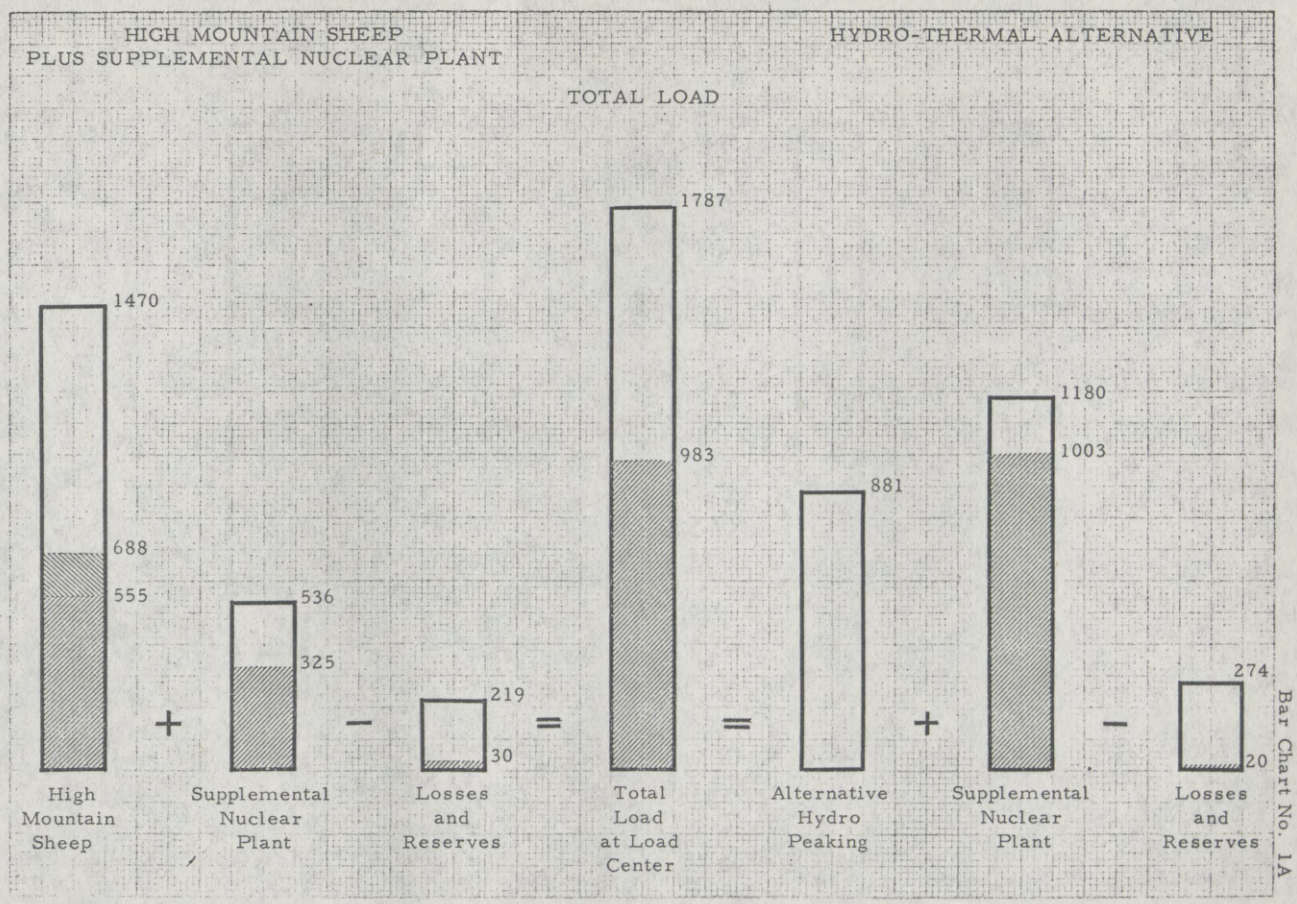
Bar Chart No. 1


MOUNTAIN SHEEP-
PLEASANT VALLEY PROJECT
HYDRO-THERMAL ALTERNATIVE
TOTAL LOAD
1640
630
490
145
22
1495
608
473
1122
138
567
482
94
12
Mountain Sheep-Pleasant Valley
Losses and Reserves
Total Load at Load Center
Alternative Hydro Peak and Secondary Energy Purchase
Supplemental Nuclear Plant
Losses and Reserves
Bar Chart No. 2

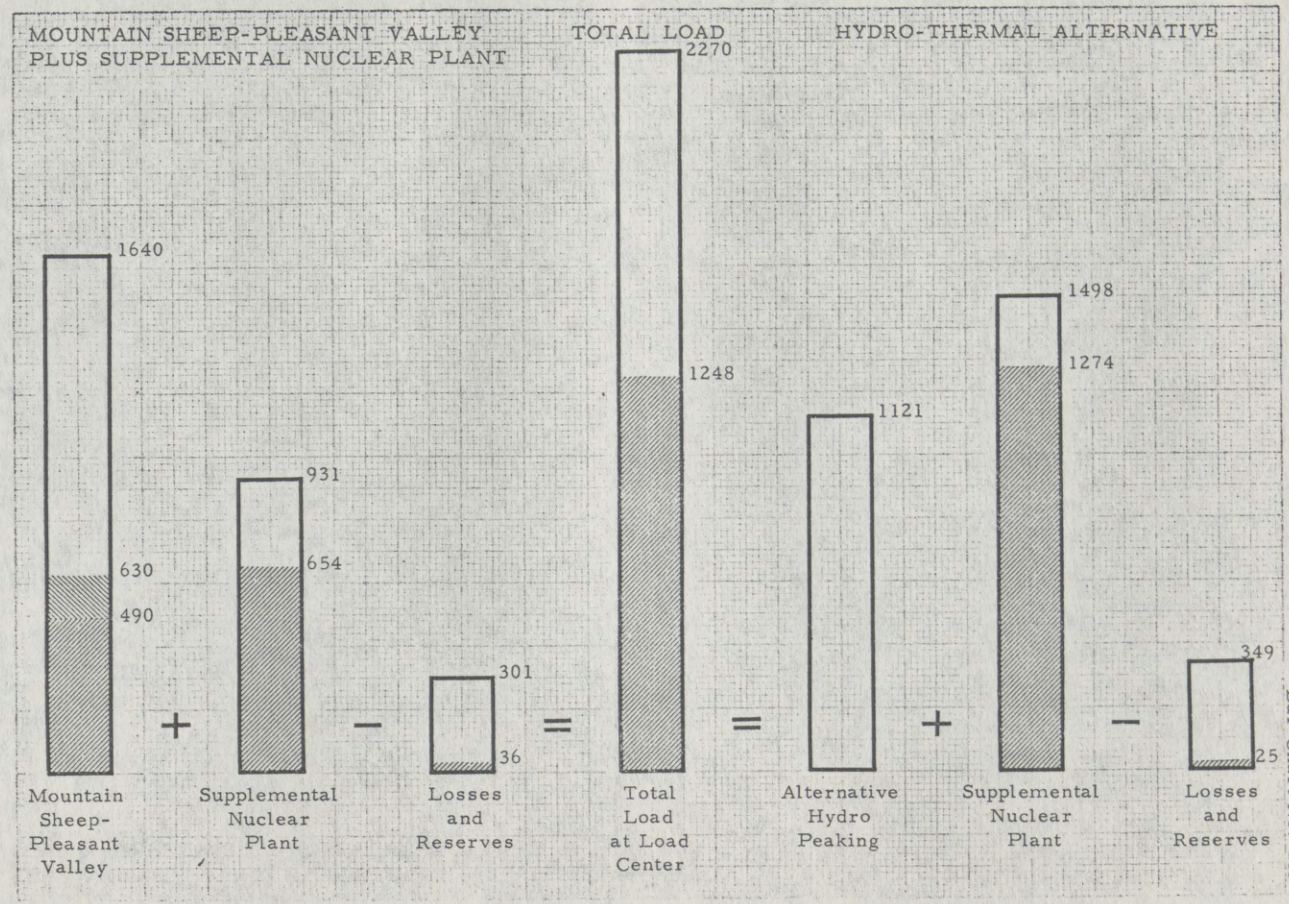


Bar Chart No. 3

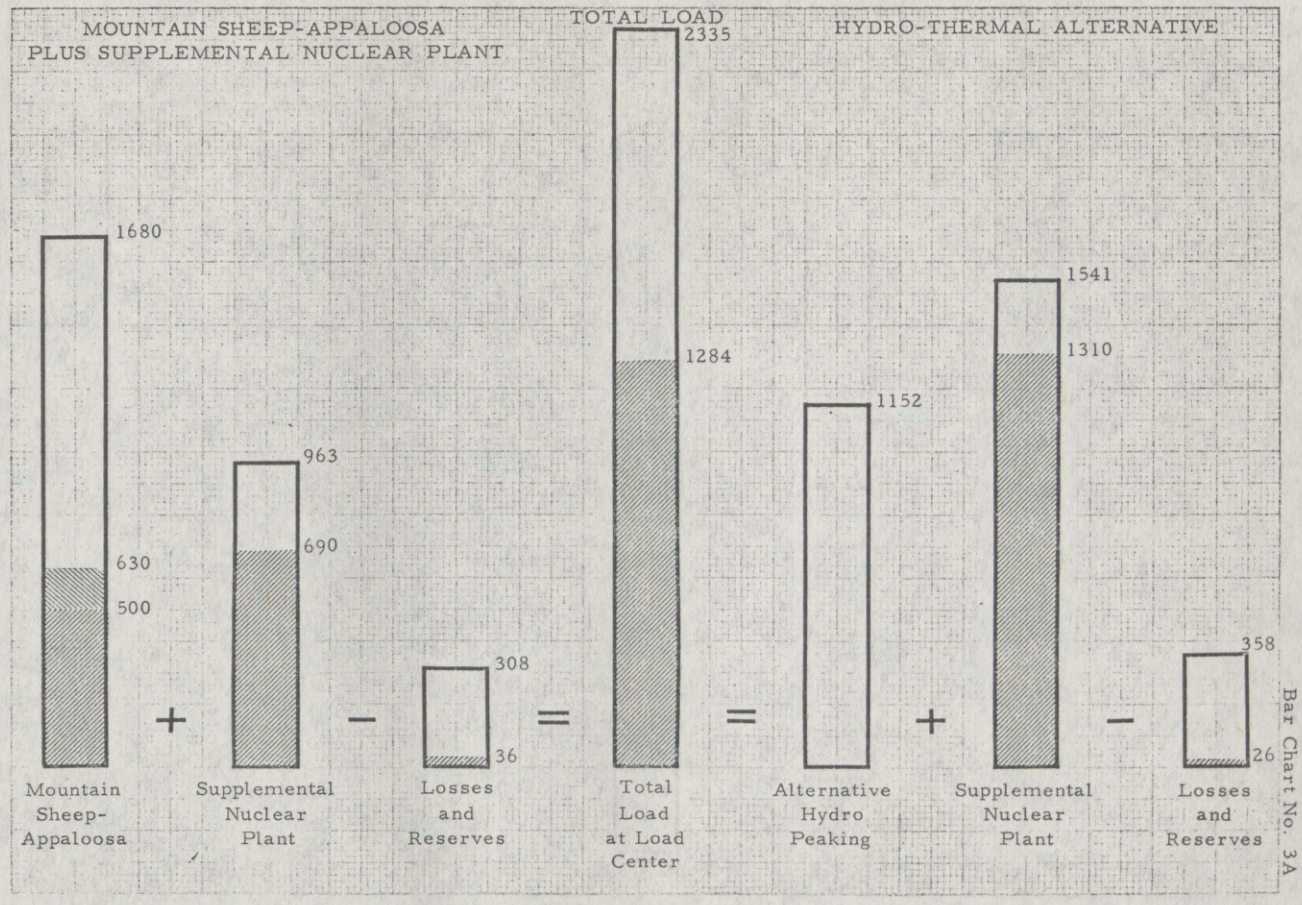
41-855 O - 70 - 15



Bar Chart No. 1A



Bar Chart No. 2A



Bar Chart No. 3A

PACIFIC NORTHWEST POWER CO.,
Washington, D.C., February 27, 1970.

Hon. CLINTON P. ANDERSON,
Chairman, Subcommittee on Water and Power Resources, Senate Committee on Interior and Insular Affairs, New Senate Office Building, Washington, D.C.

DEAR SENATOR ANDERSON: During our recent appearance before the Subcommittee on February 16, the acting chairman indicated we should advise you after two weeks if we found additional time is necessary to set forth in a form convenient to the Subcommittee the accumulated information we have assembled regarding optimum conservation, development and enhancement of the water and related land resources of the Middle Snake River region.

This is to advise that the coincident press of simultaneously preparing for the previously-docketed, final, evidentiary stage of proceedings involving these same resources before the United States Federal Power Commission these past two weeks has prevented completion of our presentation of that information for the Subcommittee, and to advise that our presentation and exposition of it can be completed and in the Subcommittee's hands in the required number of copies no later than March 23, 1970.

Accordingly, we respectfully request permission to present this information to the Subcommittee on or before that date. We respectfully suggest that this submission would be particularly helpful to the Subcommittee in its deliberations on the issues presented by S. 940, as noted below.

For the past 15 years, we have been engaged in a continuing, expanding effort to determine the manner and method by which the irreplaceable resources of the Middle Snake region may be conserved, developed and enhanced for all public purposes. We believe the record amply demonstrates this has not been an effort to pursue Middle Snake hydroelectric potential at the expense of related resource values (e.g., our decision to risk forgoing any major Middle Snake project after 1958, rather than apply for the site then preferred by the Federal Power Commission that PNPC believed to be incompatible with preservation of Snake River fish life; the Interior Department's subsequent adoption of the multipurpose project parameters designed and refined by ourselves, as the optimum water resource project for the Middle Snake).

We are now in the final evidentiary stage of proceedings being held by mandate of the United States Supreme Court for the express purpose of exploring—". . . all issues relevant to the public interest [in the possible construction of any multipurpose project on the Middle Snake], including future power demand and supply, alternate sources of power, the public interest in preserving reaches of wild rivers and wilderness areas, the preservation of anadromous fish for commercial and recreational purposes, and the protection of wildlife." 387 U.S. 428, 18 L ed 2d 869, 87 S Ct 1712 (1967).

As we understand this to be the central concern of S. 940, and as it is to this point that our studies and testimony prepared for submission and cross examination before the FPC are addressed, we believe the Subcommittee will find the exposition of these matters we are preparing for its use to be especially helpful.

An additional matter to be touched in our submission to the Subcommittee involves our own thoughts on overall resource enhancement policy for the Middle Snake region. With others, including members of this Subcommittee, our frame of reference for this region has grown in recent years. In brief, we visualize a federally-licensed Middle Snake multipurpose water resource development and enhancement project, if built, as a possible centerpiece and foundation of a large, surrounding wild and outdoor recreation area, much in the manner that the Tocks Island multipurpose reservoir is to serve as the centerpiece of the vast, Delaware Water Gap National Recreation Area refined and reported by this Committee for enactment in 1965. We do not undertake to urge this concept before the Subcommittee at this juncture. We touch on it only for the purpose of indicating that it is in no way incompatible with proceedings now in progress at the FPC, and that it is consistent with and perhaps a capstone of testimony received by the Subcommittee to date from the Federal agencies and others, regarding the importance of developing and enhancing the resources of this great Pacific Northwest region for irrigation, fish and wildlife, scenic enhancement, outdoor recreation, hydroelectric energy, and other public purposes.

Thank you very much.

Respectfully,

KINSEY M. ROBINSON,
Chairman of the Board and President.

[Copy]

MARCH 4, 1970.

Mr. KINSEY M. ROBINSON,
Chairman of the Board and President, Pacific Northwest Power Co.,
Washington, D.C.

DEAR MR. ROBINSON: Thank you for your letter of February 27 requesting an extension of time to submit testimony on S. 940, a bill to declare a moratorium on FPC licensing on the Middle Snake River.

As you are aware, the hearing record was officially closed on March 2. However, in view of the importance and relevance of the material which you wish to submit, the Subcommittee will be pleased to receive it and appropriate portions of your submittal will be included in the printed record. The material also will be included in the official file of the Committee and will be made available to the members when the bill is considered.

To print your testimony, it should be received before March 25 to allow appropriate arrangements to be completed.

Sincerely,

CLINTON P. ANDERSON.

WASHINGTON PUBLIC POWER SUPPLY SYSTEM,
Kennewick, Wash., February 27, 1970.

Hon. CLINTON P. ANDERSON,
Chairman, Subcommittee on Water and Power Resources, Senate Committee on Interior and Insular Affairs, New Senate Office Building, Washington, D.C.

DEAR SENATOR ANDERSON: During our recent appearances before the Subcommittee on February 16, the acting chairman indicated we should advise you after two weeks if we found additional time is necessary to provide to the Subcommittee the information we have assembled in preparation for the hearing before the Federal Power Commission. This information is now ready and supports the development and enhancement of the water and other related land resources of the Middle Snake River region. Accordingly, we respectfully request permission to present the individuals who prepared the information and file supporting material with the Subcommittee. We also respectfully suggest that this appearance would aid the Committee in its deliberations on the issues presented by S. 940.

The substance of the testimony now being filed with the Federal Power Commission is also relevant to the questions being considered by the Subcommittee in connection with S. 940. To properly present this material to the Subcommittee in a meaningful way will require additional time. The members of the Committee would benefit by the appearance of the witnesses who sponsor this testimony and have the opportunity to question each one concerning the proposals they make for multi-purpose utilization of this resource. A presentation could be made during the week of March 23.

For the past 15 years we have been engaged, singularly or jointly, in a continuing effort to determine the manner and most beneficial, means by which the irreplaceable resources of the Middle Snake River may be developed. We believe the record amply demonstrates it has not been our aim to pursue Middle Snake hydroelectric potential at the expense of other resource values.

We are now in the final evidentiary stage of Federal Power Commission proceedings, being held by mandate of the U.S. Supreme Court for the express purpose of exploring—". . . all issues relevant to the public interest, including future power demand and supply, alternate sources of power, the public interest in preserving reaches of wild rivers and wilderness areas, the preservation of anadromous fish for commercial and recreation purposes, and the protection of wildlife."

We understand this to be the central concern of S. 940, and as it is to this point that our studies and testimony prepared for submission and cross-examination before the FPC are addressed, we believe the Subcommittee will find an expansion of these matters to be directly related to the issues presented by S. 940, and to fully describe the development of this resource in a way which will be of interest and assistance to the Subcommittee.

(When hearings before the FPC are completed in March, the record will be closed pending the receipt of briefs, which are expected to be filed by July 1, 1970. Final briefs will probably be filed by September 1, 1970, with a decision of the Hearing Examiner anticipated thereafter. If the decision of the examiner

is appealed to the Commission, a full FPC decision would not be made for several months, after opportunity for oral argument before the full Commission. Then the matter will be subject to rehearing before the Commission, and then to judicial review.)

An additional matter to be emphasized in our report to the Subcommittee involves our proposed plans for an overall resources enhancement policy for the Middle Snake region. Our concept of the development of this resource has, along with others, including members of this Subcommittee, expanded in recent years. In brief, we now visualize a federally licensed Middle Snake multi-purpose reservoir as having the same relation to its surrounding wild and outdoor recreation area as the Tocks Island multipurpose reservoir has to its surrounding Delaware Water Gap National Recreation Area, which was recommended by this Committee for enactment in 1965. We do not urge this plan before the Subcommittee at this juncture. We mention it now only for the purpose of indicating that this proposal is in no way incompatible with proceedings now in progress before the Federal Power Commission. Indeed, it is consistent with and is perhaps the capstone of testimony received by the Subcommittee from the federal agencies and others regarding the importance of developing and enhancing the resources of this great Pacific Northwest region for irrigation, fish and wildlife, scenic enjoyment, outdoor recreation, hydroelectric energy and other public purposes.

Thank you very much.

Respectfully,

OWEN W. HURD,
Managing Director.

MARCH 4, 1970.

Mr. OWEN H. HURD,
Managing Director,
Washington Public Power Supply System,
Kennewick, Wash.

DEAR MR. HURD: Thank you for your letter of February 27 requesting an extension of time to submit testimony on S. 940, a bill to declare a moratorium on PPC licensing on the Middle Snake River.

As you are aware, the hearing record was officially closed on March 2. However, in view of the importance and relevance of the material which you wish to submit, the Subcommittee will be pleased to receive it and appropriate portions of your submittal will be included in the printed record. The material also will be included in the official file of the Committee and will be made available to the members when the bill is considered.

To print your testimony, it should be received before March 25 to allow appropriate arrangements to be completed.

Therefore, since the information you will supply will be included in the printed hearing record and due to the pending schedule of the Committee, I believe it will be unnecessary to schedule further public hearings on this bill to receive additional oral testimony as requested in your letter.

Sincerely,

CLINTON P. ANDERSON.

PACIFIC NORTHWEST POWER CO.,
WASHINGTON PUBLIC POWER SUPPLY SYSTEM
MARCH 23, 1970.

Hon. CLINTON P. ANDERSON,
Chairman, Subcommittee on Water and Power Resources, Senate Committee on Interior and Insular Affairs, New Senate Office Building, Washington, D.C.

DEAR SENATOR ANDERSON: In accordance with your letter of March 4, 1970, we herewith submit certain materials regarding efforts underway to determine, develop and enhance the best and highest uses of the water and related land resources of the Middle Snake River for public purposes.

Thank you very much.

Respectfully,

K. M. ROBINSON,
Chairman of the Board and President, Pacific Northwest Power Co.
OWEN H. HURD,
Managing Director, Washington Public Power Supply System.

JOINT STATEMENT BY PACIFIC NORTHWEST POWER CO. AND WASHINGTON PUBLIC POWER SUPPLY SYSTEM

Mr. Chairman, members of the subcommittee, thank you for the opportunity to set forth the scope of efforts and work now underway to establish the best means of preserving, enhancing and utilizing the water and related resources of the Middle Snake River in the public interest.

In accordance with your letter of March 4, 1970, we this day filed with the Clerk of the Subcommittee, summaries and analyses of the most relevant studies and efforts undertaken before and since the United States Supreme Court decree of 1967, and still in progress for the purposes of determining—". . . all issues relevant to the public interest [in the use of the water and related resources of the Middle Snake River], including future power demand and supply, alternative sources of power, the public interest in preserving reaches of wild rivers, and wilderness areas, the preservation of anadromous fish for commercial and recreational purposes, and the protection of wildlife." (387 U.S. 428, 18 L ed 2nd 869, 87 S Ct 1712).

These analyses proceed from the proposition that the wise use and preservation of Middle Snake River resources are fundamental to the growth and integrity of the Pacific Northwest. They establish that these resources must not merely be conserved if they are to serve their best and highest multiple purpose public use; that they must be considerably enhanced. The analyses also describe the particular multipurpose development we have found can best provide for and promote such enhancement, on the scale known to be necessary.

These are matters now being set forth before the United States Federal Power Commission, by direction of the Supreme Court, in a proceeding that represents the most prolonged, searching effort ever undertaken with respect to a single project to determine the best and highest use of a water and related land resource affected by the project and within the region as a whole. Final briefing, analysis and exposition by all parties and intervenors has yet to be undertaken. Based on present scheduling, it appears a Hearing Examiner's decision will not be forthcoming during the present Congress; that a final, Commission opinion will not be forthcoming before sometime well into the year 1971. Assuming judicial review, if thus will be a considerable period before this involved administrative proceeding can be concluded.

Notwithstanding that important proceeding, we welcome this opportunity to submit the relevant studies and materials to the Subcommittee, to the end that efforts now in progress to determine the best and highest multiple purpose public use of these resources be sustained, strengthened and guided. A brief summary of the principal aspects of the multiple purpose development now under consideration and its relationship to these resources is set out below.

* * * * * * *

The resources of the Middle Snake and its adjacent region have been studied and researched intensively and extensively.[1] These studies have plumbed and mined the best and highest use of the resources of the Middle Snake. The known and foreseeable states of the technical arts have been explored to establish the type and scale of multipurpose development and enhancement project which insures use of all those resources, for all public purposes.

These efforts establish that multipurpose development of the Middle Snake will enhance potential irrigation in Southwest Idaho and Southeast Oregon, wilderness availability, outdoor recreation, flood control, fish, wildlife, water quality control, navigation, and hydroelectric energy. They also establish that a multipurpose development and enhancement project should be undertaken above the confluence of the Middle Snake and Salmon Rivers to serve each and all of these needed purposes. The manner in which each of these will be served by such development is stated below. The hydroelectric aspect is described last as it is well known.

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[1] A chronology of the highlights of the extended Federal Power Commission proceeding appears as Attachment A. A listing of the studies, analyses and supporting materials, including Task Force Reports, undertaken since the Supreme Court's decision of 1967 and filed today with the Clerk of the Subcommittee, appears as Attachment B. A listing of all major studies and reference materials prepared prior to 1967 appears as Attachment C.

IRRIGATION

There is no irrigable land along or near the middle reach of the Snake River that can be served by conventional gravity irrigation. There is no irrigable land adjacent to the impoundment of a Middle Snake project that appears practical to be served by irrigation pumping.

Recent studies by the States of Idaho and Oregon indicate that considerable additional irrigable land exists in Southwest Idaho and Southeast Oregon, that this land could be put to productive use but that water sufficient for this purpose will not be provided by any present or planned projects, and that there is not sufficient water in the Snake River alone to serve the entirety of this irrigable land.

These lands are located in the Upper Snake Basin, 200 and more miles distant from the impoundment sites in the Middle Snake, but they can be supplied with considerable irrigable water from the Salmon River if a Middle Snake River project is developed and equipped to accommodate transfer of Salmon River waters upstream on the Snake to these lands.

One such plan envisions construction of a tunnel extending some nine miles from the Salmon to the Snake (at the point seen on the map following page six where the two Rivers flow northward in parallel), diversion through the tunnel of Salmon River flows to the Middle Snake impoundment, and the installation and use of reversible pump-generation facilities at proposed and existing structures to deliver such water upstream to the potentially irrigable land areas in the Upper Basin. (Installation of such facilities at existing structures in the Hells Canyon reach of the Snake will add more than one million kw of generating capacity there.) A large portion of the investment cost of the Snake River impoundment should be amortized by the time the land in the upper basin identified by Idaho and Oregon agencies could be put to productive use, expected to be around or near the turn of the century, thus reducing the cost to such irrigation.

Such use of the proposed Middle Snake River impoundment for irrigation would not conflict with or impair its use for other project purposes, including power production. Diversion of the water during the irrigation season would result in only a minor reduction in energy output. We conceive that the Middle Snake development should prove to be an affirmative aid to irrigation. We particularly propose that any permission granted for the development we advance be expressly conditioned to prevent it from being utilized to the detriment of irrigation.[2] The Idaho Water Resources Board, the authorized irrigation agency of the State, endorses and supports the above-described irrigation features of this development.

OUTDOOR RECREATION

The outdoor recreation potential of the Middle Snake reach and its adjacent areas represent a substantial, invaluable resource. It is accepted that this resource can be notably enhanced.

Conrad Wirth, former Director of the National Park Service, concludes that the development we propose would enhance the entire Middle Snake River Canyon in a way otherwise unattainable. The concept starts from rim to rim and then stretches 150 miles in all directions from the proposed reservoir site to the lake country of Northern Idaho on the north, the Bitterroot Mountains on the east, the Sawtooth Range on the south, and the Blue Mountains on the west, in Oregon.

These are the parameters of the master recreation concept we have evolved. It provides a reservoir with substantial surface and shoreline recreation potential, and needed accessibility to the numerous surrounding areas of spectacular grandeur beyond, comprising National Forests, Primitive Areas, Wilderness Areas, and some 10,000 miles of open, free flowing streams including more than 150 miles of the designated Wild River reaches of the Selway and Middle Fork of the Salmon. The details of this plan extend to such matters as limited access roads, and a scenic loop of roads at elevations above the Snake River

[2] In the proceedings before FPC we are urging that any license for the proposed development be expressly conditioned to this end, as follows:

"The project shall be operated in such a manner as will not conflict with present or future depletion in flow of the Waters of Snake River and its tributaries, or prevent or interfere with present or future upstream diversion and use of such water above the backwater created by the project, for the irrigation of lands and other beneficial consumptive use in the Snake River Watershed."

Canyon floor to permit observation of the scenic resources below and beyond. All shoreside facilities will be provided to accommodate full public utilization of the reservoir surface and shoreline at the center of this expansive outdoor recreation area. A more extended exposition of this master recreation concept for the Middle Snake and its adjacent land area appears as Attachment D hereto.

FISH

The Snake River to the Salmon River and the Salmon River above its confluence with the Snake support an outstanding fishery resource. The Salmon River of Idaho is recognized as a major anadromous fish sanctuary.

Studies establish that any reservoir on the Middle Snake, therefore, must be upstream from the mouth of the Salmon. The existing fisheries resource of the Middle Snake must, however, be considered in planning for multipurpose development of the Middle Snake.

Our plans for protection of anadromous fish provide for the salmon and steelhead that are currently using the Snake River above the project sites, and the Imnaha River fish population. Salmon River runs are not affected. Snake River runs are presently trapped at Hells Canyon Dam. The trapping will be shifted to a point below the proposed dams and transported to artificial propagation facilities as they now are, reared to fingerling size, and released downstream. The upstream fish runs of the Imnaha River, which flows into the Middle Snake above the proposed High Mountain Sheep site, will be accommodated by a fish ladder and a canal around High Mountain Sheep, while downstream migrating fingerlings in the Imnaha will be collected at a point upstream from maximum reservoir level and transported to the Snake River downstream. If either the Pleasant Valley-Mountain Sheep or the Appaloosa-Mountain Sheep complex is selected, all impoundment will be upstream from the mouth of the Imnaha River, leaving it a free-flowing stream and requiring no fish facilities. Our plans further propose installation of variable level penstock intakes, if appropriate, for the benefit of the fish resource, a benefit recognized as a substantial by resource agencies. We are confident these facilities and techniques will benefit and protect fish resources.

WILDLIFE

The terrain at the potential development sites in the Snake River Canyon is exceedingly steep and rocky. The wildlife resource in the proposed reservoir areas is limited to game birds such as ducks, geese and partridge, and to small numbers of mule deer and elk. Wildlife is more plentiful in the adjacent regions, including the high elevations above the potential reservoir sites.

Development of the proposed improvement will provide improved access to and enjoyment of the remote hunting areas. Supplemental feeding arrangements and improved management of adjacent areas can serve to compensate for any loss of forage area in the reservoir region. Studies thus establish that the proposed multipurpose development should not adversely affect the wildlife resources, and that it will substantially enhance public access and enjoyment thereof.

WATER QUALITY CONTROL

An impoundment on the Middle Snake as proposed can be utilized to provide water quality benefits in the years ahead.

We have made extensive investigations and studies of methods to improve water quality as it is related to temperature control and oxygen content. The Snake River is well known for its history of rather high summer temperatures in excess of 80° Fahrenheit. High temperatures seem to affect migrations of salmon and steelhead at the confluence of the Snake and Columbia Rivers. The development as proposed will make possible selective temperature control through the use of variable level intakes at the storage structure. By the use of these intakes, water of the desired temperature can be provided at the mouth of the Snake River.

Construction of such a development could result in deficiencies in dissolved oxygen during limited periods of the year. If so, such deficiencies can be offset through introduction of oxygen through the penstocks or into the reservoir in sufficient quantities to meet the requirements of the water pollution control agencies.

FLOOD CONTROL

An impoundment project on the Middle Snake River is a significant element in the Corps of Engineers' overall plan for flood control in the Columbia Basin. The High Mountain Sheep Development would provide some eight to ten percent of the storage called for by this plan. We anticipate that a license, if issued, for this development will require that it be operated in a manner directed by the Corps to insure provision of this needed flood control.

NAVIGATION

Development of an impoundment project on the Middle Snake above the mouth of Salmon will enhance the navigation of the 50 mile reach of open river below the project downstream to Lewiston, Idaho.

Releases from this impoundment as directed by the Corps of Engineers, coupled with continued channel improvement above Lewiston, will permit increased commercial and recreational navigation upstream beyond Lewiston to the development site.

HYDRO-ELECTRIC ENERGY

The potential hydro-electric resource of the Middle Snake River has long been recognized as substantial, being in the order of 1.5 to 3 million kilowatts of non-depletable, pollution-free generating capacity. This is an extremely valuable resource whose potential should not go undeveloped. Power from this renewable resource can be obtained at substantially less cost than power from any alternative source.

A hydro-electric development uses falling water to convert the energy of the sun: it is the only source of available power which if not used is lost forever. The Middle Snake development would provide substantial power savings to the benefit of all consumers in the Pacific Northwest.

In a cooperative effort to achieve maximum utilization of the existing and potential resources of the Pacific Northwest, the utilities of the region have joined together in a power development program. This program envisions planning of hydro-electric and thermal electric generation in a manner which will assure full and efficient utilization of resources which might otherwise be underdeveloped. Hydro-electric peaking plants will be scheduled in connection with nuclear or fossil fired thermal base load plants to meet the predicted load growth of the region from 1975 to 1985. If all potentially feasible hydro-electric sites are developed during this period, there will be no additional available hydro-electric power after the mid seventies, and the region will thereafter be required to rely exclusively on thermal power for base load power. It is easily seen that a Middle Snake project should be developed during this time period. The question is not whether there is a need for the power, but rather whether economically desirable hydro-electric power should remain undeveloped.

The Middle Snake River represents a large, highly attractive resource of the people of the region. Its multipurpose development will serve to conserve and enhance the best and highest public uses of its water and related land resources.

ATTACHMENT A.—CHRONOLOGY OF HIGHLIGHTS OF FEDERAL POWER COMMISSION PROCEEDINGS RE MIDDLE SNAKE RIVER DEVELOPMENT

1954: PNPC filed application with FPC for permit to investigate Pleasant Valley—Low Mountain Sheep.

1956: FPC hearings in Oregon, Idaho and Washington, D.C.

1957: FPC Examiner recommends license be issued for Pleasant Valley—Mountain Sheep project.

1958: FPC denies license. PNPC files amended application for High Mountain Sheep project.

1960: WPPSS files application for proposed Nez Perce project. Consolidated FPC hearing on both applications commences.

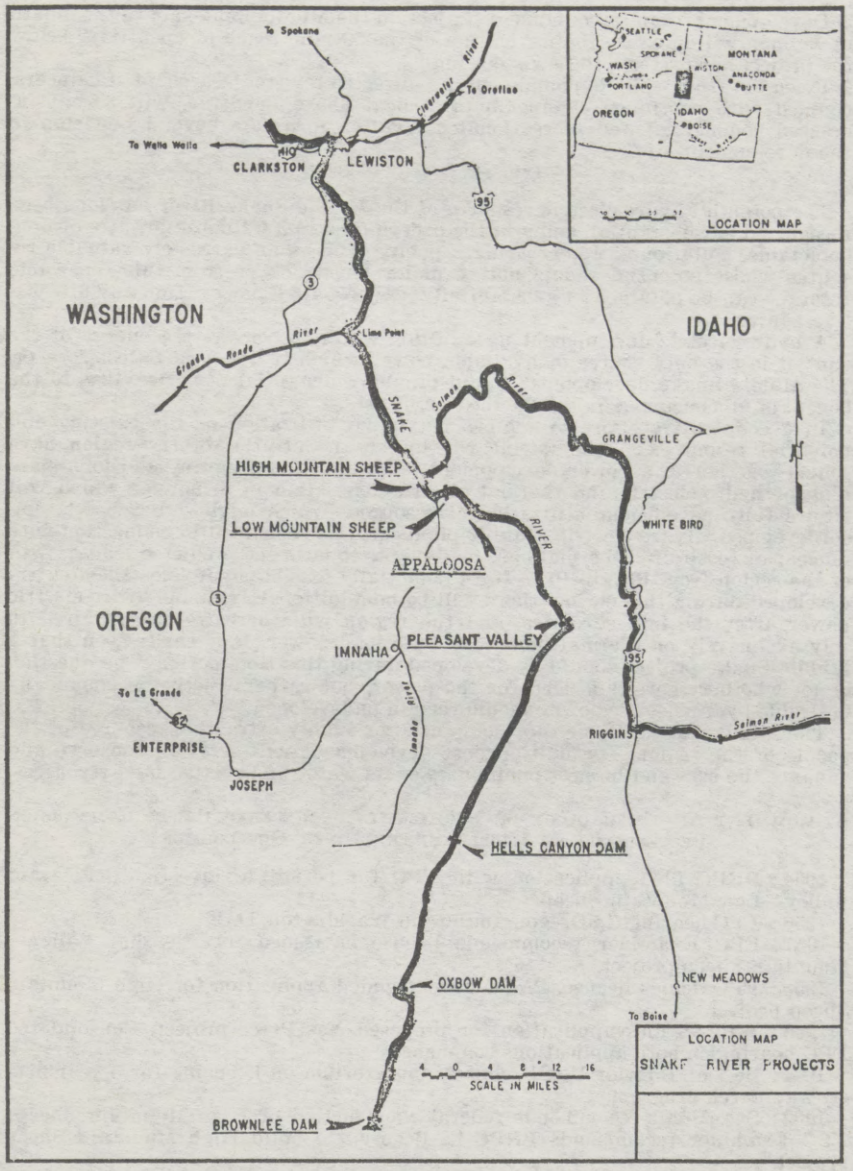
1961: Sec. of Interior Udall requests moratorium on licensing for 5 year fisheries research program.

1962: Sec. Udall recommends federal construction of High Mountain Sheep; FPC Examiner recommends PNPC be licensed to build High Mountain Sheep project.

1964: FPC issues license to PNPC for High Mountain Sheep project.

1966: U.S. Court of Appeals affirms FPC license to PNPC for High Mountain Sheep project.

1967: U.S. Supreme Court remands case to FPC.
1968: PNPC and WPPSS file joint application wth FPC; Secretary Udall recommends Federal construction of Middle Snake development; Idaho Water Resources Board applies for preliminary permit to study proposed Appaloosa-Mountain Sheep development; Interior, PNPC and WPPSS agree to federal non-federal development of Middle Snake project; and Interior proposes federal construction of Middle Snake development and a non-federal financing thereof.
1969: Interior concludes against federal construction.
1970: Filing of rebuttal testimony and exhibits and cross examination at FPC.



ATTACHMENT B.—STUDIES, ANALYSES, AND SUPPORTING MATERIALS UNDERTAKEN SINCE THE SUPREME COURT'S DECISION OF 1967 AND FILED WITH THE CLERK OF THE SUBCOMMITTEE[1]

I. Summary description of all materials submitted to FPC.
II. Summary of testimony presented by PNPC and WPPSS.
III. List of exhibits submitted by PNPC and WPPSS.
IV. Copies of License Application Amendments, testimony, and exhibits submitted by PNPC and WPPSS.
V. Study Re Diversion of Salmon River Water to Southwest Idaho and Southeast Oregon.

ATTACHMENT C.—LIST OF MAJOR STUDIES AND REFERENCE MATERIAL PREPARED PRIOR TO 1967

1933: H.D. 16—Columbia and Snake Rivers, Oregon, Washington, Idaho, 64 pages, tables, map.
1934: H.D. 190—Snake River and Tributaries, 135 pages, maps, tables.
1934: House Rivers and Harbors Committee Hearings—GPO, 1934, Columbia and Snake Rivers, Oregon, Washington, and Idaho.
1937: Bonneville Power Administration . . . Water resources available to the Hells Canyon Project, 1 volume, figures, charts, tables, maps.
1938: H.D. 704—Columbia and Snake Rivers, Oregon, Washington, Idaho, 43 pages, tables, maps.
1941: H.D. 452—U.S.F.D. report, preliminary examination and survey of Snake River (mainstem 27 pages, maps).
1941: H.D. 457—Report on Palisades dam projects near Idaho Falls, Idaho, 19 pages, maps.
1941: House hearings before Committee on Rivers and Harbors—Snake River, Oregon, Washington, Idaho.
1942: U.S. Engineer Department—Internal unpublished report titled, "Snake River Reconnaissance Report, Middle Snake, Salmon and Clearwater Rivers," April 15.
1944: House hearings before Committee on Rivers and Harbors—Snake River, Oregon, Washington, Idaho.
1946: Bureau of Reclamation—Columbia River Basin, Comprehensive Plan for Development of Water and Other Resources, Present and Potential, 540 pages.
1946: U.S. Bureau of Reclamation—Water Supply for Palisades Reservoir Project, 182 pages, maps, charts, tables.
1947: U.S. Engineer Department—Interim Report No. 3, "Hells Canyon Dam, Snake River," 3 volumes.
1947: U.S. Engineer Department—Special Report on Selection of Sites, Lower Snake River, 2 parts, tables, charts.
1947: U.S. Engineer Department—Internal unpublished Interim Report No. 3, titled, "Mountain Sheep Dam", December 22.
1948: Bureau of Reclamation—Hells Canyon Project, 1 volume.
1948: U.S. Engineer Department—1948 Flood Report, Columbia and Snake Rivers, 24 pages.
1948: Bureau of Reclamation—Cambridge Branch Project, Idaho, 1 volume.
1948: Smithsonian Institution—Snake River Basin Authority Antiquities of Ice Harbor, Lower Monumental Little Goose, Lower Granite Reservoirs, 23 pages.
1948: House Report No. 1296—Snake River Water Compact.
1948: U.S. Engineer Department—Lower Snake River Project Hearing Report, 24 pages.
1949: Bureau of Reclamation—Minidoka Project, Boise, Idaho, 1 vilume.
1949: Bureau of Reclamation—Upper Star Valley Project, Wyoming, 1 voume.
1950: Public Law 464—Snake River Water Compact.
1950: H. D. 473—Bureau of Reclamation Columbia River Study.
1950: House Report No. 1743—Snake River Compact.
1951: Bureau of Reclamation—Hells Canyon Project, 1 volume.
1951: H. D. 720—Bureau of Reclamation Palisades Dam and Reservoir Project, Idaho, 1 volume.
1952: Columbia Basin Interagency Commission—Snake River Streamflow Depletion, 45 pages.

[1] (Due to the voluminous nature of the studies undertaken since June 1967, the items listed have been filed with the Clerk and are in the committee files.)

1952: House Interior and Insular Affairs Committee—Hearings on Snake River and Hells Canyon Dam.
1952: Bonneville Power Administration—Snake River Basin Area Power Requirements, 46 pages.
1952: U.S. Engineer Department—Columbia River and Tributaries, 8 volumes.
1952: U.S. Engineer Department—Review of Plans for Hells Canyon Development, 31 pages.
1953: Bonneville Power Administration—Comparison of U.S.B.R. and Idaho Power Co. proposed developments, 90 pages.
1953: Bureau of Reclamation—Depletion of Snake River Flows, 34 pages.
1953: Bureau of Reclamation—High Hells Canyon and alternates, Power Production and Costs, 28 pages.
1953: U.S. Engineer Department—Middle Snake River aBsin, 175 pages.
1954: Bureau of Reclamation—Mountain Sheep Division, Snake River Project, 1 volume.
1955: House Interior and Insular Affairs Committee—Hearings on Hells Canyon Dam.
1955: S. D. No. 51—Middle Snake River, 243 pages.
1955: Senate Interior and Insular Affairs Committee—Hearings on Hells Canyon Dam.
1955: Bureau of Reclamation—Guffey Unit, Snake River Project, Idaho, 1 volume.
1955: Bureau of Reclamation—Minidoka Project, Snake River, Idaho, 1 volume.
1955: Bureau of Reclamation—Special Report on Upper Snake River Basin, 66 pages.
1955: Bureau of Reclamation—Hillcrest Unit, Snake River, Idaho, 1 volume.
1955: Bureau of Reclamation—Scriver Creek Power Facilities, Payett Unit, Snake River, 12 pages.
1956: Bureau of Reclamation—Mountain Sheep Division, Snake River Project, Idaho, Oregon, 1 volume.
1956: Bureau of Reclamation—Special Report on Pleasant Valley Unit (High), October.
1957: H. D. No. 41—Hillcrest Unit, 68 pages.
1957: H. D. No. 147—Burns Creek Dam, Palisades Project, Idaho, 57 pages.
1957: Senate Interior and Insular Affairs Committee—Hearings on Burns Creek Dam and Powerplant.
1957: Senate Interior and Insular Affairs Committee—Hearings on Hells Canyon Project.
1957: Senate Report No. 324—Construction, operation, and maintenance of Hells Canyon Dam, 98 pages.
1958: Oregon Water Resources Board—Snake River Study, Interim Report, maps, charts, tables, 1 volume.
1958: U.S. Engineer Department—Water Resources Development of the Columbia River Basin, Snake River.
1958: Bureau of Reclamation—Garden Valley Division, Snake River, Idaho, tables, maps, 1 volume.
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1959: U.S. Geological Survey—Summary of waterpower resources of the Pacific Northwest, Snake River, Oregon, 10 pages.
1960: Bureau of Reclamation—Review Report of Columbia River and Tributaries, Upper Snake River Basin, Boise, Idaho, 2 volumes.
1960: Bureau of Reclamation—Upper Snake River Basin, Wyoming, Idaho, Utah, Nevada, Oregon.
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1962: Bureau of Reclamation—Snake River Recharge Project, Idaho, 1 volume.
1963: U.S. Geological Survey—Gross theoretical waterpower, Snake River Basin, Wyoming, Idaho, Nevada, Oregon, Washington, 42 pages.
1964: Bureau of Reclamation—Snake River Project, Idaho, Mountain Home Division, Guffey, Long Tom and Hillcrest units, 1 volume.
1964: Bureau of Reclamation—Snake River Project, Idaho, Garden Valley irrigation division, Montour unit, 1 volume.

1964: Department of Conservation—Snake River, Power Utilization, Public issues, Hells Canyon versus Nez Perce, Washington, 138 pages.
1964: Crithfield, June—*Of Yesterday and the River*, 110 pages.
1965: Bureau of Reclamation—Snake River Project, Idaho, Oregon, Report Summary, 27 pages.
1965: Bureau of Reclamation—Snake River Project, Idaho, Oregon, 1 volume.
1968: Department of Interior—Resource Study of the Middle Snake, 1 volume.

ATTACHMENT D

"The Great Mountain Country of the West," a recreation concept for Middle Snake development—the material referred to could not be reproduced and was retained in the committee files.

STATEMENT OF AMERICAN PUBLIC POWER ASSOCIATION

American Public Power Association is a national service organization representing more than 1,400 local public power systems in 47 States, Puerto Rico, the Virgin Islands, and Guam. The electric utilities served by APPA comprise the second largest segment of the industry, serve about 30 million people, and possess a net plant investment of approximately $9 billion.

APPA supports development of the Middle Snake River between Idaho and Oregon as proposed in the license application filed with the Federal Power Commission as Project No. 2273 by the Washington Public Power Supply System and the Pacific Northwest Power Company.

APPA opposes S. 940 which, if enacted, would prohibit FPC from issuing a license for Project No. 2273 for a period of 10 years.

A resolution on this subject approved by the APPA Legislative and Resolutions Committee at its most recent meeting January 20–21, 1970, in Washington, D.C., states:

Whereas, continued economic progress and a quality life for the nation's people requires development of electric energy resources in keeping with sound total public interests, and

Whereas, hydroelectric development produces the cleanest form of energy and conserves valuable water resources, thus contributing to a better environment, and

Whereas, one of the major remaining stretches of falling water suitable for development is in the Middle Reach of the Snake River, and

Whereas, the only pending opportunity for such development of this valuable resource for energy and other public benefits is through a license application currently being heard and processed by the Federal Power Commission; Now, therefore, be it

Resolved, That the American Public Power Association endorses development with the fullest participation by local public power utilities of the energy resources of the middle stretch of the Snake River under a Federal Power Commission license to the fullest extent possible in keeping with the comprehensive use of the water resource including installation of adequate facilities to protect fish resources and to provide broad public recreational opportunities by such development.

In connection with testimony on S. 940 on February 16, APPA wishes to submit the following comments for consideration by the subcommittee:

1. *Power from a Middle Snake River project is needed in the region.* Loads and resources studies show a need during the 1970s for generating capacity in excess of that available from hydroelectric facilities in existence, under construction, or scheduled, not including development of the Middle Snake River. Availability of an abundance of reliable, low-cost electricity has historically represented a major economic advantage to the Pacific Northwest. Full development of the few remaining economically and technically feasible hydroelectric projects is essential to insure continuation of this benefit. Development of the Middle Snake River reach has special values in this connection:

a. Analysis of alternatives, including use of nuclear and fossil fuels, reveals that a Middle Snake Project offers power with costs over the long term which are less than thermal and comparable to current rates of the Bonneville Power Administration.

b. Projections suggesting that development of the Middle Snake River is not required in the decade of the 1970s are based on the assumption that expansion

of generating capacity at existing dams and construction of proposed fossil and nuclear fuel facilities will proceed as scheduled. However, this assumption is questionable.

c. In recent months, there have been major slippages in the schedule for the installation of additional generating units in existing Federal dams in the Pacific Northwest. The reason for this slow-down was a tight budgetary situation. The result contributed to power shortages in the Pacific Northwest in 1969. Further financial restraints in the form of inadequate appropriations could mean future brownouts and blackouts in the region. As the Bonneville Power Administration's 1969 annual report states: "We are approaching a serious power supply supply situation in the Pacific Northwest over the next five years. Repeated delays in generator unit installation schedules at key Federal hydro projects in the region will result in utility loads outstripping resources during the years 1970–75." A BPA table, a copy of which is attached, shows power deficits for the next five years, and dropping of firm loads during the period is planned. The BPA annual report declares: "The situation is even more alarming that suggested by the table. Any significant delay in installation schedules of Federal generation will compound the seriousness of the problem and force additional firm loads to be cut off under adverse circumstances." The problem of slippages could continue beyond the five-year period.

d. Between 1974 and 1991, the Pacific Northwest will require steamplants to meet base load at an average of more than one 1,000,000 kilowatt plant a year.

Many nuclear plants—on which the Pacific Northwest is expected to rely heavily after 1974—have failed to come on-line as called for by pre-construction timeables and have producer power at costs above those anticipated.

A survey by the Federal Power Commission of 85 large steam generating units of 200 mw and over, installed in the period 1966–1968, showed that about two-thirds of the total were delayed in being put into service; all four nuclear units scheduled for installation during the 1966–68 period were delayed for periods of three, nine, 11 and 12 months, respectively.

During the period 1969 through 1976, 125 fossil-fired steam electric generating units and 65 nuclear units of 300 mw capacity and over are scheduled for initial service; as of the fall of 1969, 23 of the nuclear units totaling 18,630 mw were reported as being delayed, five by as much as 16 months or more.

Tabulations showing the situation in more detail are attached to this statement.

The cost of nuclear power is also escalating. An analysis prepared for the Joint Committee on Atomic Energy by Philip Sporn, former head of American Electric Power and an internationally known power production expert, and released in January, 1970, indicated that the cost of power from a 1,100,000 kilowatt nuclear plant completed in 1976 with private financing has risen to in excess of seven mills per kilowatt-hour—twice the bus-bar price estimated five years ago for an atomic station half the size and thus lacking the same economies of scale.

This Sporn figure compares with an average of 2.39 mills per kilowatt-hour for sales by the Bonneville Power Administration in fiscal year 1969, exclusive of capacity sales and other revenues. By class of customer, the average revenue per kilowatt-hour for BPA was: aluminum industry, 2.03 mills; other industries, 2.22 mills; private power companies, 2.21 mills; public agencies, 2.92 mills; Federal agencies, 2.44 mills; and sales of surplus energy outside the Pacific Northwest, 2 mills.

The Sporn analysis also indicated that realistic capacity factors for nuclear power plants are lower than those frequently used in economic evaluations made in advance of construction and operation, i.e., 75% as opposed to 80%.

Sporn pointed out that: "Seven mill nuclear power at the switchboard at 75% capacity factor is simply not good enough to heat water, to heat houses, to make electric steel or ammonia or chlorine, to reduce alumnia to aluminum, to smelt ferroalloys, to desalt sea water, and to convert to electricity the many other energy operations our society needs to have done so as to eliminate environmental pollution. By electrifying we make possible elimination of combustion of fuels except in large-scale, highly regulated and controlled fossil-fueled operations. Of course, atomic reactors take care of this matter even better. Inevitably, these higher costs bring about the unavoidable reaction in the form of higher rates. Higher rates are anti-dynamic and growth hindering; they retard the conversion of our energy uses into the electric form."

e. "A number of equipment failures and operating problems during the year indicated our preventive maintenance program also has slipped below acceptable

standards," the BPA 1969 fiscal year report stated. "Consequences so far have been minor. Nevertheless, it is apparent we have been handicapped in attempting to achieve satisfactory maintenance standards by not having enough personnel to accomplish all the work that should have been done."

f. In addition to problems associated with slippage of new generating units at Federal dams and deficient maintenance due to inadequate funding, and delays and cost boosts for nuclear projects, serious siting difficulties exist for both planned hydro and thermal facilities. For instance, conservationists and others have expressed opposition to the Asotin project, which would have a capacity of 540,000 kilowatts and is included as a resource in BPA's 20-year advance program, and to several of the 1,000,000 kilowatt atomic stations which are scheduled as part of the first phase of the hydro-thermal accord. Such opposition could delay or kill construction of these scheduled projects.

g. On the "load" side of the equation, events can out-run resources. BPA reported in 1969 that during two months, the region experienced unusually heavy power demands occasioned by exceptionally low temperatures. All available generation was employed and as much as 700,000 kilowatts was imported, but it was still necessary to curtail up to 400,000 kilowatts of interruptible industrial loads during peak periods on the coldest days—the first time since 1957 that actual load curtailments were necessary because there was insufficient power available from other utilities to displace curtailed interruptible loads.

h. Accelerated snowmelt and early runoff from a warm spring led to abnormally low streamflows in the Pacific Northwest by midsummer at the start of the 1969 fiscal year, BPA stated, noting that: "A severe shortage of hydro energy developed." It became necessary to halt exports of surplus energy, cease secondary energy sales to public and private utilities and for interruptible industrial loads, and to cut back sales of provisonal energy to industry to 60% of load.

i. All of these facts dramatize the problematical nature of assumptions concerning resources to supply electric load. BPA described the tenuous situation in this fashion in December, 1969:

"For example, because of air pollution problems in the Los Angeles basin, it is now uncertain that Southern California Edison will be able to advance construction of its Huntington Beach thermal plant six months ahead of its own needs. This will deprive the Northwest of 790,000 kilowatts we expected to import over the Intertie in the winter of fiscal year 1974. Without this import, the projected January 1974 peak deficit will approach two million kilowatts.

"Any combinatoin of adverse events—a harsh winter, unanticipated load growth, delay in installation schedules, unscheduled generator outages, or critical hydro conditions—coulld leave the region vulnerable to serious power shortages. Makeshift emergency arrangements to secure power from outside the region are being explored. Whether or not we will be successful in making such arrangements is uncertain.

'Much of this bleak short-run outlook stems from the very long lead time required for construction of hydroelectric projects and large modern steamplants. When generator installation schedules are slipped, it becomes difficult or impossible to accelerate construction of alternative resources to meet forecasted loads. Power shortages result."

If the suggested short-run troubles plague the region after the middle of the 1970's, one of two things will happen, BPA Administrator H. R. Richmond predicted: "Either (1) the region's forecasted power requirements would not be met or (2) loads would be met but at excessively high costs to society."

Insertion of a Middle Snake Project into the planned resources for the 1970's would protect the Pacific Northwest—electrically, economically, and environmentally.

In a report on "Hydroelectric Power Evaluation" issued in 1968, the Federal Power Commission observed that:

"Hydroelectric powerplants have many distinct advantages over thermal plants. Operation and maintenance costs are relatively low, and in many instances the plants can be designed for automatic or supervisory control from a remote location. They have long life and low depreciation expenses. Unscheduled outages are less frequent and downtime for overhaul is of short duration because hydroelectric machinery operates at relatively low speeds and temperatures, and is relatively simple. A hydroelectric unit is normally out of service about two days per year due to forced outages and about one week for scheduled maintenance.

The average outage rates of modern steam-electric units are several times greater."

FPC also pointed out that hydroelectric projects do not consume water, contribute to air pollution, or add heat to rivers and streams.

It was suggested during hearings on S. 940 that exotic forms of energy production offer similar advantages and represent an alternative. Use of solar power was specifically mentioned. In that respect, it is pertinent to cite the testimony of Dr. Lee DuBridge, Science Advisor to the President and Director of the Office of Science and Technology, on October 28, 1969, before the Joint Committee on Atomic Energy, during which he stated:

"The direct conversion of solar power at present is an extremely expensive process because to get a large amount of power one has to use an enormous area in which to collect the sunlight. This requires an enormous installation covering acres or miles of territory; therefore, it is extremely inefficient and very expensive by any techniques that are known at the present time. It is simply that a large area has to be covered.

"The total amount of solar energy falling on the earth is colossal, but the amount falling on a small area of the earth is not so imposing and to recover it efficiently is extremely difficult and expensive.

"It has been done on a small scale and for individualistic purposes it is possible and even in some cases economical. But these are all very small-scale enterprises."

Ability of publicly and privately-owned electric utilities in the Pacific Northwest to maintain reliable service is dependent upon maintenance of adequate generation reserves. While strengthened interregional transmission links provide opportunity to utilize surplus capacity in other areas for this purpose, the Pacific Northwest requires internal backup sources of power to meet emergencies. Hydropower is uniquely suited to handle the task.

In connection with its investigation of the Northeast Blackout of 1965, the Federal Power Commission found that systems which had access to hydroelectric power were among the first to restore service. FPC observed and recommended the following:

"Our preliminary investigation makes clear that the type and distribution of generating reserves available may be as important as the amount, insofar as emergency use is concerned. The utilities in the CANUSE area must make a more sophisticated evaluation of the time factor involved in the utilization of spinning reserves to emergency demands. Hydroelectric generation (including pumped storage), and other generation with quick starting and load pickup characteristics, are better capable of absorbing sudden increases in load than steam power stations which have slower rates of production increases. We recommend that the factor of quick responsiveness in the event of emergency should be given due consideration in the evaluation of alternative generating projects."

The Bonneville Power Administration, reporting to the Senate Commerce Committee on the subject of the Northwest Blackout of 1965, pointed out that "Our primary source is hydroelectric generation rather than steam, and is less vulnerable to system disturbance."

In its 1968 report on "Hydroelectric Power Evaluation", FPC reiterated its endorsement of the emergency benefits of hydroelectric power, stating: "The ability to start quickly and make rapid changes in power output makes hydroelectric plants particularly suitable for carrying peak loads and for assisting in the supply of spinning reserve. If operating at less-than-full-load they are, in most cases, able to respond very rapidly to sudden demands for increased power. Their utility for supplying starting power to steam-electric plants following a major power failure has been demonstrated on several occasions in recent years."

Construction and operation of a major hydroelectric project on the Middle Snake River would aid in insuring the reliability of electric service to the entire Pacific Northwest. This fact is given added emphasis by the finding of the FPC in December, 1969, that in all regions but one, the estimated reserve margins for the current winter exhibited a substantial increase over those estimated for last summer. The only exception was the West region, which is a winter peaking region and where reserves dropped 5.5% from a 27% estimated reserve for last summer.

2. *Development of the Middle Snake River offers significant recreation opportunities.* FPC requirements and the applicants' plans are designed to insure that this potential is realized.

The mass of Americans seek more family, water-based outdoor activities. The Outdoor Recreation Resources Review Commission, in its report to the President and Congress in 1962, found that water is the focal point of outdoor recreation. "Most people seeking outdoor recreation want water—to sit by, to swim and to fish in, to ski across, to dive under, and to run their boats over," the ORRRC report stated.

With respect to recreation at Federal reservoirs, the Commission reported. "The use of reservoir areas for outdoor recreation is already extensive. Corps of Engineers reservoirs received 109 million visitor-days in 1960. Public visits to 64 reservoir areas administered by the Bureau of Reclamation were almost 23 million in 1959. The TVA reservoirs had 42 million visitors in 1960. *These figures exceed attendance at national parks and national forests combined.* The over-all rate of growth in the use of all national reservoirs for recreation has been over 10% annually—a doubling of visitor-days every five to seven years. The growth of visitor use at reservoirs in the Southwest from 1950 to 1958 was 159%." (Emphasis supplied)

In 1968, Corps of Engineer project reservoirs had attendance in excess of 227 million visits and Bureau of Reclamation reservoirs recorded 49.5 million visitor-days of use. TVA reservoirs attracted 44.3 million visitors in 1968 (the figure was down from the previous year due to a change in the method of counting).

FPC reported in 1969 on recreational facilities available at 515 reservoir-lakes at Commission-licensed projects with a total water surface of 1.8 million acres and almost 21,000 miles of shoreline.

The attached articles dramatize development of reservoir recreation use at both Federal and non-Federal reservoirs, including economic benefits to the surrounding area.

Figures released by the Bureau of Reclamation in October, 1969, covering current recreational use of reclamation reservoirs, give a breakdown of the use of these bodies of water. The statistics show that 48% of the visitations were by local residents in Western states; the remainder were tourists from all over the United States and foreign countries.

Lake Mead, behind Hoover Dam on the Colorado River, continued to attract the most visitors, climbing from 4.7 million visitor-days to 5.4 million visitor-days—a 14% increase over 1967. (The Bureau reported in February, 1969, that the Lake Mead Recreation Area "is the largest most heavily visited recreation area in the National Park System".)

Jackson Lake Dam and Reservoir in Toton National Park in Wyoming, a water storage facility of the Bureau's Minidoka Project, was the second most popular reservoir with 3.4 million visitor-days. Folsom Lake in California was third with 2.4 million visitor-days.

During 1968, as in previous years, the largest recreation activity at Bureau recreation areas was sightseeing (19.3 million), followed by fishing (8.5 million), camping (6.0 million), picnicking (5.5 million), boating (3.7 million), swimming (2.7 million), water skiing (2.3 million), hunting and other activities (1.5 million).

According to the report, during the decade that recreation statistics have been published, total visitor-days at Bureau project facilities, principally reservoirs, has increased 154%.

Reservoir recreation supports economic growth, Bureau studies show. For instance, an economic impact analysis of recreation at three Colorado-Big Thompson Project reservoirs reported in 1969 that the reservoirs generate about $4.9 million worth of expenditures annually and that recreation-related property values have increased $8.1 million over a 22-year period.

The use of Colorado River Storage reservoirs for recreation purposes continued its general upward trend during 1968, Secretary of the Interior Walter J. Hickel noted in the 13th annual report on the CRSP for fiscal year 1969. There were 3,254,757 visitor-days at the 12 Colorado River Reservoirs in 1968 as compared to 2,938,700 visitor-days in 1967, he observed, a 10.5% increase.

Tables showing CRSP visitation by reservoir and fishery statistics are attached.

One of the reservoirs where the 1968 increase was mainly felt was Lake Powell behind Glen Canyon Dam, Secretary Hickel said. As a Bureau spokesman has stated:

"Despite their former opposition, I believe that even the dedictaed diehards among the 'status quo' conservationists would be unable to sustain their argument that the Glen Canyon development has 'destroyed' the beauty of Glen Canyon. Lake Powell has changed the environment. But I will not accept the premise that change in scenic values is always negative. The famed Glen Canyon and its environs, including Rainbow Bridge National Monument, have not been destroyed. Quite the contrary—the area has been enhanced for public use and enjoyment. . . . And, even more important perhaps, is the fact that the lake has made it all accessible to thousands who would have been denied the opportunity to see its splendors if those who criticized the project had had their way."

Development of the Middle Snake River would similarly allow thousands of citizens to view the rugged canyon country of the Middle Snake River—while leaving untouched the basic character and color of the gorge.

3. While the Department of the Interior has indicated its support of S. 940, Secretary of the Interior Walter J. Hickel has stated that if the FPC decides to license a dam on the Middle Snake River, it should meet the following conditions:

a. Any dam would be a multipurpose project.

b. Strict standards would be set to assure proper stream flow, water quality controls, enhancement of fish habitat, and protection of all wildlife, recreation, and environmental values.

c. Full coordination with downstream Federal projects would be provided, without payments, offsets, or credits to be paid by the Federal government for downstream benefits.

d. At the end of the 50-year license period, a portion of the reservoir capacity would be used for irrigation purposes, if economically feasible, for southwestern Idaho and eastern Oregon.

It is APA's understanding that applicants for Project No. 2273 have indicated their willingness to accept these conditions.

For the reasons stated in the previously cited resolution and because of the need for the power potential of the Middle Snake River, the recreation opportunities which development of the river offers, and the willingness of applicants to carry out the conditions specified by the Secretary of the Interior, S. 940 should be rejected and the FPC allowed to complete the licensing proceedings now underway.

[Enclosure]

PEAKLOADS AND RESOURCES WEST GROUP AREA

(Thousands of kilowatts)

	1970–71	1971–72	1972–73	1973–74	1974–75
Loads	20,159	21,472	22,777	24,076	25,449
Resources	19,734	20,992	21,757	22,922	24,840
Deficit	(425)	(480)	(1,020)	(1,154)	(609)

Source: 1969 Annual Report, Bonneville Power Administration.

DELAYS IN SCHEDULES OF STEAM-ELECTRIC GENERATING UNITS, 1966–68

	Number of units affected by years		
	1966	1967	1968
Status of units:			
Units delayed	12	25	18
Units on schedule	3	3	4
Units ahead of schedule	5	3	12
Total number	20	31	34
Causes or contributing causes of delays: [1]			
Labor related:			
Shortage of construction labor	4	7	5
Reduced labor productivity		1	
Strikes	2	4	10
Subtotal	6	12	15
Other causes:			
Equipment failure of faulty installation of equipment	4	10	4
Late delivery of equipment	1	7	5
Inability to obtain necessary certifications and other regulatory impediments		1	3
Adverse weather	1	1	
Planned deferments due to changes in load estimates		3	
Subtotal	6	22	12
Total	12	34	27

[1] The same unit may be reported as delayed by more than 1 cause. Therefore, the sum of causes for delay may exceed the total number of units delayed.

Source: Federal Power Commission.

SUMMARY OF CAPACITY SCHEDULED AND DELAYS IN COMPLETION

	1966	1967	1968
Capacity scheduled (megawatts)	7,632	14,468	14,974
On or ahead of schedule, percent	39	19	46
1-to-3-month delay, do	42	34	42
4-to-6-month delay, do	3	23	9
7-to-9-month delay, do	5	9	0
10-to-12-month delay, do	11	9	3
Over 12-month delay, do	0	6	0

Source: Federal Power Commission.

STEAM-ELECTRIC GENERATING UNITS, 300 MEGAWATTS AND LARGER, SCHEDULED FOR SERVICE DURING THE YEARS 1969–76

FOSSIL-FIRED UNITS

	Number of units	Megawatts	Percent of total
On schedule	84	51,614	68.4
Delayed 1 to 3 months	10	6,101	8.1
Delayed 4 to 7 months	7	3,854	5.1
Delayed 8 to 10 months	1	790	1.0
Delayed 11 to 15 months	5	2,474	3.3
Subtotal, delayed	23	13,219	17.5
Advanced 1 to 3 months	11	6,493	8.6
Advanced 4 to 7 months	7	4,106	5.5
Subtotal, advanced	18	10,599	14.1
Total	125	75,432	100.0

NUCLEAR UNITS

On schedule	37	33,315	59.1
Delayed 1 to 3 months	4	3,122	5.5
Delayed 4 to 7 months	4	2,625	4.7
Delayed 8 to 10 months	6	4,565	8.1
Delayed 11 to 15 months	4	4,398	7.8
Delayed 16 months or more	5	3,920	6.9
Subtotal, delayed	23	18,630	33.0
Advanced 1 to 3 months	4	4,000	7.1
Advanced 10 months	1	455	.8
Subtotal, advanced	5	4,455	7.9
Total	65	56,400	100.0

Source: Federal Power Commission.

VISITATION, BY RESERVOIR

	1962	1963	1964	1965	1966	1967	1968
Flaming Gorge	247,490	400,458	571,213	803,667	1,218,833	1,553,141	1,467,640
Lake Powell	321,322	443,061	688,608	960,425	636,574	587,625	883,406
Paonia	8,620	19,101	17,115	4,092	5,110	5,360	6,730
Crawford		16,837	43,850	49,803	64,496	68,715	48,584
Navajo		131,935	196,612	161,343	230,989	419,005	355,143
Steinaker		21,000	17,900	13,050	17,209	8,000	21,000
Lemon			1,396	15,274	46,150	49,500	43,541
Fontenelle				7,005	832	951	3,650
Joes Valley						48,177	59,700
Huntington North						5,000	20,000
Blue Mesa					5,000	182,700	306,870
Rifle Gap						10,526	38,493
Total	577,432	1,032,392	1,536,694	2,014,659	2,235,193	2,938,700	3,254,757

FISHERY STATISTICS

	1963	1964	1965	1966	1967	1968
Flaming Gorge:						
Fish planted	3,738,497	4,690,135	1,619,475	1,733,717	2,909,600	2,300,000
Fish caught		676,686	820,657	822,865	800,773	641,291
Glen Canyon:						
Fish planted	5,450,000	5,795,355	3,658,200	2,126,000	622,100	200,000
Fish caught		29,090	75,630	129,960	62,500	91,330
Navajo:						
Fish planted				6,000,000	1,893,500	1,906,000
Fish caught				13,000	526,000	645,000
Curecanti:						
Fish planted				2,353,000	3,375,000	2,000,000
Fish caught				10,000	144,000	258,000
Total:						
Fish planted	9,233,497	10,485,490	5,277,675	12,212,717	8,800,200	6,406,000
Fish caught	0	705,776	896,287	975,825	1,533,273	1,635,621

Source: 13th annual report Colorado River storage project and participating projects for fiscal year 1969.

Recreation Grows on Hydro Lakes

(By Virginia Reid, assistant managing editor, Public Power)

FEDERAL AND LOCAL PUBLIC POWER PROJECTS ATTRACT MILLIONS OF VISITORS

A former Governor of Oklahoma once called the U.S. Army Corps of Engineers' Denison Dam "the biggest folly ever proposed," and one of his successors threatened to call out the National Guard to stop construction. Both lived to see the birth of a new lake behind the dam which brings close to seven million visitors and some $17 million every year.

The lake is Lake Texoma, on the Texas-Oklahoma border, the biggest drawing card of any Corps of Engineers reservoir—6.5 million visitors in 1961 and still going strong.

It could be almost any large dam—Federal, State or local—which floods farm lands and otherwise changes the geography of an area. Opposition is customary—from farmers whose land is to be flooded; from local governments wary of seeing productive land removed from the tax rolls; from preservationists who object to any embellishment of nature; and, in the case of hydro-electric dams, from private power companies which are fearful of a public power "yardstick."

The power, water supply, flood control and navigation benefits of a multipurpose project, over the years, tend to convince the doubters that a new project brings economic benefits. But, increasingly, it is the surge of water recreation, with its unexpectedly large cash influx, which is the most immediate friend-maker for storage dams.

A MULTI-MILLION-DOLLAR BUSINESS

Water recreation is a multi-million-dollar business today, and lakes, man-made or otherwise, provide an ideal site for this growing activity.

The Corps of Engineers, Bureau of Reclamation, and Tennessee Valley Authority have discovered the value of water recreation on reservoirs and encourage the development of camp and picnic grounds, boat launching facilities, cottages, hotels and motels, on reservoir shorelines. Local public agencies have been equally quick to capitalize on their reservoirs, built for hydroelectric power on water storage.

TVA has been a pace-setter in working with local communities and state agencies in developing the spectacular water resorts of the Tennessee Valley, which attracted a total of 45 million visitor-days in 1962.

Although the TVA Act did not mention the word "recreation," it did authorize the TVA Board to "aid further the proper use, conservation and development of the natural resources of the Tennessee River drainage basin . . .", and that was all the Board needed to put a small recreation staff to work in Knoxville shortly after Norris Dam was begun in 1933. At a time when many engineers could not even agree that power and flood control were compatible purposes of a dam and reservoir project, the TVA gave full top-level support to the concept that recreation is a real and valuable by-product of reservoir construction.

TVA's 25 multipurpose dams have over half a million acres of water and 10,000 miles of shoreline, providing a setting for truly large-scale effort, both by the Federal Government and by states and local agencies.

TVA WORKS WITH LOCAL AGENCIES

From the beginning, TVA placed primary responsibility for developing and administering recreation areas and facilities with agencies of state and local governments, and after a brief demonstration period, each of the Valley states had established a state park agency and several had adopted enabling legislation to permit county and municipal governments to undertake public park and recreation programs. Memoranda of understanding between TVA and the appropriate state planning agencies of Valley states were signed during the 1940's, providing for technical assistance from TVA through the states to cities and counties.

When this framework had been established, TVA began first to lease and then to transfer in fee certain portions of its reservoir shorelines for state, county and municipal parks, as well as for game management and public shooting areas, and for other recreation purposes. Amendments to the original Act have permitted TVA to convey to other Federal, state and local public recreation agencies, or to reserve for future conveyance, 231,562 acres, or almost a fourth of the land originally acquired for reservoir purposes. The Authority also has sold 147,000 acres of land considered surplus to its needs and those of other public agencies.

The results have been dramatic. Valley people have invested more than $156.5 million in recreation facilities and equipment on TVA lakes and shores. Last year alone the investment by private owners and state and local agencies in recreation facilities and improvements was some $15 million.

TVA recently calculated that 51,894 boats valued at $42 million are moored on its lakes.

The number of visitors each year has been increasing and there is no slowdown in sight.

The fast-growing interest in water recreation is requiring a new look at multipurpose reservoirs, and the Corps of Engineers is predicting that the number of visitors at Corps projects will multiply by almost three times by 1980. A staggering 700 million visitor-days is expected at Corps reservoirs by the year 2,000—almost four times as great as the present population in Continental U.S.

ARMY ENGINEERS PLAN MORE PROJECTS

In a leaflet called "New Lakes for America," the Corps sees a need for new reservoirs, and projects the present 191 major Corps reservoirs to 700 by the year 2000—one for each million expected annual visitors.

It sounds like an ambitious program, but the Corps points out that the cost to the Federal Government of developing recreation facilities at reservoirs is relatively small. Only $15 million had been spent by the Corps for recreation through the year 1960, with State and local interests spending additional sums.

Recreational opportunities can be improved at existing Army reservoirs, and incorporated from the start in future reservoir projects, for about a 5% increase in total project costs, the Corps estimates.

The Bureau of Reclamation, whose water projects chalked up 27 million visitor-days in 1962, also considers potential recreation and fish and wildlife benefits in the early planning of its dams and reservoirs.

The National Park Service's Lake Mead National Recreation Area, surrounding the Bureau-built Hoover and Davis Dams on the Colorado River, alone attracts nearly four million persons each year, and recreational use of all Reclamation projects has approximately quadrupled over the past decade.

A guide for vacationers, called "Reclamation's Recreational Opportunities," was published by the Bureau last year and shows the available facilities in 161 reservoirs, ranging in size from small projects with only one mile of shoreline to the giant in the making, Powell Lake, now being formed by the Glen Canyon unit of the Colorado River Storage Project. Powell Lake will have 1,700 miles of shoreline, and already has boating and boat rental facilities. The Park Service is the administering agency for recreation facilities at Powell and many of the other major reservoirs; in other cases, State commissions, irrigation districts and water users' associations serve as administering agencies.

Planning for water recreation will be one of the responsibilities of the newly-formed Bureau of Outdoor Recreation of the Interior Department, which is an outgrowth of the monumental report to the President by the Outdoor Recreation Resources Review Commission last year.

GROWING RECREATIONAL NEEDS CITED

The report declared that 44% of the U.S. population prefer water-based recreation activities over any others, and that recreation on the water is increasing. By the year 2000, the Commission predicted, swimming will be the most popular single outdoor recreation activity—exceeding even driving for pleasure, which now holds first place.

"As the population grows and interest in water-based recreation increases, the already heavy recreation pressures on water resources will reach critical proportions," the report said. "The problems stemming from this pressure are among the most difficult in the entire outdoor recreation field."

Commenting specifically on the recreational use of lakes created by dams, the Commission's report said: "Since World War II, there has been increasing recreation use of reservoirs. The availability of water recreation in areas that previously had little, answered a tremendous need, and this is particularly significant because these reservoirs were not built for recreation. Indeed, the restrictions on recreation planning have probably inhibited recognition of many regional recreation possibilities. In future planning for water impoundment projects, the recreation potential should be considered from the start."

Edward C. Crafts, director of the new Bureau of Outdoor Recreation, said in a recent speech that some $20 billion is spent annually by consumers of recreation in all of the multitudinous outdoor recreation activities, and he predicted a tripling of outdoor recreation needs in the next 40 years. "The hard core of activities are driving for pleasure, walking and water-based recreation," he added.

In May of this year, President Kennedy signed into law a new statute which will be, in effect, an organic act for the Bureau of Outdoor Recreation. It authorizes the Secretary of the Interior to prepare an inventory of the outdoor

recreation needs and resources of the Nation. To formulate a nationwide outdoor recreation plan, to provide technical assistance and to cooperate with the States and their political subdivisions and private interests, and to encourage interstate and regional cooperation in planning, acquisition and development of outdoor recreation.

Secretary of the Interior Stewart L. Udall hailed the new law as the "beginning of a new era of government recognition of its responsibilities for coordinated, effective nationwide planning, acquisition and development of outdoor recreational resources."

An indication of Washington's interest in developing the recreation potential of man-made reservoirs came from the Federal Power Commission last October, when the Commission announced its intention to require a plan for public recreation use of lands and waters to be filed as part of all application for licenses for hydroelectric power projects of more than 2,000 hp of installed capacity.

The Commission explained that the plan submitted must show the location of the areas and access roads proposed for camping, picnicking, bathing, boat-launching ramps and sanitary facilities, and should be prepared in cooperation with state and local agencies, and with the Federal agency having supervision in cases where lands of the United States would be affected.

Local public power agencies have been quick to see the importance of water recreation as an adjunct of hydroelectric power projects.

A recent example is Chelan County Public Utility District, Wenatchee, Wash., which is building its Rocky Reach Dam, on the Columbia River, into a major tourist attraction (see page 9).

Grant County Public Utility District, Ephrata, Wash., also is developing the recreation potential of Priest Rapids and Wanapum dams. Tours of Priest Rapids attract many visitors, and boating is encouraged on the reservoir.

FISH RESOURCES DEVELOPED

Recognizing the role of game fish in water recreation, the Eugene, Ore., Water and Electric Board has included plans for a unique salmon spawning channel in connection with Eugene's McKenzie River project. Construction of the artificial spawning facility was completed before major work on the hydro project was started (PUBLIC POWER, Jan., page 14).

The Cowlitz River project of the City of Tacoma, Wash., also will have elaborate fish facilities, and the city has provided most of the funds to replace a 20 year-old hatchery at Mossyrock.

Mayfield Lake, the reservoir behind Tacoma's Mayfield Dam, is designed to be a primary tourist attraction in southwest Washington. Mt. Rainier, Mt. St. Helens and Mt. Adams are visible from different points on the 2,250-acre Mayfield reservoir. The City has provided over 500 acres of land for a new state park at Lake Cushman, has developed a modern resort and helped to build a public boat launching area, also at Lake Cushman.

The Tacoma utility also has built public boat launching facilities at its beautiful Alder Lake and invested $227,000 in clearing the lake of debris.

Similar activities have been going on at the hydro projects of Seattle City Light, where the City has been providing low-cost tours of the scenic Skagit Project for many years. More recently, the Seattle utility has been developing the recreation potential of Ross Lake, which extends into Canada above the city's Ross Dam in the Cascade Mountains.

Last year, the U. S. Forest Service notified Seattle that the 24-mile long reservoir behind Ross Dam met the strict standards of the Service and predicted that Ross Lake "will become . . . one of the most popular scenic areas in the entire state of Washington and perhaps in the entire United States." Seattle has been conducting clearing operations for a number of years at a cost of over $3 million.

In California, the Sacramento Municipal Utility District announced plans for recreation development at the District's Upper American River project early in the construction period. Twelve lakes being created by SMUD in the Sierra Mountains will be important additions to the recreation resources of northern California's growing population.

Representatives of the Arizona Game and Fish Department, Tonto National Forest, Arizona State Parks Department, and the Maricopa County Parks and Recreation Department met recently with officials of the Salt River Project, Phoenix, Ariz., to coordinate outdoor recreation activities with Project hydro power and water operations related to the lakes on the Salt and Verde rivers. This is the sixth such meeting which has been held in as many years.

A new boat ramp will be built at Lake Roosevelt, behind the Project's original storage dam, out of funds provided by boaters in the form of a marine gas tax. The tax is collected by the State of Arizona and returned to counties on the basis of boat licenses issued in the county.

Salt River Project's six man-made lakes, along with Federal reservoirs on the Colorado River, account for a strange fact: Arizona, best known for its desert, has more boats per capita than any other state. The six lakes are: Roosevelt, formed by the Theodore Roosevelt Dam; Apache, formed by Horse Mesa Dam; Canyon, formed by Mormon Flat Dam; Saguaro, formed by Stewart Mountain Dam; Horseshoe, formed by Horseshoe Dam; and Bartlett, formed by Bartlett Dam.

A recent estimate places the recreational value of the Project's lakes to the State's economy at $20 million in a single year. Over 2 million people visit the lakes and 13,000-square-mile watershed area each year, enjoying fishing, boating, swimming, camping, water sports or picnicking.

In the Highland Lakes area of Texas, the dams of the Lower Colorado River Authority have created a new playground for fisherman, swimmers, boat enthusiasts and campers, a by-product of a series of multipurpose projects which provide water and power to a 31,000 square-mile area.

"NEW INDUSTRY" IN NEBRASKA

New recreation resources are being discovered also in southwest Nebraska, with 10,000 surface acres of water in man-made lakes. Sen. Roman L. Hruska (R., Neb.) hailed the "relatively new industry of recreation" in his State in the U. S. Senate recently. Nebraska also plans a chain of State parks in conjunction with proposed Federal impoundments in the Platte River Valley.

East of the Rockies there are many examples of local water recreation developments which have grown out of other municipal uses for water.

Famed Lake Springfield at Springfield, Ill., for many years has been providing water for municipal purposes, including cooling water for the municipal generating plant, while serving as the focal point of a municipal park and playground area. Beaches, boat docks, fishing facilities at Lake Springfield give the citizen-owners of the municipal utility system the best recreational facilities in central Illinois.

Recreation is expected to be an important part of the over-all development of the Delware River; the Power Authority of the State of New York has provided handsomely for visitors at its Niagara and St. Lawrence projects, attracting a steady stream of visitors.

This is only a sampling of what is being done now to provide recreation as a by-product of dam construction. But it points the way to greater efforts in the future to provide new playgrounds for the American people, while protecting them from floods, providing inland waterways, generating hydroelectric power, and storing water for agriculture and other purposes.

[From the New York Times, June 6, 1965]

A WATER WONDERLAND IN THE DESERT

By Dale E. Wittner

PHOENIX, ARIZ.—Visitors to Arizona often are astonished to see a station wagon, loaded with water-skis and fishing poles, pulling a trim motorboat across the desert. But increasing numbers of tourists are following such unlikely sights to a man-made water wonderland, the scope of which is beyond the dreams of even those who first began to build it in the early 1900's. The result is a new, year-round dimension to tourism here.

Until recently, Arizona's lake resources, from the 225-mile-long chain of Canyon lakes along the Colorado River to the jewel-like tarns of the central mountains, were largely overlooked by out-of-staters. These visitors were content to stay close to the dude ranches in the south during the winter, and to peer over the edge of the Grand Canyon in the summer.

Even Arizonans have had a hard time getting used to deep-blue water, boat docks and sandy beaches where not too long ago boulder-strewn gorges beckoned only hardy hikers. For example, one can now take a boat up Lake Mohave, the 67-mile-long middle link in the Colorado River chain, and explore caves that would have required an all-day trek only a few years ago.

SEVENTY ARIZONA LAKES

But with more than 70 lakes in Arizona offering nearly 350 square miles of water surface, things were bound to change. The change was speeded, in part, by reports of progress on three new lakes now forming in two widely separated parts of the state. These are Lake Powell in the north, and Parker Canyon Lake and Lago del Oro in the southeast.

In 1902, when Congress approved the National Reclamation Act, there were only two substantial water areas in Arizona. One was the muddy-red Colorado River, which twisted between canyon walls across the top of the state and down the boundary with Nevada and California. The other consisted of a few cold-water lakes in the high country near Flagstaff and Show Low.

Less than 10 years after the act was passed and Federal money appropriated for the vast Salt River project, a huge reservoir was filling behind Roosevelt Dam, 80 miles east of Phoenix. Five other dams created another string of spectacular lakes, and elsewhere, away from the state's big rivers, water continued to rise behind smaller dams.

FOUR WATER REGIONS

Today, Arizona's water resources can be divided into four parts. There are the Colorado River lakes,the Salt River lakes, the man-made lakes in the south, and the small, cold-water lakes in the north-central part of the state. The first two groups not only provide recreation, but also fulfill their original mission of supplying water for irrigation and electric power.

Along the Colorado River is Lake Mohave, which is formed by Davis Dam. The lake was dedicated in 1952. To its north, Hoover Dam backs up Lake Mead 70 miles along the Colorado. Both lakes are shared by Arizona and Nevada. Together, they form the Lake Mead National Recreation Area.

Of the two, Lake Mohave is the smallest. However, its narrow northern reaches, beginning just below Hoover Dam, offer some of the finest trout fishing in the country. Too, the warm waters behind Davis Dam have produced record bass. Where the lake widens and the warm and cold waters meet, an unusual revolving current has produced a natural feeding place that attracts both species.

MODERN FACILITIES

Modern cabins, trailer facilities, restaurants and marinas are available at Willow Beach and Katherine, on the Arizona side of Lake Mohave, and at Cottonwood Cove and Eldorado on the Nevada shore. Campgrounds, picnic areas and pebble beaches dot both shorelines, and many are accessible by car and boat. The facilities are constantly being expanded. Also at Willow Beach is a Federal rainbow trout hatchery at which daily tours are conducted.

Spectacular Black Canyon, which walls the upper lake, is famous for the desert big-horn sheep that frequently appear on rocky ledges high above the water. The cool canyon also abounds with wild burros, deer and other wildlife.

South of Black Canyon, the lake widens, and water-skiers can follow an open course that stretches 50 miles to Davis Dam. At its widest point, just below Cottonwood Cove and about 25 miles from the dam, it is four miles from the Arizona to the Nevada shore.

A few miles from the dam, on the Nevada side and directly across from Kath erine, is an extensive and well-preserved petroglyph site. Some of the rock pictures were made by Indians 1,000 years ago.

North of Lake Mohave, behind historic Hoover Dam, is Arizona's largest water playground, 115-mile-long Lake Mead. The Lake has 550 miles of shoreline, which includes sheer cliffs and broad beaches. Here, mountain tops of 30 years ago have become islands begging to be explored.

Las Vegas is only 25 miles from the base of Hoover Dam, a fact that has contributed greatly to the success of the entire Lake Mead Recreation Area.

TOURING THE DAM

The dam itself is the largest single attraction in the recreation area. Of the estimated 50 million visitors to both lakes since 1937, about 10 million have taken time out to tour inside the 726-foot-high structure.

Ultra-modern facilities of every description ring Lake Mead. Large yachts have lived and died without ever having left the emerald-green water, and thousands of boats are moored at a dozen marinas.

Lake Mead Marina, one of the largest floating marinas in the country, includes a store, restaurant and cocktail lounge. It is the home port for hundreds of boats in the lower basin of the lake.

Still, anyone seeking seclusion along the lake can have a whole beach or shady cove to himself with only a remote threat of intrusion.

SHORTEST LAKE

South of Lakes Mead and Mohave is Lake Havasu, behind Parker Dam. This is the shortest of these three lakes, being but 47 miles long. Lake Havasu's western shore is in California.

Facilities at this lake are not quite as abundant as they are at Mead and Mohave. However, Lake Havasu City, a town growing according to a carefully prepared master plan, offers food, lodging, boats and public beaches on the Arizona side.

Because it draws fewer people, Lake Havasu is used for boat racing. But the fishing remains good, and there is still plenty of room for swimming and pleasure boating.

For the first time in its million-year history, the Colorado River runs sparkling clear through the Grand Canyon. The silt content disappeared from the water last year, when the gates were opened at Glen Canyon Dam, 370 miles upstream from Hoover Dam and just below the Utah boundary.

Behind the new dam, Lake Powell is forming, and it is now 20 percent filled. The lake provides a place for the silt to settle before the river continues its course down the Grand Canyon. When the lake is complete, two-thirds of it will back into the colorful canyon country of southern Utah. Recreation facilities, of course, are still on the drawing boards.

Far to the south, just before the Colorado River passes Yuma and crosses into Mexico, it is slowed one last time to form Laguna Dam's Lake Martinez, another early project of the Act of 1902. Although facilities there are limited, this lake is a popular fishing and swimming spot for residents and visitors to the southwest corner of the state.

ECONOMIC FACTOR

The Salt River project lakes along the now-paved Apache Trail are smaller in size than their sisters on the Colorado, but they are no less spectacular and popular. Last year, recreation on these lakes, which include four on the Salt River and two on the adjoining Verde River, generated $20 million for the state's economy.

The entire project lies within the Tonto National Forest, and cost nearly $30 million. The total shoreline for the six lakes is nearly 250 miles.

Roosevelt Lake is the oldest of all man-made waterways in the Southwest and the largest on the Salt River. Before its completion in 1911, Roosevelt Dam alone cost $5.5 million and 23 lives. The lake it made offers more than 17,000 acres of water and nearly 100 miles of shore-line. Beneath its surface are caves that skindivers often explore.

Closest to Phoenix is Saguaro Lake, smallest of the six. The most popular attraction there is Butcher Jones Beach. There is also a new boat-launching ramp.

DESERT AND BEACHES

Farther east are Canyon and Apache Lakes, both offering bright desert landscape and miles of coves and beaches for warm-water fishing and swimming. Canyon Lake will soon have a new boat ramp, and new recreation sites are planned for both lakes.

North and west of the Salt River lakes are Bartlett and Horseshoe Lakes, on the Verde River. Both can be reached by secondary roads, but facilities are not as complete as they are along the Salt River.

South from the Salt River to the Mexican border are several lakes, all man-made. The oldest of these is San Carlos Lake, in back of Coolidge Dam on the Gila River. It was completed in 1930.

This reservoir has never been more than 75 percent full. In the spring, however, it provides exciting bass fishing. And even when the water is low in the summer, as it often is, many Arizonians visit to dig for Indian artifacts along the exposed shore.

Southern Arizona's largest lake is Parker Canyon, which was opened to the public in 1964 and early this year attained its 160-surface-acre capacity. It is

situated in a pretty canyon 80 miles southeast of Tucson and just north of the Mexican border.

The most fully developed lake in this part of the state is 52-acre Pena Blanca, also just above the border and 12 miles west of the main highway from Tucson to Nogales. Its amenities include a small motel, restaurant, rowboat livery, bait and tackle shop, trailer park and camp and picnic grounds.

NORTH OF TUCSON

Lago del Oro, the previously mentioned private lake, also is in this area, just 25 miles north of Tucson. When full, it will contain 280 acres within its two-mile length and one-mile width.

Other lakes in the area are Rose Canyon Lake in the Santa Catalinas, Riggs Flat in the Pinaleno Mountains and Rucker Lake in the Chiracahua range. All are within the Coronado National Forest, and within easy driving distance of Tucson.

In the summer, when the desert lakes become uncomfortably warm and the Salt River lakes are at their low ebb, eyes turn to the cool, pine-clad mountains of Kaibab, Prescott, Coconino, Tonto, Greenlee and Sitgreaves National Forests and the Fort Apache Indian Reservation, in the north and central parts of the state.

Scattered over this wide area are scores of cold-water lakes, many of them behind the modest sort of dams that beavers build. Running through the woods are unmapped miles of streams and several substantial rivers.

Most of the lakes that can be reached by road have Forest Service camp and picnic grounds. The bigger lakes have been developed, to varying degrees, by private investment in cabins, boat landings and small stores.

STATEMENT OF EARL H. SWANSON, JR., MUSEUM DIRECTOR AND PROFESSOR OF ANTHROPOLOGY, IDAHO STATE UNIVERSITY, POCATELLO, IDAHO

I wish to support S. 940 as a measure of protection for scientific resources in the Middle Snake River region. This great region contains myriad archaeological sites which are largely undisturbed and only poorly known. The protection of these sites is a function of their remoteness from civilization. A 10-year Moratorium on construction may allow time for an adequate survey of these resources, including reconnaissance and sampling by limited excavations.

The Middle Snake encloses within its limits much of the prehistory of the Nez Perce to the north and the Northern Shoshoni to the south of the Salmon River. The Middle Snake region is, therefore, the boundary zone between these two peoples and can shed light on their place in New World history.

The middle Snake River region is also a boundary between wetter oceanic and drier cultural environments which correspond roughly to the distribution of Nez Perce and Northern Shoshoni cultures. The region is thus important because we may study the history of human environments in this great region of the Middle Snake.

Parts of the region have been surveyed and permit inferences about the importance of the area to be substantiated. A 10-year Moratorium will permit more detailed appraisal of the evidence at hand, as well as extended exploration of unknown terrain. Since most of the responsibility for assessing the archaeological and paleontological resources of the Snake River region belongs to the Idaho State University Museum, we are concerned about the time available for exploration, assessment, and rescue of non-renewable resources.

It should be stressed that time is more important than money in the present juncture. Scientific resources affecting man's past and his natural setting cannot be appraised simply by expending large sums of money. It is in the nature of archaeological work that assessment takes substantial periods of time. This is fundamental in the definition of new problems and in the selection of important localities to answer these basic questions. Finally, it should be pointed out that the Middle Snake River region alone offers us an opportunity to appraise human history in the Northwest by the latest technical standards of investigation. The flooding of the Columbia and the Lower Snake has destroyed more than 90 percent of the archaeological resources along those rivers. We must have time to piece together the past in the Middle Snake River region.

I wish, therefore, to support most strongly the 10-year Moratorium proposed in S. 940.

STATEMENT OF KEN BILLINGTON, EXECUTIVE DIRECTOR OF THE WASHINGTON PUBLIC UTILITY DISTRICTS' ASSOCIATION

Mr. Chairman, Members of the Committee: My name is Ken Billington, Executive Director of the Washington Public Utility Districts' Association of Seattle, Washington.

Our membership is comprised of Public Utility Districts operating electric and water utilities throughout the State of Washington, serving in excess of 300,000 electric customers and 17,000 water customers.

We oppose enactment of S. 940 which would prohibit construction of further dams on specific stretches of the Snake River for ten years. Attached to this statement is a resolution relative to this matter, adopted on January 16, 1970, by our Association.

The resolution endorses development of the middle reaches of the Snake River by a license to be granted under the authority of the Federal Power Commission. We feel very strongly that the denial of such development will rob the people of the Pacific Northwest of a valuable energy resource which can be developed in keeping with multiple purpose use of the water. This development can be accomplished with special emphasis placed on the recreational needs of our people.

There has already been substantial hydroelectric resource development above this particular stretch of the river. To arbitrarily deny further development on this river would be tragic. We realize that this particular stretch of rugged terrain is of value from a recreational or a natural environment standpoint. However, when some of our people speak of saving certain sections of a river in its natural free-flowing condition, we must ask the blunt question, "Save it for what and for whom?"

There is no question but what the establishment of wilderness areas in certain parts of our nation is essential and needed. But there should be ways of balancing such essentiality and need with the needs of the larger multitudes of people. Frankly, the development of this falling water resource to provide electric energy which will help serve a growing economic need with smog-free energy from Monday to Friday, can also provide a development by access roads and recreational areas which many people can use on weekends or vacations and thus enjoy this "wilderness" terrain. Locking this stretch of river up in the concept of "wild rivers" means you limit the participation in the use of this water resource as a recreational asset to a small vocal, but wealthy, minority.

Time and again in the Pacific Northwest we have seen the use of broad expanses of shorelands and lakes created by impoundment of water behind hydroelectric dams by multitudes of average citizens. This has occurred after terrific fights against such developments by the so-called conservationists, who are actually minority self-interest preservationists.

The irony of the situation is that these same self-interest preservationists are the ones who object to smog in the cities and we agree with them on this point. Yet on the other hand they fight the development of the hydroelectric resource which will give us, as a growing nation, a smog-free energy resource.

We recognize the sincerity of the sponsors of this legislation, but we feel that this piecemeal approach to the comprehensive need of overall regional development throughout the States of Idaho, Oregon, Washington and Montana, which encompasses the drainage area of the Columbia River and its tributaries, should be rejected.

Most certainly, the State of Idaho should receive benefits from any development in this particular stretch of the Snake River, but Idaho cannot receive benefits by denial of development.

We would urge this Committee and the Senate to reject this legislation.

RESOLUTION—ENDORSEMENT OF SNAKE RIVER DEVELOPMENT

Whereas the license application by the Washington Public Power Supply System and the Pacific Northwest Power Company for construction of dams on the middle reaches of the Snake River was postponed last year for the purpose of allowing study as to the possible participation by the Federal government in the projects; and

Whereas the Federal government, under the present Administration, has now declined to participate and the joint license application has been re-activated before the Federal Power Commission; and

Whereas the development of this falling water resource in this stretch of the Snake River is still very important from the standpoint of power production, water storage, and broader recreational uses and benefits;

Now, therefore, be it resolved that the Washington P.U.D. Association supports the joint license application of the Washington Public Power Supply System and the investor owned utilities for development of the middle reach of the Snake River in a manner which will provide comprehensive use and multiple purpose development of this water resource for much needed power supply, in keeping with the protection of all river resources including recreational features; and

Be it further resolved that we cannot agree with the attempts of those who would delay or stop this needed construction and thereby deny the benefits of such projects to the people of the Northwest.

Adopted: Washington P.U.D. Association, Seattle, Washington, January 16, 1970.

STATEMENT OF A. LARS NELSON, MASTER, WASHINGTON STATE GRANGE, SEATTLE, WASHINGTON

Mr. Chairman, Members of the Committee: I am A. Lars Nelson, Master of the Washington State Grange, and I am submitting this statement in behalf of the 460 Subordinate Granges and upwards of 59,700 Grange members in the State of Washington. We oppose enactment of S. 940, which would establish a moratorium on any hydroelectric development on the middle stretch of the Snake River for a ten-year period.

The Washington State Grange has long supported the comprehensive regional development of the power and water resources of the Pacific Northwest. We support maximum and multiple purpose development. We recognize the value of the water resource in its many forms of use. This asset can bring great benefit not only to our members, those whose interests center in agriculture and those residing in urban areas, but to all the people of the State of Washington.

The Columbia River and its tributaries provide a valuable water resource, but unless this resource is developed on a comprehensive basis, full value will be denied the people of our State as well as the entire Pacific Northwest region.

S. 940 is a piecemeal approach to development of this incomparable resource that could well deny its comprehensive development. It takes one particular stretch of one river and arbitrarily precludes any hydroelectric development for a definite period. River basin development should be analyzed on an overall regional basis and development should be governed by sound study and due deliberation on all benefits either by the Congress or by those Federal agencies delegated such responsibility by Congress.

Development of the Snake River has been a center of controversy for many years. Construction of low dams in a stretch of the river which, in our opinion would have been better developed by the construction of a high level dam, was a bitter pill to swallow. However, we would acknowledge that even this smaller development did contribute to the energy resource of the Pacific Northwest. Falling water, unlike so many energy resources, is a renewable energy resource. The importance of this must not be overlooked. It furnishes the one known smog-free energy-electricity. In our opinion, locking up this particular stretch of the river would be a very grave mistake.

Some of the proponents of this legislation want to keep a free-flowing stretch of river for recreational purposes. There are undoubtedly stretches of river or wilderness areas which should be retained in their natural state as a national heritage. However, in this particular case the broader recreational values which can be obtained by the development of this stretch of river for hydroelectric purposes are, in our opinion, a greater asset.

The recreational needs of our people are becoming ever more important. We in the Pacific Northwest are finding that one of our greatest recreational assets is the man-made lakes behind the man-made dams. The presence of these structures has permitted broader segments of our public to enjoy the scenery and vistas of remote or primitive areas. Development in this particular stretch of the Snake River would include the construction of good access roads to let the average public into this wilderness area. Simultaneous construction of recreational areas for camping, boating and fishing could also be provided. Thus, while falling water produced smog-free electricity, we could open up broad new areas for the recreational benefit of our people.

We urge Committee rejection of S. 940 because it is piecemeal legislation which delays needed comprehensive regional multiple purpose development of the nation's water resource. We urge that Congress, or the Federal agencies to which the responsibility is delegated by Congress, continue and maintain the sound established policy of allowing development to the maximum extent possible in keeping with the sound and full public interest.

STATEMENT OF THE IDAHO CHAPTER OF THE WILDLIFE SOCIETY, RE ADDITIONAL DAMS ON THE MIDDLE SNAKE RIVER IN THE VICINITY OF HELL'S CANYON

The Idaho Chapter of The Wildlife Society, an organization composed of professional wildlife workers residing in Idaho, offers the following position statement with regard to additional dams on the Middle Snake River in the vicinity of Hell's Canyon.

We oppose construction of any more dams on the Middle Snake River from Hell's Canyon Dam downstream to Lewiston, Idaho. We can no longer afford the serious loss to a livable environment that additional dams would cause. There are several reasons for this position.

1. There would be a serious degradation of the unique scenic and recreational values associated with this portion of the Snake River if it were dammed. Recreational use is already high, as shown by the 50,000 man-days of recreation spent in the area of the High Mountain Sheep and China Gardens dam sites last year.
2. The project could change water quality downstream to such a drastic degree that it would threaten the entire Salmon and Clearwater River runs of anadromous fish.
3. There would be a loss or serious reduction in the fine white sturgeon, smallmouth bass, trout and channel catfish fisheries which now exist on this stretch of the river.
4. Big game numbers estimated at 20–30,000 deer would decline because of the loss of critical big game winter range inundated by the project.
5. The choice partridge, quail and cotton tail rabbit production areas in the bottom lands would be inundated.

The Idaho Chapter of The Wildlife Society supports Senate Bill 940 sponsored by Senators Church and Jordan prohibiting the licensing of hydroelectric projects on the Middle Snake River below Hell's Canyon Dam for a period of ten years. We feel the ten-year moratorium will allow time to make an equitable analysis of the area in relation to the social and economic needs of our Nation.

IDAHO POWER CO.,
Boise, Idaho, February 13, 1970.

Hon. CLINTON P. ANDERSON,
U.S. Senate, Chairman, Water and Power Resources Subcommittee, New Senate Office Building, Washington, D.C.

DEAR SENATOR ANDERSON: Our legal counsel, Mr. James E. Bruce, previously notified you of the Company's intention to submit this statement. Will you please make it a part of the record of the hearings held by the Water and Power Resources Subcommittee on Monday, February 16, 1970, at 10:00 A.M.

Very truly yours,

ALBERT CARLSEN, *President.*

[Enclosure]

STATEMENT OF IDAHO POWER CO. ON S. 940

Idaho Power Company has a long and intimate knowledge of the Snake River from its source high in the mountains across southern Idaho and on into Hells Canyon. Along most of this watercourse the company has invested millions of dollars in hydroelectric plants which are the backbone of the power generating facilities within the state. In 1968 the company completed the Hells Canyon project at an investment of over $200,000,000. Because of this investment the company has acquired considerable knowledge of the canyon in an area which is located immediately above the reach of the river under consideration by S. 940.

The recreational use of the developed area of Hells Canyon is more than ten times the use of the lower undeveloped area, and from the company's experience it is obvious that if the Middle Snake River is likewise developed, hundreds of thousands of visitor-days per year will result which would not otherwise occur.

This will afford great public benefits now and will mean much more to people in the future.

Also, if the Middle Snake is developed through the construction of a dam or dams, other beneficial results accrue to Idaho. Recently Idaho Power agreed to become a partner in the proposed dam or dams of the Pacific Northwest Power Company in order to insure Idaho's participation in the power and associated benefits. If the State of Idaho wishes to participate jointly with Idaho Power it could contribute substantially to Idaho reclamation progress reducing the requirement for Federal funds to accomplish this reclamation.

Idaho Power's primary responsibility is to provide ample, abundant supplies of electricity at a reasonable cost to the area it is privileged to serve. This is the basic reason compelling the company to submit this statement to this committee. The facts are that the construction of power generation facilities on the Middle Snake will provide the low-cost power production for use in the region. Not only that, but the addition of a dam or dams below the company's Hells Canyon dam will benefit the operation of the Hells Canyon hydroelectric complex, as well as all the Federal dams downstream.

Idaho, in common with the entire Pacific Northwest, and most of the nation is now experiencing and will continue to experience ever-continuing increases in the need and use of electric energy. To supply this demand, every source of energy must be carefully examined and, where feasible, developed at the earliest possible date. The low-cost hydropower sites of the Pacific Northwest have been largely developed and this regional resources is fast disappearing. As a result, new sources of electric energy will be either fossil-fueled or nuclear, produced at a cost substantially in excess of the present hydropower. In order to assist in maintaining, to the extent possible, this low-cost power supply, it is evident that all available low-cost hydro sites must be developed in order to blend with electric energy produced from other sources. The availability of a large block of hydropower from a dam or dams constructed on the Snake River will provide this low-cost hydropower and help in maintaining an overall power cost well below that which would otherwise be required. Pacific Northwest companies are engaged in the development of the Pacific Northwest Hydro-Thermal program in order to insure the continuance of adequate power supplies in the Northwest and the construction of a large hydro-generating plant on the Snake River will certainly materially aid this program.

Idaho Power Company expects to utilize and, in fact, will need some of the power which would be developed at such a plant in order to help supply its loads. The availability of such a supply source would be a great advantage to all of Idaho Power's customers, since the alternative is most likely higher cost steam power.

An additional benefit which accrues from the construction of a dam and related generating facilities on the Snake River is the fact that a hydro project does not add to the air pollution problem which is occurring throughout the country.

For all the above reasons, Idaho Power Company respectfully urges this Committee to take the action necessary to permit the Federal Power Commission which is currently engaged in studying the Pacific Northwest Power Company's application to resolve whether and when such a dam should be built, with due consideration to the comprehensive plan which will be best adapted to improving or developing the river.

STATEMENT OF IDAHO FISH AND GAME DEPARTMENT

The Idaho Fish and Game Department is in favor of proposed legislation declaring a 10-year moratorium on the construction of further dams in the Middle Snake River.

Present trends clearly indicate that existing recreational resources associated with remaining free flowing portions of the Middle Snake River may be of more future value than potential hydro power development.

There is a rapidly increasing demand for the type of recreational experience that can be supplied by the Middle Snake River in its existing condition. Alternatives to meet this demand are nonexistent. Areas than can provide this type of recreation are fixed in supply and are, in fact, in decreasing supply. Alternatives in the form of thermal power generation are available to meet the need for electric power and at a steadily decreasing cost.

Technologically and economically feasible means of preventing thermal power plant pollution from damaging fish and wildlife populations and the environment in general are available and actually being used in other areas. There are no existing means of preventing possible pollution such as excessive algal growths and supersaturated nitrogen levels which could result from hydro power plants on the Middle Snake River. Projected enhancement of the anadromous fishery by water temperature control at proposed hydro projects is theoretical at this time and would have adverse effects on valuable species of resident fish. Reservoirs to provide reservoir-oriented recreation are already in abundant supply and being used at levels far below their recreational potential. Use of mid-Snake impoundments to supply upstream irrigation water cannot possibly be feasible for many years.

The Idaho Fish and Game Department firmly believes that the interests of wise water resource planning to meet all future needs would be best served by enactment of the proposed legislation. It would indeed be tragic to destroy today an irreplaceable resource in order to supply other benefits which time could prove to be better supplied by alternative means. The passage of time with the changing of the future into the present is the final arbiter of conflicting projections of conflicting needs. Where this option is available, as it is in the present case, it should most assuredly be employed.

SALEM, OREG., *February 13, 1970.*

Senator CLINTON P. ANDERSON,
Chairman, Subcommittee on Water and Power, Senate Interior and Insular Affairs Committee, Senate Office Building, Washington, D.C.:

Understand you have scheduled hearings on S. 940. Water Resources Board of Oregon continues to support earliest development of Middlesnake River. This position reaffirmed following recent meetings with fish, game, water quality, and recreation interest. Formal board orders establishing position being mailed to you for inclusion hearing record.

DONEL J. LANE,
Director State Water Resources Board of Oregon

IN THE MATTER OF THE APPLICATION)
OF PACIFIC NORTHWEST POWER COMPANY) FINDINGS OF FACT,
FOR A LICENSE, HIGH MOUNTAIN SHEEP) CONCLUSION, AND
PROJECT, SNAKE RIVER) ORDER

This matter having come on for hearing upon proper notice on the 5th day of January, 1960 at the State Capitol, Salem, Oregon, before John D. Nichols, duly appointed hearing officer for the State Water Resources Board, upon the application of Pacific Northwest Power Company, an Oregon corporation, for a license for High Mountain Sheep Project, Snake River, the same having been referred by the Hydroelectric Commission of Oregon pursuant to ORS 543.225, the applicant appearing by Allen A. Smith, Hugh Smith, and John Foulkes Jones of Smith, Gray, Hill and Rodgers; and with other appearances as follows: Louis S. Bonney, Assistant Attorney General, for the State Water Resources Board; Lloyd G. Hammel, Assistant Attorney General, for the Public Utilities Commissioner, intervenor; Roy F. Atchison, Assistant Attorney General, for the Oregon State Game Commission and the Fish Commission of Oregon, intervenor; the Northwest Public Power Association, intervenor, appearing by its Executive Secretary, Gus Norwood; and witnesses having been called, testimony taken, and evidence received.

As a result of this hearing the State Water Resources Board finds:

1. *The Snake River from river mile 186 to river mile 247 has a substantial undeveloped power potential.*

2. *Applicant proposes utilization of a portion of this power potential through development of the High Mountain Sheep Project.*

3. *For purposes of comparison the applicant has evaluated the High Mountain Sheep Project in a system consisting of High Mountain Sheep, Lower Canyon, and China Gardens Projects; and has compared it to an alternative system including the Nez Perce and China Gardens Projects.*

4. *The High Mountain Sheep system would produce greater prime energy and greater dependable capacity than the Nez Perce system.*

5. *Currently the Nez Perce system has a more favorable benefit-cost ratio than the High Mountain Sheep system.*

6. *Either of these systems is economically feasible.*

7. *Energy from available major hydro alternatives or from steam sources would be higher in cost than energy produced at High Mountain Sheep.*

8. *The High Mountain Sheep system would provide more usable storage than the Nez Perce system.*

9. *Load forecasts indicate the regional power requirements might increase over a 1957 base by nearly 300 percent by 1975, over 400 percent by 1985, and over 1,000 percent by 2010.*

10. *Flood control provisions of either system are adequate.*

11. *Power to meet applicants' requirements is not assured after August 31, 1963.*

12. *Either system, if constructed in its entirety, would intercept about 43 percent of the anadromous fish passing over McNary Dam.*

13. *High Mountain Sheep project would affect less than three percent of the fish passing over McNary Dam not now affected by existing projects, Snake River.*

14. *Nez Perce Dam presents special problems in fish passage that do not exist at High Mountain Sheep.*

15. *The applicant proposes initial construction of High Mountain Sheep and recognizes that any consideration of Lower Canyon should be held in abeyance until fish passage problems are solved.*

16. *Fishery experts state studies encompassing at least ten to fifteen years would be necessary to resolve some of the fish passage problems at high dams.*

17. *There are several possibilities for transportation of downstream migrants at High Mountain Sheep that might be feasible.*

18. *There is need for maintenance of minimum flows and limitations of flow fluctuations, Snake River, for navigational purposes.*

19. *Recreation values of the area would be enhanced by construction of either the Nez Perce system or the High Mountain Sheep system.*

20. *Minimum acceptable normal pool level for either High Mountain Sheep or Nez Perce should be 1510 foot elevation.*

21. *Anadromous fish runs of the Columbia River system are an important recreation and economic asset of the State of Oregon.*

22. *Acceptable alternatives for inundated spawning grounds should be provided.*

23. *There is need for a minimum flow, Snake River, above the confluence of the Snake and Salmon Rivers to provide attraction water for fish.*

24. *There is no evidence that either system would have either favorable or detrimental effects on the use of water for irrigation, domestic, municipal water supply, fire protection, or mining purposes.*

25. *There will be future upstream consumptive uses of water.*

26. *Deferment of construction which would provide power, flood control, and recreation benefits, would cause serious economic loss to the State of Oregon.*

CONCLUSION

It is in the public interest that the power potential, Snake River, between river mile 186 and river mile 247, be developed at the earliest opportunity to meet anticipated energy requirements of the State of Oregon.

The numbers of fish involved and the inability to satisfactorily solve fish passage problems over high dams until at least 1970 or 1975, preclude construction of either Nez Perce or Lower Canyon Projects.

Utilization of these waters of the Snake and Imnaha Rivers for power production, flood control, recreation, wildlife, navigation, and fish life will represent the highest public benefit to the State of Oregon.

ORDER

The proposed High Mountain Sheep Project is in the public interest and it is hereby ordered that any state license issued by the Hydroelectric Commission for the proposed project shall be subject to the following provisions:

1. *Water rights acquired for structures or works for the utilization of the waters of the Snake River for hydroelectric purposes from river mile 186 to river mile 247 will be subordinate to the use for all present and future upstream beneficial uses of water except for hydroelectric power.*

2. *Licensee shall provide suitable public access including roads to recreation reservoir areas. Recreation lands, facilities, and public access provisions shall be acceptable to and approved by the State Highway Commission.*

In the event of the inability of the licensee and the State Highway Commission to reach agreement, the matter shall be referred to the State Water Resources Board whose decision shall be final and binding upon all parties.

3. *The licensee shall provide for the construction, modification, maintenance, and operation of such fish ladders, fish traps, or other fish handling facilities or artificial spawning facilities or other supplemental productive devices or research or experimentation for the purpose of conserving and enhancing fishery resources; and comply with such modifications of the project structure and operations in the interest of fish life as may be prescribed hereafter by the State Fish and Game Commissions of Oregon. The licensee shall coordinate and cooperate with the State Game Commission to mitigate wildlife and game losses. In the event of the inability of the licensee and the State Fish and Game Commissions to reach agreement, the matter shall be referred to the State Water Resources Board whose decision shall be final and binding upon all parties.*

4. *The project shall be operated for flood control purposes in accordance with directives and instructions received from the Corps of Engineers.*

5. *When determined to be justified by the Corps of Engineers, minimum downstream flows for navigation purposes shall not be less than 13,000 cubic feet per second, measured at river mile 170.9, during seasonal refill or storage periods. When determined by the Corps of Engineers to be justified, flows shall be maintained at not less than 16,500 cubic feet per second, measured at river mile 170.9, during non-refill or storage periods.*

6. *A minimum flow of not less than 2,000 cubic feet per second shall be provided downstream from the project to the confluence of the Snake and Salmon Rivers for habitat and attraction water for fish.*

7. *In order to insure maximum recreational benefits during the period June 15 to September 15, daily pool fluctuations should not exceed one foot and weekly or seasonal pool fluctuations should not exceed three feet.*

8. *Flow fluctuations below the confluence of the Snake River and the Salmon River should not be more than one foot per hour unless approved by the Corps of Engineers.*

9. *The operation of this project should be integrated and coordinated with the Northwest Power Pool.*

Done and dated this 5th day of March, 1960.

STATE WATER RESOURCES BOARD

By _____
Robert W. Root, Chairman

_____
LaSelle E. Coles, Vice Chairman

_____
George H. Corey

_____
John D. Davis

_____
Louis H. Foote

_____
Ruth Hagenstein

_____
Karl W. Onthank

RESOLUTION BEFORE THE STATE WATER RESOURCES BOARD OF OREGON

(In the matter of formulating an integrated, coordinated program for the use and control of the water resources of the Middle Snake River Basin, April 3, 1964.)

Whereas the State Water Resources Board under the authority of ORS 536.300 has undertaken a study of that portion of the Snake River from river mile 176.0 to river mile 247.0;

Whereas in this study consideration was given to means and methods of augmenting such water resources, existing and contemplated needs and uses of water for domestic, municipal, irrigation, power development, industrial, mining, recreation, wildlife and fish life uses, and for pollution abatement as well as other related subjects including drainage, reclamation, and flood control; and

Whereas as a result of said study the following findings as to water use have been reached by this board:

1. Recreation uses will bring substantial benefits to the state.
2. Fish and wildlife uses will bring substantial benefits to the state.
3. Hydroelectric power production utilizing the waters of the Snake River and its tributaries between river mile 176.0 and river mile 247.0 will bring substantial benefits to the state.
4. Domestic use does not represent a significant quantity either for existing or presently contemplated needs.
5. Mining use does not represent a significant quantity either for existing or presently contemplated needs.

Municipal use is not a significant factor for either existing or presently contemplated needs.

7. Pollution abatement is not a significant factor for either existing or presently contemplated needs.
8. Industrial use is not a significant factor for either existing or presently contemplated needs.
9. Irrigation use is not a significant factor for either existing or presently contemplated needs.
10. Drainage and reclamation of drained lands are not existing or presently contemplated factors in water use.
11. Projects constructed and operated for control of floods and alleviation of flood damage will bring material benefits to the state.

CONCLUSION

1. The highest public use of that portion of the Snake River from river mile 176.0 to river mile 247.0 is for hydroelectric power, fish, wildlife, livestock, domestic, and recreation uses. Such utilization is hereby encouraged for any properly state and federal licensed hydroelectric projects commensurate with multiple-purpose use for flood control, recreation, fish and wildlife, and constructed and operated in accordance with plans approved by the State Water Resources Board. Projects constructed for hydroelectric power purposes must include regulation facilities and operation as needed to minimize river flow fluctuations resulting from such project operation in order to protect downstream recreation, fish, and wildlife values and must be so operated as to provide minimum pool fluctuations during the recreation season while maintaining minimum perennial flows downstream.

2. Projects to utilize the aforementioned waters must be approved by the State Water Resources Board.

3. Water rights acquired for hydroelectric projects constructed for the purpose of utilizing the waters of the Snake River from river mile 176.0 to river mile 247.0 must be subordinate in priority to all existing and future upstream beneficial uses of water except for hydroelectric power.

Now therefore be it resolved that this board hereby adopts the following program in accordance with the provisions of ORS 536.300 (2) relating to the waters of the Snake River from river mile 176.0 to river mile 247.0:

A. The maximum beneficial use of that portion of the Snake River from river mile 176.0 to river mile 247.0 is for recreation, fish, hydroelectric power, irrigation of lawn or noncommercial garden not to exceed one-half acre in area, domestic, and livestock purposes and no appropriation of water in this area shall be permitted except for these uses.

B. The highest public benefit to the state and the attainment of the highest and best use of the waters of the Snake River from river mile 176.0 to river mile 247.0 and the attainment of an integrated and balanced program for the benefit of the state as a whole will be achieved through utilization of the aforementioned waters for domestic, livestock, irrigation of lawn or noncommercial garden not to exceed one-half acre in area, hydroelectric power, fish, and wildlife, and recreation purposes and the aforementioned waters of the Snake River are hereby so classified.

C. Applications for the use of such water shall not be accepted by any state agency for any other purpose and applications for such other purposes are declared to be prejudicial to the public interest and the granting of applications for such other uses would be contrary to the integrated, coordinated program for the use and control of the water resources of the state.

D. Water rights acquired for structures or works for the utilization of these waters for hydroelectric purposes shall be subordinate to all present and future upstream beneficial uses of water except for hydroelectric power.

E. Structures or works for the utilization of the waters in accordance with the aforementioned classifications are also declared to be prejudicial to the public interest unless planned, constructed, and operated in conformity with the applicable provisions of ORS 536.310 and any such structures or works are further declared to be prejudicial to the public interest which do not give proper cognizance to the multiple-purpose concept.

Done and dated this 3d day of April, 1964.

DONEL J. LANE,
Secretary, State Water Resources Board.

IDAHO STATE SENATE,
Boise, February 13, 1970.

Hon. LEN B. JORDAN,
Old Senate Office Building,
Washington, D.C.

Hon. FRANK CHURCH,
Senate Office Building,
Washington, D.C.

DEAR SENATOR JORDAN AND SENATOR CHURCH: Since it is obvious that I will not be able to attend the hearing in Washington on the proposed 10 year Moratorium on the Middle Snake River, (S. 940), may I take this opportunity to express my enthusiastic endorsement for this proposal. I realize that we do not all agree on the reasoning behind the request for this moratorium, but I am sure that we do agree that there are many unresolved problems and a great deal of information concerning the Middle Snake that we ought to delve into as fully as possible before authorizing any development there. There is ample time in the future to build a dam or dams, if this should be the ultimate decision. However, if we should build a dam today and have second thoughts later, either as to the location or the type of dam or whether one should be built at all, it would be too late to undo the damage. I think it is generally acknowledged that we are approaching the time that we are running out of sites for dam construction, so this issue will have to be faced ultimately in any case.

I sincerely commend you both for your considerate effort to give careful consideration to the public interest before proceeding with any project in this area and ask that this statement be made a part of the hearing record.

Very truly yours,

ART MANLEY,
Senator, District No. 2.

THE COMMONWEALTH OF MASSACHUSETTS,
DEPARTMENT OF NATURAL RESOURCES, DIVISION OF MARINE RESOURCES,
Boston, February 11, 1970.

Senator HENRY M. JACKSON,
Chairman of the Senate Interior Committee,
Senate Office Building, Washington, D.C.

DEAR SENATOR JACKSON: I would like to have this letter entered into the public hearing record on the Middle Snake Moratorium to be held in Washington, D.C., February 16, 1970, by the Senate Interior Committee. I would like to submit that the Moratorium is a poor second choice, and that the National River Bill, S. 3329, is the positive approach.

The Moratorium Bill would postpone any decision on Hells Canyon for ten years. The Moratorium is a do-nothing response to a constructive conservation proposal to protect one of the most outstanding areas in North America, and at a time when the Public is clamoring for environmental action. Power interests and economic interests are always coming up with whole new sets of economic demands showing that the "highest use" of Hells Canyon would be to dam it because that way somebody could make a profit. What about biological interests? Do economists look at that side of the coin honestly?

The Canyon needs permanent protection, not more time to be quibbled over. It is high time that we as a people learned to show evidence of a land ethic; to indicate that we have learned that all our environmental problems stem from our arrogance toward the land, and that the protection of the remaining natural areas is basic to the entire environmental effort.

Most sincerely,

LARRY R. SCOFIELD,
Biostatistician, Commercial Fisheries Statistical Unit.

NORTHWEST PUBLIC POWER ASSOCIATION,
Vancouver, Wash., February 13, 1970.

Senator CLINTON P. ANDERSON,
Chairman, Water and Power Resources Subcommittee, Committee on Interior and Insular Affairs, U.S. Senate, Washington, D.C.

DEAR MR. CHAIRMAN: I hereby submit the following comments on behalf of the Northwest Public Power Association and request that this letter be included as part of the hearing record on S. 940, Middle Snake Ten Year Moratorium Bill, heard by your committee Monday, February 16. The Northwest Public Power Association represents 120 municipal electric systems, public utility districts, and rural eletric cooperatives of Alaska, Idaho, Mountana, Oregon and Washington and the B.C. Hydro & Power Authority of British Columbia. Together these consumer-owned power systems serve approximately 4,000,000 customers in the five states and one Canadian province. I serve the Association as its general manager.

The members of the Northwest Public Power Association consistently have advocated comprehensive development of the Middle Snake River through construction of multiple purpose projects to provide hydroelectric power, recreation, flood control, water quality enhancement, fish and wildlife propagation and water conservation as tangible benefits for the people of the Pacific Northwest. We have considered this section of the Snake River to be one of the great remaining multiple purpose development sites on the North American continent. We believe that the middle reach of the Snake River can be a greater aesthetic as well as economic asset to the region through wise completion of its development rather than its abandonment in its present state of partial and somewhat unattractive utilization.

Public power in the Pacific Northwest agrees with the sponsors of S. 940 that the future of this section of the Snake River must be determined only after due deliberation based on complete water resource and ecological studies. We have supported and participated in such studies; and we enthusiastically support continuation of studies to determine any still unknown factors of this river reach.

We cannot, however, support an arbitrary ten-year moratorium on licensing of a Middle Snake River project. The potential benefits from development of the river are great enough that we should proceed as rapidly as possible to the decision on whether to develop or not to develop. The U.S. Department of Interior has withdrawn its proposal that a federal multi-purpose project be authorized for the Middle Snake. Therefore the only apparent development opportunity is through a Federal Power Act license. Such a license is pending if the Federal Power Commission, deliberating as directed by the Supreme Court of the United States, determines that a licensed project on the Middle Snake River is, in fact, in the public interest.

The membership of the Northwest Public Power Association supports development of the Middle Snake River to provide multiple benefits for the people of the Pacific Northwest at the earliest date when such development can be properly determined to be in the public interest by Congress or the Federal Power Commission. Therefore, we must oppose S. 940 which would delay any apparent development for an arbitrary ten years.

Respectfully submitted.

HENRY G. CURTIS, *General Manager.*

UNIVERSITY OF IDAHO,
Moscow, Idaho, February 18, 1970.

Hon. HENRY M. JACKSON,
Chairman, Committee on Interior and Insular Affairs,
U.S. Senate, Washington, D.C.

DEAR SENATOR JACKSON: I wish to endorse proposed legislation to establish a ten year moratorium on any development of the Snake River-Hells Canyon region.

During my two and one-half years of residence in the Pacific Northwest, I have observed the controversy over use of the region's magnificent water and scenic resources with keen interest. It is my considered judgment that the present climate precludes rational decision on use of these resources. The diametrically opposed interests seem either unwilling or unable to recognize any validity in the alternates offered by each other or to accept the consequences attached to their own positions.

This country is in the process of serious re-examination of environmental standards. This revaluation will undoubtedly lead to major shifts in our value scales and any decision on Hells Canyon must be deferred until these value scales are more clearly defined than at present. A ten year moratorium should provide the time badly needed to arrive at more sound value judgments than are possible at the present time.

Even if the eventual decision should be to proceed with hydroelectric development, the ten year delay should not be serious. Other power sources will have to be developed for the region whether or not there is a hydro development in Hells Canyon. The moratorium would simply advance the development of these other sources in the timetable.

Yours very truly,

H. S. SMITH, P.E., *Dean.*

UNIVERSITY OF IDAHO,
Moscow, Idaho, February 16, 1970.

Hon. HENRY M. JACKSON,
Senate Office Building,
Washington, D.C.

DEAR SENATOR JACKSON: I want to tell you that I support your bill which would place a moratorium on building dams on the Snake River. I am very happy that you have seen fit to sponsor such a measure. Of course I am aware of the demand for power which we anticipate will grow in our area but I should hope that other sources of power can be developed that will meet our need.

Sincerely yours,

ALVIN R. ALLER,
Associate Professor of Botany.

PUBLIC UTILITY DISTRICT NO. 1 OF FRANKLIN COUNTY,
February 19, 1970.

Hon. CLINTON ANDERSON,
Chairman, Subcommittee on Water Power and Resources,
Senate Office Building, Washington, D.C.

DEAR SENATOR ANDERSON: We wish to be placed on record that we are opposed to the passage of Senate Bill No. 940.

We have been put on record by the Bonneville Power Administration that there will be a shortage of power for preference customers by the year, 1976, and there may be serious power deficiencies for non-preference customers by 1973.

Franklin County Public Utility District is a participant in the Hanford Nuclear Power Project. We are a member of the Washington Public Power Supply System who is a co-applicant for a Snake River Dam. We are cooperating with Bonneville Power Administration and Washington Public Power Supply System to construct future nuclear steam generating plants, in order to defer the day of power deficiency.

The undeveloped portion of the Snake River is the last major potential hydro development available in the Pacific Northwest. This hydro development is vitally needed to supply peaking resources for the nuclear steam plants. Other benefits derived from a storage and power project of this magnitude are the added down-stream power potential at the multitude of completed dams and power plants on the Snake and Columbia Rivers, the flood control benefits, and recreational benefits of the lake impounded above the dam.

We respectfully request that due consideration be given to all the benefits of a dam and hydro-electric development in the middle Snake River and the moratorium as would be imposed by Senate Bill No. 940 be defeated.

Respectfully,

A. C. NORTHRUP, *Manager.*

NATIONAL RURAL ELECTRIC COOPERATIVE ASSOCIATION,
Washington, D.C., February 18, 1970.

Hon. CLINTON P. ANDERSON,
Chairman, Subcommittee on Water and Power Resources,
New Senate Office Building, Washington, D.C.

DEAR SENATOR ANDERSON: In reference to the hearings presently being conducted by the Subcommittee on Water and Power Resources concerning Senate Bill S. 940, the National Rural Electric Cooperative Association respectfully requests that the following resolution be included in the hearing record.

Resolution on Hydroelectric Development of the Snake River, approved at the NRECA 1970 Annual Meeting:

"Whereas, the Department of the Interior is studying dam sites in the Snake River area, and the Pacific Northwest Power Company and the Washington Power Supply System have announced agreement on a joint venture to build and operate the Snake River projects, and

"Whereas, the NRECA has always supported full development of the hydroelectric potential of the Snake River and has consistently favored construction and operation of such a project by an agency of the United States Government, and has repeatedly urged Congress to appropriate funds for that purpose;

"Now, therefore, be it resolved, that we urge the Federal Power Commission to recommend Federal development of the Snake River or an alternate to Federal development that would assure that full control and benefits would flow to the people."

Thank you.

Sincerely,

MICHAEL D. HATHAWAY,
Assistant Staff Counsel-Engineer.

CLEARWATER POWER CO.,
Lewiston, Idaho, February 23, 1970.

Senator CLINTON ANDERSON,
Chairman, Subcommittee on Water and Power of Interior and Insular Affair Committee, Senate Office Building, Washington, D.C.:

Clearwater Power Company wishes to go on record as opposed to S. 940 declaring a mortorium for licensing of a dam on the Snake River this legislation does not best serve the interest of the 5,000 members of our rural electric cooperative or the economy of this portion of the State of Idaho.

CLEMENT W. EATON, *Manager.*

MALTA, IDAHO, *February 13, 1970.*

Senator CLINTON P. ANDERSON,
Chairman, Water and Power Resources Subcommittee, Committee on Interior and Insular Affairs, U.S. Senate, Washington, D.C.

DEAR MR. CHAIRMAN: I hereby submit the following statement on behalf of the Snake River Power Association and respectfully request that this letter be included as part of the hearing records on S. 940 Middle Snake ten-year moratorium bill, to be heard by your committee Monday, February 16. The Snake River Power Association represents Municipal Mutual and Cooperative Electric Utility serving electric power consumers in southern Idaho. Almost the entire economy of southern Idaho depends directly on the comprehensive development of the water resources of the Snake River and have long supported complete development of the Snake including the Middle Reach. We are participants in the proposal for development by the Washington public power supply system now pending before the Federal Power Commission. We believe the situation has drastically changed from the two years ago when this bill was originated. The development of this

reach of the river has been intensively studied and many hearings and court procedures have ensued over the various proposals. It is unrealistic now to suppose any Federal development of the resource. Therefore we are opposed to S. 940, we believe it will serve no useful purpose at this time and that instead the matter should be allowed to take its proper course before the Federal Power Commission.

Respectfully submitted.

EDWIN C. SCHLENDER,
Executive Secretary, Snake River Power Association.

SANDPOINT, IDAHO, *February 13, 1970.*

Senator CLINTON ANDERSON,
Subcommittee on Water and Power, Interior and Insular Affairs Committee, U.S. Senate, Washington, D.C.:

I wish to make the following statement on S. 940 to be placed in the record of your hearing of February 16th, due to the electric power shortage in the Pacific Northwest. I feel that the Middle Snake power development by investor-owned power companies and WPPS should proceed. Therefore, a moratorium on this development is not in the public interest. Full development of the Middle Snake should proceed without delay and the Federal Power Commission should issue a construction license.

WM. T. NORDEEN,
General Manager, Northern Lights Inc.; President, Northwest Public Power Association.

JACKSON, WYO., *February 14, 1970.*

Senator HENRY M. JACKSON,
Chairman, Senate Interior Committee,
Senate Office Building, Washington, D.C.:

Linda Willis and Natalie Fogerty are in complete accord with the national river bill. We hope Hell's Canyon will be preserved of its natural beauty. Thank you.

Lauree Temberton and Wayne Johnson offer full support on passage of natural river bill. Regret Senator Church affirms the moratorium. Please enter telegram into public hearing record on Middle Snake moratorium.

Unsigned.

IDAHO STATE RECLAMATION ASSOCIATION, INC.,
Boise, Idaho, February 12, 1970.

Re Snake River moratorium bill.

Hon. CLINTON P. ANDERSON,
Chairman, Water and Power Resources Subcommittee, Senate Interior and Insular Affairs Committee, New Senate Office Building, Washington, D.C.

DEAR SENATOR ANDERSON: The Idaho State Reclamation Association wishes to provide a written statement to include in the record of your sub-committee's hearing on the Snake River Moratorium Bill.

Unfortunately we will not be able to have a personal representative attend, but we intend to have a statement to you by the date of the hearing, and respectfully ask that it be included in the record.

Thank you for your consideration.

Sincerely,

JOHN A. ROSHOLT.

WASHINGTON STATE SPORTSMEN'S COUNCIL, INC.,
Vancouver, Wash., February 24, 1970.

Hon. HENRY M. JACKSON,
Senator from Washington,
Old Senate Office Building, Washington, D.C.

DEAR SENATOR JACKSON: The attached Resolution No. 1269–1 states the position of this Council on the Hells Canyon-Snake River situation. Also enclosed is a suggested bill to bring about a national river in this area.

By way of reference, the Washington State Sportsmen's Council is composed of over 100 conservation organizations throughout Washington with a membership of over 8,000 persons. In addition, there are over 4,000 other persons affiliated with the Council.

You are earnestly requested to do everything within the power of your office to bring about a National River as outlined herein.

Respectfully yours,

NORMAN RICHARDSON, *President.*

[Enclosure]

RESOLUTION No. 1269–1

Whereas, only a little more than one hundred miles of the Snake River remains unspoiled approaching the natural conditions in which man found it and such is threatened with extinction of its scenic and recreational values by numerous proposed hydro-electric dams, and

Whereas, said unspoiled area contains one of nature's wonders, to-wit: Hell's Canyon, the deepest canyon formed by a major river in America, while the one-hundred mile reach of the Snake River, together with its tributaries of the Salmon, Imnaha and Grande Ronde rivers constitute the last major source of the dwindling salmon, sturgeon and steelhead stocks in the entire Columbia River drainage as well as containing unequaled and unique bird and game habitat and outdoor recreational opportunities,

Now therefore be it resolved by the Washington State Sportsmen's Council assembled in regular quarterly session the 14th day of December, 1969, at Olympia, Washington, that it endorses in principle the enacting of federal legislation to preserve the Snake River in its natural condition by the creation of a Hell's Canyon-Snake River National River in the states of Idaho, Oregon and Washington, between the town of Asotin, Washington, on the North and a point on the Snake River directly east of the town of Homestead, Oregon, on the south, including appropriate segments of the Salmon, Imnaha and Grande Ronde rivers; such to be administered by the Secretary of Agriculture with hunting and fishing on the lands and waters thereof to be public and under the control and jurisdiction of the affected states; that presently authorized hydro-electric dams within the national river area be specifically deauthorized and further authorization and construction of new dams or impoundments be prohibited on any part or within the national river area; that presently existing federal lands within the area be devoted to the purposes of the national river and the Secretary of Agriculture be authorized to acquire lands, waters and interests therein, including scenic easements, by donation, purchase with donated or appropriated funds, exchange or otherwise with any property within such area owned by the affected states of Idaho, Oregon or Washington, or any political subdivision to be acquired by donating only.

And be it further resolved that copies of this resolution be forwarded to: the entire Washintgon Congressional Delegation, National Wildlife Federation, Wildlife Management Instiute, Secretary of Agriculture and Chief Forester.

Adopted, December 14, 1969, Washington State Sportsmen's Council.

A BILL TO ESTABLISH THE HELLS CANYON-SNAKE NATIONAL RIVER IN THE STATES OF IDAHO, OREGON, AND WASHINGTON, AND FOR OTHER PURPOSES

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, that, in order to preserve, protect, develop, and interpret for the enjoyment of present and future generations the 120 mile segment of the Snake River between the town of Homestead, Oregon and the town of Asotin, Washington, together with portions of several of its tributaries, and the lands adjacent thereto, which possess unusual and outstanding scenic, recreational, geological, fish and wildlife, historical, cultural and other values, there is hereby established the Hell's Canyon-Snake Natinoal River. The National River now consists of the land, waters, and interests therein within the area generally depicted on the drawing entitled "Boundary Map, Proposed Hell's Canyon-Snake National River" which is on file in the Department of Agriculture.

Section 2. The Hell's Canyon-Snake National River shall be administered by the Secretary of Agriculture in the manner set forth in Sections 5–8 following: The Secretary of Agriculture is hereby designated as the person who shall accept donations, or otherwise acquire lands, waters and interests within the boundaries

of the Hell's Canyon-Snake National River, in the manner set forth in Sections 3, 6, and 8 following, and is hereafter referred to as "the Secretary".

Section 3. The Secretary may acquire lands, waters and interest therein (including scenic easements) within the Hell's Canyon-Snake National River by donation, purchase with donated or appropriated funds, exchange or otherwise. Any property within such area owned by the states of Idaho, Oregon, or Washington, or any political subdivisions thereof, may be acquired by donation only. All federal property within such area is hereby made a part of the Hell's Canyon-Snake National River, and jurisdiction thereof shall reside with the Secretary of Agriculture.

Section 4.(A) There is hereby established a Hell's Canyon-Snake National River Commission composed of nine members appointed by the Secretary as follows:

1. Three members appointed from recommendations made by the governors of the states of Idaho, Oregon, and Washington, with no more than one member from each state.

2. One member designated by the Secretary of the Interior, and one member designated by the Secretary of Agriculture.

3. Two members representing fish and wildlife oriented private organizations; and two members representing wilderness oriented private organizations.

(B) The members of the Commission shall serve for a term of three years, except that the term of the intial members shall be from one to three years, as designated by the Secretary, at the time of appointment, in such manner as to insure that the terms of not more than three of them will expire in any one year.

(C) The Secretary shall designate one member as chairman. Any vacancy in the Commission shall be filled in the same manner as the original appointment.

(D) Members of the Commission shall serve without compensation, but the Secretary may pay the expenses reasonably incurred by the Commission in carrying out its responsibilities under this act upon presentation of vouchers signed by the chairman.

(E) The Secretary or his designee shall, from time to time, consult with the Commission with respect to matters relating to the development, protection, and preservation of the Hell's Canyon-Snake National River.

(F) The Commission shall terminate ten years after the date of enactment of this Act, or upon the establishment, by or with the approval of the Congress, of a permanent Commission or body having similar functions, whichever occurs earlier.

Section 5. The Hell's Canyon-Snake National River shall consist of three administrative units, as follows:

(A) The Seven Devils Unit, consisting of approximately 256,000 acres within the Nez Perce and Payette National Forests in the state of Idaho bordering on the Snake River, together with adjacent lands. The Snake River boundary of this unit shall begin at a point in Idaho approximately one-half mile north of the point on the Snake River directly east of the town of Homestead, Oregon, and extending northerly, a distance of approximately 57 miles on the Idaho side of the Snake River to a point on the river in Idaho directly east of the point of confluence of Lookout Creek in the State of Oregon with the Snake River. The exterior boundaries of this unit are set forth herein in the map referred to in Section 1 above. It is the intent of Congress that substantially all the lands within this unit shall remain essentially in their present type of use, except as hereinafter provided, and that the natural characteristics of the lands and waters therein shall be preserved by the Secretary primarily and to the fullest extent possible, with respect to privately owned property, through acquisition of scenic and conservation easements, and through encouragement of state and local zoning restrictions. With respect to federally owned property within this unit, management will be for the primary purpose of preserving and protection of the scenic, wilderness, and recreational and cultural values. Timber harvest, except for the purposes of construction of recreational roads and other recreational developments, shall be excluded, and all lands within the unit are hereby withdrawn from mineral entry and location. Grazing is hereby specifically declared to be an allowable and permissible use of the Hell's Canyon-Snake National River, and may continue on all federal lands in the same manner, and under the same rules and regulations, as it exists on the date of passage of this Act, except as it may be modified in the future by the Department of Agriculture under existing regulations and authority. A portion of this unit shall be designated as the "Seven Devils Roadless Area", not to exceed 115,000 acres

in size, and the boundaries of which are set forth in the map referred to in Section 1 of this title. Within the boundaries of the Seven Devils Roadless Area, no roads for any purpose shall be constructed on federal lands, nor shall any use of this area be permitted by motorized vehicles on federally owned lands for any purpose, *except* that motorized boat use of the Snake River shall continue, and that use of motorized equipment for rescue operations, fire control, and necessary ranching and farming operations may continue where prior permits exists for such operations on federal land.

(B) The Imnaha Unit consisting of approximately 335,000 acres in the Wallaowa-Whitman National Forest in the state of Oregon, and extending along the Snake River in the state of Oregon from the southernmost point of the National Forest boundary which touches the Snake River (approximately one-half mile above the mouth of McGraw Creek) northward approximately 91 miles along the Oregon side of the Snake River to the northern boundary of the Wallowa-Whitman Forest at the point where it touches the Snake River. The exterior boundaries of this unit are further defined in the map referred to in Section 1 of this title. It is the intent of Congress that substantially all the lands within this unit shall remain essentially in their present use, except as hereinafter provided, and shall be managed in accordance with the purposes and philosophies set forth in Section 5(A) above. A portion of this unit shall be designated as the "Imnaha Roadless Area", not to exceed 250,000 acres in size, the boundaries of which are set forth in the map referred to in Section 1 of this title. Within the Imnaha Roadless Area, no roads for any purpose shall be constructed or shall use of the area by any motorized vehicle, for any purpose, on federally owned land be permitted, *except* that motorized boat use of the Snake and Imnaha Rivers shall continue and that the use of motorized equipment for rescue operations, fire control, and necessary ranching and farming operations shall continue, where prior permits exist for such operations.

(C) The Snake River Unit of approximately 30,000 acres, extending in a strip approximately one-quarter mile wide on the Idaho side of the Snake River from the northern boundary of the Seven Devils Unit to a point due east of the southern boundary of the city limits of the town of Asotin, Washington; and extending northward approximately 36 miles on the Oregon and Washington side of the Snake River from the northern boundary of the Imnaha Unit to the southern boundary of the city limits of the town of Asotin, Washington. This Unit shall also include both sides of the Salmon River in the state of Idaho in a strip approximately one-quarter mile wide on each side of said river, from the point of its confluence with the Snake River, east approximately 86 miles to the western limits of the town of Riggins, Idaho. It is the intent of Congress that substantially all lands within this unit shall remain in their present type of use, and that scenic use of the river shall be preserved by the Secretary, primarily and to the fullest extent possible through acquisition of scenic and conservation easements, and through encouragement of appropriate state and local zoning restrictions. The Secretary may, however, in accordance with the authority contained in Section 2 of this Act, acquire such lands and interest in lands as he finds necessary to provide sites for the use of the public, for access to the river, for administration of the riverway, and for the preservation and interpretation of the outstanding features of the Unit, *provided* that there shall be no such taking of lands at a distance greater than one-quarter mile from the waterline of any of the rivers herein mentioned, without the consent of the owner. The lands within the Snake River Unit shall be managed in accordance with the policies and philosophies set forth in Section 5(A) above.

Section 6. The Secretary is hereby authorized to accept the title to any of the private lands within the Hell's Canyon-Snake National River, in accordance with the authority contained in Section 2 of this Act; but he may not acquire such title without the consent of the owner unless he finds the cost of acquiring a scenic or conservation easement to be unduly high in comparison with the cost of acquiring the fee title.

Section 7. There shall be no dams or other water impoundments on any portion or segment of the Snake, Imnaha, or Salmon Rivers, within the Hell's Canyon-Snake National River, and any such structures previously authorized by Congress within the boundaries of this area are hereby deauthorized, *provided that*, the provisions of the Federal Power Act (41 Stat. 1063) as amended (16 USC 791) (A) et seq. shall continue to apply to any project as defined in that Act, already constructed.

The Secretary shall permit and encourage public hunting and fishing in all

lands and all waters under his control within the Hell's Canyon-Snake National River, in accordance with the laws of the states of Idaho, Oregon, and Washington.

Section 8. The Secretary may enter into cooperative agreements with the owners of property which are designated herein as included within the exterior boundaries of the Hell's Canyon-Snake National River as sites in non-federal ownership. Such agreements shall contain, but need not be limited to, provisions that in effect state that (1) the Secretary shall have the right of access at all reasonable times to all public portions of the property for the purposes of conducting visitors through the property and interpreting it to the public, and (2) no changes or alterations in the type of use shall be made in the properties, including buildings and grounds, without the written consent of the Secretary.

Section 9. There is hereby authorized to be appropriated the sum of not more than $10,000,000 for improvement and development of the road from White Bird, Idaho to Pittsburg Landing on the Snake River to facilitate access and recreation development of this portion of the Hell's Canyon-Snake National River. There is hereby also authorized to be appropriated the sum of not more than $10,000,000 for improvement and development of the road from the town of Imnaha, Oregon through the Imnaha River Canyon to Dug Bar on the Snake River to facilitate access and recreation development of this portion of the Hell's Canyon-Snake National River.

Section 10. There are hereby authorized to be appropriated such sums, but not more than $10,000,000 as may be reasonable for the acquisition of lands and interests in land and for development under the provisions of this Act.

NATIONAL WILDLIFE FEDERATION,
Washington, D.C., Febraury 25, 1970.

Hon. MARK O. HATFIELD,
U.S. Senate,
Washington, D.C.

DEAR SENATOR HATFIELD: Thank you for your letter of February 16 commenting upon my testimony before the Subcommittee on Water and Power Resouces that same day. I am pleased to respond to your request for added information.

Yes, we believe that nuclear power plants are feasible alternatives to the last remaining hydro sites in the Pacific Northwest, if thermal pollution and the release of radioactivity are properly curtailed and the siting and transmission lines offer no special difficulties.

In 1968, the Federal adopted a resolution (No. 9) on this subject, and, in 1969, we adopted a resolution (No. 16) commending Portland General Electric Company and Pacific Power and Light Company for taking these necessary extra steps to protect the environment (Copies are enclosed.) I doubt that the National Wildlife Federation or its affiliates will oppose nuclear power plants if they take these precautions. Attached is a statement I recently presented before the Joint Committee on Atomic Energy which relates to the subject.

Sincerely,

THOMAS L. KIMBALL, *Executive Director.*

[Enclosure]

NATIONAL WILDLIFE FEDERATION, 32D ANNUAL CONVENTION, HOUSTON, TEX., MARCH 8–10, 1968

RESOLUTION NO. 9—CONTROL OF THERMAL POLLUTION FROM NUCLEAR POWER PLANTS

Whereas, public waters of the Nation are used for a variety of beneficial purposes by members of the public, particulary for water-related recreations such as fishing, hunting, swimming, boating, and water-skiing; and

Whereas, these bodies of water are major elements in recreation-oriented industries of important economic impact on the localities and States involved; and

Whereas, the proposed water usage for nuclear power plant cooling purposes may result in significant levels of thermal pollution in many parts of the Nation; and

Whereas, it has been demonstrated that thermal pollution can result in profound changes in the environment, damaging or destroying resident and anadromous fisheries and/or the aquatic organisms upon which they are dependent; and

Whereas, the Atomic Energy Commission denies having the authority to refuse licenses for power reactors on grounds of thermal pollution; and

Whereas, thermal pollution is defined as any change in temperature which is detrimental to the aquatic environment;

Now, therefore, be it resolved that the National Wildlife Federation, in annual convention assembled March 8, 1968, at Houston, Texas, urges that the Atomic Energy Commission be authorized and directed to require that applicants for permits for nuclear power plants using public waters meet temperature and monitoring standards promulgated by the Secretary of the Interior and appropriate state authorities after consultation with Federal and state wildlife agencies, with the intent being to protect aquatic life, and after due notice and opportunity for public hearing based on substantial evidence that such modifications are necessary and desirable; and

Be it further resolved that the National Wildlife Federation also expresses the hope that all plants generating electric power by the use of steam will be required to install closed-circuit cooling systems or make other arrangements which will prevent thermal and radio active pollution of public waters.

NATIONAL WILDLIFE FEDERATION 33D ANNUAL CONVENTION, WASHINGTON, D.C.
FEBRUARY 28–MARCH 2, 1969

RESOLUTION NO. 16—COMMENDATION ON PREVENTION OF THERMAL POLLUTION

Whereas, unless proper steps are taken for the treatment of cooling waters, thermal pollution resulting from electric power generating plants pose a definite threat to fish and other aquatic life through drastic changes in the environment; and

Whereas, the Portland General Electric Company and Pacific Power and Light Company, constructing thermal plants, have both agreed to utilize cooling towers to minimize degradation of the environment; and

Whereas, the Oregon State Sanitary Authority, the Washington Water Pollution Control Commission, and the Federal Water Pollution Control Administration consistently have stood for the use of cooling processes that prevent or reduce harm to the environment;

Now, therefore, be it resolved that the National Wildlife Federation, in annual convention assembled Feb. 28–March 2, 1969, as Washington, D.C., hereby commends these utilities and the State and Federal agencies concerned for their fine efforts toward preventing contamination of the environment.

IDAHO WILDLIFE FEDERATION, DISTRICT NO. 1,
February 14, 1970.

Hon. CLINTON P. ANDERSON,
Chairman, Water and Power Resources Subcommittee, New Senate Office Building, Washington, D.C.

DEAR SENATOR ANDERSON: As president of District I—Idaho Wildlife Federation I wish to go on record as supporting Senate Bill 940 calling for a 10-year Moratorium on the Middle Snake River so that sufficient time can be made available to study the water resources and the ecological changes that would result from the different proposals planned for this section of the river.

As a conservationist I feel that with the tremendous population explosion, the rapid deterioration and destruction of our natural resources, and the need to preserve all the recreation potential we have; we should make every effort to manage these rivers with these views in mind not only for the future, but for our present needs.

Thank you for your consideration on this significant legislation.

Respectfully, yours,

E. D. BAILEY,
President.

WILDLIFE MANAGEMENT INSTITUTE,
Washington, D.C., February 12, 1970.

Hon. HENRY M. JACKSON,
Chairman, Committee on Interior and Insular Affairs, Senate Office Building, Washington, D.C.

DEAR SENATOR JACKSON: It is regretted that the Institute will be unable to have a representative at the public hearing scheduled on S. 940, to prohibit the licensing of hydroelectric projects on the Middle Snake River for a period of ten years.

This brief letter sets forth our views on the proposal and, more importantly, on the larger question of the future of the striking natural area through which the river flows.

It is believed that S. 940 should be the minimum that conservationists can accept for the Middle Snake River. A moratorium would serve mainly to put off the hard fact that must be faced about permanently banning dams from that stretch of the river. It will only remove the threat for a period of time, but actually will do little to relieve the pressure for the construction of dams there. Information is being received that there is a revitalization of interest in Snake River dams and that this centers around projects that would store water for irrigation as well as producing some power. Only positive action will persuade the dam builders to look elsewhere.

While we have no objection to the moratorium and would welcome its approval, we believe that the Congress should promptly turn its attention to recommendations for the creation of a suitably sized national recreation area, under the administration of the Department of Agriculture. Only through the authorization of an area such as is recommended in S. 3329, also before the committee, do conservationists believe that effective action can be taken to permanently preserve the Middle Snake River and associated watershed from improper development.

We would appreciate having this letter made a part of the hearing record.

Sincerely,

DANIEL A. POOLE,
President.

MOSCOW, IDAHO, *February 19, 1970.*

Senator HENRY M. JACKSON,
Chairman, Senate Interior Committee,
Senate Office Building, Washington, D.C.

DEAR SENATOR JACKSON: Please enter my letter as part of the hearing record for the Middle Snake Moratorium to be held in Washington, D.C., February 16. Please excuse my later letter as I have had the flu and didn't realize time had slipped by.

I am in favor of the bill to establish the Hell's Canyon-Snake National River in the States of Idaho, Oregon and Washington. The Moratorium is our next best bet, and I am in favor of it if our bill has no chance of being passed at the present time. However, I believe right now with our environment pollution before everyone's eyes, the time is right to support the Bill and not the Moratorium.

Very sincerely yours,

LAREN A. ROPER.

DAYTON, OHIO, *February 16, 1970.*

Senator HENRY M. JACKSON,
Chairman, Senate Interior Committee,
Senate Office Building, Washington, D.C.

DEAR SENATOR JACKSON: This letter is written to protest the proposed Moratorium on the Middle Snake River. This unique area should be permanently preserved now and not simply immobilized for another ten years. The Moratorium Bill is a do-nothing response to a constructive conservation proposal to protect one of the most outstanding areas in North America.

The Hells Canyon-Snake River Bill is the only positive approach to preserving this unique area. The Moratorium is a poor second choice.

I request that this letter be entered into the public hearing record on the Middle Snake Moratorium.

Sincerely yours,

Mrs. DONALD L. MARTIN.

LEWISTON, IDAHO, *February 19, 1970.*

Hon. HENRY M. JACKSON,
Washington, D.C.

DEAR SENATOR JACKSON: Having been a neighbor of yours for over sixty years I have never had the occasion to "hang the bee" on you for some support but the time has come when Idaho and Oregon need it to preserve Hells Canyon.

I herewith enclose a copy of my letter to Senator Church, on this matter and I sincerely hope you will feel the same about Hells Canyon.

I am also sending a copy of both letters to Senator Magnuson soliciting his support.

Very respectfully yours,

HARRY T. PHILLIPS D.D.S.

LEWISTON, IDAHO, *February 19, 1970.*

Hon. FRANK CHURCH,
Washington, D.C.

DEAR SENATOR CHURCH: The people of Idaho, Oregon and Washington, are very much concerned about the preservation of Hells Canyon.

I'm quite certain they not only favor SB–940 but also favor termination of the jurisdiction of the Federal Power Commission over this area.

There is only one other area that can compare with Hells Canyon, in the United States so we want to keep it in the natural state.

Respectfully yours,

HARRY T. PHILLIPS, D.D.S.

DEPARTMENT OF GEOGRAPHY, MICHIGAN STATE UNIVERSITY,
East Lansing, Mich., February 19, 1970.

Senator HENRY M. JACKSON,
Chairman, Committee on Interior and Insular Affairs,
Senate Office Building,
Washington, D.C.

DEAR MR. CHAIRMAN: I respectfully request that this letter be entered into the public hearing record on the Middle Snake River Moratorium.

It is my opinion that the segment of the Snake River between Homestead, Oregon, and Asotin, Washington, together with its canyon and certain of its tributaries, is a national natural and spiritual resource which should be preserved in its present condition permanently. I believe that the approach represented by the Hell's Canyon-Snake National River Bill (S. 3329) is much to be preferred over the Snake River Moratorium.

It is important to recognize, however, that such questions as what is to become of the Middle Snake River are actually facets of a much more basic question: what kind of a national environment are we going to be able to maintain in the future?

Throughout our history, we Americans have given an elevated position among our values to the concepts of growth, both economic and demographic, and profit. We have regarded the land (here referring collectively to all natural elements and resources) as a raw material to be exploited to promote growth and profit. Our country was endowed with vast and varied resources which were considered "free goods", with no ethic or sense of responsibility governing their use. The more cheaply they could be utilized, either as inputs to the economy or as media for the removal of outputs (wastes), the greater the growth and profits we could realize. The consequences of this attitude included strip mining without land rehabilitation, logging without replanting or erosion control, and polluted water and air. Of course, the bookeeping that figured this to be a low-cost approach was faulty as we are now finding out.

More recently, as we have begun to run short of our "unlimited" land, we have had a slight change of attitude toward the land. Now we say that we should not always provide for growth in the least expensive way, we should not always be guided only by the urge to maximize profits. We should, for example, accept the added costs (in the short-term sense) of controlling wastes—costs in terms of more expensive products, higher taxes, or lower profits. But this attitude, itself far from unanimously accepted, is not going to be enough.

We must soon realize that unless we re-examine our thinking regarding the desirability of continued economic and especially population growth, the struggle

for a high-quality environment—for open space, wild rivers, clean water, decent living conditions—will be lost. Fighting piecemeal battles for this wooded area or that stream will result in piecemeal destruction of our environment; even those battles won will have to be refought as demands for power, living room, water, etc., increase. We will have to answer questions about the relative values of more people vs. wilderness or attractive cities, of more power-consuming gadgets vs. undamned rivers, for these questions reach the basic causes of environmental deterioration. Only after we have decided whether we want more and more of what we have been gaining or all that is left of what we have been losing will we know whether there is any hope of preserving the Snake River (or the Everglades, or San Francisco Bay, or . . .).

Sincerely,

WALLACE M. ELTON.

LAUREL, MD.

Senator CLINTON P. ANDERSON,
Senate Interior and Insular Affairs Committee,
Senate Office Building, Washington, D.C.

DEAR SENATOR ANDERSON: The Hells Canyon stretch of the Middle *Snake River* is a beautiful, historic, and scientifically valuable area which is far more precious in its natural state than flooded by water of another unnecessary impoundment. There are other ways to make electricity. A dam would flood more than 17,000 acres, covering part of the winter range of 28,600 deer and 5,400 elk. NOW, while it is still possible, is the time to stablish this unique canyon and bordering bluffs as the Hells Canyon-Snake National River.

The Hells Canyon is the deepest U.S. river canyon; through it flows a stretch of magnificent river suitable for white-water canoeing. This is the last place where the ancient giant white sturgeon can breed. They can not breed in slack water which dams have made of the rest of this and other rivers. The sections of Snake and Salmon River planned to compose this National Wild River are pradises for fishermen. The river offers sand bars for camping. There are interesting plants and animals of several climates in the deep main canyon and those of tributaries. On canyon walls are pictographs made by an ancient civilization.

People of this and all future generations need this Hells Canyon-Snake National River.

Sincerely,

ELEANOR ROBBINS.

TROY CLINIC,
Troy, Idaho, February 19, 1970.

Hon. HENRY M. JACKSON,
Chairman, Senate Interior Committee,
Senate Office Building,
Washington, D.C.

DEAR SENATOR JACKSON: I am 47 years of age and have rafted and/or boated on all sections of the Salmon river, Snake river and parts of the Colorado, including the Cataract and Grand Canyon. This has been done entirely as a private party and private groups. I have been on Lake Meade, also on the Colorado river in the Glen Canyon area before the Glen Canyon dam and on the Snake river before the Hell's Canyon dam.

One of the greatest disappointments of my life was a vacation on the Glen Canyon reservoir called Lake Powell. I had read glowing propaganda about how this opened up things like Rainbow Bridge to the masses and about the beautiful inlets and side trips there were now available. On the contrary, the shore line is rocky, the natural beauty is gone forever and the masses remind me of the mourners who pass the casket of an important person, who is now lying in state. The whole thing is a lifeless, unreal situation. The sandy beaches, the shade of the bushes, the whole thing is gone, it is just like a large corpse, available for all to see as they file by in a kind of bewildered daze.

We have enough of that kind of monuments to our greediness and so few live vibrant spectacles of nature left. There is no way to make or replace a Hell's Canyon or Grand Canyon, or some of these other wild rivers or spots across our nation, where people can draw apart for awhile and renew their innermost souls and reflect and stand in awe of their Creator or evolutionist if that be their creed.

Don't let anyone persuade you into believing that the reservoir created by proposed dams in our Grand Canyon or Hell's Canyon are an answer to a public need. Across our great nation we have many dams and many reservoirs equal to what this would accomplish, but only one Grand Canyon and Hell's Canyon and these other spots of natural beauty. We may need electricty or individuals may make something, but trading off our heritage is far too great a price. This is like trading one of our children for food—a form of cannabilism.

To build the proposed dams is also a form of assassination. Please don't be guilty of doing it or standing by and letting someone else do it!

Sincerely,

OMER H. DURY, M.D.

MOSCOW, IDAHO, *February 17, 1970.*

Senator HENRY M. JACKSON,
U.S. Senate,
Washington, D.C.

DEAR SIR: I am writing to you to express my hope that no dams will be built on the Snake River above Lewiston. I have been in the Snake River Canyon at the lower end just above the Grand Rhonda River and I think that is prime recreation. I am now saving money to get a boat to utilize this area. I will use the boat for fishing for steelhead unless there are no steelhead.

I also heard that a count of 600 Fall Chinook salmon nests were counted by the Idaho fish and game in the main Snake River from Lewiston to Hells Canyon Dam. Are we to kill this run just as it is getting started again.

I have lived in Idaho all my life and have not yet been in Hells Canyon but that is now one of my goals. Please save it till I get my chance.

Please make this a part of the record of Senate hearings this week.

Thank you,

RUDY R. RINGE.

LEWISTON, IDAHO, *February 15, 1970.*

Senator LEN JORDAN,
Senate Office Building,
Washington, D.C.

DEAR SENATE JORDAN: I would like this statement included as part of the hearing record on Senate Bill 940.

I support senate bill 940 and hope for its quick passage. We cannot afford to lose any more of our most scenic and productive bottomlands along our river systems. Hell's Canyon will be cherished by future generations if we leave it undammed. However, I would prefer that your bill exclude all federal dams too.

Thank you,

STUART L. MURRELL.

LA GRANDE, OREG., *February 18, 1970.*

Senator HENRY M. JACKSON,
Chairman, Senate Interior Committee,
Senate Office Building, Washington, D.C.

DEAR SENATOR JACKSON: I wish this letter entered into the public hearing record on the Middle Snake Moratorium.

The positive approach to this matter is to pass and enact the Hells Canyon-Snake National River bill. The Moratorium is a poor second choice. It is so true that we must do something to protect the free-flowing stretch of the Snake River from the mechanics of man. We must leave something in its natural state for generations to come. A more fitting monument of God's creation and breathtaking beauty could not be found, I am quite sure.

It is time we take a definite stand in protecting the remaining natural areas. The Moratorium is a do-nothing response and it will soon be too late to take a definite stand as there will be nothing left to protect.

Sincerely,

JIM ZANELLI.

MOSCOW, IDAHO, *February 19, 1970.*

Senator HENRY M. JACKSON,
Senate Office Building,
Washington, D.C.

DEAR SENATOR JACKSON: I have made it a point throughout my life to be careful to what I lend my support and my name. This letter is to put my support and my name, both of little practical weight, behind the efforts to preserve that section of the Snake River between Hells Canyon Dam and Lewiston, Idaho.

I have listened to the arguments of representatives of various conservation groups, of several State and Federal government agencies, and of the Pacific Northwest Power Company. I have read numerous articles in various magazines and newspapers. The issue is not one of the necessity for power from the dam. Thermo-nuclear power can substitute for power from the dam. The issue is whether the free-flowing Snake is as valuable as the reservoir and inexpensive power that would result from any of the proposed dams. I submit that the 50,000 to 62,000 visitor days of use experienced on this portion of the Snake last year are more valuable than the roughly equivalent use that could be expected on a reservoir due to the scarcity of a recreation environment like Hells Canyon and the abundance of reservoirs. So, the issue is really one of the cost of power.

By the time one of the proposed dams for the area in question goes on the line, its 2 to 2.7 million kilowatts will represent about 2.2% of the Northwest's power needs as projected by Pacific Northwest Power Co. The estimated cost of producing this power by nuclear means is currently estimated to be 50%–60% higher than by a Snake River dam. This seems to indicate that the cost to me of preserving the Snake River is $2.2\% \times 60\%$ of my monthly electric bill. The additional monthly cost, assuming a $20.00 present monthly electric bill, is $\$20.00 \times 0.022 \times 0.6$ or 26.4 cents per month. By valuation techniques, I can compute the total cost to me, if I lived forever, of preserving the Snake, based upon the same additional monthly cost of 26.4 cents, and an alternate rate of 6% per year or 0.5% per month.

$$\text{Additional Cost} = \frac{\text{Additional Cost}}{\text{Alternate Rate}}$$

$$= \frac{\$0.264}{0.005}$$

$$= \$52.80$$

It will only cost me $52.80 to save the Snake. I am more than willing to assume this burden and I believe that most of the public is getting a bargain for their $52.80. They are receiving a unique and wonderous area for their enjoyment and for their children's enjoyment.

I believe that the Middle Snake Moratorium Bill, currently before you in the Interior Committee will effectively deny the Snake to further power development. Because of this, I support the Moratorium proposal. I urge your committee, the entire Senate, and the House of Representatives to pass this bill with all due haste.

Thank you for taking the time to read this letter. I ask that it be entered into the record of the public hearing held by your committee in Washington today.

Sincerely,

DANIEL F. GREEN.

MOSCOW, IDAHO, *February 18, 1970.*

Senator HENRY M. JACKSON,
Chairman, Senate Interior Committee,
U.S. Senate, Washington, D.C.

DEAR SENATOR JACKSON: Please include the following remarks I wish to make in the record of the hearings on the Middle Snake River in Idaho which are to be held this week:

I have lived in Moscow, Idaho all my life (over 42 years) and have seen too many of nature's wonders ruined by development and so-called "progress". The remainder of the free flowing Snake River must be left in its natural condition at all costs. If it means removing half of the electric appliances in my house. From what I understand the amount of electric energy which could possibly be produced from any more dams on this river would be insignificant.

Many times my family have enjoyed the beautiful scenic vistas along this free

flowing stream. We are aware of the many possibilities for quality recreation in this unique canyon. Lately we have hunted Mule deer on the slopes above the river. I well remember the exciting boat trip from Lewiston to the mouth of the Salmon River. I want to be able to make many more such trips and camp out on the sandy beaches where the fishing is tops. Future generations of Americans should not be denied the use of the remainder of the Middle Snake River in its natural state.

My family and I are in favor of protecting this river and the land around it in the best possible way.

Very truly yours,

EVERETT R. HAGEN.

JACKSON, WYO., *February 11, 1970.*

Senator HENRY M. JACKSON,
Senate Office Building,
Washington, D.C.

DEAR SENATOR JACKSON: We, as concerned citizens, are writing with regards to Senate bill numbered 3329 concerning the Hells Canyon Snake National River Bill. We would like this letter to be entered into the public hearing record on the Middle Snake Moratorium to be held in Washington, D.C., February 16.

With regards to this bill, we feel that the Moratorium is a poor second choice, a do-nothing response to a constructive conservation proposal designed to protect one of America's outstanding areas. Action is needed now and we feel that the National River Bill is the positive approach. In a time such as the present when environmental action is being stressed, a moratorium on a conservational bill such as this is contradictory as well as unnecessary.

Please accept this letter as evidence of public concern and as previously mentioned, enter it into the public hearing record on the Middle Snake Moratorium.

Thank you for your attention on this matter.

Very sincerely yours,

SUSAN J. ANDERSON.
ALAN BYBEE.
BRIAN C. HAGBERRY.
JEFFREY S. WOODRUFF.

TOWSON, MD., *February 12, 1970.*

Senator HENRY M. JACKSON,
Chairman, Senate Interior Committee,
Senate Office Building,
Washington, D.C.

DEAR SENATOR JACKSON: I have not been terribly involved with environmental issues before. It seems appropriate at this time that I write to urge the inclusion of the Snake and Salmon Rivers in the National Wild Rivers System. The rivers (despite the existing dams on the Snake) are two of the rare vestiges of our once primeval land inheritance. Such areas need immediate protection from the usual destruction of the ecological harmony caused by the development of dams and commercial enterprises. Further damming will flood the winter ranges of some of our rarest animals. (We have yet to prove scientifically that damming causes no undue stress on the ground rock underneath in an area not noted for geologic stability.) We cannot afford to upset the natural balance by future eradication of our wild animals and their world. We need more areas in our National Park and River Systems left unspoiled—no more Yellowstone, Grand Canyon, and Smoky Mountain bottlenecks. I feel that the Snake and Salmon Rivers should be accessible only by trail and primitive shorelines.

Though a moratorium placed on development of the area is better than nothing, it will only postpone the inevitable hassle (when land costs will be higher) over such a unique wilderness there should be no question about its preservation. Such panoramic vistas afforded by these rivers are unequalled. Man needs them so badly. I have a long way to travel to get to Idaho. I won't get there often. But I want the Snake and the Salmon unspoiled. It will be well worth the trip.

Please enter this letter into the public hearing record on the Middle Snake Moratorium held on February 16 by the Senate Interior Committee.

Sincerely,

CAROLINE S. FISHER.

MADISON, WIS., *February 12, 1970.*

Senator HENRY M. JACKSON,
Chairman, Senate Interior Committee,
Washington, D.C.

DEAR SENATOR JACKSON: I wish that my name be entered into the public hearing record on the Middle Snake Moratorium as one being strongly in favor of a permanent national river. A ten year moratorium is, in my opinion, only a foot dragging that spells ultimate victory for the interests that greedily look towards this area of rare and wonderful beauty. The rivers, gorges, wildlife, and flora speak for themselves. They speak in unison for preservation, not man-made artificial "development". I urge you, I beg you to speak strongly for a Hell's Canyon-Snake National River.

Sincerely,

JEAN ANN WAGNER.

MOSCOW, IDAHO, *February 15, 1970.*

Hon. HENRY M. JACKSON,
Senate Office Building,
Washington, D.C.

DEAR SENATOR JACKSON: It is my opinion that no one single act of human folly could be presently perpetrated that would do more damage to the Northwest than the damming of the Middle Snake. Hydroelectric development in this area—whether called progress or pure greed—is short-sighted in the extreme. I am an ecologist, and I know the enormous changes in the quality of life that such impoundment would bring to this area. There are unique aspects of floral and faunal life present in this area that would be forever destroyed. Surely, the reduction of the quality and uniqueness of the biotic features of this area is too high a price to pay for the development of a motor-boat playground or the production of electrical power that can now be produced less detrimentally by nuclear or thermal plants. If a dam is permitted to be built on the Middle Snake or the Salmon, it will be an inglorious monument in concrete to the short-sightedness of Congress. I ask that you accept this letter in support of the moratorium bill. I further urge you to recommend that hearings be held out here where the people are most directly concerned.

Sincerely,

MONTA LAZELLE.

IDAHO FALLS, IDAHO, *February 7, 1970.*

Hon. HENRY M. JACKSON,
Chairman, Senate Interior Committee,
Senate Office Building,
Washington, D.C.

DEAR SENATOR JACKSON: Please include the following statement in the public hearing records of the Senate Interior Committee concerning the Middle Snake Moratorium, to be held February 16, 1970.

Although the Middle Snake Moratorium would offer a ten year delay on any decision regarding power dam construction in Hell's Canyon of Idaho, Oregon, and Washington, we feel this postponement is unnecessary and offers only artificial protection for this incomparable region. We feel that the evidence already presented, the merits of the canyon itself, and the crucial need of our country for unspoiled natural areas demands uncompromising protection for Hell's Canyon. We support the immediate passage of the S. 3329 and H.R. 15455 bills creating a "Hell's Canyon-Snake National River"—not as a condemnation of the moratorium—but since protection can be achieved now through legislation, we feel further delay is unnecessary.

Thank you for your kind attention to this request.

Sincerely,

Mr. and Mrs. RICHARD W. MILLER.

PORTLAND, OREG., *February 14, 1970.*

Senator H. M. JACKSON,
Chairman, Senate Interior Committee,
Washington, D.C.

DEAR SIR: I am delighted to learn that a bill is to be introduced for the Preservation of Hell's Canyon-Snake River and Grande Ronde areas—Hurrah!

This is our last chance to preserve these areas for future generations—let us not fall short of our duty to the future.

Never was the need greater for action. Please file my letter into the Public Hearing Record on Middle Snake moratorium.

Sincerely,

DORA LEES, R.N.

IDAHO FALLS, IDAHO, *February 17, 1970.*

Senator HENRY M. JACKSON,
Chairman, Senate Interior Committee,
Senate Office Building,
Washington, D.C.

DEAR SENATOR JACKSON: I request that this letter be entered into the public hearing record on the Middle Snake Moratorium Bill (S. 940) held yesterday.

I am a member of the Hells Canyon Preservation Council of Idaho Falls and was much impressed by the logical and most excellently presented testimony of Gerald Jayne, our Secretary. I support his testimony in every detail and wish the record to show this.

I wish to emphasize further the importance to all people, presently living and to come, of this unspoiled bit of the United States unparalled anywhere in the world. We need to perpetuate forever this place where man can feel at one with his creator.

Yours sincerely,

Miss ENNIS C. BLAKE.

GRASS RANGE, MONT., *February 15, 1970.*

Senator HENRY M. JACKSON,
Chairman, Senate Interior Committee,
Senate Office Building,
Washington, D.C.

MY DEAR SENATOR JACKSON: Our Hells Canyon Preservation Council newsletter informs us that a public hearing is to be held on the Middle Snake Moratorium on February 16th. Although this letter will arrive too late for that exact date, my husband and I would like our letter to be added to the record—if at all possible.

We do *not* want the Moratorium. The National River Bill (S. 3329) is a much more viable approach for purposes of the genuine conservationist. I hope our opinion will still be considered—even though, as Montanans, we are not directly involved.

Thank you for your consideration of our opinion.

Very truly yours,

Mrs. WARNER N. KRUGER.

BOZEMAN, MONT., *February 12, 1970.*

Senator HENRY M. JACKSON,
Chairman, Senate Interior Committee,
Senate Office Building,
Washington, D.C.

DEAR SENATOR JACKSON: Please enter this statement into the public hearing record on the Middle Snake Moratorium.

I am strongly in favor of Bills S. 3329 and H.R. 15455 to establish the Hells Canyon-Snake National River and urge their adoption. Now is the time to act to save this splendid area for all the people for all time. Any delay would be most unwise in my opinion.

I have lived close to similar wild mountain and river country all my life and know the joys and benefits it has to offer a man. I want my children and my friend's grandchildren to be able to know this too.

Sincerely yours,

BOB MILLER.

SAN DIEGO, CALIF., *February 15, 1970.*

Senator HENRY M. JACKSON,
Chairman, Senate Interior Committee,
Washington, D.C.

DEAR SENATOR JACKSON: I have just received news that a bill to establish the Hell's Canyon-Snake National River was recently introduced into the Senate. I am writing this letter to urge you to lend your full support to it. The bill, S. 3329, will save the last wild stretch of the Snake River and will forever prohibit further damming of it. In these days of greater public awareness of the need to conserve more of our natural heritage the only sensible thing to do is pass the bill. However, I am aware that there has been a suggested alternative to the question, that is the so called moratorium. Why should the question be allowed to sit for ten years and be brought up after that time? The Canyon needs protection now and it needs eternal protection. The moratorium is a poor second choice, indeed.

President Nixon has gone on record as being for our natural heritage and the preservation of it. By doing something constructive for the environment Mr. Nixon's ideas can become meaningful, real entities, not political jargon. Please sir, do your part to save the area, as it now is, forever. I will thank you and future generations will thank you.

I respectfully request that this letter be entered in the public hearing record on the Middle Snake Moratorium to be held in Washington, D.C. on February 16 of 1970.

Cordially,

JOHN AND SHARON ARNOLD.

CONWAY, MO., *February 16, 1970.*

Senator HENRY M. JACKSON,
Chairman, Senate Interior Committee,
Washington, D.C.

DEAR SENATOR JACKSON: I am writing you regarding the Hells Canyon controversy. It is my opinion that the only solution is to make bills S. 3329 and H.R. 15455 law.

A moratorium, even a 10 year one, is a disappointing alternative to take on such an important issue as the ruining forever of the area in question, there is only one way to settle this dispute with fairness to ourselves, future generations, and more important, Nature, who has already suffered far too many defeats at the hand of man's greed.

Please enter this letter into the public hearing record on the Middle Snake Moratorium February 16, by the Senate Interior Committee.

Respectfully,

B. E. EVANS.

LEWISTON, IDAHO., *February 16, 1970.*

Hon. HENRY M. JACKSON,
Chairman, Senate Interior Committee, Senate Office Building,
Washington, D.C.

DEAR SENATOR JACKSON: I strongly urge your support for the ten-year moratorium against further dam construction on the Middle Snake River. This unique stretch of river should not be destroyed.

I grew up near Lake Roosevelt (behind Grand Coulee), and I feel recreational potential is actually reduced once a dam is constructed. This would be especially true on the Middle Snake, where all we would have left would be silt-lined banks and fluctuating water levels. It would be almost a crime to carry out this tpye of destruction on Hell's Canyon.

Although I sign this letter alone, I believe that over 90% of the citizens of this area would at least favor the moratorium, if not oppose dam construction on this stretch of river altogether.

Cordially yours,

GEORGE R. OAKSHOTT.

PORTLAND, OREG., *February 10, 1970.*

Senator HENRY M. JACKSON,
Chairman, Interior Committee,
Senate Office Building, Washington, D.C.

DEAR SENATOR JACKSON: I am writing this letter to express my concern over the Middle Snake and the Hells Canyon-Snake National River which was introduced by Senator Robert Packwood and Representative John P. Saylor. The Middle Snake Moratorium which is now in effect would post-pone any action to save or dam this river for 10 years. Why post-pone a chance to save such a magnificent area as this for the future generations to enjoy as we do today.

I also feel that the Moratorium is just a post-ponement of the battles to save or destroy the last of our natural environment, a good or bad environment which man must live with and tolerate til the end of time.

Very truly yours,

DALE E. BUNDY.

LAGRANDE, OREG., *February 15, 1970.*

Senator HENRY M. JACKSON,
Chairman, Senate Interior Committee,
Senate Office Building, Washington, D.C.

DEAR SENATOR JACKSON: I wish to have this letter entered into the public hearing of the Middle Snake Moratorium to be held in Washington, D.C., February 16th.

The preservation of the Middle Snake River in its free-flowing state is an essential conservation measure. Must we leave behind us only slimy mudflats, concrete spillways and polluted air and water? Of course not. Let us leave at least one monument to the beauty, serenity and grandeur of God's own creation. Please leave this magestic masterpiece of nature alone and untainted by man's greedy hands.

The Moratorium is a very poor second choice. Lets all stand behind and pass the Hells Canyon-Snake National River bill.

Very truly yours,

DORIS ZANELLI.

LEWISTON, IDAHO, *February 15, 1970.*

Senator HENRY M. JACKSON,
Chairman, Senate Interior Committee,
Senate Office Building, Washington, D.C.

DEAR SENATOR JACKSON: Please make your remarks part of the record of the moratorium hearings.

Yours truly,

JAMES ROBERT SHERMAN.

ST. PETERSBURG, FLA., *February 15, 1970.*

Senator HENRY M. JACKSON,
Chairman, Interior Committee, Senate Office Building,
Washington, D.C.

DEAR SIR: Please enter the enclosed letter into the public hearing record on the Middle Snake Moratorium. The Moratorium is a poor second choice, the National River Bill is the positive approach.

Thanking you.

Very truly yours,

JOSEPHINE L. STECK.

MOSCOW, IDAHO, *February 15, 1970.*

Senator HENRY M. JACKSON,
Chairman, Senate Interior Committee,
Washington, D.C.

DEAR SENATOR JACKSON: I would appreciate it if you would make the following remarks a part of the moratorium hearing on the Middle Snake River.

I think a dam should only be built if there is *no question* that *it is truly useful* to the total standard of living of the people living within its area of effective reach.

When the Bonneville Power Administration admits in hearings that *High Mountain Sheep is not essential* to the long-range needs of our area there is no doubt that the Ten Year Moratorium Bill of Senators Church and Jordan should be passed by the Senate.

What is the harm in waiting if knowledgeable authority is not convinced of need?

Sincerely,

RUSSELL L. CHRYSLER.

YELLOWSTONE PARK, WYO., *February 7, 1970.*

Senator HENRY M. JACKSON,
Chairman, Senate Interior Committee,
Washington, D.C.

DEAR SENATOR JACKSON: I am so pleased to hear that the bills S. 3329 and H.R. 15455, to establish the Hells Canyon-Snake National River, have been introduced into the Congress. Please do all you can to see that these bills are passed. It makes much more sense to set this area aside now than to quibble over it for a ten year moratorium period. In ten years we will surely have developed methods of power production that will not require the sacrifice of such areas, and the need for wild areas will be even greater than it is now. So let's set the area aside now instead of having to go through the whole battle again in ten years.

Please enter this letter into the public hearing record on the Middle Snake Moratorium to be held in Washington on February 16.

Sincerely,

MARY T. SHAUL.

SWAN CITIZENS CONSERVATION COUNCIL,
Condon, Mont., February 7, 1970.

Senator HENRY M. JACKSON,
Chairman, Senate Interior Committee,
Senate Office Building,
Washington, D.C.

DEAR SENATOR JACKSON: The Swan Citizens Conservation Council have instructed me to write you that we feel the Hells Canyon-Snake National River Bills as introduced by Senator Robert Packwood and Congressman John P. Saylor are by far the better approach to the protection of the Hells Canyon area than the Middle Snake Moratorium advocated by Senator Frank Church.

Please enter this letter into the public hearings record on the Middle Snake Moratorium to be held in Washington, D.C., February 16th by the Senate Interior Committee. Thank you.

Yours truly,

ED FOSS,
Secretary-Treasurer.

PULLMAN, WASH., *February 9, 1970.*

Senator HENRY M. JACKSON,
Senate Office Building,
Washington, D.C.

DEAR SENATOR JACKSON: I am writing you in order to express my opinions on the upcoming Bill S. 3329 which will establish the Hells Canyon-Snake National River. I strongly support the prompt passage of this bill. I feel it would be a shame if the Moratorium Bill was passed instead of Bill S. 3329. The Moratorium Bill is a poor second choice that will do nothing but put off the inevitable problem of protecting this area from economic exploitation. America needs unspoiled wild lands such as the Hells Canyon Area. If we are going to keep such lands in their wild state, then we must take immediate measures to protect them.

Please support and vote for the Hells Canyon-Snake National River Bill.

Yours truly,

MICK MCDEVITT.

EVERETT, MASS., *February 11, 1970.*

Hon. HENRY M. JACKSON,
Chairman, Senate Interior Committee,
Senate Office Building,
Washington, D.C.

DEAR SENATOR JACKSON: I understand that on February 16 the Senate Interior Committee will hold a public hearing on the Middle Snake Moratorium bill.

I want to register myself against it. Too much time and too much of the taxpayer's money is wasted in such prolonged "studies" as would be the result of this bill. This area needs permanent protection now not more time in which to be "studied" into oblivion by the power interests or "reclamation" groups.

I should like to hear of your commitment at an appropriate time to vote against the Moratorium bill and for the National River bill (S. 3329).

I should like to have this letter entered into the record of the hearing scheduled February 16.

Sincerely,

H. A. HALL, III,
President and Treasurer.

MOSCOW, IDAHO, *February 15, 1970.*

Senator HENRY M. JACKSON,
Senator FRANK CHURCH,
Senate Office Building,
Washington, D.C.

DEAR SIRS: I wish to request that your remarks be made a part of the record of the moratorium hearings on the Middle Snake River.

I wish to support the proposed national river plan, in order to preserve Hells Canyon as it now exists. I am opposed to the construction of dams, and other devices which interfere with natural ecological balance, especially in wilderness areas.

Sincerely,

HERBERT L. HUESTIS.

PORTLAND, OREG., *February 17, 1970.*

Hon. HENRY M. JACKSON,
Committee on Interior and Insular Affairs,
Washington, D.C.

DEAR SENATOR JACKSON: With reference to subcommittee hearings on the matter of a moratorium against licensing of a power project on the Middle Snake River:

I would like to express a strongly-felt personal view that a carefully-balanced, multiple-purpose, thoroughly-integrated, resources-conservational and environment-safeguarding conception should prevail in connection with plan and policy making for this outstanding and strategic river reach of the Columbia system.

A ten-year moratorium against power project development would have the merit and advantage of providing time for the planning, design, and technological research and development work that would ensure the best possible conservation, development, and use of the reach in the general interest.

While a development directed primarily to heretofore dominant power, and flood control, benefits—as represented by the High Mountain Sheep-China Gardens combination—would be undesirable, I do not believe that a more multiple-use oriented project—like the Appaloosa-Low Mountain Sheep combination formerly proposed by the Department of the Interior—should be foreclosed for the long run. This belief is held primarily because of the potential beneficial use of a properly designed dam, and water-release facilities, in regulation of water quality—including temperatures—downstream. Water storage and release in the interest of enhanced water quality for multiple domestic, municipal, industrial, and recreational purposes is a matter of increasing significance in both absolute and relative terms. With respect to the control of critical temperatures involving the survival of outstanding runs of anadromous fish to the Salmon River it may well be of crucial importance.

The view sketched only briefly above is not lightly or casually offered, since I have tried to follow the evolution of plans and policies for the Middle Snake—and the Columbia River system—for a considerbale number of years. A more comprehensive effort on my part to bring the complex conditions and issues of

that reach into perspective is presented in a paper on "Public Issues on the Middle Snake," in *Reservoirs: Problems and Conflicts*, Seminar Conducted by Oregon State University, Water Resources Research Institute, Fall Quarter 1968, Corvallis, January 1969.

Sincerely yours,

ROY F. BESSEY.

PULLMAN, WASH., *February 10, 1970.*

Senator HENRY M. JACKSON,
Senate Office Building,
Washington, D.C.

DEAR MR. JACKSON: The Middle Snake Moratorium bill, introduced by Senators Church and Jordan, is not good enough. We should not have to wait that long to make a worthy decision. We want positive action now to save the Middle Snake area from any more damming, and urge you as Chairman of the Senate Interior Committee, to hurry the Hells Canyon-Snake National River bill out of your committee and onto the floor. And then please do your utmost to influence its passage.

We would appreciate your sending us timely notice of any public hearings on the matter, and ask that one be scheduled for this area. Also please keep us informed about the progress of the Hells Canyon-Snake National River bill.

What is apt to happen if the bill makes no progress between now and the time of the reopening of the FPC hearings on the matter in mid-March?

It is in your power now to help accomplish some tremendous good and we are depending on you to work hard for the passage of the bill S. 3329.

Please enter this letter into the public hearing record on the Middle Snake Moratorium bill to be held in Washington, D.C., this February 16.

Sincerely yours,

GEORGE E. HUDSON.
Mrs. GEORGE E. HUDSON.

SEATTLE, WASH., *February 12, 1970.*

Senator HENRY M. JACKSON,
Chairman, Senate Interior Committee,
Washington, D.C.

DEAR SENATOR JACKSON: There is a growing awareness among the citizens of this great Nation of the need to save the wild areas still remaining for far too many of them already have been permitted to be *commercialized beyond recall.* There is also a growing awareness that other factors than *economics* alone are involved for determining the *fate* of pieces of our land which are still wild, but unfortunately, not specifically protected.

The Hells Canyon Preservation Council of which I am privileged to be a member, has members in nearly every state, and I can cite at least 35 organizations who have joined us in a desire to prevent further dam construction and to forever preserve the Hells Canyon area.

Any dam in Hells Canyon would be immensely destructive, and if the men and women the citizens have elected to represent them, yield to the *power interests* these senators and representatives, would, in so doing, give the public a *raw deal.*

I request my letter be entered into the public hearing record on the Middle Snake River Moratorium to be held in Washington, D.C. February 16, 1970. In my opinion, the Moritorium is a poor second choice and the River Bill is the positive approach.

Yours very concernedly,

MARCELIA S. WAHL.

WENATCHEE, WASH., *February 15, 1970.*

Senator HENRY M. JACKSON,
Chairman, Senate Interior Committee,
Senate Office Building,
Washington, D.C.

DEAR SENATOR JACKSON: I respectfully urge your support of the Hells Canyon-Snake National River Bill (S. 3329). I am happy to find that the area proposed includes a stretch of the Grande River is an area with which I am slightly fa-

miliar and which surely deserves inclusion. I believe this bill deserves to be passed and that is a better approach to the preservation of an unmatched scenic resource than the proposed Moratorium.

May I ask that this letter be entered in the record of the public hearing on the Middle Snake Moratorium to be held on February 16.

Respectfully yours,

WARREN AVERY.

PULLMAN, WASH., *February 17, 1970.*

Senator HENRY M. JACKSON,
Chairman, Senate Interior Committee,
Washington, D.C.

DEAR SENATOR HENRY JACKSON: *Please* you must do what you can to prevent any construction of the High Mountain Sheep Dam or any other dam in Hell's Canyon when there are potential alternative courses for producing electricity. It is the freedom we humans as Americans, and as occupants of this earth, to have our nature saved. I recommend strongly that you support the Hell's Canyon-Snake River Bill S. 3329 and H.R. 15455. My second preference is the establishment of a ten year moratorium to research the problem without the crises of a dam being built right away. Please keep me informed on the progress of the above mentioned bills and please enter this letter in the record.

JEAN THORNE.

RICHLAND, WASH., *February 16, 1970.*

Hon. HENRY M. JACKSON,
Chairman, Senate Interior Committee
Senate Office Building, Washington, D.C.

SIR: The legacy of wild, undeveloped areas and rivers is priceless. Their value is especially greater than the economic and so-called recreational values of impoundments and other man-made and inspired intrusions. Of what value are the relatively short term, limited benefits of a dam on the Snake or Salmon rivers compared to the infinitely long-term and far ranging benefits of the few wilderness areas left to Americans? I am sure you agree that only infantile intelligence could justify the proposed Snake and Salmon river dams in terms of needed electrical power. Many obvious alternatives exist with comparatively little detrimental effect upon our environment and way of life. The zeal with which we would protect these areas is very small compared to the gratitude of coming generations for our success.

It would be preposterous and a disgrace if a few powerful people in the Corps of Engineers, the Federal Power Commission, and the PNPC–WPPSS combine were to overrule the will of a greater majority and the future generations. Many of your constituents are not cognizant, perhaps, of the legalities and power dealings concerned with this cause but we do recognize where the true values lie, what the proper results should be, and upon whom we depend to get them done. Results to the contrary would be infamous.

I strongly urge you to support your constituents in obtaining action to preserve the Snake and Salmon rivers, whether it be a moratorium or a national rivers plan. I further request that my remarks be made part of the record of the moratorium hearings concerning the proposed dam on the Snake river.

Yours Truly,

BERNAL FEMREITE.

NAMPA, IDAHO, *February 12, 1970.*

Senator CLINTON P. ANDERSON,
New Senate Building,
Washington, D.C.

DEAR SENATOR ANDERSON: Please consider this letter my testimony on the use of the "Middle Snake River", particularly relative to S. 940.

As Vice President of the Southwestern Idaho Development Association, the organization which put together the Southwestern Idaho Water Project, with the bi-partisan help of our Congressional Delegates, I would like to state that our association feels the development of the "Middle Snake" may by the means by which funds necessary to allow our project to proceed can be secured. We favor full multiple-use, with Idaho reaping a portion of the benefits from the

sale of power, since it is largely Idaho's water which creates this portion of the river. Recreational use will be enhanced as a result of the development because of better accessibility.

We would not be hasty in any decisions, since these decisions will have far reaching results. Certainly, a moratorium would be in order in allow sufficient time for a thorough study of all phases of this development. It is better to go cautiously than to make a mistake.

The Governor's Blue Ribbon Water Resources Advisory Committee, of which I was Chairman, included this recommendation among others sent to the Governor: "Since much of the water passing down the Snake River into the Columbia River originates in Idaho, it is entirely proper that Idaho should participate in power revenues developed along this water course. Strenuous efforts must be made to secure revenues to which Idaho is entitled." A further recommendation stated: "Water Resource Development should secure more financial participation from other than agriculture—such as power, wild life, recreational, commercial, industrial, municipal, and environmental."

I join with Senators Jordan and Church in support of the moratorium bill which they have proposed, so long as the time provided for by such moratorium is fully utilized in a careful and fast-moving study of the proper multiple-use development of the "Middle Snake" and Idaho's participation in it.

Power revenues may be necessary to assist the application of Snake River water on Idaho lands as provided under the Southwest Idaho Water Project. Conceivably, the moratorium could be lifted very soon if the studies indicate the desirability of prompt development.

Respectfully,

JOHN H. BRANDT.

IDAHO CITY, IDAHO, *February 11, 1970.*

Hon. CLINTON P. ANDERSON,
Chairman, Water and Power Resources Subcommittee, New Senate Office Building, Washington, D.C.

DEAR SENATOR ANDERSON: I wish to submit the following written statement with reference to the public hearings on S. 940, the Middle Snake River Ten Year Moratorium Bill.

One of the greatest accomplishments from the last session of the legislature, was passage of the National Wild Rivers Bill. Now why don't we use it? Why wait ten years, spend thousands for good comprehensive studies, only to have them crushed by monetary statistics compiled by some agency or group of material-minded individuals.

How can studies that attempt to relate the importance of such intangible values as scenic, historical, geological, and recreational compete with studies based solely on monetary values, and especially when judged by a society that is still enjoying this historical era of rapid development.

Leisure time is increasing every year. Families are fleeing the crowded cities and urban areas. Present park and recreational areas are suffering under the increase visitor pressure. The Snake River-Hell's Canyon region classified as a National Wild River Area with roads and campground sites in the boundary 'buffer strips', and with the core of the area maintained in its rugged wilderness state (which it naturally fits), seems most pertinent toward the present and future demands of our country.

Sincerely,

FRANCIS MOHR.

ARCO, IDAHO, *February 5, 1970.*

Hon. HENRY M. JACKSON,
Chairman, Senate Interior Committee,
Senate Office Building,
Washington, D.C.

DEAR SENATOR JACKSON: I have just learned of the bills recently introduced to create a Snake National River. To me this is much more desirable than a moratorium for solving the problems of this great river.

Would you please enter this letter in the records for the February 16 public hearing?

Thank you.

Sincerely yours,

ROBERT J. FERRIS.

PULLMAN, WASH., *February 17, 1970.*

Hon. HENRY M. JACKSON,
Chairman, Committee on Interior and Insular Affairs, U.S. Senate, Washington, D.C.

DEAR SENATOR JACKSON: We wish to inform you of our support for the proposed 10-year moratorium on the Middle Snake River. With the increasing demands by the public for unspoiled lands much more is to be gained by leaving the Middle Snake River in its present natural state.

We would also like to request that this letter be made part of the hearing record.

Respectfully yours,

Mr. & Mrs. DOUGLAS F. CLARK.

RICHLAND, WASH., *February 17, 1970.*

Senator HENRY M. JACKSON,
Senate Office Building,
Washington, D.C.

DEAR SENATOR JACKSON: I am writing to urge your support of the bill to establish the Hells Canyon-Snake National River. I understand this bill will also protect the lower Grande Rande. I believe this measure should be enacted now and that a ten year moratorium is too long a delay in affording this area the protection it merits,

Hells Canyon has been said to be equal in quality to the Grand Canyon of the Colorado. In 1967 I traveled the Snake from Lewiston to the head of navigation near Hot Point, and I believe the comparison is fitting.

Saving Hells Canyon for the people would be a re-affirmation of the Democratic process and I sincerely hope you will be able to support the Hells Canyon-Snake National River legislation.

Kindly enter this letter into the public hearing record on the Middle Snake Moratorium.

Very truly yours,

D. D. STEPNEWSKI.

MADISON, WIS., *February 21, 1970.*

Hon. Senator HENRY M. JACKSON,
Chairman, Senate Interior Committee,
Washington, D.C.

DEAR SENATOR JACKSON: I would like to urge the establishment of the Snake River-Salmon River National Waterway rather than the proposed moritorium, which latter is still much preferable to immediate construction of dams. Twice I have crossed the continent with six or a dozen friends, for the privilege of canoeing on the Salmon and Snake Rivers, in the summers of 1967 and 1968. I believe that these two rivers comprise the finest stretch of white water in the country. From the headwaters of the Middle Fork of the Salmon down thru the River of No Return, and the Lower Canyon of the Salmon River to the junction with the Grande Rande are strung three weeks and three hundred miles of the most delightful water that exists.

The rapids are not easy but neither are they crushingly difficult. They are not the sole province of the professional or semiprofessional boatman, as are the rapids of the Colorado. Novice canoeists can hope to run this stretch of water in decked canoes and kayaks after a year or two of experience, given adequate leadership and instruction. Therefore I hope that this whole stretch can be preserved and protected, for in truth it is a national treasure.

Would it be possible to hold hearings on this subject in Wisconsin. Very many people from Madison either have gone or plan to go down the Salmon and Snake and would like to be heard. In any case, I request that this letter be made part of the official record of the Snake River Moratorium.

Sincerely,

ERIC S. JACOBSON.

CITY OF RICHLAND,
Richland, Wash., February 23, 1970.

Hon. Senator HENRY M. JACKSON,
Chairman, Interior and Insular Affairs Committee,
Senate Office Building, Washington, D.C.

DEAR SENATOR JACKSON: I am writing you in opposition to Senate Bill 940 on behalf of the City of Richland.

The City of Richland is a member of the Washington Public Power Supply System for its Middle Snake Project. As you know, all of our projections of power requirement growth indicate that by 1978 there will be a serious power shortage. This bill that would create a ten-year moratorium on any development on the Middle Snake would mean that the project would have to be scrapped. It is our feeling that electric power, particularly that supplied by dams, creates far less pollution and problems with the environment than thermal-generating plants or use of other types of fuel as power sources.

We understand Representative Ullman of Oregon has proposed a 580,000 acre Hells Canyon National Recreation Area which would permit the development of the Middle Snake for power, irrigation, water control, and would further develop it as a more usable recreation area. It seems to us this is a much better approach to the problem and should allow for complete development of that stretch of the river.

Very truly yours,

MURREY W. FULLER,
City Manager.

KENNEWICK, WASH., *February 24, 1970.*

Senator HENRY M. JACKSON,
Chairman, Senate Interior and Insular Affairs Committee,
U.S. Senate, Washington, D.C.

DEAR SENATOR JACKSON: I am opposed to Senate Bill #940, which provides for a ten year Middle Snake Project moratorium. I feel the river should be developed to the fullest for power and recreational facilities.

As a natural resource, this river should be developed to serve the best interests of the most common good, rather than to serve only a small group of self-interested preservationists. To develop it is not to destroy it, but will make it accessible to people to enjoy while providing low cost electricity to more people.

Your efforts to defeat this measure will be greatly appreciated.

Yours very truly,

JAMES E. MOOTHART.

PULLMAN, WASH., *February 21, 1970.*

Senator HENRY M. JACKSON,
Chairman, Senate Interior Committee,
Senate Office Building, Washington, D.C.

DEAR SENATOR JACKSON: I would like to urge your support of the Hells Canyon Snake River bill. If this has no chance of passage then as an alternative I would recommend your support of Sen. Church's 10 year moratorium proposal. As an engineering educator I am aware of the technical arguments on this matter. As a father and Boy Scout Scoutmaster I am aware of the aesthetic values under consideration. In fact, our Scout troop is going back to the Seven Devils area this summer. By contrast, Grand Coulee has nothing to return to. At this stage in our Nation's development I feel aesthetic qualities must take top priority since alternative methods are available for power production and population pressures on recreation areas are becoming very severe.

Respectfully,

RALPH M. HORTON.

WARD'S NATURAL SCIENCE ESTABLISHMENT, INC.,
ROCHESTER, N.Y., *February 20, 1970.*

Hon. HENRY JACKSON,
U.S. Senate,
Washington, D.C.

DEAR SENATOR JACKSON: I am writing to urge your support for the Snake River National River Bill to retain the natural beauty of Hells Canyon.

I realize that it is always difficult to make a decision of this kind but if we are to maintain the effect of the environment in the west, we must make some of these hard decisions which may compromise some material progress. Certainly, many people will be able to continue to enjoy this natural wonderland many years into the future if we can restrain ourselves from damning it up.

Yours very truly,

WILLIAM C. GAMBLE,
President.

CONCORD, CALIF., *February 22, 1970.*

Senator HENRY M. JACKSON,
Chairman, Senate Interior Committee,
Washington, D.C.

DEAR SENATOR JACKSON: We strongly urge that you support the Hells Canyon-Snake National River Bill.

This wonderland should be set aside for the public.

A Moratorium would be a poor choice.

We ask that this letter be made a part of the hearing record.

Very truly yours,

Mr. and Mrs. WILLIAM SATTLER.

BENTON RURAL ELECTRIC ASSOCIATION,
Prosser, Wash., February 24, 1970.

Senator HENRY M. JACKSON,
Chairman, Interior and Insular Affairs Committee,
Senate Office Building,
Washington, D.C.

DEAR SENATOR JACKSON: If our 3500 member cooperative is to be given a chance for survival we must be assured of a low cost power supply for the years ahead. Without this assured supply, we, along with many other small public power utilities in the Northwest, will be in serious trouble.

We therefore are in complete *disagreement* with the 10 year moratorium on the Middle Snake River as proposed in Senate Bill #940. To deny the people of the Northwest this valuable low cost energy resource which is available in the Middle Snake Area is unthinkable at this time. With the uncertainty surrounding the siting of every proposed nuclear plant to date it would be tragic to lose the last remaining, feasible hydro sites in the Northwest.

In the past if the resources of our nation had been restricted for the benefit of a wealthy few, our nation could not have survived. The "pros" and "cons" of this project must be based on the overall benefits to the vast majority of the people in this area.

I urge you and your committee to reject this objectionable legislation.

Very truly yours,

JOE CHIARA,
Manager.

SEATTLE, WASH., *February 24, 1970.*

Senator HENRY JACKSON,
Chairman, Senate Interior Committee,
Senate Office Building,
Washington, D.C.

DEAR SENATOR JACKSON: We would like the following letter entered into the public hearing record on the Middle Snake Moratorium that was held in Washington, D.C. on February 16th by your Committee.

Both my husband and I have been to the Hells Canyon of the Snake River and both hiked along the river and ridden the river and rapids. Although we

have spent less than a week's time with this wild, free-flowing stretch of river, we have experienced its great beauty, abundance of wildlife, and geological and historical uniqueness. We have visited the canyon both times at Thanksgiving when the days are short and cool and the nights cold and frosty. We have seen fresh deer and raccoon tracks on the sandbars and shivered in the early morning chill as we rapidly hiked up a steep rocky trail watching the white water rapids whirl and churn below us. We have seen the excited look upon a young boy's face upon discovering a deer's skull. We have seen, smelled and touched a river and its intricate ecology. We have also steeped ourselves in time and wondered at the physical stamina and courage of the Lewis and Clark expedition in crossing this great natural barrier. If my words are lyrical and poetic and far removed from fact, it is because the river sings such a song to those who would wander along its shores and ride through its rapids.

We have also driven and walked along the reservoirs formed by the Lower Hells Canyon Dam and the Oxbow and Brownless Dams. These dams are serving a purpose and already provide more than adequate space for boat recreation and still water experience. With much sadness we imagined the impact of the inundating waters at Pittsburgh Landing, when and if the High Sheep Dam was built.

In conclusion we feel that Hells Canyon deserves protection now, not a 10 year delay on its management and preservation. Hence we oppose the Moratorium Legislation and support the Snake National River Bills introduced into the Congress this session.

Sincerely yours,

Mr. and Mrs. JAMES C. POWERS.

FERGUSON, Mo., *February 22, 1970.*

Senator HENRY M. JACKSON,
Chairman, Senate Interior Committee,
Senate Office Building,
Washington, D.C.

DEAR SENATOR JACKSON: On February 16th a hearing was scheduled to be held on the proposed Middle Snake Moratorium, S. 940. This Moratorium would merely delay any decision on this extremely beautiful, unique, and valuable area. Additional foot-dragging is certainly neither appropriate nor indicated at a time when the public is calling for positive conservation action. Even President Nixon has issued a call for improving environmental quality. A Moratorium on any decision is certainly a negative approach to a public mandate. We urge you not to support this foot-dragging, but instead push for early hearings and passage of S. 3329, a bill to establish the Hells Canyon-Snake National River.

We wish that this letter become part of the public hearing record. Thank you.

Your truly,

Mr. and Mrs. JOHN H. STADE.

DENVER, COLO., *February 23, 1970.*

Senator HENRY M. JACKSON,
Chairman, Senate Interior Committee,
Senate Office Building,
Washington, D.C.

DEAR SENATOR JACKSON: Please enter the following statement in the public hearing record on the Middle Snake Moratorium:

The above mentioned Moratorium is a weak second choice in comparison with the Hells Canyon-Snake National River bills which have recently been introduced in both the House and Senate. Let us hope the Congress will not react in such a do-nothing manner to all the environmental issues of the next decade. Pollution as opposed to quality environment cannot be put off for ten years without disastrous results. Positive action now on the national river will help set the standard for the high quality environment the public is soon to demand.

Yours truly,

JERRY SCHAUB.

BOISE, IDAHO, *February 26, 1970.*

Re: S. 940 Middle Snake Moratorium.

Hon. CLINTON ANDERSON,
Chairman, Subcommittee on Water and Power Resources, Senate Office Building, Washington, D.C.

DEAR SENATOR ANDERSON: The low cost power syndrome should not be permitted to militate against the value judgments that need to be made on future best public interest uses of the remaining portion of the Middle Snake River.

The Moratorium Bill S. 940 by Senators Church and Jordan now best serves this purpose, hence its approval is respectfully requested, and that this be made part of the hearing record of February 16, 1970.

To sacrifice such few remaining natural assets on the altar of cheap power would be serious quality environment mistake. Good analytical research in long term true public interest will most likely show better value from no further dam construction here and the moratorium is needed so such can be done with findings of objective evidence.

Cheap power advocates covet this magnificent resource for themselves quickly and the Congress will render great environmental service by staving off foreclosure of options that should remain open for national determination of what should be best for this unique area of our country.

Although electric energy is recognized to be essential its lower costs from hydroelectric head should not now be the criteria for construction of dams on our rivers, and particularly what is left of our Hells Canyon. There are better ways for those truly concerned about quality environment to get needed electric energy which study of the record will reflect.

Thank you very kindly.

Respectfully yours,

BRUCE BOWLER.

ARCO, IDAHO, *March 2, 1970.*

Senator HENRY M. JACKSON,
Chairman of the Senate Interior Committee, Senate Office Building, Washington, D.C.

DEAR SIR: I am a 21 year old Sportsman whom is concerned with the future use of the Snake River, and its beauty as it was.

I am against all dams on the Snake River because, the ones that are all ready built have stopped the Greatest Salmon and steelhead runs in the world. Salmon in the yesterdays could run from the Pacific all the way to Montana and Wyoming, but never again.

I would like to see the scenic part of the Snake River (Hells Canyon, other) stretches turned over to the National Park Service, so the Public could enjoy it more. New campgrounds and scenic overlooks could be developed, because in ten years we will need recreation more than the dams. I would like this put on record.

BYRON WEISS.

BOZEMAN, MONT., *March 25, 1970.*

Hon. HENRY M. JACKSON,
Chairman, Senate Interior Committee,
Senate Office Building, Washington, D.C.

DEAR SENATOR JACKSON: It has come to my attention that the National River Bill, S. 3329 and H.R. 15455 has recently been introduced.

I wish to express my support for this bill and urge that this legislation be passed as soon as possible. The Moratorium is a poor second choice and the National River Bill is the positive approach.

Will you please enter this letter into the public hearing record on the Middle Snake Moratorium. Thank you.

Sincerely,

HARRY W. TOWNES.

COOS CURRY ELECTRIC COOPERATIVE, INC.,
Coquille, Oreg., February 25, 1970.

Hon. HENRY M. JACKSON,
Chairman, Interior and Insular Affairs,
Senate Office Building, Washington, D.C.

DEAR SIR: The board of directors, of Coos-Curry Electric Cooperative, Inc., are resolutely opposed to S. 940. The growing power needs of the Northwest indicate very clearly the need for comprehensive development of the Middle Snake through construction of a multipurpose project. It is one of the greatest hydro sites left on this continent.

While the Hydro-Thermal accord is proceeding on schedule we are facing in 1973–74 a critical power shortage, along with a growing concern over power needs in years to come.

We urge the defeat of S. 940.

Very truly yours,

W. A. COOK, *General Manager.*

PORTLAND, OREG., *February 25, 1970.*

Senator HENRY M. JACKSON,
Senate Office Building,
Washington, D.C.

MR. SENATOR JACKSON: Because you are chairman of the Senate Interior Committee, I am writing to you about the controversy around Hells Canyon. I would like this letter entered into the public hearing record on the Middle Snake Moratorium, which hearing was held on February 16 in Washington, D.C.

I feel that a dam on this magnificent stretch of the Snake River would be a terrible mistake. This bill which would place a moratorium on any developing of Hells Canyon for ten years therefore, if not actively destructive, is at least pointless; in ten years there will be the same arguments all over again, and the weight of the evidence will be as heavily on the side of preserving the canyon as it is now. I far prefer the Hells Canyon-Snake National River Bill (S. 3392), introduced by Senator Packwood. I hope that Congress will pass it this year.

Sincerely,

GARY L. DAVIS.

LEWISTON, IDAHO, *February 6, 1970.*

Hon. CLINTON P. ANDERSON,
Chairman, Senate Interior Committee,
Senate Office Building,
Washington, D.C.

DEAR SENATOR ANDERSON: I would like to submit for the record the following statement concerning S. 940, on which hearings are to be held shortly.

The purpose of the Moratorium is to prevent dams from being built on the Middle Snake River. In order to accomplish this goal, it will be necessary to control the activities of the following dam building agencies and applicants:

First, there is the Pacific Northwest Power Co. which has applied for a dam permit in company with certain public power groups to build Mountain Sheep dam above the mouth of the Salmon.

Next there is the Corps of Engineers, who will build any kind of a dam anywhere at any time if funds are available. The Corps has the Asotin dam authorized and only appropriations stand in the way of immediate construction.

The Bureau of Reclamation would like to build dams, like the Corps, anywhere. This includes the Middle Snake as well as the Salmon. Apaloosa dam is the current pet project of the Bureau, and it has been helped in this effort by the Bureau of Sport Fisheries and Wildlife office in Boise, which also fattens its payroll investigating dams of one kind or another.

Last, there is the Idaho Water Resources Board, and this group might join with any of the others to build dams most anywhere.

This adds up to a swarm of would-be dam builders hungrily surveying the Middle Snake and Salmon for dam sites. If all these groups are prevented from building dams on the Snake and Salmon Rivers, it will require some ironclad protection and it will be mandatory that none of them, especially the public agencies, get started spending planning funds in this area. All it takes to end up with a federal dam is one small appropriation for detailed planning, which is actually the initial state of construction.

Both the Middle Snake and Salmon are areas rich in wildlife, fisheries resources, scenery, and historical values. A dam on either river would be a conservation catastrophe. Road builders would soon fill the roadless areas with a network of new roads in event work is started on a dam.

A photograph entitled "Wildlife Habitat Obituary" is attached to show one kind of damage caused by construction of roads in stream bottoms. The scene shown is a road along Skull Creek, a tributary of the North Fork of the Clearwater, in the Clearwater National Forest. After due deliberation, the Forest Service filled the streams in this area with rocks and ruined the fishing. Roads into the Middle Snake or Salmon River would almost certainly ruin the resources they are supposed to provide access to.

The best protection against further dam building in the Salmon and Middle Snake areas would be passage of the Hell's Canyon-Snake National River Bill introduced by Senator Packwood. Lacking this, the next best protection would be a prohibition against dam construction of any kind and also a prohibition against any planning funds for dams on either the Snake or the Salmon. I have serious doubts that the provisions of S. 940 would accomplish this goal, unless strengthening language is added to prevent appropriation of planning funds and dam construction on both the Snake and Salmon.

If the bill is left as written, the Salmon will be left without protection after the expiration of the study period provided by the Wild and Scenic Rivers Act. Detailed planning for dams on both the Snake and Salmon could proceed during the moratorium period. This would in all probability be the prelude to disaster.

Half way measures will not prevent dams. Dam builders in this area have almost superhuman persistence and ingenuity in getting the concrete pouring started. Every legal trick in the books will be tried, and probably some that are on the verge of being illegal. The constant urge to build dams is as strong among these people as a religion. These facts must be faced up to if these rivers are to be saved.

Very truly yours,

MORTON R. BRIGHAM.

GAME COMMISSION, OFFICE OF THE DIRECTOR,
Portland, Oreg., February 24, 1970.

Hon. MARK O. HATFIELD,
U.S. Senate, Washington, D. C.

DEAR MARK: The evaluation of recreational use of the Mid-Snake River area in 1969 was a joint effort by this department and the Idaho Fish and Game Department. The Idaho Department is in the process of printing the report and it should be available in time for inclusion in the record of the February 16 hearing on S. 940.

The same information was presented to the Federal Power Commission and copies of our testimony to that body are enclosed.

The joint report will provide a more concise presentation of the available data and copies of it will be forwarded to you and to the Senate Interior Committee in the near future.

Your initiative in this important matter is appreciated.

Sincerely yours,

JOHN W. MCKEAN, *Director.*

[Enclosure]

SUPPLEMENTAL TESTIMONY OF WILLIAM E. PITNEY, WITNESS FOR THE JOINT INTERVENERS FISH COMMISSION OF OREGON AND OREGON STATE GAME COMMISSION

Q. State your name and occupation for the record.

A. William E. Pitney, Chief, Basin Investigations Section Oregon State Game Commission.

Q. Are you the same William E. Pitney whose earlier testimony appears on pages R–1324 through R–1352 and R–3232 through R–3264 of the transcript?

A. I am.

Q. On page R–1344 of that testimony you made reference to a sport fishery inventory your department had just initiated on the Snake River. In subsequent cross examination you made additional comments which appear on pages R–3248A through R–3251.

Do you have any additional information about the middle Snake River sport fishery?

A. Yes, sir, I have the results for the period of June 1 through December 31, 1968. The study will continue through calendar year 1969 as a part of a somewhat larger effort.

Q. How was this study conducted?

A. A boat dock was established on the Oregon shore of the Snake River near the Oregon-Washington state line. An ultrasonic recording monitor was installed at the dock with two connected hydrophones in the water about 100 feet apart in a quiet reach of the river. All unuuasl water vibrations activated a battery-powered tape recorder. A clock was built into the system so that every 6 minutes a time mark was recorded on the tape. By locating the hydrophones up- and downstream from each other, the direction of boat travel was determined. Experienced technicians could "read" motor boat passage and time within these 6-minute intervals. A checking station was established at the dock and by a predetermined statistically designed sampling program some boaters were stopped for interview to determine why the boat trips were made. The total recreational use of the middle Snake River by boaters travelling upstream past the state line was therefore determined by expanding the interview data to the recorded total boat usage.

Q. In the September 1968 cross-examination testimony you indicated there was a problem of accurately counting the boats and you were getting records of a greater number of boats going upstream than returning downstream. Is this still a problem?

A. No it is not. The problem I referred to occurred during the first month or six weeks of the installation and was the direct result of improper adjustment so that the monitor did not properly record all boats travelling downstream. The results I had at that time went through May 30, 1968 and the information we consider valid for our 1968 study starts with the June 1 records. The boat passage records we now have appear to be quite accurate.

Q. What was the result of your 1968 study?

A. For the 7-month period from June 1 through December 31, 1968 there were 1,450 separate boat trips which went up the Snake River past the Oregon-Washington state line and these accounted for 14,726 man-days of recreation. A little over 40 percent of these days, nearly 6,000, were for boating only, while almost 7,500 days were primarily for angling and more than 1,300 for hunting. The anglers accounted for more than 12,700 angler-hours of recreation.

About 7,800 of the recreational days were clients of guided boat trips while nearly 7,000 days of use occurred in private boats. Most of the catch was composed of smallmouth bass, with steelhead a second most numerous fish taken. Some channel catfish, trout, and white sturgeon were taken also.

Nearly 59 percent of the boat trips only went as far as the Salmon River but almost 23 percent went upstream at least as far as Pittsburg Landing. Five percent actually went upstream above Johnson Bar, the official head of navigation.

Of the licensed anglers and hunters using this reach, 81 percent were licensed by the State of Idaho and 19 percent held Oregon licenses. The principal reason for this disparity of the proportion is that many of the boats and anglers originate in the Lewiston, Idaho area, while many of the others originated from the Clarkston, Washington area. Most of the latter purchase Idaho licenses because of the convenience to do so as well as the ability to use those licenses in other Idaho waters such as the Clearwater and Salmon Rivers. The majority of the hunting licenses had been issued by Oregon.

Most of the boats came from Idaho, 70 percent of the total, 20 percent came from Washington, while less than 10 percent of the boats had been licensed by Oregon. Nearly 1 percent of all the boat trips were in craft that had been licensed in other states.

Q. You said there were some 1,300 hunter days recorded on this inventory. Was that a substantial part of the 1968 hunting effort that took place in the Snake River canyon?

A. No. That was only a minor part of the total. For example, our 1968 hunter inventory showed that 4,060 individuals hunted big game animals for a total of 23,740 days in the Chesnimnus game management unit, and 4,250 hunters spent 24,620 days seeking big game in the Snake River unit.

These two units cover the Oregon side of Snake River from the state line up to Pine Creek above Hells Canyon Dam. A map of the area was included in the Oregon Fish and Game Exhibit No. R–403.

The 1,300 hunter days shown by the sport fishery inventory included Idaho and Oregon hunters seeking birds and big game animals. The hunter inventory figures are only for big game in Oregon; consequently, the 1,300 is a very minor part of the total. Other hunters enter the canyon by vehicle where access roads exist, by horse packing, by boat from Hells Canyon Dam, and by aircraft.

Q. Do all hunters on the Chesnimus and Snake River units hunt only in the Snake canyon?

A. No they don't. I do not have a precise breakdown, but about 10 percent of the Chesnimus and about 50 percent of the Snake River unit hunting effort is in the canyon. This means that nearly 15,000 big game hunter days were expended on the Oregon side of the canyon in 1968. There were many additional bird hunters but I do not have a figure for them.

Q. Is your boat inventory data combined for the full 7-month period or do you have it subdivided by lesser time periods?

A. The period was divided into the three summer months of June through August and the four autumn months of September through December. This is the breakdown between the principal summer tourist season and the fall fishing and hunting season.

Q. Was there any real difference in the recreational use of the river between these two seasons?

A. The recreational trips for boating only made up better than two-thirds of the total during the summer with the other third for the purpose of angling. During the autumn, however, two-thirds of the trips were for angling, one-sixth for hunting, and one-sixth for boating only. Practically all of the hunting and steelhead fishing took place in the fall. Of the total man-days of recreation 46 percent took place in the three summer months and 54 percent in the autumn.

Q. Has this information or any part of it been tabulated?

A. Yes. Attached to this testimony Oregon Fish and Game Exhibit No. R–410 which is a tabulation of the information I have received about the 1968 study.

Q. Is this same study being continued through 1969 or has it been modified in some respects?

A. The same study is being continued but as a part of a more complete effort. In addition to monitoring all boat trips past the state line, Oregon and Idaho are cooperatively checking all other access to the river up to Hells Canyon Dam. Further we are also checking angler use of the lower Imnaha River up to the mouth of Horse Creek. The U.S. Forest Service is interested and is maintaining road and trail counters to better determine the total effort. Pacific Northwest Power Company provided a man to assist at the boat interview station during July.

In addition the State of Washington is surveying the recreational use from the Clarkston-Lewiston area upstream to the Oregon-Washington state line. In other words the total of these efforts cover the middle Snake River recreation use from the mouth of the Clearwater upstream to Hells Canyon Dam.

Q. Do you have any information on the 1969 effort?

A. At this time I have only the January through March information on anglers using the lower Imnaha and those reaching the Snake by means of Oregon access roads and trails. That effort amounted to 2,800 angler-days or 9,400 angler-hours and produced a catch of 418 steelhead and 320 other fish.

Q. Do you not have information resulting from boat counts on the river for the calendar year 1969?

A. I do not at this time. One reason why our boat count analyses lags is that the equipment we use is provided by the U.S. Department of Interior's Bureau of Commercial Fisheries research laboratory in Seattle. Since special equipment and techniques are necessary to read the tapes, these are sent to that laboratory after they have been removed from the monitor and technicians there read them for us as their work schedule permits.

Q. Do you anticipate that you will have at least some of the 1969 data by the time the Federal Power Commission hearing resumes in early January?

A. I anticipate that I will have information up through at least May and perhaps even through August. If so and anyone is interested in pursuing it, I may be able to provide some 1969 information at that time.

Q. Do you have any other information concerning the results of these studies?

A. I do not at this time.

[SUPPLEMENTAL EXHIBITS]

MIDDLE SNAKE RIVER BOAT ANGLER SURVEY, 1968

	June–August		September–December		Total	
	Number	Percent	Number	Percent	Number	Percent
Boat trips	582	40.1	858	59.9	1,450	100.0
Boat licenses:						
Oregon	23	3.9	109	12.5	132	9.1
Idaho	468	80.5	542	62.5	1,010	69.6
Washington	91	15.6	206	23.7	297	20.5
Other	0		11	1.3	11	.8
Upper limit of boat trips:						
Salmon River	269	46.2	582	67.1	851	58.7
Imnaha River	90	15.4	99	11.4	189	13.1
Dug Bar	22	3.8	55	6.3	77	5.3
Pittsburg Landing	52	9.0	22	2.5	74	5.1
Johnson Bar	75	12.8	110	12.7	185	12.7
Above Johnson Bar	74	12.8			74	5.1
Type of boat use (in man-days):						
Guide boats	4,173	61.9	3,609	45.2	7,782	52.8
Private boats	2,569	38.1	4,375	54.8	6,944	47.2
Recreation days	6,742	45.8	7,984	54.2	14,726	100.0
Type of recreation:						
Angling	2,117	31.4	5,349	67.0	7,466	50.7
Hunting	0		1,310	16.4	1,310	8.9
Boating only	4,625	68.6	1,325	16.6	5,950	40.4
Angler-hours	2,293	18.0	10,432	82.0	12,725	100.0
Hunting and angling licenses:						
Oregon	233	11.0	1,412	21.2	1,645	18.7
Idaho	1,884	89.0	5,247	78.8	7,131	81.3
Fish catch:						
Smallmouth bass	836	90.8	2,136	71.1	2,972	75.7
Steelhead	0		843	28.1	843	21.5
Channel catfish	46	5.0	0		46	1.2
Resident trout	18	1.9	24	.8	42	1.1
Sturgeon	21	2.3	0		21	.5

SUPPLEMENTAL TESTIMONY OF WILLIAM E. PITNEY

(Witness for the joint intervenors, Fish Commission of Oregon and Oregon State Game Commission, answering the questions posed by Mr. Hugh Smith in his December 19, 1969, letter to Mr. George S. Woodworth.)

Question. Referring to Exhibit R–410, would you please provide a breakdown of the figures shown under the heading "Type of Boat-Use/Man Days:" between those destined above the Salmon River on the Snake and those going no further than the Salmon River. If the figures are available, the same information would be useful for the item entitled "Type of Recreation:" and, if the 1969 results are to be supplied in the future, would you please arrange to have the same breakdown shown for those figures?

A. A two part table marked for identification as Exhibit R–410 A, Part 1 (1968 data) and R–410 A, Part 2, (1969 data) contains the information Mr. Smith requested in the two preceding questions.

(Answering the inquiries of Mr. Arnold H. Quint in his December 23, 1969, letter to Examiner Levy.)

Question. Will you supply for the record an explanation for the derivation of the term "angler-hour" as used in Exhibit R–410?

Answer. The term "angler-hour" simply means the man-hours of sport fishing. In regard to its use in Exhibit R–410, one of several questions asked the anglers who had completed their fishing effort for the day was "How many hours did you fish?" The principal reason for the question was that "angler success" is normally related to the number of fish caught per hour of effort. In my earlier testimony (June, 1968, transcript page R–1342, lines 17 through 20) I said that we did not have such a measurement for the Snake River steelhead and salmon sport fishery. To fill that void, we did obtain this information from the angler sample of this study. The total was statistically projected from the sample, as were all the other items in Exhibit R–410.

There is an error in the "Angler-hours" figures for 1968 contained in Exhibit R–410. Data on the number of hours fished for each angler-day can only be acquired from persons who have *completed* their effort for that day, consequently the sample base is smaller than that for all anglers interviewed. In-

advertently the latter factor was used to prepare Exhibit R–410. When the correct base is applied, the line "Angler-hours," the first line on page 2 of the exhibit, should read:

	June–August		September–December		Total	
	Number	Percent	Number	Percent	Number	Percent
Angler-hours	4,012	25.5	11,730	74.5	15,742	100.0

Q. When it is available supply for the record the 1969 data comparable to that supplied in Exhibit R–410 for the last seven months of 1968.

A. Included with the appended Supplemental Exhibits is Exhibit R–410 B in two pages. It contains the same information for 1969 that was previously submitted for 1968.

[SUPPLEMENTAL EXHIBITS]

RECREATIONAL USE ABOVE AND BELOW THE SALMON RIVER, 1968

	June–August		September–December		Total	
	Number	Percent	Number	Percent	Number	Percent
Type of boat use/man-days:						
Guide boats:						
Salmon River and below	572	13.7	1,794	49.7	2,366	30.4
Above Salmon River	3,601	86.3	1,815	50.3	5,416	69.6
Total	4,173		3,609		7,782	
Private boats:						
Salmon River and below	1,598	62.2	2,984	68.2	4,582	66.0
Above Salmon River	971	37.8	1,391	31.8	2,362	34.0
Total	2,569		4,375		6,944	
Type of recreation/man-days:						
Angling:						
Salmon River and below	800	37.8	3,546	66.3	4,346	58.2
Above Salmon River	1,317	62.2	1,803	33.7	3,120	41.8
Total	2,117		5,349		7,466	
Hunting:						
Salmon River and below	0		597	45.6	597	45.6
Above Salmon River	0		713	54.4	713	54.4
Total			1,310		1,310	
Boating only:						
Salmon River and below	1,429	30.9	408	30.8	1,837	30.9
Above Salmon River	3,196	69.1	917	69.2	4,113	69.1
Total	4,625		1,325		5,950	

RECREATIONAL USE ABOVE AND BELOW THE SALMON RIVER, 1969

	Jan. 1–Mar. 31		Apr. 1–June 10		June 11–Aug. 31		Sept. 1–Dec. 31		Total	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Type of boat use/man-days:										
Guide boat:										
Salmon River and below	73	7.0	35	2.5	322	15.8	1,425	45.2	1,855	24.3
Above Salmon River	970	93.0	1,380	97.5	1,714	84.2	1,728	54.8	5,792	75.7
Total	1,043		1,415		2,036		3,153		7,647	
Private boat:										
Salmon River and below	882	84.4	589	43.0	2,062	53.1	3,741	77.8	7,274	65.5
Above Salmon River	163	15.6	781	57.0	1,822	46.9	1,068	22.2	3,834	34.5
Total	1,045		1,370		3,884		4,809		11,108	
Type of recreation/man-days:										
Angling:										
Salmon River and below	1,137	68.6	423	19.4	874	28.6	3,956	73.4	6,390	52.0
Above Salmon River	521	31.4	1,758	80.6	2,181	71.4	1,434	26.6	5,894	48.0
Total	1,658		2,181		3,055		5,390		12,284	
Hunting:										
Salmon River and below	0		0		0		1,239	66.8	1,239	66.8
Above Salmon River	0		0		0		616	33.2	616	33.2
Total							1,855		1,855	
Boating only:										
Salmon River and below	86	20.0	138	22.8	974	34.0	306	42.7	1,504	32.6
Above Salmon River	344	80.0	466	77.2	1,891	66.0	411	57.3	3,112	67.4
Total	430		604		2,865		717		4,616	

MIDDLE SNAKE RIVER BOAT ANGLER SURVEY, 1969

	Jan. 1–Mar. 31		Apr. 1–June 10		June 11–Aug. 31		Sept. 1–Dec. 31		Total	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Boat trips	323	15.3	255	12.1	581	27.6	948	45.0	2,107	100.0
Boat licenses:										
Oregon	19	5.9	40	15.8	52	8.9	102	10.8	213	10.1
Idaho	304	94.1	197	77.2	459	79.0	701	73.9	1,661	78.8
Washington	0		18	7.0	70	12.1	145	15.3	233	11.1
Other	0		0		0		0		0	
Upper limit of boat trips:										
Salmon River	225	69.7	86	34.0	264	45.5	685	72.3	1,260	59.8
Imnaha River	10	3.0	14	5.4	71	12.2	85	9.0	180	8.5
Dug Bar	0		23	8.9	52	8.9	22	2.3	97	4.6
Pittsburg Landing	0		32	12.5	57	9.8	44	4.6	133	6.3
Johnson Bar	68	21.2	77	30.3	95	16.3	75	7.9	315	15.0
Above Johnson Bar	20	6.1	23	8.9	42	7.3	37	3.9	122	5.8
Type of boat use/man-days:										
Guide boats	1,043	50.0	1,415	50.8	2,036	34.4	3,153	39.6	7,647	40.8
Private boats	1,045	50.0	1,370	49.2	3,884	65.6	4,809	60.4	11,108	59.2
Recreational days	2,088	11.1	2,785	14.8	5,920	31.6	7,962	42.5	18,755	100.0
Type of recreation/man-days:										
Angling	1,658	79.4	2,181	78.3	3,055	51.6	5,390	67.7	12,284	65.5
Hunting	0		0		0		1,855	23.3	1,855	9.9
Boating only	430	20.6	604	21.7	2,865	48.4	717	9.0	4,616	24.6
Angler-hours	2,902	13.0	4,907	21.9	5,407	24.2	9,163	40.9	22,379	100.0
Hunting and angling licenses:										
Oregon	242	14.6	506	23.2	428	14.0	993	13.7	2,169	15.3
Idaho	1,416	85.4	1,675	76.8	2,627	86.0	6,252	86.3	11,970	84.7
Fish catch:										
Smallmouth bass	0		343	80.0	1,828	87.1	3,004	69.5	5,175	74.1
Steelhead	100	75.2	0		0		901	21.1	1,010	14.4
Channel catfish	19	14.3	28	6.5	55	2.6	99	2.3	201	2.9
Resident trout	6	4.5	55	12.8	136	6.5	61	1.4	258	3.7
Sturgeon	8	6.0	3	0.7	2	0.1	0		13	0.2
Black crappie	0		0		70	3.3	242	5.6	312	4.5
Chinook salmon	0		0		9	0.4	6	0.1	15	0.2
Total	133	100.0	429	100.0	2,100	100.0	4,322	100.0	6,984	100.0

PUBLIC UTILITY DISTRICT NO. 1 OF CHELAN COUNTY,
Wenatchee, Wash., February 27, 1970.

Hon. HENRY M. JACKSON,
Chairman, Senate Interior and Insular Affairs Committee,
Washington, D.C.

DEAR SENATOR: We are writing you regarding S-940, the Bill that would prohibit licensing of hydroelectric projects on the Middle Snake River below Hells Canyon Dam for a period of 10 years. We are opposed to this legislation. We believe it is not in the best interest of the Northwest states or the country as a whole. Regardless of the present popularity of stopping or slowing down progress on resource development in the guise of protecting the environment, we still believe that our national and regional best interest lies in the wise comprehensive development of our water resources. This, in our opinion, is true conservation if planned and executed in a way that assures the best over-all balance, taking into account all of our needs. Likewise, we are opposed to the Hells Canyon-Snake National River Bill that has recently been introduced.

It is our understanding that Congressman Al Ullman from Oregon is proposing a Bill that would provide for establishing the Minam, the Wallawa and the Grande Ronde Rivers in Eastern Oregon as wild rivers and provide for a national recreation area. Preserving these rivers in their natural state for recreational purposes in the same general area as the Middle Snake seems to us to have merit. We would favor the proposed Ullman Bill, as we understand it, and believe it should be considered as an alternative to legislation that would postpone or prohibit development of the hydroelectric potential of the Middle Snake.

Copies of this letter are being sent to members of your Committee and to Congressman Ullman.

Very truly yours,

HOWARD C. ELMORE, *Manager.*

BENTON COUNTY PUBLIC UTILITY DISTRICT No. 1,
Kennewick, Wash., February 25, 1970.

Senator HENRY M. JACKSON,
Chairman, Senate Interior and Insular Affairs Committee, U.S. Senate, Washington, D.C.

DEAR SENATOR JACKSON: Attached is a Resolution passed at the regular Board of Commissioners Meeting, February 24, 1970, of the Benton County Public Utility District No. 1.

Yours very truly,

R. W. BLODGETT,
Executive Officer.

RESOLUTION No. 617—FEBRUARY 24, 1970

Whereas, the license application by the Washington Public Power Supply System and the Pacific Northwest Power Company for construction of dams on the middle reaches of the Snake River is before the Federal Power Commission, and

Whereas, the development of this water resource in this stretch of the Snake River is still very important from the standpoint of power production, water storage, and broader recreational uses and benefits, and

Whereas, development of this falling water resource to provide electric energy will help serve a growing economic need with smog-free energy, and

Whereas, consumer owned systems have joined together in an effort to obtain a license to undertake a project in the Middle Snake River who are all customers of the Bonneville Power Administration and with a few exceptions obtain their entire power requirements from Bonneville, and

Whereas, it is recognized that Bonneville Power Administration will not have sufficient power to meet the growing requirements of the public agencies after 1976 and as a result of joint planning by public and private utilities with Bonneville, a Pacific Northwest hydro-thermal program has been agreed upon and is now in process of implementation, and

Whereas, under this plan Bonneville Power Administration will acquire power from non-federal thermal plants for integration with peaking power supplied from federal hydro projects and thereby extend the date of federal power insufficiency with which to meet the requirements of the preference customers, now, therefore,

Be it hereby resolved that the Board of Commissioners of Benton County Public Utility District No. 1, urges the Interior and Insular Affairs Committee to reject legislation which would prohibit construction of dams on the Snake River for a ten year period.

ROBERT G. GRAVES,
RICHARD W. GAY,
JOHN A. GOLDSBURY.

INLAND POWER & LIGHT CO.,
Spokane, Wash., February 24, 1970.

Hon. HENRY M. JACKSON, *Chairman,*
Chairman, Interior and Insular Affairs Committee,
Washington, D.C.

DEAR SENATOR JACKSON: The Board of Trustees of Inland Power & Light Company at their regular meeting yesterday discussed Senate Bill No. 940, the ten-year Middle Snake project moratorium.

The Board of Trustees opposes this bill, and encourages you to consider the loss to the Northwest if the hydro-electric projects on this river are postponed for ten years—or possibly longer. We sincerely hope that you will do everything in your power to oppose Senate Bill No. 940.

Very truly yours.

VINCENT P. SLATT,
Manager.

CENTRAL LINCOLN PEOPLE'S UTILITY DISTRICT,
Newport, Oreg., February 20, 1970.

Hon. Senator HENRY M. JACKSON, *Chairman,*
Interior and Insular Affairs Committee,
Washington, D.C.

DEAR SENATOR JACKSON: The Central Lincoln People's Utility District is a municipal corporation formed and operating under and pursuant to the provisions of the People's Utility District Law of the State of Oregon. On May 5, 1943 the District assumed the responsibility of providing the electrical power requirements of the area along the Oregon Coast from Lincoln Beach to Coos Bay—a distance of some 120 miles—when it purchased and began operating the Coast Division system of the West Coast Power Company.

At the time operation of the system by the District was inaugurated, the system served approximately 5,000 customers, with an annual average use of 1,517 kilowatt-hours at an average customer cost of 3.32¢ per kilowatt-hour. Total system peak demand was 2,500 kilowatts. At the present time the District serves almost 15,000 customers at an average customer cost of 0.65¢ per killowatthour with a system peak demand of over 130,000 kilowatts. The average use per customer has increased to 14,615 kilowatt-hours annually.

Low cost power has been a prime factor in contributing to the growth of our area. Low cost power played a vital role in bringing two large industries to our area providing increased payroll, tax contributions, and employment. The total energy requirements of the District are supplied from low cost Federally operated hydroelectric installations marketed by the Bonneville Power Administration.

The Central Lincoln People's Utility District recognizes that continued growth in economy of the area we serve is dependent upon an ample supply of the lowest cost power which can be made available.

Demands for electrical energy increase at a rapid rate requiring additional generating capacity. To provide this capacity at the lowest possible cost, all feasible hydroelectric potentials must be developed.

The District has in the past and continues to support multi purpose development of our water resources. In assuming the responsibility of a serving utility we are obligated to provide the requirements for electrical energy demanded by those we serve. We are further obligated to provide this service at the lowest possible cost consistent with total effect on environment. Those who now oppose development of hydroelectric potentials will also oppose development of alternate sources of energy, yet we cannot ignore the fact that these people themselves contribute to the demand for additional energy sources.

Development of the hydroelectric resources can provide additional energy and at the same time provide recreational benefit. We therefore oppose S–940 and solicit your most serious consideration in this most serious decision.

Respectfully yours,

MILLARD F. MARTIN,
President, Board of Directors.

PUBLIC UTILITY DISTRICT No. 1,
Stevenson, Wash., February 24, 1970.

Re: Middle Snake Moratorium, Senate bill No. 940.

Hon. HENRY JACKSON,
U.S. Senate,
Washington, D.C.

DEAR SENATOR JACKSON: In spite of recent newspaper articles regarding your apparent position on this question, the Board of Commissioners of Skamania County Public Utility District No. 1 must go on record as opposing the moratorium on the Middle Snake River.

Currently there is little doubt but what a ten year delay regarding dam construction on the Middle Snake would really mean the multi-purpose concept of river development would be lost forever.

With the dam(s) being "priced out of the picture" due to inflation, the vast recreational potential of the area, the possibility of water for irrigation, flood control benefits, navigation benefits, together with low-cost electricity would

be gone, and this area reserved for the recreation of the "special few." When an area like this can be opened up for mass recreation without destroying its beauty, let's plan for the reality which gives a better way of life to the vast majority.

Respectfully,

ROLF E. JEMTEGAARD,
President.
SIDNEY G. ADAMS,
Vice President.
ROSS B. SHEPEARD,
Secretary.

LEWIS COUNTY PUBLIC UTILITY DISTRICT,
Chehalis, Wash., March 2, 1970.

Hon. HENRY M. JACKSON,
U.S. Senate,
Washington, D.C.

DEAR SENATOR JACKSON: Our Commission at their regular meeting today adopted the enclosed Resolution and would appreciate your support in adopting such legislation as will permit the comprehensive development of the water resources of the Middle Snake. Conversely, we would appreciate your support in defeating such legislation as would hinder or delay this development.

Best personal regards.

Very truly yours,

MERLE D. JOHNSTON,
Manager.

[Enclosure]

RESOLUTION NO. 1076: A RESOLUTION ENDORSING SNAKE RIVER DEVELOPMENT BY THE WASHINGTON PUBLIC POWER SUPPLY SYSTEM AND THE PACIFIC NORTHWEST POWER COMPANY

Whereas the Lewis County Public Utility District is a participant in the Middle Snake development through the Washington Public Power Supply System, and

Whereas the Washington Public Power Supply System and the Pacific Northwest Power Company have jointly applied to the Federal Power Commission for a license to construct and operate a hydro electric project with provisions for reclamation and recreational benefits on the middle reaches of the Snake River, and

Whereas the granting of said license at this time results from the postponement of previous license consideration for the purpose of allowing possible participation in the project by the Federal Government, and

Whereas our District together with other municipal agencies have invested monies in this proposed project in anticipation of developing this as a source of electric power for the benefit of the entire Northwest, and

Whereas the present administration now declines to participate and the joint license application has been reactivated by the Supply System and the Power Company. Now, therefore, be it

Resolved by the Commissioners of Public Utility District No. 1 of Lewis County to call upon your full support of the joint license application allowing for the construction of a hydro electric project which will protect our investment and allow comprehensive development of this resource for the benefit of the entire region.

Adopted by the Commissioners of Public Utility District No. 1 of Lewis County this 2nd day of March, 1970.

PROSSER RECORD-BULLETIN,
Prosser, Wash., February 25, 1970.

Hon. HENRY M. JACKSON,
Senate Office Building,
Washington, D.C.

DEAR SENATOR JACKSON: This letter is to urge you to oppose the 10-year moratorium on dams in the Middle Snake, and to do what you appropriately can to help Northwest utilities get the license they seek from the Federal Power Commission.

As you know we have vigorously supported public power for many years, and have editorially supported the Middle Snake license application now before the FPC.

I think the record clearly shows the delay is not justified. We are much concerned with the urgent problems of environment and recreation, but we believe that when all of the pluses and the minuses are added, the answer is clear. We need those particular kilowatts and should have them without delay.

I would appreciate it if you would also make this letter a part of the record on the moratorium legislation.

Respectfully,

RICHARD W. GAY,
Editor, Prosser Record-Bulletin, Grandview Herald.

ASOTIN, WASH., *February 27, 1970.*

Senator CLINTON ANDERSON,
Chairman, the Water and Power Resources Subcommittee of the Senate Committee on Insular and Interior Affairs, Senate Office Building, Washington, D.C.

DEAR SIR: We should like to go on record as favoring Bill S. 3329 (Senator Packwood's Hells Canyon-Snake Natl River Bill) establshing a new kind of protection for the Middle Snake and Hell's Canyon. We feel any more dams on our river are totally unnecessary and should be stopped.

If this bill does not pass we favor the Church-Jordan Moratorium Bill as next best.

Very truly yours,

Mr. and Mrs. H. H. HOUSE.

AMCO,
Littleton, Colo.

Senator HENRY M. JACKSON,
Chairman, Senate Interior Committee, Senate Office Building, Washington, D.C.

DEAR SENATOR JACKSON: I am not going to enumerate my reasons for wanting to see the Hell's Canyon-Snake River established as a national river, since I'm certain that you have been made aware of its special beauty and unusual ecology by many other nature lovers, geographers, ecologists, anthropologists, etc.

Please could me among those in favor of Bill S. 940.

Sincerely,

ADDIS MCCARTHY.

CLARKSTON, WASH., *February 26, 1970.*

Senator HENRY M. JACKSON,
Chairman of the Senate Interior Committee,
Senate Office Building,
Washington, D.C.

DEAR SENATOR JACKSON: I should like to go on record as opposing the building of any more dams on either the Snake or Salmon rivers. It would be a crying shame to destroy any more of our free flowing, wild rivers. Too many of them have already been ruined by our Army Corps of Engineers seeking only to perpetuate itself.

If it is necessary for reasons on economy that this Corps be continued why not direct their talents toward building more Nat. Forest camp grounds which are too few in number and require lots of care.

Or put them to work building some badly need bridges in our own cities of Lewiston and Clarkston. Now there is only one bridge connecting these two cities so can you imagine what would happen if this one was damaged or destroyed? Sure would be a long drive around!

I have been in Hells Canyon in the summer time and I saw the slack water created by the two dams already there and it is a sorry looking mess of stagnant water with dead suckers laying along the banks.

To drive along the shore there and see the hundreds of sucker splashing in and out of the brackish water sends a cold chill down the back of an old fisherman like myself when I consider what further damage to our precious fishing if the lower

Granite Dam is allowed to be finished, and what a catastrophe the building of any more dams would be.

And if the Corps has its way and is allowed to go ahead with the proposed dam at Asotin there would be no place left where one could fish from the bank of a free running river!

I have talked to countless people about this dam question and everyone seems to be in complete agreement with me. It is sad that so many of them feel that they can do nothing to stop these unwanted dams, but I hope that they are wrong and that my efforts will be of some help before it is too late.

Sincerely yours,

JOHN A. D'EVELYN.

AN EVALUATION OF RECREATIONAL USE ON THE SNAKE RIVER IN THE HIGH MOUNTAIN SHEEP DAM IMPACT AREA

(By Fishery Biologists of the Oregon Game Commission and Idaho Fish and Game Department)

ABSTRACT

A study was conducted in 1969 to obtain recreational use estimates on the Snake River in the High Mountain Sheep Dam impact area. Information was gathered at four access points into the area, and it was estimated that 44,240 man-days of recreation were enjoyed by recreationists. The study did not include all access routes into the area, and the estimate does not represent total recreational use.

INTRODUCTION

A study of recreational use was conducted in 1969 on the Snake River in the area of the proposed High Mountain Sheep Dam project. Cooperators in the study were the Oregon State Game Commission, Idaho Fish and Game Department, U.S. Forest Service, Bureau of Commercial Fisheries, and Pacific Northwest Power Company. The purpose of the study was to provide a basis for the evaluation of the present recreational use in the impact area.

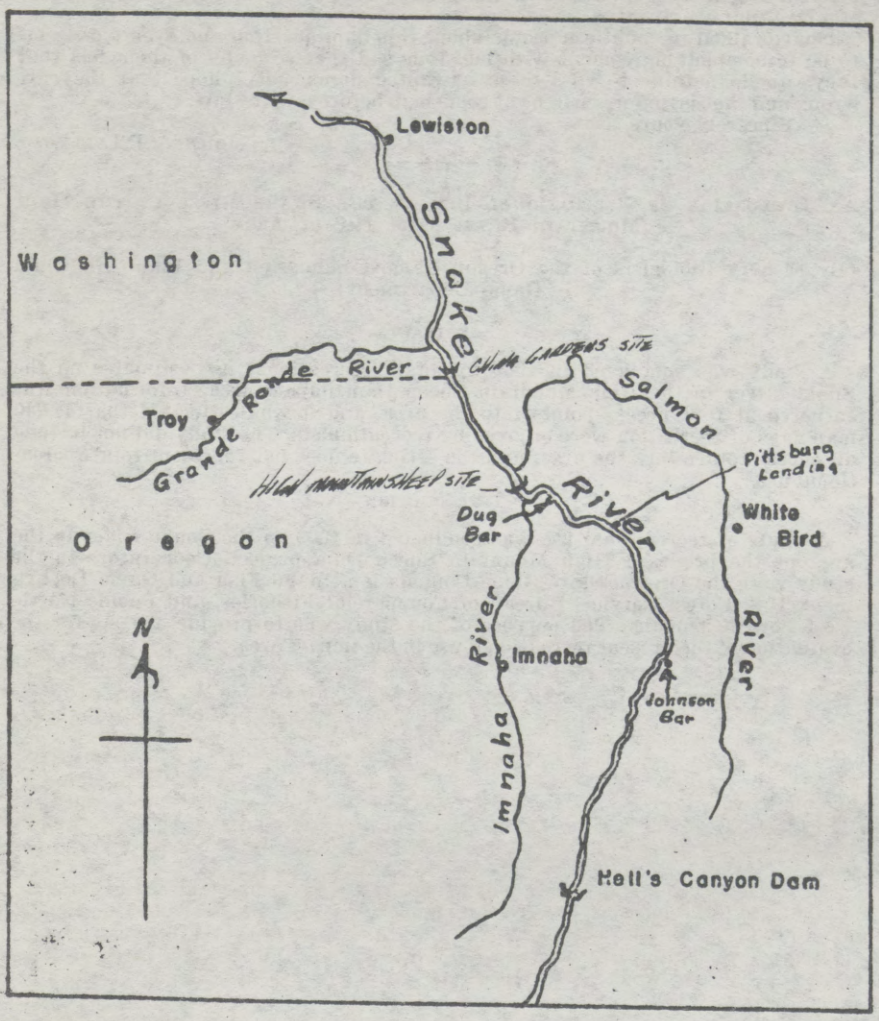

Figure 1. SNAKE RIVER, [redacted] MAJOR TRIBUTARIES, AND HYDROELECTRIC DAM SITES.

DESCRIPTION OF STUDY AREA

The section of the Snake River that would be affected by the proposed High Mountain Sheep Dam and the associated China Gardens Dam extends from Hell's Canyon Dam downstream approximately 75 miles to the China Gardens site (Figure 1). The impact area for High Mountain Sheep Dam also includes the lower 10 miles of the Imnaha River. The flow of the Snake River at Hell's Canyon Dam varies from 5,000 cfs to over 40,000 cfs. Tributaries, including the Salmon and Imnaha Rivers, increase the flow from a minimum of 10,000 cfs to a maximum of 125,000 cfs below the mouth of the Salmon River. The width of the river channel varies from 150 to 600 feet. The river forms a canyon over one mile deep in this area. Principal types of recreation in the remaining free-flowing stretches of the Snake River are angling, hunting, sightseeing, and recreational boating. Anglers pursue steelhead trout, chinook salmon, smallmouth bass, channel catfish, rainbow trout, Dolly Varden and white Sturgeon. The middle Snake River is unique in that it continues to provide large white sturgeon for quality angling. Hunters bag elk, deer, quail, chukar partridge, Hungarian partridge, ducks and geese in the impact area.

Access to the High Mountain Sheep Dam impact area is by water, air, trail and road. Boat access points are located at Hell's Canyon Dam, Pittsburgh Landing, Dug Bar and several points downstream from the impact area. Road access points are at Hell's Canyon Dam, Pittsburgh Landing, Dug Bar and along six miles of the Imnaha River. Trails are located on both sides of the river through a major portion of the study area. There are several airstrips and heliports located on both sides of the river.

METHODS

Upriver Boat Recreational Use

In evaluating recreational use by boaters moving upstream into the impact area, it was impractical to count or interview each boater; therefore, a statistical sampling program had to be developed. The field work was programmed in two phases: a count of boat traffic and a stratified statistical sample interview of the boaters.

An ultrasonic fish tag recording monitor, developed by the Bureau of Commercial Fisheries to record sonic-tagged migrant fish, was used to record the vibrations from boat motors as each boat passed two hydrophones. The hydrophones were placed in the water approximately 100 feet apart in a quiet section of water near the Oregon-Washington Line. The vibrations in the water activated the battery-powered tape recorder and the sound was recorded on tape. The placement of the hydrophones allowed the direction of travel for each boat to be determined. A clock was also built into the machine, and every six minutes a time mark was recorded automatically on the tape. By counting the time marks, it was possible to determine when a boat passed the counter. All boats going upstream also returned downstream; thus a check of counting accuracy could be made.

The second phase of the study was an interview of a sample of boaters. Facts obtained from the interviews were the number of people per boat, the number of days in the trip, the purpose of the trip, the upper limit of travel into the canyon, the number of angling hours expended by the boaters, and the total catch of fish. A recreation day was considered to be any portion of a day spent in the impact area.

A boat dock provided by the U.S. Forest Service was located near the Oregon-Washington boundary at the mouth of Cache Creek, and a checking station was established. The boaters were stopped at the boat dock and interviewed.

A stratified sampling schedule which considered periods of light and heavy boating activity was followed, and the sampling days within each time strata were selected at random. Total recreational use of the middle Snake River by upstream boaters was determined by expansion of the interview data to the total recorded boat use.

Downriver Recreational Use

The majority of recreationists using the area below Hell's Canyon Dam are confined to that section of river extending downstream from the dam approximately 7 miles to Two Creek Rapids. Recreationists on foot cannot go downstream from the dam on the Oregon shore below Stud Creek without crossing the river. This 1.6 mile section can be observed from the road.

A system of random angular counts and interviews was used to estimate total angling pressure and harvest. The study period, March 1, through November 21, 1969, was stratified by two-week intervals. Fifty percent of the weekend days and twenty percent of the weekdays were randomly selected as sample days. Angler counts were also obtained on all holidays falling within the study period. Each sample day was divided into four equal time periods, and four daily counts, one for each time period, were randomly selected. A total of 312 angler counts was obtained during the study period.

The angler counts provide a basis for estimate of the average number of anglers present during any time period. The total number of angling hours available during each two-week interval was determined from a table of sunrise-sunset figures. The period from one-half hour prior to sunrise to one-half hour after sunset was estimated to be the time interval during which sufficient natural light was available for angling. Total pressure for each interval was then the product of multiplying the average number of anglers by the total number of angling hours available.

During angler interviews, it was determined which of the several species of fish inhabiting the study was being sought by the angler. The catch and the number of hours expended were recorded. Boat and bank angler counts and interviews were separately recorded.

Counts were made of automobiles and boat trailers observed at the end of the road to provide data for estimating recreational use downstream from Stud Creek. The average number of anglers per car and boat and the length of the angler day were determined from angler interviews. Angler hours had to be converted to man-days of recreational use to make the results compatible with data collected at downstream access points. The recreational man-day was calculated by obtaining the average number of angler hours for each angler day, and dividing this figure into the total number of angler hours. Bank anglers and boat anglers were treated separately, as the number of hours per angler trip differed for the two groups. It was believed that the majority of users below Hell's Canyon Dam were anglers, and it was assumed that all users were recreationists. Estimates of use were obtained by expansion of the observed number of anglers and expansion of the car and boat trailer counts. The latter estimate includes some recreationists other than anglers.

Estimates of recreational use for those portions of 1969 not included in the study period were obtained by a proportion-expansion of the recreational use estimate for the study period. The addition of the two estimates yielded an estimate of all angler use and a proportion of the other types of recreational use.

Lower Imnaha-Dug Bar Recreational Use

Recreational use information on the Imnaha River portion of the proposed High Mountain Sheep Dam impact area and at Dug Bar on the Snake River was collected by interviewing recreationists from road access into the area. Recreational use in this area is confined to four distinct sections which include the Snake River near the mouth of the Imnaha River, the Snake River at Dug Bar and China Bar, the Imnaha River from the mouth upstream to Cow Creek, and the Imnaha River from Cow Creek to Horse Creek.

Because of the logistics involved, it was impossible to interview all people in the area on a sample day. A stratified statistical sampling program was devised to estimate recreational use. Recreational use calculations were made by expanding the daily interview information to the projected total use during the sample day. This was determined by asking the interviewed people as to the total number of people they saw. Since some people used more than one area in a sample day, recreational use calculations were not always made for each area, but rather a total use estimate was calculated for the four areas. During some periods, traffic recorders on roads and the Imnaha Trail were used to supplement the information from the interviews. A recreational day was considered to be any portion of a day spent in the impact area. Angler catch and effort estimates were also made for each of the four areas using the same expansion method.

Pittsburgh Landing Recreational Use

Estimates of recreational use of the Snake River via the Pittsburg Landing Road or Forest Road No. 493 were made for 1969 through use of a traffic recorder located near Pittsburg Saddle. The traffic recorder was positioned to record all vehicular traffic into the area, and was maintained by the U.S. Forest Service,

Slate Creek Ranger District, from April 24, 1969 through October 6, 1969. The counter was not read and maintained on a weekly basis prior to April 24th and after October 6th, but the traffic counter recorded use data for those periods.

Travelers were interviewed in the Pittsburg Landing area on randomly selected days in April, May, and October of 1969. The interviews were conducted to determine the average size of recreational parties, average number of days per recreational trip, type of recreation sought and the proportion of users of the road that were recreationists visiting the impact area. A recreational day was considered to be any portion of a day spent in the impact area. The number of round trips was multiplied by the estimated proportion of users that were recreationists to provide an estimate of round trips or parties that used the impact area for some type of recreation. The estimated number of recreational parties was multiplied by the average size of the recreational party to estimate the total number of recreationists visiting the area. The estimated number of recreationists was then multiplied by the average length of trip in days to determine the number of man-days of recreational use in the Pittsburg Landing area.

RESULTS

Upriver Boat Recreational Use

A total of all or part of 77 days (approximately one-sixth of all daylight hours) was spent in interviewing upstream boat traffic into the impact area in 1969. During the check days, 400 boats were actually checked which represented 3,557 recreational man-days. In projecting the actual people checked to the recreational use estimates for the total year, we estimated that there were 18,755 man-days of recreation during 2,107 boat trips. The boat counts obtained with the sonic monitor were used to check the validity of the interview data and there was a good correlation between the sets of data. We projected that anglers fished 20,680 hours, and caught 9,994 fish.

Estimates of recreational use and catch data by stream section and time strata are represented in Tables 1, 2, and 3.

Downriver Recreational Use

During the study period, March 1, to November 21, 1969, it was estimated that a total of 12,635 angler hours were expended by bank anglers in the 1.6 miles of river below Hell's Canyon Dam. The estimated boat angler use totaled 4,418 angler hours. The total estimated angler use in the 1.6 mile study area below Hell's Canyon Dam was 17,053 angler hours. Total estimated catch was 23,893 fish. An additional estimate of 6,907 man-hours was obtained by expanding the car-boat trailer counts to provide an estimate for recreational use downstream from the observable portion of the study area.

TABLE 1.—CALCULATED CATCH AND USE ESTIMATES, UPRIVER BOAT RECREATIONAL USE, JAN. 1-DEC. 31, 1969

Strata	Recreational days	Boat trips	Angler-days	Angler-hours	Catch estimates						
					St	Ch	Trout	SB	CC	BC	Sg
Jan. 1 to Mar. 31	2,088	323	1,192	2,210	149		9		28		12
Apr. 1 to June 10	2,785	255	1,395	2,993			99	620	51		5
June 11 to Aug. 31	5,920	581	2,016	5,067		15	223	3,000	90	115	3
Sept. 1 to Dec. 31	7,962	948	4,394	10,410	1,173	8	79	3,875	128	312	
Grand total	18,755	2,107	8,997	20,680	1,322	23	410	7,495	297	427	20

TABLE 2.—DATA COLLECTED FROM UPRIVER BOAT INTERVIEWS, SNAKE RIVER RECREATIONAL USE STUDY, JAN. 1–DEC. 31, 1969

Classification by group or area	Jan. 1–Mar. 31	Apr. 1–June 10	June 11–Aug. 31	Sept. 1–Dec. 31
Percent of boats licensed in—				
Idaho	94.1	77.2	79.0	73.9
Oregon	5.9	15.8	8.9	10.8
Washington	0	7.0	12.1	15.3
Other	0	0	0	0
Upper limit of boat trips represented (in percent):				
Salmon River	69.7	34.0	45.5	72.3
Imnaha River	3.0	5.4	12.2	9.0
Dug Bar	0	8.9	8.9	2.3
Pittsburg Landing	0	12.5	9.8	4.6
Johnson Bar	21.2	30.3	16.3	7.9
Beyond Johnson Bar	6.1	8.9	7.3	3.9
Activity of the people represented (in percent):				
Fishing	79.4	78.3	51.6	67.7
Hunting	0	0	0	23.3
Boating only	20.6	21.7	48.4	9.0
Average number of days in trip:				
Guide boats	2.1	2.6	1.7	1.7
Private boats	1.4	1.9	1.6	1.7
Percent of people using—				
Guide boats	50.0	50.8	34.4	39.6
Private boats	50.0	49.2	65.6	60.4
Percent of people with game licenses for the State of—				
Idaho	85.4	76.8	86.0	86.3
Oregon	14.6	23.2	14.0	13.7
Percent of boats checked were—				
Guide boats	26.5	29.8	34.4	24.0
Private boats	73.5	70.2	65.6	76.0

TABLE 3.—DIVISION OF ACTIVITY OF UPRIVER BOAT RECREATIONISTS ABOVE AND BELOW SALMON RIVER, SNAKE RIVER RECREATIONAL USE STUDY, JAN. 1–DEC. 31, 1969

Classification by area	Jan. 1–Mar. 31	Apr. 1–June 10	June 11–Aug. 31	Sept. 1–Dec. 31
Percent of people in guide boats—				
Above Salmon River	93.0	97.5	84.2	54.8
Below Salmon River	7.0	2.5	15.8	45.2
Percent of people in private boats—				
Above Salmon River	15.6	57.0	46.9	22.2
Below Salmon River	84.4	43.0	52.1	77.8
Percent of people fishing—				
Above Salmon River	31.4	80.6	71.4	26.6
Below Salmon River	68.6	19.4	28.6	73.4
Percent of people boating—				
Above Salmon River	80.0	77.2	66.0	57.3
Below Salmon River	20.0	22.8	34.0	42.7
Percent of people hunting—				
Above Salmon River				33.2
Below Salmon River				66.8

TABLE 4.—CALCULATED CATCH AND EFFORTS ESTIMATES, IMNAHA AND SNAKE RIVERS, JAN. 1–DEC. 31, 1969

Area and period	Recreational days	Total anglers	Angler-hours	Catch estimates				
				St	Trout	SB	CC	BC
Snake River (mouth of Imnaha River):								
Jan. 1–Mar. 31	(1)	265	1,064	55	32			
Apr. 1–Aug. 31	(2)	158	554	106	53			
Sept. 1–Dec. 31	563	359	1,683	51	204	714		
Snake River (Dug Bar to China Bar):								
Jan. 1–Mar. 31	(1)	620	1,970	77			288	
Apr. 1–Aug. 31	(2)	798	3,840		53	3,090	255	657
Sept. 1–Dec. 31	581	137	392	19				
Imnaha River (Horse Creek to Cow Creek):								
Jan. 1–Mar. 31	(1)	934	1,683	37				
Apr. 1–Aug. 31	(2)	701	903		536			
Sept. 1–Dec. 31	1,409	520	1,430	70	123	17		
Imnaha River (Cow Creek to mouth):								
Jan. 1–Mar. 31	(1)	1,251	4,673	249				
Apr. 1–Aug. 31	(2)	210	317		740			
Sept. 1–Dec. 31	1,365	978	2,731	246	788			
Grand total	9,678	6,931	21,240	910	2,529	3,821	543	657

[1] There was a total of 2,778 recreational days spent in the 4 areas from Jan. 1 to Mar. 31.
[2] There was a total of 2,982 recreational days spent in the 4 areas from Apr. 1 to Aug. 31.

Interviews of visitors in the area reveal that 80 percent of the travelers passing the traffic counter at Pittsburg Saddle were recreationists and their destination was the impact area adjacent to the Snake River. The interviews also revealed that the average party or number of recreationists per vehicle was 4.5 and that the average length of the visit was 2.2 days. It was estimated that 974 recreational parties used the road to gain access to the impact area. An estimated 4,383 recreationists expended an estimated 9,643 man-days of recreational use.

The majority of the recreationists using the Pittsburg Landing area are hunters, fishermen, or both. Angler use in this section of the Snake River is heavy from early April through June and during the months of September and October. Hunters provide the greatest influx of recreationists in early September with the opening of upland game bird season and in early October with the opening of big game season. Rock hounds, sightseers, campers and boaters also use the area.

Recreational Use For The Study Area

An estimated 44,240 man-days of recreation were estimated to have been realized in the study area in 1969 (Table 5).

DISCUSSION

Estimates of recreational use in that section of the Snake River that would be affected by the proposed High Mountain Sheep Dam project are not complete. No attempt was made to monitor use of recreationists who traveled into the study area by aircraft. Recreationists who gained access to the area by trail were not monitored except at Hell's Canyon Dam and on the Imnaha River. Complete estimates of angler use were obtained below Hell's Canyon Dam, but estimates of other types of recreational use are incomplete. The recreational use estimates presented do not include any use by sightseers from the canyon rim area.

TABLE 5.—*Summary of recreational use estimates by access for the impact area in 1969*

[Man-days recreational use]

Upriver boat recreational use	18,755
Downriver recreational use	6,164
Pittsburg Landing recreational use	9,643
Lower Imnaha-Dug Bar recreational use	9,678
Air access recreational use	(1)
Trail access recreational use (except Imnaha and Hell's Canyon Dam)	(1)
Total	44,240

[1] No estimate.

The study area is unique in scenic qualities, fishery resources, and boating opportunities. Recreationists from other regions are drawn into the area because of the unique nature of this area. Impounded areas of the Snake River are not unique, as similar types of reservoirs are numerous throughout the western states. White water boating by float boats and power boats is rapidly increasing, and the Snake River in the Hell's Canyon area is known to be one of the most challenging stretches of white water in the western United States. Many boaters interviewed in the study area volunteered their opinion that hydroelectric development should be curtailed on the Snake River, and only one individual volunteered that he preferred boating on a reservoir. The esthetic values of the Hell's Canyon area are becoming increasingly important to recreationists, and these values would be diminished by hydroelectric development in the study area.

Additional data collected on impounded and free-flowing portions of the Snake River from Brownlee Dam to below Hell's Canyon Dam during 1969 indicate a significantly greater use by anglers on the free-flowing portions of the river. Angler hours per lineal mile of water amounted to 53.6 on Oxbow Reservoir and 30.0 on Hell's Canyon Reservoir; as compared to 322.0 angler hours per lineal mile in the 1.6 miles of river below Hell's Canyon Dam. A survey conducted in 1968 by the Cooperative Fishery Unit of the University of Idaho revealed that the majority of Idaho anglers preferred stream fishing to lake and reservoir fishing. Some of the reasons that anglers prefer fishing streams rather than reservoirs are that the more desired species inhabit the flowing water environment while the less desired species of game fish and scrap fish abound in the impounded waters. Approximately 73 percent of the anglers interviewed below Hell's Canyon Dam expressed a preference for steelhead, salmon, or sturgeon; those fishes that would be eliminated by hydroelectric development in the study area. The remainder of the anglers interviewed expressed a preference for smallmouth bass, rainbow trout, or channel catfish, and the quality of the fishery for these three species would be adversely affected by hydroelectric development in the study area.

Studies conducted by Washington Department of Game revealed that hunters, as well as anglers, preferred those portions of the lower Snake River that were free-flowing to those portions of the river that were impounded.

Considering preferences of recreationists, existing recreational use of the middle Snake River, and recent trends in recreation, it is anticipated that recreational benefits derived will be greater in future years if the remaining stretches of free-flowing Snake River are not developed for hydroelectric power.

SIERRA CLUB,
Washington, D.C., March 1, 1970.

HON. CLINTON P. ANDERSON,
Chairman, Senate Water and Power Resources Subcommittee, Senate Office Building, Washington, D.C.

DEAR MR. CHAIRMAN: At hearings on S. 940, the bill for a moratorium on the licensing of hydroelectric facilities in the Middle Snake River area, Oregon and Washington, questions were raised about possible areas for further research into alternative methods of electric power production. I appreciate the opportunity to submit additional information for the record on this matter.

In June, 1969, the Panel on Magnetohydrodynamics of the Office of Science and Technology in the Executive Office of the President issued a report entitled "MHD for Central Station Power Generation: A Plan for Action." The panel

reviewed the status of MHD technology (the generating systems which obtain power from conducting fluids as they move through magnetic fields) and recommended an extensive research program supported by the Federal Government, including work on coalburning MHD systems.

These recommendations, which subsequently have been the subject of hearings by the Senate Subcommittee on Minerals, Materials and Fuels, grew out of indications that the early experiments in MHD technology showed great potential for utilizing it in meeting future electric power demands. The MHD systems use gasified fuel at high temperatures and experts in this field have testified that the method could serve to greatly reduce thermal pollution of our waterways, as compared to existing thermal-generating facilities, and greatly reduce air pollution. Claims are also made that MHD systems would improve the conservation of fuel resources because of greater efficiency and possibilities for use of low-grade coal.

The report of the OST panel certainly indicated that a fertile field exists for further exploration and development of MHD technology as a potential adjunct to the nation's electric generating capability. As we seek new answers to the problems which adversely affect our environment, the pursuit of more knowledge about MHD systems would appear to deserve high priority. We will not reverse environmental degradation by total reliance on technologies of the past.

The MHD systems, along with better utilization of existing power generating and transmission facilities, are worthy of an expanded research program by the Federal government. I am attaching a copy of conclusions and recommendations of the OST Panel on Magnetohydrodynamics.

The enclosure is printed starting on page 82 of the Dec. 18, 1969 MHD Hearing.

Sincerely,

LLOYD TUPLING.
Washington Representative.

MOSCOW, IDAHO, *January 27, 1970.*

Hon. MARK HATFIELD,
Senate Office Building,
Washington, D.C.

DEAR SENATOR HATFIELD: The current alarm in America over the deteriorating environment points out the middle Snake River controversy as particularly important. Twelve dams have already limited anadromous fish to a mere half of their original range in the Snake River; but over fifty percent of the Columbia River steelhead are still produced in the Snake River drainage. Can we afford to destroy this tap root of a valuable, but rapidly declining, natural resource?

In addition to anadromous fish spraying areas, there are many other assets to be lost if Hells Canyon is dammed: archaelogical study sites, the white sturgeon fishery, sightseeing and wilderness values, valuable big game wintering areas, and above all the deepest canyon in America. There are other ways to produce power but there are no ways to replace the invaluable attributes of Helis Canyon if they are once inundated.

As a progressive nation, we must consider and honor all requisites for a livable environment. We owe it to future generations to pass on these requisites which must include unblemished land as well as clean air and water. No person, in any generation, should be deprived of inimitable areas, such as the middle Snake River, in their natural state. If we destroy Hells Canyon, is any land worth saving?

For your support of Hells Canyon-Snake National River, I want to thank you for myself, personally; for all Americans living today who desire a healthy environment and who feel an obligation to preserve some of our irreplaceable resources; and for future Americans who must rely on the rectitude of our generation as their only hope for inheriting a livable land.

Sincerely,

DWIGHT R. SCHUH.

PORTLAND, OREG., *February 13, 1970.*

Senator MARK O. HATFIELD,
Washington, D.C.:

We of the Multnomah County Labor Council, would like to call to your attention that our council strongly opposes S-940. Which as you know prohibits the issuance of a license on the hydro electric project for the reach of the Snake River

between Hells Canyon Dam and the authorized Asotin Dam, for a period of ten years. We have gone on record supporting the immediate construction of high mountain sheep on the Snake River.

THOMAS J. BAKER,
Secretary Multnomah County Labor Council.

PORTLAND, OREG., *February 13, 1970.*

Senator MARK O. HATFIELD,
Washington, D.C.:

I wish to call to your attention our organization Oregon State Council of Carpenters vigorously opposes S–940. This bill prohibits the issuance of license of a hydroelectric project for the reach of the Snake River between Hells Canyon Dam and the authorized Asotin Dam for a period of ten years our organization has taken action in convention and before committee hearings supporting the immediate construction of high mountain sheep and the Snake River.

OREGON STATE COUNCIL OF CARPENTERS.

PORTLAND, OREG., *February 13, 1970.*

Hon. MARK HATFIELD,
U.S. Senate Office Building,
Washington, D.C.:

Please be advised that the Oregon State Building and Construction Trades Council has in convention concured in resolutions approving the immediate construction of the High Mountain Sheep Dam on the Snake River. We have testified before interiors hearings in favor of this project therefore this council is strongly opposed to Senate Bill 940 which would in essence shut the door on the issuance of a license for any hydroelectric project on the Snake River between Hells Canyon Dam and the approved Asotin Dam. We respectfully request that you lend your best effects for the defeat of Senate Bill 940 in committee.

Very truly yours,

ROBERT L. STANFILL,
Portland Labor Center.

PORTLAND OREG., *February 13, 1970.*

Senator MARK O. HATFIELD,
Washington, D.C.:

We of Associated Oregon Industries are opposed to the provisions of S. 940 delaying the issuance of licensing and construction of hydro electric projects on the Snake River for a period of ten years. Any further delay in construction on one of the last remaining economical feasible sites in the northwest will seriously impair Oregon's and the region's economic development. The stretch of the Snake River in question has been the subject of almost continuous government study for the past 15 years. The facts are known. We therefore urge your opposition to this measure.

Sincerely,

PHILIP OLADINE,
President Association Oregon Industries.

PORTLAND OREG., *February 13, 1970.*

Hon. MARK O. HATFIELD,
Washington, D.C.:

Concerning the hearing schedule for February 16th of the Subcommittee on Water and Power and the Senate Committee on Interior and Insular Affairs, we respectfully request your support in the wire sent to Chairman Clinton P. Anderson, Senator from New Mexico. As Secretary of the Oregon State Association of Electrical Workers which functions as the legislative and political arm of the International Brotherhood of Electrical Workers, AFL–CIO in this State, I respectfully wish to call to your attention that we are vigorously opposed to the passage of S–940 prohibiting the issuance of a license of a hydroelectric

project to be constructed on the Snake River in the area between Health Canyon Dam and Asotin we have enthusiastically and continuously supported and have gone on record in convention and before committee hearings in favor of the immediate construction of High Mountain Sheep Dam on the Snake River. We sincerely thank you for your assistance.

HERMAN TEEPLE,
Secretary Oregon State Association Electrical Workers and Business Manager Local Union 48 IBEW.

PORTLAND OREG., *February 13, 1970.*

Hon. MARK O. HATFIELD,
U.S. Senate Building,
Washington, D.C.:

I respectfully wish to call your attention that our organization building and construction trades council of Portland vicinity, vigorously opposes S940 which prohibits the issuance of a license of a hydro-electric project for the reach of the Snake River between Hells Canyon Dam and the authorized Asotin Dam for a period of ten years. Our organization has gone on record in convention and before committee hearings supporting the immediate construction of High Mountain Sheep on the Snake River and will enhance employment and recreation areas considerability.

Thank you.

EARL B. KIRKLAND,
Secretary, Building and Construction Trades Councils of Portland and Vicinity.

PORTLAND OREG., *February 13, 1970.*

Hon. MARK O. HATFIELD,
U.S. Senate Office Building,
Washington, D.C.:

Teamsters Joint Council No. 37 is opposed to S940 which would prohibit the erecting of High Mountain Sheep Dam on the Snake River. We feel the licensing for construction by private entities should be approved.

JOE EDGAR,
President Joint Council of Teamsters No. 37.

BOYER'S CLARKSTON FURNITURE,
Clarkston, Wash., February 27, 1970.

Senator CLINTON ANDERSON,
Chairman, the Water and Power Resources Subcommittee, Senate Committee on Interior and Insular Affairs, Senate Office Building, Washington, D.C.

GENTLEMEN: I would like to add my concern to that of many other people of this area as well as others from all over our country as to the advisability of more dams on the Middle Snake River. In fact, even though Asotin Dam isn't technically in the Middle Snake and in spite of already being authorized, it seems to me it should be deauthorized.

The advocates of further damming of the Middle Snake for power needs seem to me to be overlooking the fact that it isn't likely that our future needs for power can be solved with the few sites that remain. At best, these dams would offer only a temporary solution. Quite a price to pay for a doubtful solution to the problem.

Also, with four dams downstream from Clarkston, it doesn't seem we would need any more reservoirs to provide recreation facilities. More dams upstream on the Middle Snake will duplicate those nearby facilities which are certain to be used a great deal more than any built in a largely inaccessible area.

But there is a great deal to be said for leaving the Middle Snake River and its environs in their natural state. Not only will wildlife benefit from this non-action, but in the long run so will man. There is little enough of this kind of wilderness area left in this country. To spoil it with more dams just to make a vain attempt to solve the future power needs of this area is to ignore all that is being said and written about our ecology.

All in all, it seems to me that there is a considerable gamble in authorizing any more dams on the Middle Snake River. The experiences of damming a free-flowing river seem to be negative to wildlife as well as to salmon and steelhead runs. Furthermore, I see no need for further study of the Middle Snake. It has been studied, argued about, etc. for many years. It is now time for Congress to take a definite stand to preserve the remainder of this great river and its adjoining wilderness. I therefore urge your support of Senate Bill #3329—The Hells Canyon Snake-National River Bill. It offers the best solution to this long standing controversy.

Sincerely,

ROBERT BOYER.

SACRAMENTO, CALIF., *February 27, 1970.*

Hon. CLINTON ANDERSON,
Chairman, Subcommittee on Water and Power Resources, Senate Interior and Insular Affairs Committee, Washington, D.C.:

We would like the Interior subcommittee hearing on S. 940 to include this telegram expressing our opposition to the enactment of S. 940. We concur generally in the reasons for opposition included in the statements filed with your committee by the American Public Power Association. Additionally, we believe the bill is contrary to the concept of inter-regional utilization of energy resources under which the new high voltage lines have been undertaken by the Federal Government and west coast utilities.

E. K. DAVIS,
General Counsel, Sacramento Municipal Utility District.

THE IDAHO COMMISSION ON FEDERAL LAND LAWS,
Boise, Idaho.

Hon. CLINTON P. ANDERSON,
Chairman, Water and Power Resources Subcommittee, Senate Interior and Insular Affairs Committee, New Senate Office Building, Washington, D.C.:

The Idaho Commission on Federal Land Laws supports in principle S. 940—a bill to prohibit licensing of hydro-electric projects on the Middle Snake River below Hells Canyon Dam for a period of 10 years. With no less than five major studies now under way or planned that have a direct bearing on the use and protection of this area, the wisdom of Idaho's Senators Frank Church and Len B. Jordan in co-sponsoring this legislation cannot be questioned by anyone interested in the future and progress of the people of the State of Idaho.

Foremost among the studies being funded by Federal and State monies concerning this area directly or indirectly are surveys of availability and need for water resources of Idaho being conducted by the Idaho Water Resource Board and the Pacific Northwest Rivers Basin Commission: Methodology for re-evaluation of wild and scenic rivers being conducted by the scenic rivers study unit of the Water Research Institute at the University of Idaho; joint State-Federal water resource studies involving the U.S. Forest Service, the U.S. Bureau of Outdoor Recreation and the State of Idaho; Idaho outdoor recreation program plannnig; and work of the Bonneville Power Commission on alternative sources to meet the hydroelectric needs of the Pacific Northwest.

It is to be especially noted that all of these studies are presently slated to be completed in 1978 and possibly with additional funding and program rearrangement, those most affecting the Middle Snake could be completed by mid-1974. With this in mind, the Idaho Commission on Federal Land Laws respectfully submits that possibly the moratorium period envisioned in S. 940 could be shortened to allow those uses of the Middle Snake deemed in the best public interest for the present and future to be authorized at an earlier date. However we feel that all studies now under way should be completed and evaluated before such moratorium ends as this allows Idaho to keep those options open to assure the maximum benefit to the State and its citizens on the Snake River which derives most of its water from Idaho lands and streams.

Respectfully submitted.

JOHN E. MARTIN, *Executive Director.*

DENVER, COLO., *February 27, 1970.*

Senator CLINTON ANDERSON,
Senate Interior and Insular Affairs Committee,
Capitol Building, Washington, D.C.

DEAR SIR: Amid my discouragement over the continued misuse of America's natural resources I write you this letter. We refuse to learn from history in our reckless exploitation of our environment. In this respect the American is a complacent individual who does not make use of planning to cope with impending danger, but rather he waits for the crisis to arise before he takes action. Possibly, as a geographer, I am more concerned and aware of the environment than most people. However, we have all witnessed, over and over, examples of man's careless attitude regarding his habitat.

Today, I address myself to a true crisis. The proposed High Mountain Sheep Dam would impound the waters of the Snake River, flooding a priceless faunal and floral habitat—truly one of the few natural environments left to us in the United States. I contend that we cannot afford to make this mistake, for which we will suffer and regret long afterwards.

There is the question of relative values and benefits to be gained in creating this reservoir as opposed to preserving the area as a national river. Because reservoirs tend to accumulate silt rather rapidly (as seen in the Colorado River's Lake Meade and elsewhere) the usefulness of the dam will begin to decrease even as the first waters back up behind the dam. Certainly it takes no geographer to see the benefits (albeit short-term) of such an undertaking. However, do these benefits really compare to those gained by preserving the area? I think not. Bears, cougar and other animals and plants would stand to lose since many life cycles would be broken. Man would also lose one of the few natural wilderness areas he has remaining. Such magnificent landscapes as this are few and man cannot continue to erase them as he has in the past without soon running out. I submit that, as city growth increases, urban man will have a growing need for such native landscapes to maintain his social and mental stability. This is not to mention that man, as caretaker for his environment, has a responsibility to use the land for his benefit while, at the same time, preserving it.

Thus, I strongly support Senate bill 3329 which would set aside the Hell's Canyon area as a national river. I also would ask that you submit this letter to the hearing record on Senate bill 940. Time is running out for man to save what is left of his habitat. This bill must be passed and others like it in the future must also be acted upon using long-range planning and objectivity. There are economic alternatives to building a dam in Hell's Canyon, but no alternatives for the habitat once it is destroyed.

Sincerely,

PAUL G. WHITE,
Geography Department, University of Denver.

LIVERMORE, CALIF., *February 24, 1970.*

Hon. HENRY M. JACKSON,
Chairman, Committee on Interior and Insular Affairs,
U.S. Senate, Washington, D.C.

DEAR SENATOR JACKSON: We would like to have our enthusiastic support for the Hells Canyon-Snake National River Bill entered into the public hearing record on the Bill.

As occasional visitors to the area, we were horrified to learn of plans for a "dam" there, and feel that even a moratorium on such projects is insufficient guarantee of preserving them in the public domain.

Sincerely,

Dr. and Mrs. D. STEINBERG.

SCAPPOOSE, OREG., *February 25, 1970.*

Senator HENRY M. JACKSON,
Senate Office Building,
Washington, D.C.

DEAR SENATOR JACKSON: I am writing in the hope that it is not too late for my letter to be entered into the public hearing record on the Middle Snake Moratorium.

It is my feeling that one of the most urgent jobs facing this generation is the preservation of the few remaining, relatively unspoiled areas of our country. I consider the Moratorium Bill as only a better than nothing approach to the problem.

The National River Bill has my enthusiastic endorsement and is rapidly gaining support in this area.

Sincerely,

RICHARD D. MCCLARIN.

PORTLAND, OREG., *February 26, 1970.*

Senator HENRY JACKSON,
Senate Office Building,
Washington, D.C.

DEAR SENATOR JACKSON: The National River Bill has my 100% approval and backing. I do encourage you to support this Bill. The backing in Oregon is strong. We need support in more of these areas.

Please enter my letter into the public hearing record on the Middle Snake Moratorium. This is better than nothing.

Sincerely,

DEE MCCLARIN.

SANTA ANA, CALIF., *February 12, 1970.*

Hon. HENRY M. JACKSON,
U.S. Senate,
Washington, D.C.

DEAR SIR: I ask that you support a ten-year moratorium on licensing dams between Hells Canyon Dam and Asotin, Washington.

I knew the Snake River when I was a child, and to me it is as magnificent a river as any in the world.

Its scenic and recreational values must be preserved.

Thank you for your concern.

Sincerely yours,

FERN ZIMMERMAN.

BLAINE, WASH., *February 12, 1970.*

Senator FRANK CHURCH,
Washington, D.C.

DEAR SENATOR CHURCH: Probably the most magnificent natural monument in the area you represent is Hells Canyon. To quote the title of an article by Michael Frome, conservation editor for FIELD & STREAM Magazine, concerning the Snake River, "Must This be Lost to the Sight of Man?"

It would be a national disgrace to turn this canyon, the deepest in North America, into a mud-banked, silt-laden reservoir. Must we continue to deplete our natural heritage to make a short term profit? It's ironic to think of this nation as progressive, when each successive generation inherits an increasingly filthier environment with less and less natural wonders.

I urge you to support SB 940 which provides for a ten year study period of the Hells Canyon area. Unless we are wholeheartedly determined to destroy the Snake River for good, the least we can do is set aside some time to consider the effects more dams will have on the ecology and beauty of this location. Thank you.

Sincerely,

DON CALHOON.

BOISE, IDAHO, *February 12, 1970.*

Hon. FRANK CHURCH,
Washington, D.C.

DEAR SENATOR CHURCH: I firmly support you on the moratorium bill on dams in Hells Canyon which you and Senator Jordan and others have introduced.

Sincerely,

EVAN M. KACKLEY.

41-855 O—70——21

IDAHO RECREATION AND PARK SOCIETY,
February 11, 1970.

Senator CLINTON P. ANDERSON,
New Senate Office Building,
Washington, D.C.

DEAR SENATOR ANDERSON: I feel strongly that the proposed ten year moratorium against dam development on the Middle Snake River will provide time needed to complete water resource and ecological studies necessary to make a sound decision on the future utilization of this section of the Snake River.

It is quite evident that dam development has already done much to destroy our natural environment and balance of nature.

Please call me and the Idaho Recreation and Park Society for support on this issue and other pertinent recreation and environmental issues.

Sincerely,

STEVEN W. BLY,
President.

OLALLA, WASH., *February 25, 1970.*

Senator HENRY M. JACKSON,
Chairman, Senate Interior Committee,
Senate Office Building,
Washington, D.C.

DEAR SENATOR JACKSON: It is with pleasure that I read of your position on Snake River. I feel as if you are about to become a conservationist. How fine it would be if Washington state could become a show-piece to the world by putting our beautiful forests and rivers ahead of money.

I realize the necessity of electric power, but I would look for other ways or methods of living less dependancy in our everyday life on electric gadgets alone would lessen power demand.

I am as frustrated with free ways eating up our lands and I hold automobiles as villain. However, I cannot suggest "Horse and Buggy" living re power and transportation. I do desire public education toward a new way of life. Economy of power use, mass transit and more taxes are coming. There is no choice for us. Let it not come as a shock to the people. Start conserving now.

Put me down as a taxpayer willing to pay the taxes for a natural environment.

I do not mention Viet Nam, and our new wars to you, because I hate war. I guess I start at home with our own land use. What would be the use of "winning a war" when our own country is has been mis-used for filling pockets with money.

Please excuse my poor composition, but I want so badly to tell someone my concerns.

Sincerely,

MRS. RUTH E. JOHNSON.

IDAHO FALLS, IDAHO, *February 28, 1970.*

Senator HENRY M. JACKSON,
Chairman, Senate Interior Committee,
Senate Office Building, Washington, D.C.

DEAR SENATOR JACKSON: I would like to have the following statement entered into the public hearing record on the Middle Snake Moratorium.

I would like to go on record as supporting the moratorium on dam construction in the Hells Canyon region of the Snake River. The moratorium is a necessity if we are to prevent construction of any dams on this portion of the Snake River at this time.

A dam is not a necessity from the standpoint of electrical power generation as alternate means of power generation are available and are economically feasible. Considering the rapidly increasing demand for electrical power it is obvious that any dam constructed for this purpose cannot possibly meet the entire power requirement. Therefore a dam would represent only a stop gap measure and would do little to solve the long term power requirement.

The proposed moratorium will limit dam construction for a short time but it is not a positive step toward deciding the ultimate fate of the Hells Canyon area. In this day of vanishing wilderness areas we must consider very seriously the consequences of destroying what little wilderness area is left.

I believe that the proposed Hells Canyon-National River bill (S. 3329 and H.R. 15455) presents an excellent opportunity to set aside one of the few remaining stretches of river in our country that is still in its natural state. If we are to preserve our remaining wilderness areas we must act decisively now.

In conclusion I support the moratorium but only as an interim measure until the Hells Canyon region can be set aside as a wilderness area.

Very truly yours,

CARL J. HOCEVAR.

HAWTHORNE, CALIF., *March 5, 1970.*

Senator HENRY M. JACKSON,
Chairman, Senate Interior Committee,
Washington, D.C.

DEAR SENATOR JACKSON: Please enter my letter into the public housing record on the Middle Snake Moritorium.

I find the National River Bill is the answer to saving this beautiful country. I also find the Moratorium is a poor second choice and am against it.

Thank you.

Sincerely yours,

KATHLEEN M. OUMA.

PULLMAN, WASH., *February 24, 1970.*

Hon. HENRY M. JACKSON,
Chairman, Senate Interior Committee,
Senate Office Building, Washington, D.C.

DEAR SENATOR JACKSON: We support the "Hells Canyon-Snake National River" bill. No more dams on the Snake, please.

Respectfully,

Mr. and Mrs. DONALD COCHEBA.

CLARKSTON, WASH., *February 25, 1970.*

Senator CLINTON ANDERSON,
Water and Power Resources Subcommittee,
Washington, D.C.

DEAR SIR: I support legislation concerning protecting the national beauty and freshness of the Middle Snake and Hells Canyon from dams forever. I also am thankful Mr. Church and Mr. Jordan of Idaho are wise in their bill S. 940 moratorium bill for a stop gap till, I hope a national river bill can be passed.

My family and I love to drive up the canyon, the recreation, the history, the geology, and oh so little ground to walk on.

Yours truly,

W. C. DETRAY.

RESOLUTION, WALLACE, IDAHO

Whereas, High Mountain Sheep dam, or any other dam on the Middle Snake River, would be an additional impediment to invaluable anadromous fish runs in the Snake and Salmon Rivers; and

Whereas, the Assistant Secretary of the Interior has testified that any power which might be generated at such dams will not be needed to meet power requirements before 1986; and

Whereas, technological developments in the next 10 to 15 years should make other sources of power even more competitive, cost wise, than at present; be it

Resolved, That this organization go on record as being opposed to any dam on the Middle Snake River and in favor of any action which would permanently prohibit the construction of any dams on the Middle Snake River or the Salmon River; and be it further

Resolved, That copies of this resolution be immediately mailed to the U.S. Senate Interior Subcommittee and to Senator Frank Church and to Senator Len Jordan.

I hereby certify that the foregoing resolution was adopted by the membership of the Shoshone County Sportsmen's Association at its regular meeting held at Osburn, Idaho on February 18, 1970.

H. A. CALLAWAY, *Secretary.*

LEWISTON, IDAHO, *February 17, 1970.*

Hon. FRANK CHURCH,
U.S. Senate, Washington, D.C.

DEAR SIR: We the undersigned urge you to support Senate bill 940.

Sincerely,

Mr. and Mrs. LINDSEY PINSON.
CLAYTON LYDA.

LEWISTON, IDAHO, *February 15, 1970.*

Senator FRANK CHURCH,
Senate Office Building,
Washington, D.C.

DEAR SIR: We want to express our support of the 10 year moratorium on the Middle Snake River. We definitely feel that loss of the natural beauty of the Hells Canyon area is not warranted by the hydro-electric power that would be produced by one or two dams; particularly as we understand that there are alternative power sources available.

Very truly yours,

Mr. and Mrs. DAVID R. FERGUSON.

COEUR D'ALENE, IDAHO, *February 21, 1970.*

Senator FRANK CHURCH,
Washington, D.C.

DEAR SENATOR CHURCH: We are vigorously opposed to any more dams on the Columbia River system both in Idaho and downstream.

More dams would only reduce the runs of salmon and steelhead and their availability to be taken by sportsmen.

Hence—let's stop dam construction while we still have a part of this valuable resource left.

Sincerely,

Mr. and Mrs. JOHN T. HEIMER.

GRANGEVILLE, IDAHO, *February 20, 1970.*

Senator FRANK CHURCH,
Washington, D.C.

DEAR SIR: Please support Senate Bill 940.

CLYDE A. PURYEAR.

MOSCOW, IDAHO, *February 18, 1970.*

Hon. FRANK CHURCH,
Senate Office Building,
Washington, D.C.

DEAR SENATOR CHURCH: Please count me as one of those strongly supporting your Senate Bill 940, forstalling for the present at least further depredation of the middle Snake. Certainly this deferment is the least that can be done to prevent what may turn out to be a hideous mistake.

Congratulations on sponsoring this bill.

Sincerely,

J. FREDERICK WELTZIN.

MOSCOW, IDAHO, *February 17, 1970.*

Hon. FRANK CHURCH,
Senate Office Building,
Washington, D.C.

DEAR SENATOR CHURCH: It is with great concern that we view the attempts to build further dams on either the Snake or Salmon Rivers in Idaho.

We support, and ask your continued support for, SB 940. We are very much aware of the need to take a studied look at what is happening to our physical environment. Additional dams would only contribute more problems in an area in which we are unable to solve our present problems of pollution.

We are sure you are fully aware of the arguments against additional damming of the Snake River, so ask that there simply be no more dams along the Snake River, including the area below Asotin, Washington.

Sincerely,

Mr. and Mrs. H. W. W. (BILL) JOHNSON.

CIRCLE C RANCH, INC.,
New Meadows, Idaho.

Senator FRANK CHURCH,
Washington, D.C.

DEAR SENATOR: I wish to take this opportunity to congratulate you along with Senator Jordan for your stand of 10 year moratorium on further power dams on the Middle Snake River.

I spent Lincoln's Birthday, Feb. 12, at our Pittsberg Ranch where the Pleasant Valley Dam or High Mountain shelf is proposed.

I consider this one of the best cow outfits in Idaho and have wintered 900 cows each winter since 1926 when we purchased the ranch.

It is true we have been short of irrigation water but a lake with 120-foot over house and barn and all farm land would also be an oversupply.

I have been on the Snake River, both up and down the river, some 40 miles from our ranch and must say I know the river from a cowboys view on horseback.

This is a picturesque and scenic river that any person would enjoy seeing just as it is today.

There are many good cattle and sheep ranches, hunters, fishermen, and tourists that enjoy nature that would be out of business if the canyon is made into a lake.

I have spent many pleasant hours and days on horseback and know ths river well, and perhaps in future years, we might find that other power might be available.

I will furnish you a good horse and apply as guide if you find a day to enjoy the river as it is at present.

Respectfully,

ROLLIE CAMPBELL, *President.*

TROY, IDAHO, *February 17, 1970.*

Senator FRANK CHURCH,
Senate Office Building,
Washington, D.C.

DEAR SIR: I believe that it is imperative that Senate Bill 940 (10 yr Moratorium) be passed to save our Snake and Salmon rivers from total destruction if the H.C.S.N.R. plan cannot be passed now.

We need permanent protection of this area as soon as possible if we are to save the very things we live here for, our Scenic Country, our fish and wildlife and the thrill of traveling these rivers.

I am not in favor of any more major dams in this area.

Yours very truly,

INA LEE SEVERSON.

JESS FAHA AGENCY,
Lakeview, Oreg., February 21, 1970.

Hon. FRANK CHURCH,
Washington, D.C.

DEAR SENATOR CHURCH: I am heartily in favor of your bill regarding the dams in the Snake River. I am not sure there ever should be another dam in the Snake River.

Respectfully,

JESS FAHA.

MOSCOW, IDAHO, *February 15, 1970.*

Hon. FRANK CHURCH,
Washington, D.C.

DEAR SENATOR CHURCH: Congratulations for sponsoring Senate Bill 940 to protect Hells Canyon for 10 years, at least. I support you 100%.

Please do all you can to create more effective environmental quality standards. I am willing to pay higher taxes, if necessary, to fight pollution.

Keep up the good work. I am optimistic that Idaho will be as beautiful in the future as it is now.

Yours truly,

RICHARD A. PATTERSON.

LEWISTON, IDAHO, *February 16, 1970.*

Senator FRANK CHURCH,
Senate Office Building,
Washington, D.C.

DEAR SENATOR CHURCH: This is first time I have ever written to you or to any other senator, but I feel that the ten-year moratorium bill proposed by you and Senator Jordan is too important for me just to sit back and ignore my duty as an Idaho citizen.

My husband is a forester, Senator Church, and thus a devoted conservationist. Since we've been married, I have learned to appreciate Idaho's natural beauty rather than take such beauty for granted as many people do. Idaho is one of the few states left with wilderness areas and natural scenic beauty, such as Hells Canyon, so let's keep it that way. Progress is fine, but too much of it, especially if it is unnecessary, will soon destroy all of God's given beauty.

Although many people joke about Idaho's remoteness and backwardness, many more people enjoy our scenic beauty for their recreational needs. Of course, only we who live in this area can appreciate what you and Senator Jordan are trying to do. Trying not to be sarcastic, I have to say that if the eastern senators could see Hells Canyon and other areas of Idaho, perhaps they too would try to conserve what is left of Idaho's beauty. All they know is cement, buildings, polluted air, and polluted water; don't they realize that there are some people who don't want nor like to live in this way?

So, Senator Church, I strongly support your 10-year moratorium. Do your best to help maintain Idaho's scenic beauty. Good luck!

If it will help, please feel free to make this letter part of the moratorium hearings record.

Sincerely,

MARLENE SCHAEFER.

GREATER SAWTOOTH PRESERVATION COUNCIL,
Idaho Falls, Idaho, February 23, 1970.

Hon. FRANK CHURCH,
U.S. Senate,
Washington, D.C.

DEAR SENATOR CHURCH: I understand that the record is still open on the Snake River Moratorium Bill, S. 940. Would it be possible for you to have the following statement included in the hearing record?

I am John H. Merriam and I reside at Rt. #3, Pocatello, Idaho. My statement is on behalf of the Greater Sawtooth Preservation Council, an Idaho conservation organization of which I am president. The Sawtooth Council supports S. 940. We recommend that the provisions of the bill be broadened to prohibit *all* dams on the Middle Snake River. The moratorium is a necessary first step to protect the scenic and recreational values which remain along this stretch of the Snake River. The last few months have witnessed a massive national concern over protection of the environment; we believe that the perspective gained by time will show that this unique area should be preserved rather than flooded. The GSPC supports the concept of a Snake National River which would give lasting protection to what is left of Hells Canyon. Since the moratorium will provide time in which to provide lasting protection, we endorse the bill and hope that it can be followed by legislation to protect this stretch of free-flowing river.

Thank you.

Yours truly,

JOHN H. MERRIAM, *President.*

MOSCOW, IDAHO, *February 15, 1970.*

Senator FRANK CHURCH,
Chairman, Senate Subcommittee on Public Lands,
Washington, D.C.

DEAR SENATOR CHURCH: I am in favor of Senate Bill 940 for a 10-year moratorium which prohibits desecration of Hells Canyon.

Sincerely,

GLADYS I. BELLINGER.

LEWISTON, IDAHO, *February 16, 1970.*

Senator HENRY M. JACKSON,
Chairman, Senate Interior Committee,
Senate Office Building,
Washington, D.C.

DEAR SIR: We the following wish to express our support on Senate Bill 940. We do however wish to express stronger support to the proposal introduced in the Senate by Sen. Robert Packwood, Oregon, and in the House by Rep. John Saylor, Pa. (the Hells Canyon Snake National River).

Please give your support in our behalf to preserve the Middle Snake, Hells Canyon, Salmon, Grande Ronde, and Imnaha Unit as outlined in the Hells Canyon Snake National River Plan.

Sincerely,

ELMA F. LARKIN.

(The above letter was signed by 20 residents from the States of Idaho, Oregon, and Washington).

UNIVERSITY OF IDAHO, ASSOCIATED STUDENTS,
Moscow, Idaho, February 28, 1970.

Senator HENRY M. JACKSON,
Senate Office Building,
Washington, D.C.

DEAR SENATOR JACKSON: We, the students of the Parliamentary Law class of the University of Idaho, wish to express our support in favor of the passage of Senate Bill 940 (the ten year moratorium bill). We feel that the Middle Snake has unique values that would be destroyed by any construction of dams in this area.

As North America's deepest gorge, we feel that it should remain in a natural state. Furthermore, dams would destroy habitat for wildlife, such as deer, elk, and upland game birds. The spawning areas for sturgeon would also be destroyed which could lead to the extinction of this fine sport fish. Dams in the area would hinder the migration of valuable salmon and steelhead which spawn in the Salmon River drainage.

The aesthetic and recreational value to boaters traveling up the river would also be lost if dams were built.

Sincerely yours,

PAUL L. MILES, *Instructor.*

(This petition was signed by 22 students of the University of Idaho.)

DESOMOUNT CLUB,
LAGUNA BEACH, CALIF., *January 26, 1970.*

Hon. HENRY M. JACKSON,
Chairman, Senate Interior and Insular Affairs Committee,
Senate Office Building,
Washington, D.C.

DEAR SENATOR JACKSON: Desomount Club asks that its protest against the building of High Mountain Sheep Dam, Nez Perce Dam or any other dam on Hells Canyon be entered in the record.

We oppose a moratorium. It only holds forth the hope, for dam builders that sometime later one may be built. We want no dams there.

All the life zones found on the North American continent are found here. Flora and fauna range from that found in the alpine heights to that of the desert environment at river level. There is an abundance of species here found nowhere else in the nation.

These natural values of the canyon and the Snake's wild water are recreative assets that must not be sacrificed.

Dams are no longer considered our most economic source of power. Their productive life is relatively short. Other sources of power are available. Our technology promises still others.

Respectfully yours,

EVELYN GAYMAN,
Conservation Chairman.

SPORT FISHING INSTITUTE,
Washington, D.C., February 19, 1970.

Hon. CLINTON P. ANDERSON,
Chairman, U.S. Senate Subcommittee on Water and Power Resources, New Senate Office Building, Washington, D.C.

DEAR SENATOR ANDERSON: We heartily endorse Senators Church and Jordon's legislative proposal as contained in S. 940 which would place a ten-year moratorium on hydroelectric projects on the Middle Snake River below Hells Canyon Dam site. This approximate 100 miles of temporary "sacrosanct" river stretch would give "interim" added protection to the Salmon River, until a more comprehensive protection program can be developed. The Salmon River, as you may know, is of vital significance to the sustenance of the important salmon and steelhead trout populations of the Columbia River system.

Mr. Chairman, we propose that the protection of these, the Columbia systems most valuable spawning and nursery grounds for salmon and steelhead, be further strengthened by designating the Salmon River as a *National Anadromous Fish Spawning Sanctuary.* This proposal is expressed in the resolution by this Institute's Board of Directors in the enclosed marked SFI BULLETIN for November–December, 1968, viz:

"Now, therefore, be it resolved, that the Board of Directors of the Sport Fishing Institute, assembled in regular Semi-Annual Meeting this 15th day of November, 1968, at West End, Grand Bahama Island, do herewith implore and urge the Congress to designate the Salmon River in Idaho as a National Anadromous Fish Spawning Sanctuary, to aid in the associated sport and commercial fisheries of the Columbia River, and to declare it to be related Congressional policy that no dams or steam plants shall be constructed on the Salmon River downstream therefrom, and that no diversions of water shall be made from the Salmon River, that shall adversely affect the purpose for which the Sanctuary is established."

This resolution might well form the basis of a helpful amendment to S. 940, or of a separate bill to provide a much-needed asylum for one of our most precious fishery resources, both sport and commercial, for the entire West Coast. We would much appreciate the inclusion of these remarks in the February 16, 1970 record of hearings. Thank you.

Sincerely yours,

PHILIP A. DOUGLAS,
Executive Secretary.

LEWISTON, IDAHO, *February 16, 1970.*

Senator FRANK CHURCH,
Senate Office Building,
Washington, D.C.

DEAR SENATOR CHURCH: I have been living in Idaho twenty-five of my twenty-nine years on this earth. I have always enjoyed Idaho. Some of the most beautiful land in the United States of America lies in this state. One reason for this is the fact that much of this land lies in rugged terrain away from the mass societies. Another is the fact that man has not really begun to reap the resources from this land.

In the past (frontier days) much of our land was defiled but at a much slower rate than today. Just look around. There are very few places in nature today that have not been polluted by man and most of these places are in the West—many in Idaho. "Let's keep Idaho Unique." I am in support of Senate bill S. 940.

Thank you,

LYLE THOMPSON.

GLENSIDE, PA., *February 21, 1970.*

Hon. HENRY M. JACKSON,
Chairman, Senate Interior Committee,
Senate Office Building, Washington, D.C.

DEAR SENATOR JACKSON: Please make this statement part of the hearing record on the Middle Snake Moratorium, S. 940.

Speaking for some 75 members of the Batona Hiking Club Conservation Committee, I feel that S. 940 is a good bill. Some areas should be left free-flowing. Hells Canyon and the Snake is one of them.

At the same time, we feel that a more comprehensive bill is S. 3329 which would establish Hells Canyon-Snake National River.

In ten years, many new arguments could be used to prove that the best use of the Snake woud be to dam it.

Why wait—we can save it for all times by making it a National River. (From what I've read about it, they don't come much better.)

Thank you.

Yours truly,

JOE WALICKI,
President, Batona Hiking Club of Phila.

CLARKSTON, WASH., *February 27, 1970.*

CLINTON P. ANDERSON,
Chairman, Water and Power Resources Subcommittee,
Senate Office Building, Washington, D.C.

DEAR SIR: I would like to express my wish for the strong support of the Hells Canyon-Snake National River Bill, S. 3329.

As a family we have enjoyed many outings on the Snake River and hate the thought of the natural beauty being spoiled by dams and such. My husband had the good fortune of catching a steel-head on the river not too long ago and we anticipate more such trips.

Thank you for your time.

Sincerely,

Mrs. LOWELL MESSLEY.

KNOXVILLE, TENN., *February 2, 1970.*

Hon. HENRY JACKSON,
U.S. Senate,
Washington, D.C.

DEAR SIR: I understand that hearings will be held by the Senate Interior Committee on Senators Jordan and Church's S. 940 which would prohibit licensing of hydroelectric projects in the Hells Canyon Area of the Snake River. I would appreciate it if you would enter my letter into the record of these hearings as being in favor of this bill. I am very much against any more dams on the Snake River. Further, I urge that Senator Packwood's bill to establish the Hells Canyon-Snake National River will be passed.

We have all too few such wild places left in the United States, and it is most urgent that we take steps immediately to protect those which are left. I bitterly resent the fact that in the name of "progress" we have erected dams and built highways which have destroyed forever some of the most beautiful places in America. What are we going to leave for our children? I most certainly hope it will not be a country covered with concrete.

Sincerely,

JEANNE S. CARVER.

POCATELLO, IDAHO, *February 6, 1970.*

Senator HENRY M. JACKSON,
Chairman of Senate Interior Committee,
Senate Office Building, Washington, D.C.

DEAR SENATOR JACKSON: I am writing you concerning the Middle Snake Moratorium; may I ask you to enter this letter into the public hearing record? I feel that the moratorium is a poor second choice to the National River Bill. We need environmental action now in order to give Hells Canyon needed permanent protection.

Respectfully yours,

MAX DAHLSTROM.

ENGLEWOOD, COLO., *February 28, 1970.*

Senator CLINTON P. ANDERSON,
Chairman, Subcommittee on Power and Water Resources, Senate Interior and Insular Affairs Committee, Senate Office Building, Washington, D.C.

DEAR SENATOR ANDERSON: Please include this letter in the hearing record on S. 940, the bill to place a ten-year moratorium on dams on the Middle Snake River.

I support the moratorium measure. To the extent that it would prevent dam building in this fabulous reach of river, it is desirable. However, the moratorium is temporary legislation.

I believe that the best solution is to establish a Hells Canyon-Snake National River Area as provided for in S. 3329 by Senator Packwood and in H.R. 15455 by Representative Saylor.

The latter bills would give permanent protection to this outstanding stretch of river, the canyon, and surrounding areas which in scenery, archeology, fisheries, wildlife, and wilderness. I have visited this region many times, and I am very familiar with its natural attributes. I believe that we should move ahead and give this river area permanent status as a National River now.

Sincerely,

CLIFTON R. MERRITT.

[Telegram]
IDAHO FALLS, IDAHO, *February 17, 1970.*

Senator FRANK CHURCH,
Senate Office Building, Washington, D.C.:

Save Hells Canyon. You support moratorium but consider National River better protection. Good work, Frank.

Mr. and Mrs. RICHARD W. MILLER.

POCATELLO, IDAHO, *February 17, 1970.*

Hon. FRANK CHURCH,
Senate Office Building, Washington, D.C.:

Your position on S. 940 is supported and understood, realistically, as a stepping stone to S. 3329.

RUSS MAGER.

IDAHO FALLS, IDAHO, *February 17, 1970.*

Senator FRANK CHURCH,
Senate Office Building, Washington, D.C.:

Enter my support for S. 3329. My secondary support for S. 940 would be only as a means of eventual passage of S. 3329.

JIM CAMPBELL.

LEWISTON, IDAHO, *February 21, 1970.*

Hon. CLINTON P. ANDERSON,
Chairman, Senate Interior Committee,
Senate Office Building, Washington, D.C.

DEAR SENATOR ANDERSON: We would like to go on record against any further dam construction on the Middle Snake or Salmon Rivers and would like to express our support for S. 940, the Snake River Moratorium Bill.

Furthermore, we believe the moratorium bill should exclude any dam construction by the U.S. Army Corps of Engineers or Department of Interior.

Respectfully,

CHARLES H. BATTLES.

This letter was signed by nine other residents of Lewiston, Idaho.

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