

**H.R. 1071, THE NATIONAL SEA  
GRANT COLLEGE PROGRAM  
ACT; AND A DISCUSSION  
DRAFT KNOWN AS THE “NA-  
TIONAL SEA GRANT COLLEGE  
PROGRAM ACT AMENDMENTS  
OF 2001”**

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**HEARING**

BEFORE THE  
SUBCOMMITTEE ON FISHERIES CONSERVATION,  
WILDLIFE AND OCEANS  
OF THE

COMMITTEE ON RESOURCES  
U.S. HOUSE OF REPRESENTATIVES

ONE HUNDRED SEVENTH CONGRESS

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**HEARING ON H.R. 1071, THE NATIONAL SEA  
GRANT COLLEGE PROGRAM ACT; AND A  
DISCUSSION DRAFT KNOWN AS THE  
“NATIONAL SEA GRANT COLLEGE PROGRAM  
ACT AMENDMENTS OF 2001”**

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**Thursday, November 8, 2001  
U.S. House of Representatives  
Subcommittee on Fisheries Conservation, Wildlife and Oceans  
Committee on Resources  
Washington, DC**

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The Subcommittee met, pursuant to call, at 12:36 p.m., in Room 1324, Longworth House Office Building, Hon. Wayne T. Gilchrest [Chairman of the Subcommittee] presiding.

**STATEMENT OF THE HON. WAYNE T. GILCHREST, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF MARYLAND**

Mr. GILCHREST. The Committee will come to order.

Good morning, everyone. We appreciate your attendance here this morning. Some of you came from near, and some of you came from afar—really afar—so welcome to the Committee this morning to the hearing.

The National Sea Grant Program, generally known as Sea Grant, was established in 1996 to improve marine resource conservation, management, and utilization. The program is patterned after the Land Grant College Program, which was created in 1862. Sadly, it only receives a tiny fraction of the funds received by Land Grant colleges.

Currently, there are 29 Sea Grant college programs that represent a network of researchers, educators, and marine advisory agents at over 300 academic institutions.

Sea Grant research must be relevant to the understanding, assessment, development, utilization or conservation of ocean, coastal, and Great Lakes resources. Sea Grant education programs include the development and training programs for marine scientists and technicians, as well as education in aquatic sciences for secondary school students and teachers.

Sea Grant marine advisory staff, the marine version of agriculture extension agents, provide informal education for the gen-

eral public, technical advice, and instruction in marine-related topics, and disseminate research findings to user groups.

In addition to the core program of research, education, and outreach, Sea Grant also has ongoing research programs in dealing with oyster diseases and the human health effects of oyster-borne diseases and on zebra mussels.

I am particularly interested in hearing about the progress made in the oyster disease research program.

Our colleague from American Samoa, Congressman Faleomavaega, has introduced H.R. 1071, the National Sea Grant College Program Authorization Enhancement Act. I want to compliment him for all of his hard work on behalf of this legislation.

In addition, the Subcommittee has provided a draft reauthorization proposal, and I look forward to hearing your comments as we move through the coming weeks and months about that proposal.

We also look forward this morning to your testimony.

And as we move through the coming months and years with a better understanding of a cooperative international association with peoples from around the world to deal with desperate sufferings and poverty and misinformation and ignorance and arrogance and dogma and intolerance—all of which seems to be fertile ground for the tiny fraction of people in the world that are afflicted with madness to cause harm to others—if I can be so bold as to take a leap, I am assuming and hopeful that the positive effect of all that—getting together in a cooperative fashion with the international community to make the world a better place—will also begin to increase our recognition of the planet's sensitive natural resources and sensitive ecosystems, so that the cooperation can go far beyond the hearing room or a few research facilities to a better understanding of mankind that we are on an oasis in the midst of a rather large and barren universe.

And as the population increases and our resources decrease, the ability to deal with many other situations will become increasingly more difficult.

So I look forward to the testimony from all of you on the importance that Sea Grant plays in that rather enormous puzzle.

[The prepared statement of Mr. Gilchrest follows:]

**Statement of Hon. Wayne Gilchrest, a Representative in Congress from the State of Maryland**

The National Sea Grant College Program, generally known as Sea Grant, was established in 1966 to improve marine resource conservation, management, and utilization. The program is patterned after the Land Grant College Program, which was created in 1862. Sadly, it only receives a tiny fraction of the funds received by land grant colleges. Currently, there are 29 Sea Grant College programs that represent a network of researchers, educators and marine advisory agents at over 300 academic institutions.

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larly interested in hearing about the progress made in the oyster disease research program.

Our colleague from American Samoa, Congressman Faleomavaega has introduced H.R. 1071, the National Sea Grant College Program Authorization Enhancement Act, and I want to compliment him for all of his hard work on behalf of this legislation. In addition, the subcommittee has provided a draft reauthorization proposal. I look forward to the witnesses comments on these measures, and I appreciate your coming today.

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Mr. GILCREST. I would now like to yield to my good friend from Guam, and colleague, Mr. Underwood.

**STATEMENT OF THE HON. ROBERT A. UNDERWOOD, A  
DELEGATE IN CONGRESS FROM THE TERRITORY OF GUAM**

Mr. UNDERWOOD. Thank you, Mr. Chairman. And thank you for those very sobering words.

And as well, I want to express my relief that we are back in Longworth. It is good to be back in Longworth.

Mr. GILCREST. I really didn't think in those terms, that I'm actually back in Longworth.

Mr. UNDERWOOD. That's right. We are back in Longworth.

I never thought I would say that.

[Laughter.]

Mr. UNDERWOOD. Thank you, Mr. Chairman. And good morning to everyone. And I regret that circumstances have forced the postponement of this hearing from October 18th until today.

And I realize that this was a significant inconvenience for the invited witnesses, and I very much appreciate that you have all been able to make yourselves available to attend on such short notice, especially my friend and longtime colleague from the University of Guam, Dr. Robert Richmond. And my thanks to all of you.

And also, I would like to recognize, if you would allow me, Mr. Chairman, the Lieutenant Governor of Guam; Madeleine Bordallo is here, as well as Paul Bordallo.

It never fails to amaze me that the National Sea Grant College Program has yet to catch the public's attention or the attention of Congress, for that matter, in a way that is comparable to the success of our Nation's Land Grant institutions.

This fact is made even more surprising considering that since 1966 the migration of people, industry, and commerce away from the Nation's heartland to the Nation's coasts, which in a sense have become the Nation's new heartland, has become even more dramatic with each succeeding decade.

The need for a program like Sea Grant has never been greater, yet we all still seem to be waiting for the demand to coalesce.

As a former academic administrator, I appreciate the benefits that can be realized through the partnerships and Federal matching funds provided through the Sea Grant Program.

For these reasons and because of the obviously intrinsic economic and cultural dependence on marine resources in Guam, I certainly support the efforts of Dr. Bob Richmond and his colleagues, who are working cooperatively with NOAA to develop a Sea Grant program for the Western Pacific region. I will be interested to hear how work has progressed on this proposal, and I will be asking for a show of hands of support for this proposal later on.

[Laughter.]

I will also be interested to hear the views of today's witnesses, especially their perspectives on future funding levels for Sea Grant.

In this respect, I certainly want to thank my friend from American Samoa, our colleague Mr. Faleomavaega, for his leadership in introducing legislation that would significantly increase authorizations for Sea Grant appropriations to \$100 million per year.

While certainly this figure would be a substantial increase, it still appears reasonable, considering that comparable Land Grant institutions will receive over \$1 billion in fiscal year 2002.

Of course, the events of September 11th will make it extremely difficult to find any new funding in discretionary accounts. Nevertheless, the Sea Grant program is worthy of additional support, and it will be the responsibility of this Committee to step up to that challenge.

Thank you, Mr. Chairman.

[The prepared statement of Mr. Underwood follows:]

**Statement of the Hon. Robert Underwood, a Delegate to Congress from  
Guam**

Thank you, Mr. Chairman, and good morning to everyone. I regret that circumstances forced the postponement of this hearing from October 18 until today. I realize that this was a significant inconvenience for our invited witnesses. I very much appreciate that you have all been able to make yourselves available to attend on such short notice, especially my friend and colleague from Guam, Dr. Robert Richmond. My thanks to you all.

It never fails to amaze me that the National Sea Grant College Program has yet to catch the public's attention—or the attention of Congress for that matter—in a way comparable to the success of our Nation's land grant institutions. This fact is made even more surprising considering that since 1966, the migration of people, industry and commerce away from the Nation's heartland and to the Nation's coasts has become ever more dramatic with each succeeding decade. The need for a program like Sea Grant has never been greater, yet we all still seem to be waiting for the demand to coalesce.

As a former academic administrator, I appreciate the benefits that can be realized through the partnerships and Federal matching funds provided through the Sea Grant Program. For these reasons, and because of the obvious intrinsic economic and cultural dependence on marine resources in Guam, I support the efforts of Dr. Robert Richmond and his colleagues who are working cooperatively with NOAA to develop a Sea Grant Program for the Western Pacific region. I will be interested to hear how work has progressed on this proposal.

I will also be interested to hear the views of today's witnesses, especially their perspectives on future funding levels for Sea Grant. In this respect, I want to thank my friend from American Samoa, Mr. Faleomavaega, for his leadership in introducing legislation that would significantly increase authorizations for Sea Grant appropriations to \$100 million per year. While certainly this figure would be a substantial increase, it still appears reasonable considering that comparable land grant institutions will receive over \$1 billion dollars in Fiscal Year 2002!

Of course, the events of September 11 will make it extremely difficult to find any new funding in discretionary accounts. Nevertheless, the Sea Grant Program is worthy of additional support, and it will be the responsibility of this committee to step up to that challenge.

Thank you.

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Mr. GILCREST. Thank you, Mr. Underwood.  
Mr. Faleomavaega?

**STATEMENT OF THE HON. ENI F.H. FALEOMAVAEGA, A DELEGATE IN CONGRESS FROM THE TERRITORY OF AMERICAN SAMOA**

Mr. FALEOMAVAEGA. Thank you, Mr. Chairman.

I certainly would like to offer my personal welcome to our distinguished Lieutenant Governor from the territory of Guam, Madeleine Bordallo, and Senator Bordallo, who is also with us here in our hearing this morning.

Mr. Chairman, I would be remiss if I did not extend my appreciation to you and our ranking member in our Subcommittee. I would rather call this piece of legislation as your bill, because this has not been something that was just done overnight. This has been a period of consultations with you and our ranking member, Mr. Underwood, for the past several months.

In my capacity formerly as ranking member of this Subcommittee 2 years ago, I had come to the strong conclusion that something has to be about the Sea Grant program. And I want to thank you and our ranking member, Mr. Underwood, for your support and especially your leadership in taking the initiative, not only by calling the hearing, by calling the first shot, extending this hopefully greater matter of knowledge and understanding to our colleagues, why this program is so important. And not just because we are from the islands. I think that, given the fact that the coastal states here in our own Nation—or even the Great Lakes, I would consider them as part of our coastal programs.

But, Mr. Chairman, I definitely want to thank you, given the fact that we have already had 50 cosponsors of this legislation. And passing this sense of threshold, I suppose you might say that hopefully there will be more of our colleagues supporting this legislation, on both sides of the aisle.

And I certainly want to commend you, Mr. Chairman, certainly as one of our most distinguished conservationists and environmentalists serving this Committee.

Mr. Chairman, the idea of a Sea Grant program was originally suggested by Mr. Athelstan Spilhaus. In was in a 1964 editorial that he wrote, and I quote: “The establishment of the Land Grant colleges was one of the best investments this Nation has ever made. The same kind of imagination and foresight should be applied to exploitation of the sea.”

Mr. Chairman, the National Sea Grant College Program has always enjoyed a broad base of bipartisan support. The 105th Congress passed reauthorization for the program without a single dissenting vote in either chamber.

However, despite this broad support, current funding for the program is only about 7 percent of the equivalent of Federal funding for the Land Grant College Program. Land Grant receives approximately \$900 million in Federal funding per year; Sea Grant receives approximately \$62 million. Yet, approximately 54 percent of our Nation’s population lives along our coasts.

I believe this is a fact that bears repeating: Nearly 54 percent of our Nation’s population lives along the coasts, but we devote only pennies to marine research.

In 1994, a National Research Council review pointed out that Sea Grant has been virtually the only source of funding in the U.S.

for marine policy research. Yet, on average, there are fewer than seven extension agents per coastal state. In many cases, there is only one extension agent serving a major urban area.

For example, in Los Angeles, there is only one extension agent serving 14 million people. In New York City, there is only one serving 12 million people.

Due to limited resources, Sea Grant funds at an average less than \$2 million per state program. Many geographic regions are not represented, including the Western Pacific—for which my colleague Mr. Underwood has eloquently elaborated upon and on which both us definitely are going to be working toward, too—which alone has a huge economic exclusive zone. Some states, like Mississippi and Alabama, share funding while other eligible states, like Pennsylvania and Vermont, have no institutional Sea Grant programs.

To address the problem of inadequate funding, I introduced—and as a matter of fact, Mr. Chairman, I would rather call it “as you introduced”—H.R. 1071, a bill which would increase authorization for funding of the National Sea Grant College Program to \$100 million per year.

Although this modest increase will not provide sufficient research for what needs to be done, I believe it is a movement in the right direction.

I am pleased to see that a draft reauthorization bill under review also provides a significant increase in authorization.

In addition to the limited funding, questions have also been raised about how the program could be better structured to improve efficiency. I believe there are some adjustments that we can make in this area, and I look forward to hearing the testimonies of today’s witnesses.

Thank you, Mr. Chairman.

Mr. GILCREST. Thank you, Mr. Faleomavaega, for those interesting facts that we will pay close attention to as we go through the reauthorization process.

Very often we can probably reauthorize some of these acts via the telephone and the staff. But it is always beneficial—and I hope you take this into your perspective while we are here this morning—that it is that exchange of information and the phenomenon that occurs when people talk to each other in the same room, that every once in a while some little spark will ignite some idea that will turn into a major opportunity.

So we are looking for sparks from each one of you this morning as we go through the testimony.

[Laughter.]

This morning we have Dr. David Evans, assistant administrator, National Oceanic and Atmospheric Administration, U.S. Department of Commerce; Dr. Geraldine Knatz, Chairman, Sea Grant Review Panel; Ms. Penelope Dalton, formerly with National Marine Fisheries Service, now with the Consortium for Oceanographic Research and Education as its vice president and technical director; Dr. Robert Richmond, professor of marine biology—who wins the prize for the longest distance traveled to get here—the University of Guam—welcome; and Dr. Richard DeVoe, president of the Sea Grant Association.

Welcome all this morning. We will begin with Dr. Evans.

**STATEMENT OF DAVID EVANS, ASSISTANT ADMINISTRATOR  
FOR OCEANIC AND ATMOSPHERIC RESEARCH, NATIONAL  
OCEANIC AND ATMOSPHERIC ADMINISTRATION, U.S. DE-  
PARTMENT OF COMMERCE**

Dr. EVANS. Good morning, Mr. Chairman, members of the Subcommittee. I am David Evans, assistant administrator of NOAA for Oceanic and Atmospheric Research.

Thank you very much for inviting NOAA to speak on behalf of the National Sea Grant College Program this morning, a partnership between the Nation's universities and NOAA that began in 1966.

And let me note that I have submitted written testimony and ask that that be part of the record. I will just have a short summary here.

Mr. GILCHREST. Without objection.

Dr. EVANS. The Sea Grant Program is made up of 32 grant colleges, located in coastal and Great Lakes States and Puerto Rico, that use the skills and resources of several hundred U.S. universities and scientific institutions to conduct marine research, education, and outreach activities.

I have been asked to provide NOAA's views on two pieces of proposed legislation, H.R. 1071, the National Sea Grant College Program Authorization Act, and a draft reauthorization bill entitled National Sea Grant College Program Act Amendments of 2001.

Unfortunately, the administration has not completed its formal review of either reauthorization bill right now. But in the spirit of your comments a few minutes ago, we very much look forward to working with you and with your staff as the reauthorization process proceeds and working on both of those bills in a way that is consistent with the administration's budgetary constraints, which you have also noted, and the policy goals that we have.

We also recognize the importance of the role that past Congresses have played in enacting the Sea Grant act to begin with and in subsequent reauthorizations. Furthermore, the administration is pleased that Congress has recognized the importance to the U.S. of sustainable coasts and continues to have confidence in Sea Grant as a part of that vision.

I would like to highlight today some of the accomplishments of the Sea Grant program and emphasize the critical role that it plays in fostering Federal-state partnerships for marine and coastal research and resource management.

Sea Grant is based on the concept of establishing a marine version of Land Grant colleges, which played a key role in the development of modern agriculture.

The Nation's experience with Land Grant colleges demonstrated that research, education, and the ability to transfer that new knowledge into public policy and economic gains are rapidly becoming the key to sustainable development and prosperity.

Similarly, the 32 Sea Grant college programs bring research, outreach, and educational expertise to promote the sustainable development of the Nation's marine and coastal resources. Sea Grant is responsible for providing information to coastal and marine users

on relevant research results that may have beneficial applications for many marine and coastal enterprises.

For example, protective mesh for clams developed by Sea Grant research in the early 1990's has resulted, in less than a decade, in an increased yield in value today of about \$40 million per year in the New England clam industry.

Sea Grant is constantly working to improve its effectiveness. Innovations introduced by Sea Grant Director Ron Baird, who is with me here today, include an increasing local responsibility for decision-making; institutionalizing a system of rigorous peer-review programs, with an emphasis on research outcomes; streamlining the management infrastructure. These reforms have substantially strengthened Sea Grant programs nationwide.

A recent example of Sea Grant's improved ability to respond is with a coordinated effort in a Long Island Sound Lobster Initiative. Sea Grant programs in the Northeast, working with States, other parts of NOAA, local users, and the Congress, were able to quickly mount an assessment, monitoring, and research program to address a pressing regional issue of significant economic importance.

Another recent management reform is the introduction of national strategic investments.

Mr. GILCHREST. If I could just interrupt for a quick second?

Dr. EVANS. Yes.

Mr. GILCHREST. We are not having the lights today.

Dr. EVANS. Okay.

Mr. GILCHREST. You can—

Dr. EVANS. Slow down a little?

Mr. GILCHREST. Yes.

[Laughter.]

Dr. EVANS. Thank you.

You know, I have been too well-trained in this process.

[Laughter.]

You know, five pages, 5 minutes, keep going, don't breathe, right?

[Laughter.]

Thank you, Mr. Chairman.

Sea Grant programs in non-indigenous species, fish habitat, marine biotechnology, oyster disease and mariculture are examples of those kinds of national strategic investments that have been made.

Next year, Sea Grant will establish a national effort to engage local decision-makers in coastal areas on the topics of community development, planning, and hazard mitigation.

Sea Grant's 1999 Hammer Award-winning program in seafood safety training and the national marine management effort are examples of other successful national programs.

Virtually every serious study of Sea Grant has noted its effectiveness. In 1994, the National Research Council found that Sea Grant had played a significant role in U.S. marine science, education, and outreach. A November 2000 study, entitled "A Mandate to Engage Coastal Users," conducted by a committee led by John Byrne of Oregon State University and the Kellogg Commission, indicated that Sea Grant has been effective in facilitating throughout the Nation sustainable development of coastal resources by helping citizens make better-informed and wiser decisions.

Sea Grant is a results-oriented partnership that is crucial to NOAA's missions. Its role within NOAA is growing and becoming more important to the agency. Sea Grant educators work with NOAA's marine sanctuary staff to develop education programs on issues such as marine protected areas.

Sea Grant conducts a major research effort focused on the importance of fish habitat and productivity of U.S. marine fisheries in support of the new habitat conservation provisions in the Magnuson-Stevens Act.

The National Marine Fisheries Service (NMFS) and Sea Grant jointly fund a graduate fellowship program in population dynamics and marine resource economics, areas of critical shortages in the agency.

Sea Grant and NMFS recently joined with other partners to conduct a state of the science symposium on critical issues such as managing recreational fisheries, essential fish habitat, fisheries in a changing climate.

Sea Grant and NOS, the National Ocean Service, a part of NOAA, are working together on the innovative NEMO program that provides geographic information system-based science information on watersheds and nonpoint source pollution to local policy-makers.

Sea Grant conducts an extension program with NOAA's Great Lakes Environmental Research Laboratory (GLERL) to get scientific information produced by GLERL scientists into the hands of local users.

NOAA's National Weather Service is teaming with Sea Grant to help educate the public about the dangers of rip currents, which account for 80 percent of the beach rescues annually.

Sea Grant is collaborating with NOAA's National Severe Storms Lab to test new advanced weather technology to deliver more accurate flood and flash flood warnings and to mitigate damages from them.

The Lab developed technology, which Sea Grant is able to apply through its extension network, and works with the State of North Carolina to help apply that technology. As a result, the State has dramatically improved its ability to anticipate floods, provide aid in evacuation and disaster-planning efforts.

Sea Grant's ability to work with weather and atmospheric phenomena, in addition to its marine science efforts, demonstrate its growing importance to the entire NOAA mission.

In short, I believe the Sea Grant program has played and will continue to play an important role in promoting research, education and outreach activities that are valuable to NOAA's mission and to marine and coastal users around the Nation.

Increased development, population, and pollution in the Nation's coastal areas are threatening our natural resources, upon which so many individuals and businesses rely for their economic well-being.

NOAA's National Sea Grant Program will continue to use its unique ability to focus on sustainable development of the Nation's coastal resources through an organization that is national in scope, university-based, and committed to the transfer of research results to coastal and marine user groups.

Mr. Chairman, that concludes my testimony. Thanks again for the opportunity to be here today. I look forward to answering your questions.

[The prepared statement of Dr. Evans follows:]

**Statement of David L. Evans, Assistant Administrator, Office of Oceanic and Atmospheric Research, National Oceanic and Atmospheric Administration**

Good morning, Chairman Gilchrest, members of the Subcommittee and staff. I am David Evans, Assistant Administrator for the Office of Oceanic and Atmospheric Research within the National Oceanic and Atmospheric Administration (NOAA). On behalf of Secretary of Commerce Don Evans, I am pleased to speak to you today about the National Sea Grant College Program (Sea Grant), a partnership between the Nation's universities and NOAA that began in 1966 pursuant to the National Sea Grant College and Program Act (P.L. 89-688). The Sea Grant program is made up of thirty Sea Grant college programs located in coastal and Great Lakes states and Puerto Rico that use the skills and resources of several hundred U.S. universities and scientific institutions to conduct marine research, education, and outreach activities.

Specifically, I have been asked to provide NOAA's views on two pieces of legislation: H.R. 1071, the National Sea Grant College Program Authorization Enhancement Act, and a draft reauthorization bill entitled the National Sea Grant College Program Act Amendments of 2001. H.R. 1071, introduced by Congressman Eni F. H. Faleomavaega and Rep. Abercrombie, would increase the authorization levels for the Sea Grant program to \$100 million annually starting in Fiscal Year 2002. The draft bill, in contrast, would increase authorization levels for Sea Grant to \$110 million in Fiscal Year 2004 and make other organizational changes. The current Sea Grant Program Act (P.L. 105-160), which expires in Fiscal Year 2003, authorizes \$67.8 million for Sea Grant in Fiscal Year 2002 and \$68.8 million in Fiscal Year 2003. The Administration has requested \$62.4 million for Sea Grant in Fiscal Year 2002, an increase over the Fiscal Year 2001 appropriation for this program.

The Administration has not yet undertaken a formal review of either H.R. 1071 or the draft reauthorization bill. We do, however, look forward to working with Congress on a reauthorization of the Sea Grant program that is consistent with the Administration's budgetary and policy goals. The Administration is interested in seeking reforms that will further promote merit-based competition and improve the effectiveness of the program.

THE NATIONAL SEA GRANT COLLEGE PROGRAM HISTORY AND ORGANIZATION

Today, I would like to highlight some of the history and accomplishments of the Sea Grant Program and emphasize the critical role that Sea Grant plays in fostering a federal-state partnership for marine research and resource management. As I noted previously, the National Sea Grant Program was created in 1966 and was based on the concept of establishing a marine version of land grant colleges, which, through a combination of research and outreach activities, have played a key role in the development of modern agriculture. The Nation's experience with land grant colleges demonstrated that research, education and the ability to rapidly transfer new knowledge into public policy and economic gains are the keys to sustainable development and prosperity. Similarly, the thirty Sea Grant college programs bring research, outreach and educational expertise to promote the sustainable development of the Nation's marine and coastal resources. Sea Grant is also responsible for providing information to coastal and marine users on relevant research results that may have beneficial applications for coastal and marine enterprises. One recent example, among many, makes the point. A protective mesh for clams developed by Sea Grant research in the early 1990's has resulted, in less than a decade, in an increased yield valued today at almost \$40 million per year to the New England clam industry.

After NOAA was created in 1970, the Sea Grant program was transferred from the National Science Foundation to the new agency. University partnerships such as Sea Grant allow NOAA to respond to new problems without the costly maintenance of permanent Federal infrastructure. Sea Grant is NOAA's principal point of engagement with the university community on coastal and Great Lakes issues. NOAA's Sea Grant is a true federal-state partnership in which states are required to contribute matching funds on a 2:1 federal-state ratio before they can leverage federal appropriations for their Sea Grant program. This matching requirement allows NOAA's Sea Grant program to expand the reach of its efforts considerably. In

addition, other federal and state agencies contribute funding to Sea Grant through cooperative partnerships.

In 1979 the Sea Grant Intern Program, renamed the Dean John A. Knauss Marine Policy Fellowship program in 1987, began. This program, also known as the Sea Grant Fellow program, provided a select group of graduate students with the opportunity to work for Congress or a federal agency on marine issues for one year. The Sea Grant Fellow program now has over 400 alumni, several of whom have gone on to serve Congress, including this Subcommittee, in key staff positions on both sides of the aisle.

In Fiscal Year 1997, the new Sea Grant Director, Dr. Ronald Baird, introduced a number of major management changes in Sea Grant that were designed to improve performance, responsiveness, and programmatic relevance. Dr. Baird's innovations included increasing local responsibility for decision making, institutionalizing a system of rigorous peer review of programs with an emphasis on research outcomes and streamlining the management infrastructure. These reforms have substantially strengthened the administration, responsiveness and relevance to management issues of Sea Grant programs nationwide. A recent example of Sea Grant's improved ability to respond with a multi-coordinated effort is its creation, along with NOAA's Coastal Services Center, of the HazNet web site at [www.haznet.org](http://www.haznet.org). This site puts coastal hazard information at the fingertips of coastal managers and the public. It provides information about natural hazards and the current planning and research efforts of Sea Grant programs nationwide, NOAA, FEMA, and state and local community sources. The site provides one-stop shopping for information on hurricanes, tornadoes, floods, coastal erosion, earthquakes, tsunamis, and volcanoes.

Another recent management reform is the introduction of national strategic investments, which have allowed NOAA to engage universities through nationwide focus on critical issues, yet maintain local and regional implementation. Sea Grant's programs in non-indigenous species, fish habitat, marine biotechnology, oyster disease, and mariculture are examples. This year (fiscal year 2002) Sea Grant will establish a national effort to engage local decision makers in coastal areas on the topics of community development, land use planning, and hazard mitigation. Sea Grant's 1999 Hammer Award-winning program in seafood safety training and the national marina management effort are examples of other successful national programs.

Several studies of Sea Grant have noted its effectiveness. In 1994, the National Research Council found that Sea Grant has played a significant role in U.S. marine science, education and outreach. This study also pointed out some concerns and provided recommendations for improving program effectiveness. In a November 2000 study, entitled "A Mandate to Engage Coastal Users," a committee led by John Byrne of Oregon State University and the Kellogg Commission indicated Sea Grant has been effective in facilitating the Nation's sustainable development of coastal resources by helping citizens make better informed and wiser decisions. Twenty-two of the thirty Sea Grant Programs have undergone performance evaluations by teams of outside reviewers and Sea Grant peers, and sixteen were graded "excellent" in achieving significant results. A program was graded "excellent" if it produced significant results, connected Sea Grant with users, and was not found to need improvement in areas such as long-range planning and management.

Sea Grant educators work with NOAA's Marine Sanctuaries staff to deliver educational programs on key issues such as marine protected areas. Sea Grant conducts a major research effort focused on the importance of fish habitat to the productivity of U.S. marine fisheries, in support of the new habitat conservation provisions of the Magnuson-Stevens Act. NMFS and Sea Grant jointly fund a graduate fellowship program in population dynamics and marine resource economics, areas of critical shortage in the agency. Sea Grant and NMFS recently joined with other partners to conduct state-of-the-science symposiums on critical issues such as "Managing Recreational Fisheries," "Essential Fish Habitat," and "Fisheries in a Changing Climate." Sea Grant and NOS are working together on the innovative Nonpoint Education for Municipal Officials program that provides geographic information systems-based science information on watersheds and nonpoint source pollution to local policy makers. Sea Grant conducts with NOAA's Great Lakes Environmental Research Laboratory (GLERL) an extension program to get scientific information produced by GLERL scientists into the hands of users. NOAA's National Weather Service is teaming up with Sea Grant to help educate the public about the dangers of rip currents which account for 80 percent of beach rescues annually. Sea Grant is collaborating with NOAA's National Severe Storms Laboratory to test new advanced weather technology to deliver more accurate flood and flash flood warnings and mitigate damages.

NOAA must increasingly find creative ways to enhance its mission capability, and Sea Grant provides a unique way to engage the Nation's universities for this purpose.

In short, I believe that the Sea Grant program has played and will continue to play a role in promoting research, education and outreach activities to marine and coastal users around the Nation.

#### THE NATIONAL SEA GRANT COLLEGE PROGRAM RECENT ACCOMPLISHMENTS

The National Sea Grant Program has achieved considerable mission success in its thirty-five year history, and I want to highlight some examples of those accomplishments in the areas of marine aquaculture, aquatic nuisance species, coastal hazard reduction, commercial fisheries, education, marine biotechnology and seafood safety and quality.

##### *Aquaculture*

Louisiana Sea Grant researchers have designed filters used to improve water quality in recirculating aquaculture production systems, leading in turn to the development of completely automated, low energy use systems now found throughout the aquaculture industry. The latest design is a filter for use in marine systems to be patented in 2001. A Sea Grant-supported graduate student who worked in this area has now started his own company and offers several filter designs commercially. His company now generates more than \$1 million in revenues per year and is growing quickly.

As a result of Sea Grant's investment in aquaculture research and extension efforts, hybrid striped bass pond culture has expanded in just 10 years from a small demonstration project to an industry producing 10 million pounds of fish valued at \$25 million annually.

##### *Aquatic Nuisance Species*

The Great Lakes Sea Grant Network has made science-based information about zebra mussels and other aquatic nuisance species available at the web site [www.sgnis.org](http://www.sgnis.org). Developed by the Great Lakes Sea Grant network, this site contains a comprehensive collection of research publications and education materials produced by Sea Grant programs across the Nation. Originally focused on zebra mussels, the site also contains on other invaders including the Eurasian ruffe, the round goby, the sea lamprey, and the spiny waterflea. New York Sea Grant has also established a National Aquatic Nuisance Species Clearinghouse at [www.aquaticinvaders.org](http://www.aquaticinvaders.org), which houses an international library of research, public policy, and outreach education publications pertaining to invasive marine and freshwater aquatic nuisance species in North America. These web sites are used by industrial and municipal water users, shoreland property owners, boaters, resource management agencies, students, teachers, outreach professionals, and researchers.

##### *Coastal Hazard Reduction*

Software developed by Sea Grant investigators allows builders to "plug in" specifications of their structure to assess the building's risk from coastal storm winds and water; the software also makes recommendations to mitigate identified risks. Structural engineers for the new 8,600-unit Sun City development near Hilton Head, SC credit the program with averting millions of dollars in potential losses as well as helping to protect lives in this retirement community.

Sea Grant researchers in coastal hazard reduction have promoted new construction techniques such as hurricane clips, cross-braced pile construction, and changes in roof and window design that have saved millions in repairs. Homes built in accordance with Sea Grant models can save an estimated \$220 annually in insurance premiums, or \$15,000 over the 70-year life span of the average home.

California Sea Grant researchers have adapted two computer models to allow scientists to use an existing wave-monitoring network to estimate swell conditions at all coastal locations in Southern California, even those without instruments. This is important because instrumenting and processing data from a single site can cost tens of thousands of dollars annually. The models developed in this project are presently being used as part of the "Orange County Storm and Tidal Wave Study," which assists better planning of future coastal structures through improved prediction of coastal erosion.

Ocean sewage outfalls are major sources of contaminants to coastal ocean systems. Studies by the University of Southern California Sea Grant have produced a wealth of information about the behavior of effluents in the marine environment. Such information increases the ability of sanitation authorities to develop environmentally-sound policies for managing urban waste.

### *Commercial Fisheries*

To revitalize the flagging oyster industry, Delaware and Maryland Sea Grant Programs are working cooperatively to identify American oysters with the most useful genetically distinct characteristics. The researchers have taken oysters from throughout the species' geographic range, the Gulf of Maine to the Gulf of Mexico, and have bred seven new lines that are now growing in the Chesapeake Bay. The next step will be to evaluate these oysters and then send the superior lines to a living repository established by the Molluscan Breeding Program at Hatfield Marine Science Center in Newport, Oregon, for the benefit of researchers across the nation.

To reduce finfish (cod, sole, and pollock) bycatch, Sea Grant scientists have studied mesh size and the optimal placement of bycatch reduction devices (BRDs) in trawl nets. After Washington Sea Grant researchers proved that the use of large meshes could reduce bycatch in the West Coast black cod and sole fisheries, regulators increased the minimum mesh size in some trawl fisheries. These studies were extended to include the North Pacific pollock fisheries, and preliminary research results there have caused regulators to also increase the size of meshes in that fishery.

To provide the fishing industry with a new method to fight diseases that attack commercial stocks of oysters, clams and abalone, California and Connecticut Sea Grant researchers have developed a technique for adding an inheritable gene to a mollusk. Pangenix, Inc., now has a license to modify this technique for commercial use.

A Washington Sea Grant outreach specialist is testing the effect of highly visible, opaque netting in the upper portions of gillnets as a visual deterrent to birds. His research has shown that visually modifying salmon gillnets and adjusting fishing schedules can reduce entanglements of seabirds. This work, coupled with a required observer program performed by a Washington Sea Grant outreach specialist, has been credited with preventing closure of the Puget Sound sockeye salmon fishery, saving hundreds of jobs and millions of dollars in lost revenue to the region's economy.

The Alaska Sea Grant Program was instrumental in conceptualizing and starting the vital program of teaching marine safety and survival to over 4,000 fishermen in 65 Alaskan ports.

### *Education*

In its first three decades, the National Sea Grant College Program supported more than 12,000 undergraduate and graduate students in a wide array of disciplines including oceanography, biotechnology, seafood science, ocean engineering, coastal ecology and law. In addition to providing academic and financial support, the cross-disciplinary nature of Sea Grant prepared those students to assume leadership roles in research and resource development.

Since 1979, 479 students have received an insider's look at the national policy-making process by participating in the Knauss Policy Fellowship program in Washington, D.C. About one-third of these students stay within the D.C. area, working in government offices or in the halls of Congress. The remaining two-thirds work in industry and trade associations, in state government as managers, or in academia as teachers and university researchers.

Operation Pathfinder, offered through regional Sea Grant programs, is a two-week course aimed at increasing elementary and middle school teachers' knowledge of oceanography and other marine-related topics. By 2000, the program had trained more than 700 teachers, who in turn trained an additional 14,000 educational professionals in 30 states and seven U.S. territories. Over a five-year teaching period, these nearly 15,000 teachers have the potential of reaching over 5.5 million K-12 students concerning the relevance of the world's oceans and coastlines and man's impact on these environments.

The handbook "Marine Science Careers: A Sea Grant Guide to Ocean Opportunities" introduces students to a wide range of marine career fields and to people working in those fields. Intended for high school students and guidance counselors, 25,000 copies of the 40-page guide are now in circulation, 5,000 of which were sent free to high schools in non-coastal states. The public can now obtain the entire booklet via web site [www.marinecareers.net](http://www.marinecareers.net).

Fourth and fifth graders, most of them from urban areas, are being made into "island explorers" under a University of Southern California Sea Grant program. So far, some 70 children have been introduced to the fundamentals of marine science through activities in the San Pedro Channel and on Catalina Island.

### *Marine Biotechnology*

Sea Grant organized the first systematic research effort in the United States to develop new drugs from marine organisms, resulting in the discovery and description of more than 1,000 compounds that may be vitally important. Some of these Sea Grant-discovered compounds are being tested by both government agencies and commercial pharmaceutical companies as possible treatments for AIDS, inflammatory diseases such as arthritis, and prostate, lung and breast cancers.

Scientists at California Sea Grant have found that the shells and skeletons of marine organisms have unique traits such as remarkable strength and biocompatibility that could be used to design valuable, new advanced materials. For example, coral skeleton, a mineralized composite used in medical implants and construction materials, provides a useful model for the design of new high performance composites with a wide range of potential applications, from microelectronics to new medical and catalytic devices. Currently, the researchers are working with the DuPont Corporation and Amgen, Inc., to identify the biological components and properties that they expect to use for shaping crystal fibers of skeletal material into micro-thin bundles resembling the high-performance, fiber optic cables needed for advanced communications and computing devices.

"Extremophiles," organisms that exist in extreme temperature zones such as underwater thermal vents or ice floes, are being studied by Washington Sea Grant researchers. For instance, cold-loving bacteria, collected during several ice-breaking expeditions in the Greenland and Norwegian Seas, are being studied to increase the variety of cold-tolerant enzymes available to industry. One of the largest markets for these enzymes is for use in improving the effectiveness of energy-saving cold-water detergents.

Using DNA sequences, Sea Grant researchers are developing rapid field tests to identify harmful algal blooms, a growing environmental problem in coastal waters worldwide. With accurate field-testing, managers can respond more effectively to reduce health risks to both humans and animals.

### *Seafood Safety and Quality*

To aid the seafood industry in complying with new FDA regulations, the National Sea Grant College Program spearheaded the formation of a partnership known as the "Hazard Analysis and Critical Control Point (HACCP) Alliance." The goal of this alliance was to ensure the safety and quality of seafood consumed in the United States by developing a unified training and certification program to properly train thousands of seafood inspectors, instructors, and workers. In cooperation with the FDA, the Sea Grant network developed a three-day training program that is used by both Sea Grant and the National Marine Fisheries Service to train the trainers.

A cadre of 590 trainers conducted over 350 HACCP courses, teaching 11,000 professionals—90 percent domestic and 10 percent international, with 75 percent representing commercial interests and 17 percent regulatory interests. The Alliance's efforts influenced more than 5,000 seafood processing firms in the U.S. and 5,900 importers and their international suppliers.

In 2000, New York Sea Grant surveyed the 5,000 seafood companies who had participated in the domestic program. Seven hundred and forty-four seafood businesses from 43 states and three territories responded to the survey. Seventy-seven percent of the respondents said they would not have been able to develop a plan to comply with new U.S. Food and Drug Administration seafood processing safety regulations without the in-depth training courses conducted nationwide under the auspices of the National Sea Grant College Program and the HACCP Alliance. Over 90 percent felt that the Alliance training course provided them with the information they needed to develop a HACCP plan, understand FDA's guidance information, and comply with the FDA seafood HACCP regulation. Eighty-eight percent of the responding firms indicated that employees from the firm developed their own HACCP plan.

Sea Grant's efforts to help the U.S. seafood industry implement the new FDA-mandated processing procedures were recognized with the receipt of a federal Hammer Award for "partnerships that make a significant contribution in improving the way federal agencies accomplish their responsibilities."

Sea Grant programs are developing rapid and sensitive methods to detect contaminated seafood. Mississippi-Alabama researchers have developed fast and highly specific polymerase chain reaction techniques for detecting several specific pathogens not only in shellfish, but also in meat products, cooked sausage, and milk. In addition, Louisiana Sea Grant researchers have developed a quick test for detecting a bacterium found in food and the environment, which causes severe disease in some humans and death in those with damaged immune systems. Now that the more virulent strains of this bacterium can be easily detected and monitored, consumers can confidently buy and consume safe, wholesome shellfish.

## CONCLUSION

Increased development, population and pollution in the Nation's coastal areas are threatening the natural resources upon which so many individuals and businesses rely on for their economic well being. NOAA's National Sea Grant College Program focuses on sustainable development of the Nation's coastal resources through an organization that is national in scope, university based, and committed to the transfer of research results to coastal and marine user groups.

Mr. Chairman, this concludes my testimony. Thank you for the opportunity to be here today. I look forward to answering any question you or members of the Subcommittee may have.

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Mr. GILCHREST. Thank you, Dr. Evans.  
Dr. Knatz?

**STATEMENT OF GERALDINE KNATZ, CHAIRMAN, SEA GRANT  
REVIEW PANEL**

Ms. KNATZ. Mr. Chairman, members the Committee, my name is Geraldine Knatz, and I Chair the National Sea Grant Review Panel, which is the congressionally mandated advisory body to the Secretary of Commerce, the NOAA administrator, and the director of the National Sea Grant College Program.

The National Sea Grant Review Panel has taken an active role in the work of Sea Grant. They are a dedicated group of leaders in marine and coastal issues from industry, academia, and local government from around the country.

And I am very proud to say, they make up a major portion of the audience behind me.

Speaking on their behalf, I thank you for the opportunity to testify on this important legislation.

The panel strongly endorses the reauthorization of the National Sea Grant College Program and strongly urges the Committee to authorize the program at the higher \$100 million level. That should be the starting point for year one, with an escalation of that dollar number over time.

We also support the inclusion of the Coastal Ocean Program within the Sea Grant and believe this will solidify greater cooperation between Sea Grant universities and other NOAA coastal programs.

Why the bigger number? Because over a period of years, we have seen erosion of the ability of Sea Grant programs to provide for their core components; because there are large coastal areas with no Sea Grant services, such as the South Pacific and some areas of Alaska; because demand for services is growing faster than the budget; and because Sea Grant has identified nine critical strategic areas of focus for the coming decade. You will hear about many of them this morning.

As a panel member, I have had the opportunity to visit many programs. I have seen highly creative Sea Grant directors leverage their Federal dollars to produce extraordinary results as they have learned to do more with less. Yet opportunity to support critical research in these nine thematic areas, along with the transfer of that knowledge to the end-user, are foregone at the time of increasing pressures on coastal environments.

Sea Grant is the only NOAA program whose mission is to transfer research results to the user through a dedicated extension program.

Recently the review panel initiated an independent, in-depth analysis of the program's extension services. The results, which are found in this report, "A Mandate to Engage Coastal Users," were that Sea Grant has proven its ability to take sound scientific research, present it as an honest broker to the public and stakeholders for use in public decision-making.

And another key finding, as you have already heard, is there are many areas where there are too few extension and educational specialists: one in Los Angeles, none in San Francisco, none in the metropolitan northern New Jersey area.

It has been very gratifying to me personally to read in the written testimony provided by the other speakers today that almost everyone noted in their written testimony that the volume of international trade through our Nation's ports will double in the next 20 years. As managing director of one of the Nation's largest ports, Long Beach, California, I represent a segment of the maritime community that exerts significant pressure on our coastal communities.

I am also responsible at Long Beach for getting ready to handle that doubling of trade. And I thought you would be interested in hearing what I have to do, to get ready for that.

First, I need to permanently destroy 800 acres of valuable marine habitat through the process of dredging and landfilling to build new container terminals. This is habitat, by the way, that is an important nursery area for commercially important species.

Since I only have habitat credits to build 100 acres of new land, I have to create and additional 700 acres of fishery habitat. I haven't the foggiest idea where or how I am going to do that.

I have to eliminate the recreational boating activity in our harbor because the water area they sail in, I am going to turn into land.

And I have to get the Federal anchorage areas for ships fueling and hazardous material handling moved further south out of the way of my development in front of our city's beaches.

And I have to prepare my community for an additional 60,000 big diesel truck trips per day.

And I hope I am successful, because if I am not, the other coastal areas already struggling with their own development pressures are going to have to pick up my slack.

The bottom line is, there is a rapidly expanding market for the kinds of services Sea Grant can deliver and a need for Sea Grant's services in the policy and environmental debate over port development. But the program needs to be positioned both fiscally and strategically to do this.

As an end-user, I have seen Sea Grant deliver. Sea Grant has been at the forefront of the battle against invasive species.

The California Sea Grant program produced this brochure on our Federal and state ballast water management program. I make sure that our pilots hand this brochure to the captain of every vessel that comes into our harbor. It has simple instructions: what to do, what not to do, don't ballast at night, it has centerfold pinup of your favorite invasive species.

[Laughter.]

And although we have a stricter program in California, our compliance rate is over 90 percent. If you ask the Coast Guard what the compliance rate is with the Federal program in other areas of the country, you will find in most it is about 30 percent.

This is classic Sea Grant: Take the science; hand it to the user in a way that the user can understand it. It is also classic Sea Grant in that this was a rapid response. The Coast Guard published a notice in the Federal Register; California quickly passed a law; and all of a sudden, there was a problem. The Sea Grant university resources were mobilized, and we immediately had a solution.

Sea Grant is a valuable asset. It is not a handout. It is a merit-based program. There is a peer review of research and outreach components. Couple that with the national review panel that does a substantive review of every program every 4 years.

We actually grade the programs. We go out there. We look at how they are strategically planning for the future. We look at the significance of the research results. We look at how effectively that research gets turned over to the end-user.

We use a business model. What is the return on investment for the Federal dollar? And we expect results.

And that group behind me may look friendly, but I have to tell you, they are really tough.

[Laughter.]

Your appropriation, Mr. Chairman, is an investment with limited risk and great returns.

I am going to conclude my remarks by taking off my Sea Grant hat, taking off my port hat, and I am left with my mommy hat. I have two first-graders in public school, so the K-12 education is important to me.

Their elementary school curriculum is almost devoid of science. It focuses all year on preparing them to take a test that is going to determine how much money their school gets. Good thing mom is a scientist, since I figure I am going to have to teach them science myself.

Every Sea Grant program has to have a K-12 education program. The panel looks for that when we go out for our reviews. It is part of our evaluation.

I have seen kids from far-flung areas in Alaska get turned on to marine science through Sea Grant and the educational curriculums they have developed.

I have seen kids in Maryland that have had their first opportunity to look through a microscope because of Sea Grant.

Without Sea Grant, who is going to turn on the next generation of kids to marine science?

So for all of those kids out there who don't have a scientist for a mommy, I ask that you think big for them. They are our future. Thank you.

[The prepared statement of Ms. Knatz follows:]

**Statement of Dr. Geraldine Knatz, Sea Grant Review Panel**

Mr. Chairman, my name is Geraldine Knatz and I am the Chair of the National Sea Grant Review Panel, which is the Congressionally mandated advisory body to the Secretary of Commerce, the Administrator of the National Oceanic and Atmospheric Administration, and the Director of the National Sea Grant College Program.

The National Sea Grant Panel has taken an active role in the work of Sea Grant, and I appreciate the opportunity to appear before the Subcommittee on Fisheries Conservation, Wildlife & Oceans to discuss the NOAA Sea Grant Program with you and the members of the subcommittee. I thank you for the invitation to testify briefly on this important legislation.

The Panel strongly endorses the reauthorization of the National Sea Grant College Program and would strongly encourage the Committee to authorize the program at the higher \$100 million level of H.R.1071. We also support the inclusion of the Coastal Ocean Research Program within the Sea Grant Program as delineated in the discussion draft provided by the Chairman. I believe this union of two important NOAA programs will solidify greater cooperation and coordination between Sea Grant universities and NOAA's other coastal programs.

My purpose here today is to try to make the case for the future importance to the national interest of a strong Sea Grant Program, and its suitability for increases in investment over the coming years. My objective is to touch upon Sea Grant's unique capabilities that are particularly well-suited to its important role in U.S. marine science and the Nation's future capability to manage coastal resources.

This is a time of escalating environmental issues, limited discretionary government spending, and expanding responsibilities at all levels of government to effectively manage natural resources. It will be incumbent on our institutions to support a national infrastructure that most effectively ensures the nation's future capacity to manage natural resources. Engagement with universities affords NOAA essential flexibility, access to the "clearing houses" of new ideas and technologies, and development of the human resource base necessary to maintain critical capacity. University partnerships allow NOAA to be responsive to new problems. Sea Grant is, today, NOAA's principal point of engagement with the university community on coastal and Great Lakes issues.

In perhaps the most ideal and practical application of scientific research to the nation's needs, NOAA Sea Grant works by staying in close touch with grassroots needs through its network of marine extension agents and specialists, then by addressing problems through competitive, merit-reviewed university research, and by seeking constant feedback from researchers and users. Recently, the National Sea Grant Review Panel initiated a review of the Sea Grant Extension Program that resulted in the report entitled "A Mandate to Engage Coastal Users." The review committee was chaired by Dr. John V. Byrne, former NOAA Administrator and President Emeritus of Oregon State University. I highly recommend this report to the Subcommittee's attention. A key finding was that Sea Grant Extension has proven its ability to take the information resulting from sound scientific research and present it as an honest broker to the public and stakeholders for use in making public and personal decisions.

In 1997, the Sea Grant Review Panel initiated a rigorous and continuous program of performance-based evaluations of Sea Grant programs. This followed from a recommendation made by the Ocean Studies Board of the National Research Council in their 1994 report, "Review of the National Sea Grant College Program." A board of visitors, consisting of Panel members and outside experts and using established criteria and benchmarks to measure performance, conducts an in-depth review of accomplishments and impacts of each Sea Grant program. We are just completing our first four-year cycle of reviews of all 30 programs, and I am pleased to report that the level of performance in Sea Grant is very high across the Nation.

Observations from these in-depth reviews have identified a number of areas where NOAA Sea Grant is providing leadership:

- a) in marine biotechnology to develop new materials, better seafood products, environmental remediation, and new pharmaceuticals (antibiotics and other new medicines) from the sea;
- b) in seafood safety to educate workers to the highest standards of food safety and, thus, to ensure that consumers have a high quality supply of seafood, and that seafood businesses can be more competitive;
- c) in coastal climate and hazards research to assist coastal residents in preparing for hurricanes, storm surges and tsunamis, coastal erosion and subsidence, and sea level rise, with potential savings in the billions of dollars;
- d) in the numerous recent problems of disease in fish and marine life along the coasts and estuaries;
- e) in exotic and nonindigenous species research to understand and mitigate invasions of species such as the zebra mussel in the Great Lakes, which represent a billion-dollar threat to water supplies and ecosystem quality;
- f) in the preservation of the habitats of fish and various marine species; and

- g) in sustainable coastal development to provide science-based information to businesses and local governments to foster environmentally-sound economic growth.

Sea Grant provides substantial leverage to the federal investment. Today, for every \$1 million in federal funds invested, an additional \$600 thousand is contributed by non-federal partners. Additional financial leverage is achieved through cooperative partnerships with federal and state agencies. Sea Grant has long been known for its economic contributions and very positive return on investment. For instance, Sea Grant spearheaded the formation of an alliance of federal agencies, industry, and universities to aid the seafood industry in meeting the training needs called for by new FDA regulations. This seafood alliance reached more than 5,000 U.S. processing plants, and 6,000 importers and international suppliers with training on new seafood handling and processing techniques. It has been estimated that the program prevented 20,000 to 60,000 seafood related illnesses a year, thereby saving as much as \$115 million annually.

NOAA Sea Grant's highly effective infrastructure involves partnerships with this nation's finest universities. The long-standing network of relationships among local, state, regional and national constituencies is unique and a virtually irreplaceable resource to NOAA. To summarize, Sea Grant is an efficient, results-oriented, well-managed federal-state partnership that gets things done that need doing in the context of NOAA's mission. We would argue that Sea Grant is exemplary in satisfying the first criterion of a good public investment, namely institutional effectiveness.

I would like to address for this Committee whether the societal needs for the services Sea Grant provides are growing, whether they are critical to the national interest, and whether they are already duplicated in the federal infrastructure. I would argue that the Congress' rationale for the first Sea Grant Act makes a much more compelling story today and for the foreseeable future; that Sea Grant contributes significantly to the national interest and is not duplicated elsewhere is equally compelling.

Our argument rests largely on the extreme pressure on the coastlines of the United States from increased population growth and development. Today, over half of the population of the U.S. lives in coastal (including the Great Lakes) counties. The rate and scale of that growth are unprecedented but not yet well appreciated by the general public. As coastal development pressures increase and coastal population rises, the impacts on the environment will become more severe. A few examples make the point.

- a) Recent census figures indicate that the U.S. has added about 33 million people since 1990, equal to the current population of California. Fully, one half of that addition was accounted for by just seven coastal states. Seventeen of the 20 most populous states, in 2000, are coastal states.
- b) Studies at the University of Illinois indicate that by 2025, the nation's top 20 oceanic and Great Lakes coastal metropolitan regions are likely to increase their population by 32 million people, their urban footprints or sprawl to expand by 45% or 9,000 sq. miles.
- c) By 2020, ocean borne trade is expected to at least double and inland traffic increase by 30 %. It is estimated that the marine transportation system contributes more than \$700 billion to GDP.
- d) Eighty-five percent of U.S. tourist revenues are in coastal states, 6.4 trillion tons of sand are moved each year for beaches, wastewater effluents to U.S. receiving waters are in excess of two trillion gallons/day, and the U.S. imports over \$14 billion of seafood annually.
- e) A recent study by the National Research Council indicates non-point source pollution from nitrogen and phosphorus now represents the largest pollution problem facing U.S. coastal waters. That pollution is linked to a host of other problems including dead zones, anoxia, fish kills and noxious algal blooms.
- f) Serious erosion damage is occurring along more than 70% of all U.S. coastlines, apparently due to rising sea level, increased storm activity, and other causes.

I could site many other examples. The take home message is that the economic, environmental and social demands on our coastal regions are immense and are growing rapidly as the population increases. The need for practical, timely solutions to problems, resolution of conflicting uses, and help in general will grow as threats increase in scale and complexity. It will be imperative that our institutions of governance at the national, state and local levels be engaged in this process.

The implications for NOAA and the nation are that there will continue to be an enormous demand for environmental knowledge and understanding as well as environmental literacy and public awareness. There will also be a premium on environmental protection, best management practices, education, communication, and the social dimensions of multiple use conflict resolution. It will also call for the rapid

synthesis and dissemination of science-based information for societal benefit. Finally, effective solutions will require a more dispersed, participative regulatory climate with increased local and regional stakeholder input to public policy and greater engagement and coordination among federal, state and local entities with coastal jurisdictions.

Currently, Sea Grant is the only federal institution whose mission, as mandated by Congress, is to specifically focus on the sustainable development of the Nation's coastal resources accomplished through an organization national in scope, university-based, and committed to the creation and transfer of science-based knowledge to user constituencies. Sea Grant is the only program in NOAA whose mission is the transfer of ocean and coastal knowledge to the user through a dedicated nationwide extension program. It is these inherent attributes in terms of organizational strength, mission and output of services that make Sea Grant's contributions fully consistent with the unprecedented demands on the country's coastal resources. In a business sense, there is a rapidly expanding market for those things Sea Grant does best.

Sea Grant's combined strengths are unique and cannot easily be duplicated in other areas of NOAA or the federal infrastructure as a whole. In addition to Sea Grant's powerful enabling infrastructure with its track record of success, network of long-standing constituent relationships and congruence of output to growing national needs, we must be aware of the unique value added to investments in Sea Grant that derive from the collective strengths of that infrastructure. The more important are listed below:

- a) The stability of partnerships between NOAA and Sea Grant Colleges and institutions allows the agency to address long-term programmatic goals and develop constituent relationships and local leadership nationwide.
- b) Having local management in place ensures NOAA's investment flows to the highest local priorities, bringing the most appropriate university resources to bear on these problems. Presence of a highly effective extension and outreach infrastructure enables rapid transfer of objective information to users, timely identification of emerging issues, and a forum to engage local constituencies in policy and priority setting.
- c) NOAA Sea Grant is a major national educational resource for developing marine scientists, engineers, coastal and resource managers, and professionals in related fields. Having supported tens of thousands of undergraduate and graduate students over its history, "graduation" has become one of the most effective mechanisms for technology transfer. Sea Grant's internship and fellowship programs prepare students for leadership roles in research and resource stewardship. Marine education programs for K-12 teachers and students are developing science literacy and assuring that the educational pipeline in critical skill areas keeps flowing.
- d) The NOAA Sea Grant program can and does reach, literally, millions of people through its communication, education and extension networks. In a world where public awareness and knowledge of the environment will be increasingly critical to public policy, NOAA Sea Grant capabilities play an important role for the agency in transferring objective information to a diverse, nationwide audience.
- e) By reason of its national network structure, Sea Grant is able to bring the collective assets of a large organization to bear on issues or problems, yet retain the responsiveness of a much smaller organization. Sea Grant affords NOAA the flexibility to rapidly redeploy resources to respond to new problems and new technologies. This can be done without large capital outlays in personnel and equipment.
- f) Unlike federal agencies that primarily support basic research or highly application-directed R&D around a few central mission objectives, NOAA Sea Grant engages university resources in problem solutions and practical outcomes. This it does on a broad front, using the leverage of multi-partnerships, multi-disciplines and comprehensive geographic coverage that characterize today's resource issues.
- g) In addition to NOAA Sea Grant's ability to plan nationally and implement locally, the program evaluates its research portfolio both in terms of the quality of the science and the relevance of that science to local, regional and national issues. The result is a research portfolio devoted to management critical, place based or geographically specific science where priorities are set with significant user input. This is a critical but often under-appreciated dimension of Sea Grant's contribution. Generating science-based information from specific geographic regions throughout America on an ongoing basis will be absolutely critical to the country's capacity to adequately manage coastal resources.

The sum total of the arguments advanced here is that Sea Grant produces a great return on the investment of public funds, has a combination of strengths and mission that make it not only effective but also unique in NOAA and the Federal Government. Its contemporary management structure, its intense focus on national issues in regions of great economic and environmental import, and its proven ability to engage our finest universities in those issues make this program a prime candidate for an expanded role in this country's coastal agenda.

Future federal investment in U.S. environmental science and sustainability are inevitable consequences of growth. Unlike, for instance, existing political coalitions for agriculture or human health, a national coastal policy and a politically coherent coastal constituency have only recently begun to emerge. Nonetheless, the issues of coastal constituents will increasingly demand our attention.

Arguments advanced here support Sea Grant's strong fundamentals in terms of relevance, cost effectiveness, productivity and the high quality of its programs, and Sea Grant's important role in any future national coastal agenda. The aforementioned NRC and Byrne Committee reports observe that, given the importance of the coasts to the country's well-being plus the complexity and urgency of producing adequate science for management decision making, Sea Grant's ability to address the myriad opportunities where it could make a difference is significantly hindered by financial resources. There is a host of areas where additional investments in Sea Grant could have a long-term, positive effect on U.S. marine science, education, and coastal management practices. Listed below are some of the most promising.

- a) Sea Grant's Science Portfolio: Sea Grant now spends for scientific research, on average, a little over \$1 million annually in federal funds for each of 30 programs nationwide. That equates to relatively few (ca 16) modest sized (<\$100K) research grants per year per program. While Sea Grant has been very successful in engaging university researchers and leveraging through partnerships, less than 1 in 5 proposals is funded. In a recent aquaculture competition, proposals totaled almost 50 times the available funds. Sea Grant has recently identified 9 critical strategic areas of focus for the coming decade. Yet, many opportunities to support timely, management critical science in these areas are foregone at a time of increasing pressures on coastal environments. In addition, over the last two decades, the cost of college and university operations has increased significantly faster than inflation in the general economy as measured by consumer prices (154% vs. 118%), seriously affecting the purchasing power of university-based research. Environmental science is in many ways analogous to medical science in complexity, dimensionality, and impact on human welfare. By comparison, Sea Grant's total appropriation is about 12% of NIH's smallest institute (Environmental Health Science).
- b) Sea Grant's Outreach Capability: Engagement of the public at all levels is increasingly important to enlightened public policy, and Sea Grant has an extensive and effective network in place. On average, however, Sea Grant supports wholly or in part only about seven extension and education specialists per local program. Sea Grant has few agents serving rapidly growing urban areas. For instance, there is only one agent for Los Angeles, none in San Francisco, and none in metropolitan northern New Jersey. By comparison, although over half the population and a large fraction of GDP are coastally located, Sea Grant appropriations are only 3% of equivalent funding for the Department of Agriculture's Cooperative Extension Program.
- c) Regional Research: Many of the most difficult coastal problems are multi-state or regional in nature, yet the federal research infrastructure in marine science is not well-organized to plan and execute regional research nationwide on an ongoing basis. Sea Grant, by reason of its stable regional infrastructure, relationships with state, federal, local and university constituencies, and familiarity with regional issues is well-suited to plan and manage regional research programs. Examples of Sea Grant responding to regional problems include efforts targeting Chesapeake Bay eutrophication ("loading" of nitrogen compounds), *Pfiesteria* bloom fish kills, Steller sea lion mortality, and zebra mussel control and mitigation. Yet, today, only about 5% of Sea Grant's budget is devoted to regional or multi-program research.
- d) Expanded Geographic Coverage: Currently, significant geographic areas in Sea Grant's Congressionally mandated regional responsibilities are not currently served because of funding limitations. These include several states as well as American Samoa, Guam, and other parts of the Western Pacific region which have an enormous Exclusive Economic Zone. In addition, several coastal states now share programs with adjacent states.
- e) National Research and Outreach Programs: Sea Grant currently spends about 20% of its federal budget on highly focused initiatives directed toward pressing

national problems. Examples include exotic species, shellfish disease, fish habitat, and marine biotechnology. Sea Grant plays a leadership role nationally in all of these areas. However, these areas represent a small fraction of the problem areas that coastal constituencies are facing, and the investment here is modest in relation to the magnitude of the problem. The federal investment in Sea Grant's well-regarded exotic species program nationwide is \$3 million annually while for a national extension/education program for coastal decision makers, the sum is \$1.5 million. The opportunities for federal interagency partnerships through this mechanism have barely been scratched.

- f) Climate and Natural Hazards: Coastal population growth has greatly increased the public's risk from extreme events. Recent changes in global climate and its variability such as El Nino events are indicative of significant climate effects on coastal environments, ranging from coastal erosion to atmospheric deposition to the recruitment of marine fishes. Only recently has the Sea Grant network begun to engage NOAA's climate/weather capabilities, yet many pressing coastal problems such as wetlands loss are driven in part by climate/weather factors. Such issues promise to expand considerably, yet, today, Sea Grant has limited resources to address them.

In closing, we believe Sea Grant is vital to the mission of NOAA and its unique strengths argue for its greater role in U.S. ocean science and coastal resource management. It is these inherent strengths and increasing demand for the services Sea Grant provides that make authorizing Sea Grant at a higher level of federal investment so important. It is a program that works and its products are valued by those it serves. We look forward to working with you on the legislation.

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Mr. GILCHREST. Thank you very much.

Maybe we can have a Sea Grant fellow in each public school district.

[Laughter.]

Ms. KNATZ. That would be great.

[Laughter.]

Mr. GILCHREST. We will put that in the reauthorization.

[Laughter.]

I think we got a spark.

Ms. Penny Dalton?

**STATEMENT OF PENELOPE DALTON, VICE PRESIDENT AND  
TECHNICAL DIRECTOR, CONSORTIUM FOR OCEANO-  
GRAPHIC RESEARCH AND EDUCATION**

Ms. DALTON. Good morning.

Mr. GILCHREST. Good morning.

Ms. DALTON. Thank you very much for the opportunity to testify on the National Sea Grant Program. I am Penny Dalton, vice president and technical director of the Consortium for Oceanographic Research and Education.

CORE is the Washington, D.C.-based association of U.S. oceanographic research institutions, universities, laboratory, and aquaria.

Our 67 members represent the Nation's leaders in ocean research and education. Many of our CORE institutions house Sea Grant programs as integral and essential parts of their overall curricula and activities.

Over the past 35 years, the Sea Grant network has built widespread support throughout the oceanographic community.

The program's success is built on five key points.

First and foremost, the heart of the Sea Grant is its scientific research. From the time the National Sea Grant Program Act was enacted in 1966, the ocean community recognized that the program had to be scientifically credible if it was to be successful. The com-

munity also recognized the dire need for a university-based ocean and coastal research program that was equivalent to the National Land Grant institutions.

Consistent with the recommendations of the Stratton Commission, Sea Grant was moved to the fledgling National Oceanic and Atmospheric Administration in 1970. Since then, it has allowed NOAA to develop a marine knowledge base with benefits to both environment and economy.

During my tenure at NOAA, I relied on Sea Grant expertise in a few of the many resource crises that I faced—things that ranged from Steller sea lions in Alaska to the lobster die-off in Long Island Sound.

The second key element of the Sea Grant program is education. Sea Grant education builds on its science base to develop a scientifically literate cadre of oceanographers, biologists, chemists, ecologists, and geologists who can understand changes in our coastal and ocean environment. And better yet, they can explain them.

Further, the program is making sure that today's K-12 students have the skills they need to prepare for a career in the ocean sciences.

Putting my CORE hat back on, for example, the Sea Grant institutions are critical to the success of our National Ocean Sciences Bowl that CORE sponsors annually for high school students.

For more than three decades, Sea Grant has framed educational opportunities and outreach for marine science and policymakers in this Nation.

From a personal education perspective, Sea Grant has changed my life. In 1985 I received a Sea Grant fellowship to work for the Senate Commerce Committee. The experience opened a whole arena of marine policymaking to me. I hope that you will continue to give other new scientists that exciting opportunity.

Analogous to the Land Grant colleges, the third key element of the National Sea Grant College Program is its extension program. We often hear complaints that scientists take forever to translate their research results into information that can be used in the real world. The Sea Grant extension program provides a mechanism for informing the public about key marine and coastal issues and how best to address them with current scientific understanding.

The flexibility of the extension program allows for rapid response to emerging issues. Several years ago during the *Pfiesteria* scare, the Sea Grant extension program was on the scene, providing marine communities with the data they need to understand and tackle the program.

Sea Grant has become an expert at finding better ways to do things, from building houses that withstand hurricanes to designing nets to protect sea turtles.

The fourth key element is Sea Grant's proven ability to leverage the funds it receives to give the taxpayers the best value for our Federal dollars.

Last year the National Sea Grant College Program received appropriations of \$62 million for its base program and \$10 million for projects around the Nation. These funds were matched with \$33 million from nonfederal program partners, exceeding the legal re-

quirement for a \$1 match for every 2 Federal dollars Sea Grant receives.

I cannot think of a better measure of Sea Grant's success than the commitment by its partners at the state and local level to go above and beyond the matching requirement.

Responding to the success, CORE urges that Sea Grant be funded at at least the \$75 million base level in fiscal year 2003. In addition, we support the proposal for \$15 million in competitive grants in zebra mussel, oyster disease, and harmful algal bloom research.

CORE requests that Congress seriously consider the proposal in H.R. 1071 to fund Sea Grant at \$100 million per year. It is clear that this investment will help us to better meet the demand our Nation is placing on ocean and coastal resources, a demand we all know is growing.

A lot of people have talked about the comparison to the Land Grant colleges. The American Association for the Advancement of Science estimated that the Land Grant colleges received \$1.1 billion in fiscal year 2001. Sea Grant receives roughly 5.6 percent of that total. If Sea Grant funding is increased to the \$100 million level, it will still be only one-tenth the size of the current Land Grant College Program.

A modest investment in boosting Sea Grant funding could result in large returns for all taxpayers, from the heartland to our coasts.

The fifth and final key element is that Sea Grant is a network with a capacity to build partnerships among universities, government agencies and the private sector. No single government agency or department will ever have the ability to address every ocean and coastal problem. This is especially true in coastal areas where we have a Gordian knot of Federal, state and local organizations with different statutory obligations. By making partnership a cornerstone of Sea Grant, its founders recognized the need for and built a program that solves problems in coastal communities by bringing people together.

By developing a national network composed of regionally relevant programs, Sea Grant provides a capability that can contribute to sound ocean and coastal policies at all geographic scales.

Now we must maintain and look for new ways to make use of that Sea Grant network.

Thank you for allowing me to testify today. CORE looks forward to working with you, and I would be happy to answer any questions.

[The prepared statement of Ms. Dalton follows:]

**Statement of Penelope Dalton, Vice President, Consortium for  
Oceanographic Research and Education**

Good afternoon, Chairman Gilchrest, Ranking Member Underwood, members and staff. Thank you very much for the opportunity to testify on the National Sea Grant College Program. I am Ms. Penelope Dalton, Vice President of the Consortium for Oceanographic Research and Education (CORE). CORE is the Washington, DC-based association of U.S. oceanographic research institutions, universities, laboratories and aquaria. Our 67 members represent the nucleus of this Nation's ocean research and education institutions.

CORE is experiencing many leadership changes these days as a result of a flurry of ocean activity. Many of you know that our current CORE President, Vice Admiral Conrad C. Lautenbacher, Jr., has been nominated to be the Under Secretary for Oceans and Atmosphere at the National Oceanic and Atmospheric Administration (NOAA). I am confident that Admiral Lautenbacher will do a superb job at NOAA

and our community is fortunate that the President selected a man of his stature and talent for this important job. Admiral Lautenbacher's predecessor, and CORE President Emeritus, Admiral James D. Watkins is now heading up the President's Commission on Ocean Policy. These two appointments strongly suggest to me that coastal and ocean policies are now gaining the stature and priority they deserve. I should point out that while these appointments are gratifying to CORE members, we will be sending President Bush a bill for a headhunter as we begin our search for our next CORE president.

Today's hearing is to address the National Sea Grant College Program reauthorization and my testimony is going to focus on five key areas:

1. Science
2. Education
3. Extension
4. Leverage
5. Partnership

First and foremost, science and research are at the heart of Sea Grant College program. Sea Grant was originally in the National Science Foundation in the late 1960's because it was recognized by many in the ocean community that the program had to be scientifically credible to be successful. The community also recognized the dire need for a university-based research program for our ocean and coasts that was to be the equivalent of our land grant institutions. With the passage of the National Sea Grant College and Program Act in 1966, the program got underway and in 1968, Sea Grant officially awarded its first grants. With the Stratton Commission, Sea Grant was moved to the fledgling National Oceanic and Atmospheric Administration and has played an instrumental role in helping NOAA to expand our Nation's knowledge base in our coastal and ocean areas with benefits to both environment and economy.

Everything that Sea Grant did then and does today does starts with sound science. I cannot overemphasize how important this is in terms of the concept of the Sea Grant "house." The solid foundation of the Sea Grant "house" is science and it provides the rationale for all other aspects of the Sea Grant program.

The second section of the Sea Grant "house" is education. Education logically follows from good science and involves taking the scientific results gained from hypothesis-driven experimentation and making the results available to all sectors of our nation so that they can apply knowledge gained in a beneficial way to any sector of our national economic activity. Education involves building a scientifically literate cadre of oceanographers, biologists, chemists, ecologists and geologists who have the skill to understand and comprehend changes in our coastal and ocean environment. It also involves making sure that today's K-12 students have the skills they need to prepare for a career in the ocean sciences. The students in today's Sea Grant colleges will be the future leaders in marine policy for our nation, and Sea Grant has provided an intellectual pipeline for our nation's future, a future that will obviously be more dependent upon our coastal economies and environment. Having the brightest scientific minds will enable us to better understand our options and limitations and Sea Grant is producing the intellectual capital needed to meet those demands. Education is in essence the frame of the Sea Grant "house" and for over 30 years Sea Grant has provided educational opportunities and outreach for those interested in seeking the best answers for our nation in marine science and policy.

The third part of Sea Grant that is analogous to the Land Grant colleges is the extension program. The Sea Grant extension program is the key to taking results out of the laboratory and applying them in the real world. Many of us are aware that in the health sciences, there is a severe time delay between getting needed information out of the lab and into the hands of health care professionals in a timely manner. The Sea Grant extension program is the instrument by which research becomes a tangible result for the taxpayer in timely fashion. Through the extension program, Sea Grant has informed the public about key marine and coastal issues and how best to address them with current scientific understanding. The flexibility of the extension program allows for rapid response to emerging issues. Several years ago there was a *Pfiesteria* scare that many of us in this room are very familiar with. Sea Grant and its extension program was on the scene providing marine communities with the data that they needed to understand and tackle the problem. The Sea Grant extension program is in many regards our nation's first responder to marine and coastal emergencies.

The fourth element that is key to Sea Grant is leverage. In fiscal year 2001, the National Sea Grant College program used \$62 million in NOAA appropriated funds as well as \$10 million in passthrough funds for projects around the nation. Sea Grant is required by law to secure \$1 in non-federal funds for every \$2 dollars of federal funds appropriated. In fiscal year 2001, Sea Grant obtained \$33 million from

non-federal matching funds by program partners. Thus, Sea Grant non-federal partners have demonstrated that they believe Sea Grant is working better than intended because they put in more money than they were required to match. I cannot think of a better performance measure of Sea Grant's success than the commitment by these non-federal partners, which are mostly state governments, to go above and beyond their commitment in a world where budgets are tight. Because the states and other non-federal partners have demonstrated by their financial commitment that they deem Sea Grant worthy of more dollars, I believe it is time for us to reconsider the right level of federal funding for Sea Grant. It is the CORE position that Sea Grant should be funded at least at the \$75 million dollar base level in fiscal year 2003 and we believe the additional \$15 million for competitive grants in zebra mussel, oyster disease, and harmful algal bloom research are worthy of support. We also ask that Congress seriously consider Mr. Faleomavaega's proposal in H.R. 1071 to fund Sea Grant at \$100 million per year. It is clear that this investment will help us to better meet the demand our Nation is placing on coastal and ocean resources a demand, I might add, that we all know is growing exponentially.

The fifth and final key to the Sea Grant program is that it brings together science, education, extension and leverage in partnership with many universities, agencies, industries and other organizations. The days of one federal agency or department or one level of our federalist system of government addressing every problem in ocean and coastal policy are over. This is especially true in our coastal areas where there is a Gordian knot of federal, state, and local organizations with different statutory obligations. Sea Grant is fortunate that the visionaries who founded the program over 30 years ago recognized the need for a program with the capacity to incorporate all the various players at all the different levels. By making partnership a cornerstone of Sea Grant, these visionaries recognized that we could solve problems in our coastal communities only by working together. Sea Grant responsiveness to problems and opportunities identified by coastal residents and businesses as well as local, regional, state and federal agencies works because of the partnership ethos in the program. By making partnerships central to its approach to remedying ocean and coastal problems Sea Grant has built bridges across boundaries that many did not believe possible. This is a remarkable feat.

There is just one final thought I'd like to leave you with today to make a point of comparison. The Land Grant College program, currently administered by the Department of Agriculture, has a line item called the Cooperative State Research, Education and Extension Service (CSREES). For fiscal year 2001, the American Association for the Advancement of Science (AAAS) has estimated that the Land Grant colleges and their associated extension service will receive over \$1.1 billion in appropriated funds in the CSREES line item. Sea Grant, the analogous program for our coasts and oceans, which is where most of our population lives or is moving, received by comparison \$62 million or roughly 5.6 percent of the total for Agricultural research and extension. By increasing Sea Grant funding to the \$100 million level, it will still only be one-tenth the size of the Land Grant program, assuming the program does not grow. I think a modest investment in boosting the Sea Grant level of funding will result in large returns for all taxpayers from the heartland to our coasts.

Thank you for the opportunity to testify today. I look forward to working with you on these issues and would be happy to answer any questions.

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Mr. GILCREST. Thank you very much.

We will have some questions on summer flounder later.

[Laughter.]

We have a vote and I would like to hear the remaining two members testify. So what I would like to do is just recess for about 15 minutes.

I would encourage everyone to take advantage of that break to socialize.

[Laughter.]

[Recess.]

Mr. GILCREST. The hearing will come to order.

Thank you all for your patience.

I don't think we will be interrupted again before we finish.

Dr. Richmond, thank you again for the distance that you traveled to get here. You may begin, sir.

**STATEMENT OF ROBERT RICHMOND, PROFESSOR OF MARINE BIOLOGY, MARINE LABORATORY, UNIVERSITY OF GUAM**

Mr. RICHMOND. Thank you very much, Mr. Chairman. I am very pleased to be here.

My name is Dr. Robert Richmond. I am a professor of marine biology at the University of Guam Marine Laboratory and the past director of that research facility. And in that capacity, I served as the director of a Sea Grant program that we once had in Guam.

I would like to thank the Chair and the members of the panel for the opportunity to testify here today and to recognize Congressman Underwood for his efforts on behalf of the region. Today I will be speaking not only for myself, and submitting written testimony of my own, but also from several key individuals.

In that light, I would like to say that the testimony I am providing is at a regional level and, in that vein, recognize Delegate Faleomavaega and the American Samoa delegation, primarily Lelei Peau, the U.S. Coral Reef Task Force all-islands group that has helped move this initiative forward.

I have submitted written testimony on behalf of four other individuals:

Mr. Patrick Tellei is the president of Palau Community College and was duly selected by the six institutions of higher education, namely American Samoa Community College, College of the Marshall Islands, College of Micronesia-FSM, Northern Marianas College, Palau Community College, and the University of Guam. Mr. Tellei was chosen as the Chair to represent all six of the institutions in an effort to pull together a regional Sea Grant consortium.

I also have written testimony submitted from Mr. Noah Idechong, who is a member of the Palau National Congress. He is the Chair of a group called MAREPAC, the Marine Resources Pacific Consortium. And he was chosen among nine islands in the Pacific to represent the marine resource managers. He is also notable; he received a Pew fellowship in marine conservation, the Goldman Prize for Environmental Achievement, and he is also noteworthy for being featured in Time magazine in the year 2000 special issue on Earth week as one of eight heroes of the Earth.

Dr. Steven Amesbury is the director of the UG Marine Laboratory and was selected by the six institutions of higher education to be the administrative director of the proposed consortium.

And also from Gerald Davis, a regional fisheries officer who serves on the governing board of MAREPAC.

In addition, what I submitted is a rationale for the program, which was included in the packages and a communique that was put together by the executive officers of the six institutions of higher education, requesting consideration for a regional Sea Grant consortium.

On their behalf and on my own behalf, I would like to speak strongly in support of the Sea Grant reauthorization bill and also the enhancement act that was being presented for discussion.

As part of that, included in your package is a color map of the region that I am talking about. It is a fairly far-flung region and

often difficult for people outside of the area to know what we're talking about. But it is an area that is composed of six major island groups; as I mentioned, American Samoa, the Marshall Islands, the Federated States of Micronesia, Guam, Palau, and the Commonwealth of the Northern Mariana Islands.

Within this group, it is an area of ocean greater in size than that of the continental United States. It contains the greatest level of marine biodiversity of any areas within the U.S. and associated with the U.S.

It is 99.9 percent water. It is interesting to note that all of these institutions have Land Grant status, and up to this date, there is still not Sea Grant status for an area this large.

This is one of the requests of the group, is to take a look at the options and the opportunities, to look at the incredible interest from the region, the tremendous expertise in terms of traditional resource management that exists out there. We are looking at an area that has total cultural and economic dependence on the ocean.

For example, I can point out one dive site in Palau alone, known as the Blue Corner. Anybody who dives knows it. It is a very famous spot. That one dive site generates over \$2.8 million a year every year to the people of Palau just on diving alone.

We have seen in the last 5 years tremendous changes in the quality of the reefs in the region. Part of it is due to global climate change. We saw about 30 percent of Palau's corals disappear in a 2-month period. It is an area that is ripe for additional research, capacity building, community outreach and education.

And I would like to point out that it is not only an area that could benefit tremendously from the kinds of services that can be provided by Sea Grant but also has a lot to offer in return in terms of unsurpassed expertise in the marine management field. We are looking at islands that have marine managers that can draw on a system that has been in place for at least a 1,000 years. If you compare that to the Magnuson-Stevens Act, it has been around for a lot shorter time. We can see that the traditional systems of the Pacific have actually been more effective in resource management. Unfortunately, many of these have never had to deal with things like organophosphate pesticides and jet skis, and hence, we really need a marriage between Western science and knowledge and traditional knowledge, to be able to make this work out there.

We strongly support—and every one of the bits of testimony that I brought from the other individuals from the region strongly support the Sea Grant mission, the goals of objectives in the program, and simply asks that this group as well as the administrators within NOAA and Sea Grant provide some guidance and assistance in moving the region forward in obtaining Sea Grant status.

We realize that it is a long-term process and that there are steps to go through, but all of these institutions are committed to working together to try to make this happen.

In the words of Noah Idechong, the Chair of MAREPAC, who has provided tremendous leadership to the region over the years, he pointed out that money doesn't solve problems, people do. In this case, money is a very important tool to be able to provide institutional support, to be able to provide research information, to provide educational outreach. But funding alone is not going to make

the difference if the funds are not put into a place where they can have the most effect. And in this case, it clearly seems to be within the regional institutions, taking advantage of the knowledge that exists within these islands and the expertise that is there and to further develop it for the future.

So on behalf of this group and behalf of myself, I would simply like to thank the panel for the opportunity to be here to express the deep interest in being able to become part of the Sea Grant partnership and to thank the panel and to be available for any questions you may have. Thank you.

[The prepared statement of Mr. Richmond follows:]

**Statement of Robert H. Richmond, Ph.D., Professor of Marine Biology,  
University of Guam**

I am grateful for the opportunity to testify before your Subcommittee on H.R. 1071, the National Sea Grant College Program Authorization Enhancement Act, and the accompanying discussion draft entitled the National Sea Grant Program Act Amendments of 2001. I am a Professor of Marine Biology at the University of Guam Marine Laboratory, a past Director of this research institute, a council member of the International Society for Reef Studies, an Affiliate Graduate Faculty member in the University of Hawaii Zoology Department, a Research Affiliate of the Hawaii Institute of Marine Biology, and a member of the Science and Policy Advisory Committee of the newly opened Palau International Coral Reef Center. I also serve as the scientific advisor to the All Islands Group of the U.S. Coral Reef Task Force and was the director of the University of Guam Sea Grant Program from 1988–91. I have worked with regional marine resource managers, educational institutions, community-based organizations and stakeholders in the Insular Pacific for over 20 years to collect and disseminate accurate and adequate information upon which appropriate management decisions can be made.

I fully support the goals and objectives of the National Sea Grant College Program as important to the future of ocean resources. I have had the opportunity to review numerous proposals for the various Sea Grant College programs, and have been impressed with the contributions made using Sea Grant support. Effective partnerships between institutions of higher education and the private sector have been constructive, and some of the extension activities have helped educate the public and provide needed outreach services. I live and work in a region that is over 99% ocean and less than 1% land, yet has been unable to draw much in the way of benefits from Sea Grant. In the past, this could be partially attributed to limited institutional capabilities within the region, but those days are over. The six regional institutions of higher education, American Samoa Community College, the College of the Marshall Islands, the College of Micronesia–FSM, Northern Marianas College, Palau Community College and the University of Guam have grown and developed over the past decade, have added highly trained faculty and researchers, built new facilities and are developing critically-needed marine curricula. Sea Grant has the potential to provide an essential framework to further develop the capacity of the islands to address critical marine resource management programs, but any such effort has to allow priorities to be set from within.

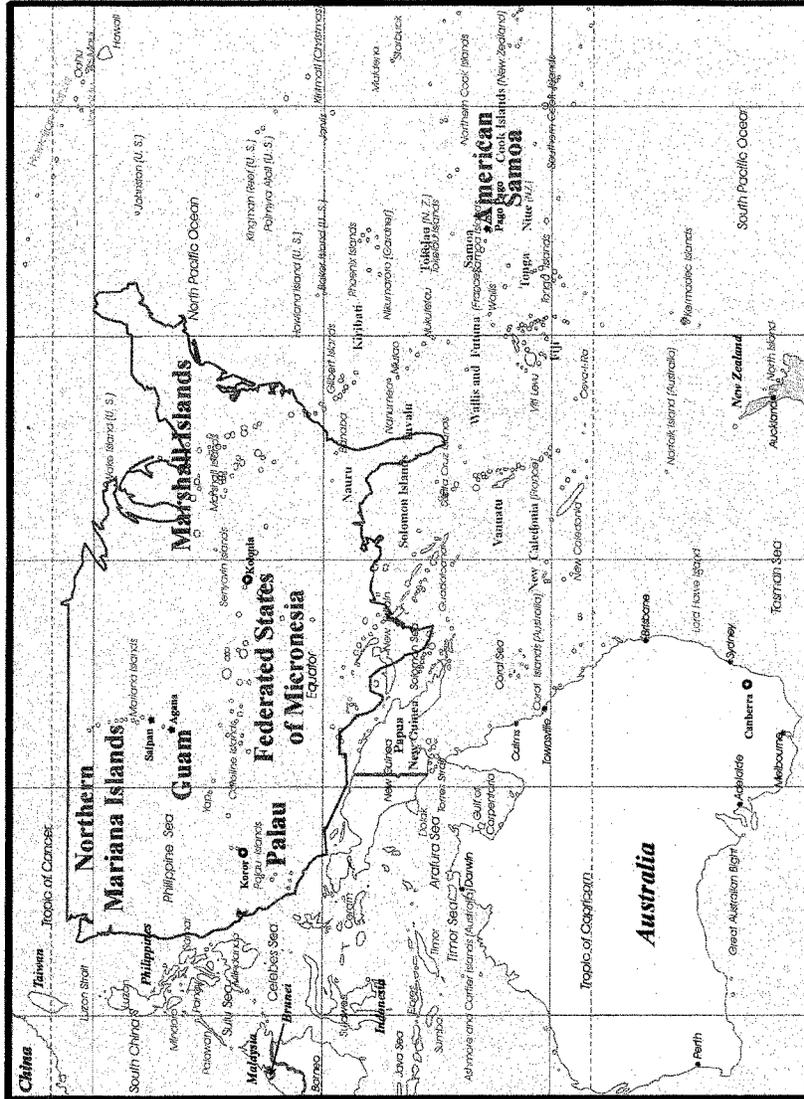
I fully support an increase in base funding for the Sea Grant program as an investment in the future of U.S. marine resources. However, as we are all aware, money alone, if not properly allocated, achieves little in terms of deliverables. Funds provided by the Department of the Interior, Office of Insular Affairs were responsible for the development of the Marine Resources Pacific Consortium (MAREPAC), which has served as a model for participatory program development. Much has been achieved using limited but shared financial, human and institutional resources. Sea Grant could be a valuable partner in this effort at ensuring future generations have marine resources to use and benefit from, while striving to meet some immediately pressing needs. The members and governing board of MAREPAC have identified attaining Sea Grant Regional Consortium status for the six colleges as an important step in addressing marine resource management sustainability. I can attest to the fact the ability for success exists if the opportunity is offered. I join my colleagues in respectfully requesting the assistance and guidance of this Subcommittee in helping a region that has much to offer in terms of marine resources, biodiversity, traditional management skills and unsurpassed expertise. The future generations of the Pacific Islands need action now, and your consideration of the Sea Grant re-author-

ization and enhancement acts comes at a critical time. I specifically ask that this Subcommittee consider a set-aside for the Pacific Islands Regional Sea Grant Consortium no less than 20% of what has been identified for Zebra Mussels, or Oysters or invasive algae. The region with the richest coral reefs under U.S. jurisdiction, the highest levels of biodiversity and with the potential for providing future pharmaceuticals of medical benefit should receive a higher degree of interest from Sea Grant than has been previously expressed.

I thank you for this opportunity and would be happy to provide additional information and documentation as requested.

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[Attachments to Dr. Richmond's statement follow:]





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October 15, 2001

Honorable Wayne T. Gilchrest, Chairman  
Subcommittee on Fisheries, Conservation, Wildlife, and Oceans  
U.S. House of Representatives  
Committee on Resources  
Washington, D.C. 20515

Dear Chairman Gilchrest and Committee Members,

I am providing testimony on the Sea Grant Reauthorization Bill and the discussion draft of the bill to enhance the National Sea Grant College Program. I am the Director of the University of Guam Marine Laboratory, an institute that has been active in marine resource research, teaching, and outreach programs in Guam and Micronesia for more than thirty years, and I have been serving as the acting program director of the Pacific Island Regional Seagrant Consortium effort.

I wholeheartedly support the goals of the Sea Grant College Program. For the western Pacific islands region, there is no greater need than that we understand and use wisely our marine resources. There is no part of these islands that is more than five miles from the seashore and no aspect of island life that is not influenced by the ocean.

Six colleges and universities of the U.S.-affiliated western Pacific islands--the Commonwealth of the Northern Mariana Islands, Guam, the Republic of Belau, the Federated States of Micronesia, the Republic of the Marshall Islands, and American Samoa--have associated themselves into a consortium to seek a joint Sea Grant program to help us to meet our research, human resource development, and extension goals in order to help us to better manage our valuable marine resources. Most of our needs are common to all the islands in the consortium; we share many social, cultural, and environmental characteristics.

We have identified three common needs around which we want to focus our initial efforts as a Sea Grant consortium: a) the development of expertise in marine resource management within the region, so that islanders will be able to take the lead in management decisions in their own communities; b) the formulation of models for assessing the economic value of coastal habitats, so that informed choices can be made when development options are being considered; and c) the determination of factors relevant to the location and design of marine protected areas in the various island groups. We will be developing specific proposals in these three areas for Sea Grant consideration.

There can be no other area of the United States where the Sea Grant mission is more appropriate than the insular western Pacific. It is our hope that the National Sea Grant College Program will see the complementarity of their programs and our needs and will warmly welcome us aboard.

Thank you for this opportunity to provide testimony.

Sincerely,

A handwritten signature in black ink, appearing to read 'S. Amesbury', written over a horizontal line.

Steven S. Amesbury, Director



Carl T. C. Gutierrez  
Governor

Madeleine Z. Bordallo  
Lt. Governor

Department of Agriculture  
Dipattamenton Agrikottura

192 Dairy Road, Mangilao, Guam 96913

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Forestry & Soil Resources	735-3949/50; Fax 734-0111
Plant Nursery	734-3949
Plant Protection & Quarantine	472-4851; 475-1426; Fax 477-9487



Martin C. Benavente  
Acting Director

October 15, 2001

Honorable Wayne T. Gilchrest, Chairman  
Subcommittee on Fisheries Conservation  
Wildlife and Oceans  
Committee on Resources  
Washington, D.C. 20515

Dear Chairman Gilchrest and Committee Members,

I am providing this testimony to be submitted at the scheduled hearing on October 18, 2001 on H.R. 1071, the National Sea Grant College Program Authorization Enhancement Act and the discussion draft entitled the National Sea Grant College Program Act Amendments of 2001.

I have worked as a natural resource manager for the Government of Guam for nearly 20 years. I am the Chief of the Division of Aquatic and Wildlife Resources and I have a long standing positive working relationship with many of the natural resource managers in Micronesia and the Pacific Region. I am Guam's designated US Coral Reef Initiative Point of Contact and a member of the All Island Coral Reef Initiative. I also have developed strong partnerships with NOAA and the Department of Interior through the many fishery and wildlife programs my division has completed in the past and continues to conduct.

Over my nearly 20 years in this field I have participated and observed many attempts both regionally and locally to address natural resource management needs. Recent years have seen a consistent trend within the U.S and globally to use more grassroots and bottom up management strategies. This is a key issue when considering efforts in the Pacific Islands because their natural resource management systems are built on traditional practices of community or village management. Many of these systems are still in place through traditional chief leadership and/or reef tenure systems. In the past, Western management approaches have viewed these areas as having limited expertise and resources available to address natural resource management problems. There is little doubt the funds and specialized scientific expertise are limited but these are common needs to almost all natural resource entities worldwide. I feel comfortable stating that most Pacific Island areas are far ahead of the US in having practices that provide for sustained natural resource management. I have repeatedly had the opportunity due to my marine science education and many years of experience as a manager to partner with neighboring islands in looking at short term crisis management and long term planning. Ironically, although I am often invited to provide expertise I found that I am the one being taught. My experience has been that all the Pacific Islands have tremendous local knowledge through cultural practices in wise natural resource management and that it is an absolute insult to continue to fail to recognize this expertise as equal in value to any educational degree.

In almost all cases, these islands given the chance make good decisions, provided they like anyone else, are given the tools to gather as much information as is possible before having to make a decision. I have experienced and observed first hand many times the experience of having an outside interest tell me who they were going to send to help, what they were going to do and how this information was going to be used. Not only is this rude and demeaning but it is also proof of a poor understanding of the cultures in the Pacific Islands. Building capacity has to be the immediate focus and if it has not happened to date then the existing US support model needs to change. More recently the Islands have begun to form partnerships recognizing there is strength in numbers and this begat the Marine Resources Pacific Consortium (MAREPAC), the first management driven collective of Pacific Islands which has been supported by the Department of Interior's Office of Insular Affairs. MAREPAC has seen many successes already but the greatest has been the sharing of expertise and looking to help one another. I serve as one of six board members of MAREPAC and think this structure works well in the islands. This effort is bearing fruit already and I expect to see many more program and natural resource management decisions.

One of MAREPAC's goals is to establish an independent Sea Grant Consortium for the Pacific Islands. This natural resource managers' driven objective comes largely from the feeling that we have the ability to determine our own needs but have been told where and how money would be spent in the past. We want an equal partnership and realize it is better to have each other with no program than to have program that does not serve our needs. There is a long history of this problem and the effort to create a new program has focused on the many benefits instead of the problems of the past. Having an independent program is the only way this will work.

A good example of this situation was the US Coral Reef National Action Plan that was passed relatively recently. This plan established a US directive to have 20% of US coral reefs protected by the year 2010. Guam was the first location to meet this goal and many of my Pacific Island neighbors are already working in this direction. It took me 14 years to establish these areas before the Plan was passed into law. Through community efforts, many of my neighbor have been able to get such areas with much less effort because the community systems are still intact. This is an area where there is tremendous potential in the Compacts of Free Association renegotiations.

All six institution of higher learning (American Samoa Community College, College of Micronesia-FSM, Northern Marianas College, Palau Community College, University of Guam and the College of the Marshall Islands) have committed to attaining a Regional Pacific Island Sea Grant status. These institutions ironically already have Land Grant status but with a collective ocean area larger than the continental US do not have an independent Sea Grant program. There is no single ocean resource in the US more deserving of the need for an independent Sea grant Consortium. This would be the largest area of any one Sea Grant Program, have the most diverse coastal fauna in the US, the most diverse cultural and ethnic issues and the most dependent population on the use of these resources. I encourage you a leaders and decision makers to see the wisdom in this proposal and support the effort.

I thank your for the opportunity to provide testimony and would welcome providing any additional input or clarification needed.

Sincerely,



**GERALD W. DAVIS**  
Chief



**RESOURCES AND DEVELOPMENT COMMITTEE  
THE HOUSE OF DELEGATES**

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October 11, 2001

**Dal Noah Idechong**  
Chairman

**Dal Evaristo Yemoch**  
Vice Chairman

**Members:**

**Dal William Ngirathoken**

**Dal Augustine Monobelen**

**Dal Okoch Lechitong**

**Dal Gordon M. Meyer**

**Dal Thomas M. Patris**

Honorable Wayne T. Gilchrest, Chairman  
Subcommittee on Fisheries Conservation  
Wildlife and Oceans  
U.S. House of Representatives  
Committee on Resources  
Washington, D.C. 20515

Dear Chairman Gilchrest and Committee Members,

I am providing this testimony on H.R. 1071, the National Sea Grant College Program Authorization Enhancement Act and the discussion draft entitled the National Sea Grant College Program Act Amendments of 2001 in my capacity as the chair of MAREPAC, the Marine Resources Pacific Consortium. MAREPAC is an organization funded by the U.S. Department of the Interior, Office of Insular Affairs, that includes resource managers, educators, researchers, community-based organizations and stakeholders from the U.S. Flag and Freely Associated Islands of the Pacific including American Samoa, The Commonwealth of the Northern Mariana Islands, The Federated States of Micronesia, Guam, The Republic of the Marshall Islands, and the Republic of Palau. These islands possess the greatest marine biodiversity of any U.S. region, and we as island people are completely dependent upon the marine resources for the perpetuation of our cultures, development of our economies and for our very own survival.

Having been involved in the region's efforts to develop and manage our limited marine resources for the past 24 years, as the past chief of the Palau Marine Resources Division, past Executive Director of the Palau Conservation Society, and a present member of the Palau National Congress, I have seen much progress at various fronts, especially at the ground level and regional cooperation.

I am acutely aware of the need for pursuing the goals and objectives that are set forth in the Sea Grant mission. Research and the extension of knowledge to the community and partnerships among institutions of higher education, the public and the private sector are all key to the wise use and preservation of marine resources.

For this reason, members of the consortium fully embrace its mission and in fact have been pursuing Sea Grant status and support for over a decade. I am sorry to say, our regional efforts to date have met with a degree of resistance from powerful decision makers in Washington DC who will never ever understand how to get things done in the Pacific.

As someone with a lifetime commitment to ensuring future generations have resources for their benefit and use, I believe strengthening the Sea Grant program is of great value and I fully endorse any and all effort at providing additional funding for this program that would support appropriate activities aimed at marine resource sustainability.

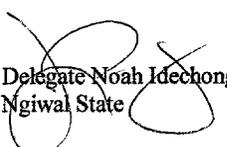
However, my experience has taught me that funds alone do not solve problems, people do. Additional support for Sea Grant, must be accompanied by the proper allocation of these resources that need to be spent wisely and in the most cost-effective manner. My request is that this committee explore ways to ensure our region, with its vast ocean expanses, high biodiversity, unparalleled traditional marine resource management knowledge and highly capable expertise not be continually ignored or treated in an inappropriate manner.

As a region, the Pacific Islands have much to offer to our U.S. partners and colleagues, in terms of traditional knowledge, enhancing community participation and sharing of local expertise. Our needs are best addressed when priorities and initiatives are developed from within rather than by individuals based thousands of miles away that are unaware of the diverse cultures and opportunities that exist out here. We recognize the need for specific types of expertise to develop more regional capacity, and the levels of program support needed.

I strongly support the intent of H.R. 1071, and respectfully request that specific guidance be added to allow the six regional institutions of higher education, namely American Samoa Community College, the College of the Marshall Islands, the College of Micronesia-FSM, Northern Marianas College, Palau Community College and the University of Guam be accorded Sea Grant Regional Consortium Status, and supported in the interim with funds that will allow each to develop their programs to deal with marine resource use and preservation.

I thank you for this opportunity to offer comments.

Respectfully,

  
Delegate Noah Idechong  
Ngiwal State



**COMMONWEALTH OF THE NORTHERN MARIANA ISLANDS**

Pedro P. Tenorio  
Governor  
Jesus R. Sablan  
Lt. Governor

JUL 23 1999

Caller Box 10007  
Saipan, MP 96950  
Telephone: (670) 664-2200  
Fax: (670) 664-2211

The Honorable William M. Daley  
Secretary  
U.S. Department of Commerce  
14th Street and Constitution Avenue, N.W.  
Washington, DC 20230

Dear Secretary Daley:

On behalf of the Commonwealth of the Northern Mariana Islands, I am writing to express my support for the establishment of a new Regional Sea Grant Consortium for Micronesia.

Sea Grant status will greatly help our region's colleges, our fishing communities, our marine and coastal resource agencies, and everyone throughout our region by providing financial assistance for local and regional marine related research and extension activities.

Likewise, I wish to specifically express our Commonwealth's support for establishing this new consortium's center at the University of Guam Marine Laboratory. The marine biologists, ecologists, laboratory scientists, and fisheries managers who work there have provided us with a tremendous amount of assistance in recent years as we have struggled to address human impacts on our coral reefs. Specifically, they have conducted local training workshops, assisted with designing our marine monitoring programs, sponsored our students and agency staff for courses held at the University, and conducted environmental impact assessments for several of our large water resource-related public projects.

Finally, I want to express my support for the Sea Grant consortium concept. This promises to bring together the minds and energies of the knowledgeable and dedicated scientists and teachers around our region to cooperatively address our regional marine resource concerns.

Anticipating your positive decision, our Commonwealth has already formed an active Sea Grant advisory group, centered at our Northern Marianas College and supported by staff of our resource management agencies.

Thank you for considering our region's request.

Sincerely,

A handwritten signature in black ink, appearing to read "Pedro P. Tenorio".  
PEDRO P. TENORIO



P.O. Box 9, Koror  
 Republic of Palau  
 PW 96940  
 Tel: (680) 488-2470  
 Fax: (680) 488-3435

October 11, 2001

## Office of the President

Congressman Wayne T. Gilchrest, Chairman  
 Subcommittee on Fisheries Conservation, Wildlife and Oceans  
 U.S. House of Representatives  
 Committee on Resources  
 Washington, DC 20515

Dear Congressman Gilchrest and Committee Members:

Accredited by  
 WESTERN ASSOCIATION OF  
 SCHOOLS AND COLLEGES

I am providing this testimony regarding the Sea Grant Reauthorization Bill and the discussion draft of the bill to enhance the National Sea Grant College Program. I am the President of Palau Community College, and have been working closely with the other Presidents of the regional institutions of higher education in pursuit of Sea Grant status. The Pacific Islands are rich in marine resources, ocean expertise and the commitment to ensuring our future generations have resources for their benefit. We have much to offer in terms of traditional resource management knowledge, access to the highest levels of marine biodiversity and economically valuable fisheries. Yet, we have previously been denied the opportunity to fully participate in Sea Grant. It is worth noting that the six partnering institutions, American Samoa Community College, the College of the Northern Marianas, the College of the Marshall Islands, the College of Micronesia-FSM, Palau Community College and the University of Guam all have Land Grant status but none have Sea Grant status. This is perplexing for a region that is over 99% ocean. The past Undersecretary of Commerce and Director of NOAA, Dr. D. James Baker, sought to rectify this problem, but since his departure following the change in administration, it appears that senior administrators within Sea Grant have chosen to stall the ongoing efforts. In May of this year, representatives from the regional colleges and MAREPAC met at the College of Marshall Islands to continue pursuit of Regional Sea Grant Consortium status. I was chosen as the chair of this group, and as such, am respectfully asking for the assistance of this Subcommittee.

I fully support the goals and objectives of Sea Grant as critical to the future of our oceans and the people who depend upon the resources culturally as well as economically. However, unless funds are allocated appropriately, maximum benefits will not be realized. As a group we determined the needs and priorities of the region, and have asked that funds of \$1 million per year for the first two years be pursued to support research, education, extension and capacity-building activities in line with the Sea Grant charter. This seems modest when considering this amounts to approximately \$150,000 per college per year. In reviewing past Sea Grant expenditures, it appears that land-locked states have received more than the entire Pacific Islands region exclusive of Hawaii.

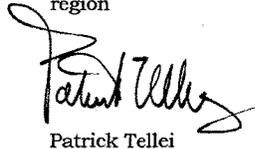
I write this letter to support an on-going effort create and strengthen establishment of a Pacific Regional Sea Grant Consortium. This consortium is a dream come true for many professionals from around the region, who for many

years had worked tirelessly to make sure it does happen. The United States Affiliated Pacific Islands, namely, Territory of Guam, Commonwealth of the Northern Mariana Islands, American Samoa, Freely Associated States (Palau, Marshall Islands and Federated States of Micronesia) are prepared to work together and with a unified voice seek your support for our consortium and region.

The Marine Resource Managers and Institutions of Higher Education from this region have gained necessary knowledge and expertise in the field, thanks in part to previous support from the University of Hawaii Sea Grant and that of the National Sea Grant Office. Our collective understanding of the cultural context as it relates to the Marine Resources preservation and conservation leads me to conclude that we are now in a position to take on the responsibilities of administering a program and make needed contributions to the field.

We are thankful and appreciative for all the support we've received in the past, and ask that your committee to support our effort. Our consortium is in infancy stage, but I can assure you and your committee that our Institutions of Higher Education, now have capacities to guide our effort as we join the rest of the programs. There is much we have to offer, and we ask to have that chance to prove that, indeed we can do it.

We cover a region that is as big as the continental United States, and while we are geographically large, we would like to "think globally", and yet take small but calculated steps in the right direction. There is much to be gained from our region

A handwritten signature in black ink, appearing to read "Patrick Tellei". The signature is stylized with a large initial "P" and a long, sweeping underline.

Patrick Tellei

*Council of Micronesian Chief Executives*

**RESOLUTION NO. 99-04**

**Relative to the development of a cooperative effort among member governments of the Council of Micronesian Chief Executives ("Council") to ensure wise and sustainable use of our collective coral reef resources**

**WHEREAS**, the people of Micronesia have depended on the coral reefs surrounding their individual island states and nations as an important habitat for food and other valuable marine resources, as a coastal shoreline protection and for economic development; and

**WHEREAS**, the coral reefs surrounding these islands are in danger of being damaged or destroyed by over exploitation through mismanagement practices and a lack of enforceable protective measures; and

**WHEREAS**, the Council recognizes that these coral reefs are fragile ecosystems and cannot sustain high levels of exploitation, irresponsible human activities, abuse or misuse; and

**WHEREAS**, the Council recognizes our coral reefs as economically and culturally valuable resources; and

**WHEREAS**, the Council recognizes the need for regional cooperation to share knowledge, research and expertise on the uses, management and protection of this valuable resource.

**NOW THEREFORE, BE IT RESOLVED**, that the Council of Micronesian Chief Executives agree to develop a cooperative effort among its members to respond to the immediate and long term adverse effects of the improper exploitation of our valuable reefs; and

**BE IT FURTHER RESOLVED**, that the Council recognizes the efforts of Governor Carl T.C. Gutierrez to bring a Sea Grant College through the University of Guam and a consortium of Micronesian Colleges as espoused by Dr. James Baker, Assistant Secretary of Commerce and the Director of the National Oceanographic and Atmospheric Administration (NOAA); and

**BE IT FURTHER RESOLVED**, that recognizing the preservation of our coral reefs as a priority issue, the Council hereby agrees to exchange information, resources and research to ensure the protection and sustainable uses of our coral reefs; and

**BE IT ALSO FURTHER RESOLVED**, that the Council fully endorses and supports any efforts by any of its members to obtain outside assistance and support designed to protect and sustain this most valuable marine resource.

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Mr. GILCHREST. Thank you, Dr. Richmond.  
Mr. DeVoe?

**STATEMENT OF RICHARD DEVOE, PRESIDENT, SEA GRANT  
ASSOCIATION**

Mr. DEVOE. Mr. Chairman, members of the Committee and staff, good morning. It is an honor and a pleasure for me to be with you this morning. And it is with great appreciation that the Sea Grant Association acknowledges your long history of support for the National Sea Grant College Program.

I have submitted written testimony, and I am just going to summarize a few of the points that I provided in that.

The Sea Grant Association represents the combined capabilities of over 200 universities and research institutions nationwide that participate in the National Sea Grant College Program. The Sea Grant Association enables these institutions to coordinate their activities, prioritize action at the regional and national levels, and to offer a unified voice on critical coastal, ocean, and Great Lakes issues.

Just as our Nation's Land Grant institutions have revolutionized agricultural, so too are the Sea Grant colleges steering our Nation toward a productive and sustainable use of our coastal, ocean, and Great Lakes resources.

Sea Grant is science serving America's coasts, or, I like to say, science for society's sake. It is a model Federal program that continues to make a significant and positive difference by ensuring through rigorous scientific inquiry, directed educational outreach, technology transfer, and a focus on economic development and resource conservation, that the Nation's invaluable coastal, marine, and Great Lakes resources will continue to provide quality-of-life benefits for present and future generations.

More importantly, and I think you heard some of this today, Sea Grant touches the lives of what I would call real people, people from all walks of life and from all parts of the country.

The National Sea Grant College Program was last reauthorized 3 years ago, after extensive review and with unanimous support of both houses of Congress through the Sea Grant Reauthorization Act of 1998. The Sea Grant Association strongly endorses the intent of both the Subcommittee's discussion draft and H.R. 1071 to substantially increase the authorization levels for Sea Grant above current levels.

An increased investment in Sea Grant is an investment in America's economic future. Attempts to balance our booming coastal economy with its associated impacts on the coastal, marine, and Great Lakes environment have raised the stakes for effective government action.

Note, for example, that America's coastlines span more than 95,000 miles and its territorial sea covers 3.4 million square miles. Over half of the Nation's population of 280 million live in coastal counties that comprise less than one-fifth of the total land area of the United States.

The economy of the Nation's coastal counties accounts for at least 30 percent of the domestic gross national product. Nearly 14,000 housing units are being built each week in these counties. Coastal

tourism and recreation account for 85 percent of all U.S. tourism revenues.

The oceans, in one way or another, account for one out of every six jobs.

Tax revenues in coastal areas are among the fastest growing revenue sources for state and local governments. And by 2010, U.S. foreign trade in goods is expected to double to \$5 trillion, with oceangoing cargo increasing by 30 percent.

In fact, the collective economic impact of the coastal economy far exceeds U.S. agriculture, yet Federal investments in Sea Grant colleges and universities, as it has been mentioned today before, are significantly less than Federal investments in the USDA's Land Grant college and university system, the program on which Sea Grant was modeled.

A significant increase in Sea Grant's authorization levels will enable it to strategically enhance its investment in research, education, extension, and outreach programs that promote sustainable fisheries; encourage the development of responsible aquaculture; preserve, enhance, and restore coastal, marine, and Great Lakes resources; support quality community development in urban, suburban, and rural coastal areas; mitigate coastal hazards; create value through marine biotechnology; and expand public literacy.

Mr. Chairman and members of the Committee, the Sea Grant Association has a vision for the National Sea Grant College Program; that is to become NOAA's primary university-based research, education, and technical assistance program for coastal, marine, and Great Lakes resources.

As such, the Sea Grant Association offers the following comments and suggestions on the Committee discussion draft, H.R. 1071, and Sea Grant in general.

First, Sea Grant Association respectfully recommends that the proposed authorization levels for Sea Grant in fiscal year 2004 and beyond be significantly increased and strongly endorses the intent of both the Subcommittee's discussion draft and H.R. 1071 to substantially increase the authorization levels for Sea Grant.

While extremely successful, the ability of Sea Grant to continue to meet the expectations of Congress has been limited. The growth of the National Sea Grant College Program has not matched the extraordinary growth in coastal population, development, and the demand for Sea Grant information and services. In fact, the Sea Grant budget has not kept pace with inflation over the last two decades, much less expanded to meet the wealth of new challenges and opportunities that face our country.

The buying power of Sea Grant's current appropriation is 20 percent less than the buying power of its 1980 appropriation. In fact, staff size of the 30 Sea Grant programs has declined by 25 percent from fiscal year 1986 to fiscal year 1999. You have heard the results of some of that, in terms of some areas of the coastline not receiving coverage, and the island states.

We receive many more quality ideas and proposals than we can support at this time. And there are significant stretches of the U.S. coastline that receive little or no attention from our Sea Grant extension network.

A second point is that the Sea Grant Association respectfully recommends that the Sea Grant reauthorization legislation include an escalating scale for authorization levels, as is the case with the current Sea Grant authorization and with that proposed in Section 212(a)(3) of the discussion draft. Adoption of this recommendation will allow the Sea Grant program to grow proportionally to increases in the cost of living and, more importantly, to be able to respond to an ever-increasing demand for Sea Grant services and products.

Third, the Sea Grant Association believes that the National Sea Grant College Program should be given the responsibility to manage the coastal ocean research program as identified in the discussion draft. The Sea Grant Association believes that Sea Grant can provide the necessary leadership and management in an increasingly complex programmatic arena and do so in an efficient and cost-effective manner. Placement of a coastal ocean research program within Sea Grant would represent an initial step to integrating NOAA's university-based coastal, marine, research, and outreach programs.

And finally, the Sea Grant Association respectfully requests that the coastal ocean research program, if included in the reauthorization, be exempt from both the matching funds provision placed on core Sea Grant Federal funds and the payment on the receipt of Sea Grant funds by Federal scientists.

Sea Grant by its very nature works in partnership with a variety of agencies and organizations. Exempting the coastal ocean research program from these Sea Grant requirements would allow the national Sea Grant office to develop and leverage research and outreach initiatives both within NOAA and with such agencies as the National Science Foundation, U.S. Environmental Protection Agency, and other Federal funding institutions that do not require matching funds and/or do allow participation by Federal scientists.

In conclusion, we ask that the National Sea Grant College Program be provided with the full resources it needs to build on its record of success and promise. A reauthorization that matches both the immediate and long-term needs of all who live, work, and play along the Nation's coastlines and one that represents the initial step in achieving the Sea Grant Association vision.

We look forward to working with you, Mr. Chairman, and members and staff of the Committee, on Sea Grant reauthorization. Thank you again for the opportunity to be here, and I would be glad to answer any questions you may have.

[The prepared statement of Mr. DeVoe follows:]

**Statement of M. Richard Devoe, President, Sea Grant Association**

It is an honor and pleasure for me to be with you this morning, and it is with great appreciation that we acknowledge your long history of support for the National Sea Grant College Program.

The Sea Grant Association (SGA) represents the combined capabilities of over 200 academic and research institutions nationwide that participate in the National Sea Grant College Program. The SGA enables these institutions to coordinate their activities, to prioritize action at the regional and national levels, and to offer a unified voice on critical coastal, ocean, and Great Lakes issues. Just as our nation's Land Grant institutions have revolutionized agriculture, so too are the Sea Grant Colleges steering our nation toward the productive and sustainable use of our coastal, ma-

rine, and oceanic resources, through integrated programs of scientific research, education and training, and technical assistance.

The National Sea Grant College Program was last reauthorized three years ago, after extensive review and with the unanimous support of both Houses of Congress, through the Sea Grant College Program Reauthorization Act of 1998 (P.L. 105-160). The SGA strongly endorses the intent of both the Subcommittee's discussion draft and H.R. 1071 to substantially increase the authorization levels for Sea Grant.

We respectfully suggest, however, that the amounts proposed may not be sufficient to address the myriad needs and opportunities that our coastal and ocean resources present. Some coastal areas under U.S. jurisdiction currently have limited or no Sea Grant Program coverage, while existing coastal and Great Lakes Sea Grant Programs receive many more high quality and relevant projects than they can fund. Additionally, there are significant stretches of the U.S. coastline that receive little or no attention from our Sea Grant Extension network of agents and specialists.

An increased investment in Sea Grant is an investment in America's economic future. Attempts to balance our booming coastal economy with its associated impacts on the coastal and marine environment have raised the stakes for effective government action. By 2010, U.S. foreign trade in goods is expected to double to \$5 trillion, with ocean-going cargo increasing by 30 percent. Coastal tourism and recreation account for 85 percent of all U.S. tourism revenues. The oceans, in one way or another, account for one out of every six jobs. Tax revenues in coastal areas are among the fastest growing revenue sources for state and local governments. In fact, the collective economic impact of the coastal economy far exceeds U.S. agriculture, and yet federal investments in Sea Grant colleges and universities are much smaller than investments in the Land Grant college and university system funded by the U.S. Department of Agriculture for agriculture and land-based natural resource activities, the program on which Sea Grant was modeled.

The growth of the National Sea Grant College Program is not commensurate with the extraordinary growth in coastal population and development. In fact, the Sea Grant budget has not kept pace with inflation over the last two decades, much less expanded to meet the wealth of new challenges and opportunities that face our country. Sea Grant's appropriations are over 20 percent below the buying power of its 1980 appropriation. From fiscal year 1986 to fiscal year 1999, Sea Grant's program-wide staff size declined 25 percent.

These trends prompted the National Research Council to comment in its 1994 review "that (Sea Grant) needs additional funding to fulfill its potential... A steady increase in funding is necessary if the program's potential contributions to the nation's economic and environmental health are to be realized."

Sea Grant represents a terrific federal value. Sea Grant Programs are required to match \$1 in non-federal funds for every \$2 of federal investment. Actually, revenues spent on Sea Grant activities nationwide from all sources totaled \$113.79 million for fiscal year 2001; the appropriation that year was \$62.25 million. This highly leveraged investment in Sea Grant is crucial to ensure appropriate federal, state, local, university, and private-sector efforts to support and enhance our burgeoning coastal economy while conserving and protecting the coastal and marine resource base upon which it depends.

A significant increase in Sea Grant's authorization will enable it to strategically invest in research and outreach programs that:

Promote sustainable fisheries. Fishery landings have reached the maximum capacity of our oceans and coastal waters to produce fish. Sea Grant can collaborate even more with the National Marine Fisheries Service and the private sector to develop new approaches to fisheries management to conserve existing fish stocks and rebuild depleted fisheries. Sea Grant is uniquely situated to promote collaborations on subjects critical to decisions being made by fisheries managers on topics such as stock assessment, habitat and ecosystem health, environmental contamination, area management strategies, fish biology and behavior, climate change, management institutions, and conflict resolution. In addition, research and extension personnel can provide fisheries managers with the socioeconomic data and analyses necessary to manage fisheries using techniques that will allow for adequate economic returns, protect fish stock size, harvest at sustainable yields, and minimize the impacts on fishermen.

Encourage the development of responsible aquaculture. The United States faces a seafood deficit amounting to \$7 billion annually; it imports more than 60 percent of the fish and shellfish it consumes. Marine aquaculture has the potential to provide up to 25 percent of all seafood consumed by its citizens within the next 20 years, and provides the "seed" for rebuilding some fishery stocks. An example is the growth of the global shrimp farming industry. According to a recent USDA report,

U.S. shrimp imports were valued at \$3.8 billion in 2000. The value of imported shrimp, Atlantic salmon, and tilapia totaled \$4.6 billion. To put this in perspective, imports of these three aquacultured products in 2000 were worth as much as the combined exports of the U.S. broiler and hog industries. In addition, aquaculture of marine aquarium fishes represents a multimillion-dollar (and growing) market that can relieve fishing pressure on wild stocks, especially in coral reef habitats. On-shore, near-shore and offshore marine aquaculture offers vast potential for reducing the demand on wild fisheries. Sea Grant is particularly committed to enhancing this budding industry's development in a socially and environmentally sound manner.

Preserve, enhance, and restore coastal, marine, and Great Lakes resources. Growth along the nation's coasts has exacerbated coastal pollution and associated problems such as harmful algal blooms, "dead zones," nuisance species invasions, coral reef die-offs, and related effects. Sea Grant can determine the impacts of natural and man-made change on coastal, marine, and Great Lakes ecosystems, and develop innovative approaches to protect these habitats from further degradation and reverse the changes that have occurred. Sea Grant will emphasize the role of the land in determining the quality of coastal waters and will provide coastal managers with the scientific and technological tools they need to address regional and local problems.

Support quality community development in coastal areas. Coastal communities depend on healthy ecosystems and economies for their survival. Research to better understand the inter-connectivity between the economy and the environment, and outreach to expand the scientific understanding of community planners, business leaders, and citizens, need to be greatly expanded. Among Sea Grant's assets are ready access to the university social science community (not available elsewhere in NOAA), an existing state and local infrastructure to deliver programs at the community level, and existing or emerging programs in such areas as waterfront renewal, brownfield redevelopment, tourism development, transportation planning, ports development, community non-point source pollution abatement, and planning and zoning, which all are catalysts for growth. Sea Grant's emerging Coastal Community Development Program will focus on helping communities that are experiencing a decline of their resource-dependent industries and/or are facing complex requirements associated with environmental regulation to develop robust, sustainable economies.

Mitigate coastal hazards. Over the past 20 years, 44 weather-related disasters with overall damage costs exceeding \$1 billion each struck the United States. Thirty-eight of these occurred during the 1988-1999 period with total damage costs exceeding \$170 billion. Insurance companies paid out more than \$91.8 billion in losses from weather-related natural disasters in the 1990s, close to four times the weather-related claims settled during the 1980s. Even so, some \$2 trillion in insured property currently lies within 30 kilometers of the Atlantic coast alone, exposed to the threat of hazard damage. Nationwide, coastal erosion is responsible for approximately \$500 million per year in property loss to coastal property owners, including damage to structures and loss of land. To mitigate coastal erosion, the federal government spends an average of \$150 million every year on beach nourishment and other shoreline erosion control measures. Despite these efforts, over the next 60 years, erosion may claim one out of four houses within 500 feet of the U.S. shoreline. Sea Grant efforts can and will enhance preparedness and reduce losses of human life, property, and environmental resources from coastal natural hazards.

Create value through marine biotechnology. As one of the fastest-changing areas of modern science, biotechnology has revolutionized research and the economy. The recent completion of the human genome project has created a wealth of scientific and commercial opportunity. Though not yet well developed, the potential applications of marine biological technologies promise oceans of opportunity. An increased investment in this area is critical to enable marine researchers to apply today's rapid advances in molecular biology to the marine environment. Marine plants, animals, and microorganisms produce a myriad of unique biochemicals not found on land, and marine natural products derived from them have demonstrated potential to treat diseases such as cancer and inflammatory disorders. Even so, most drugs currently on the market have been derived from land-based organisms. There is a vast potential for developing new drugs from the sea. At the same time, these technologies offer equally important opportunities in the environmental arena. Molecular biology has provided environmental managers, seafood processors, and the aquaculture industry with an accessible toolbox that enables them to make better decisions on critical resource and economic issues. The next generation of technology for monitoring of biological processes and remediation of pollutants will be based on the application of these new biological technologies. Sea Grant has led the Federal effort to target biotechnology research to seek solutions to pressing problems, to de-

velop novel applications, and ultimately to realize the immense economic potential of this emerging field.

Expand public literacy. Virtually every serious study of national goals for the new millennium underscores the critical importance of education to national prosperity. The challenges facing this country require instilling environmental values, behaviors, and literacy in the decision-making public while developing a highly skilled, technologically capable workforce. Sea Grant efforts have and will continue to contribute to improving marine and aquatic science literacy by enhancing education among formal K–12, undergraduate and graduate students, and informal sessions with both children and adults. Increased value in marine and aquatic science education by the American public is critical to national security, economic development, and the overall quality of life for everyone.

The purpose of the National Sea Grant College Program can be summarized in a single phrase: Science Serving America's Coast.

Sea Grant science provides the technical understanding and underpinning of all it does. Research supported by Sea Grant is based on competition, undergoes rigorous peer-review, and is geared to address the many marine and coastal challenges and opportunities that face our varied constituencies. The federal investment in Sea Grant enables a nationally coordinated network embedded in the best research universities to apply unparalleled intellectual capital to address these problems and opportunities. Cost-effectiveness is enhanced by access to university management infrastructure.

Sea Grant serves the nation in many ways. Sea Grant's unmatched access to local constituencies through its extension and outreach programs ensures that federal investment is targeted at relevant issues for the benefit of NOAA and other federal agencies, state and local governments, coastal environmental managers, local fishermen, other marine resource users, and the general public. This contact also provides an important conduit for recommendations back to Sea Grant and NOAA for needed research and improved policies and services. Sea Grant's non-regulatory and science-based focus has established the program as an honest broker among a wide range of constituencies. In addition, marine education programs supported by federal funds reach from kindergarten to marine-related business people to elder hostels. The matched federal investment also fills the enormous demand for expertise to tackle rapid growth, change, and pressure on coastal resources.

Sea Grant is a national program addressing national needs. It is a partnership of and depends on partnerships among government, academia, business, industry, scientists, and private citizens to help Americans understand and wisely use our precious coastal waters and Great Lakes for enjoyment and long-term economic growth. This network unites 30 State Sea Grant Programs, over 200 universities, and millions of people. Sea Grant is an agent for scientific discovery, technology transfer, economic growth, resource conservation, and public education. Study after study has shown that Sea Grant returns to the taxpayers many times its annual budget in goods and services. It is government as our citizens want it—visible, tangible, relevant, efficient, and effective.

And Sea Grant focuses its attention on a myriad of needs and pressures that face the nation's coasts. America's coastal and ocean resources encompass an immense area with more than 95,000 miles of coastline and more than 3.4 million square miles of ocean within the U.S. territorial sea. Over half the nation's 280 million people live in coastal counties that comprise less than one-fifth of the total land area of the United States. The economy of these coastal counties is critical to the economic well being of the entire nation, providing a wide array of goods and services that account for at least 30% of the gross national product of the United States. Growth in population and economic activity in coastal counties is continuing with nearly 14,000 housing units being built every week, resulting in a 25% growth in coastal counties since 1970. From 1996 to 2015, our nation's coastal population is projected to increase from 141 million to 166 million.

Sea Grant's unique combination of research, training, outreach, and education have made it a national leader in such areas as seafood technology, aquaculture, invasive aquatic species, coastal habitat enhancement, coastal economic development, and coastal hazards mitigation. For example—

- Scientists with the Haskin Shellfish Research Laboratory at Rutgers University were the first to produce tetraploid Pacific oysters in 1993, with support from Sea Grant and others, that resulted in a number of patents in the United States, European Union, Australia, and elsewhere. (Tetraploid oysters are used as broodstock to produce 100% triploid oysters, noted for their sterility, fast growth, and superior meat quality.) Continuing research being conducted jointly with industry partners is focused on the development of disease resistant strains of American oysters, using the tetraploid technologies developed for the

Pacific oyster. The implications of this research to the aquaculture industry and the restoration of the oyster resource in the mid-Atlantic are extremely compelling.

- Sea Grant studies of sewage effluent plumes have led to revisions in pollution control, cleanup, and water treatment that will save Orange County, CA taxpayers \$50 million over a thirty-year period. Lessons learned from these studies can be applied to other large sewage plants around the country.
- Molecular approaches developed through Sea Grant-funded research at UCLA have provided new and rapid means of quantifying bacterial pollution in coastal waters. These novel molecular protocols allow the quantity of specific bacteria in a sample to be determined quickly and accurately. This is a valuable rapid-method tool for monitoring bacterial pollution of coastal waters.
- Sea Grant has been instrumental in the development and construction of wetlands on all four coasts. Wetland loss mitigation strategies have both created and restored valuable wetlands, while allowing coastal development valued in excess of \$100 million. For example, the largest wetland restoration and enhancement project in the United States was conducted in New Jersey and Delaware, involving more than 17,000 acres of salt marsh.
- The high volume of crab wastes generated by crab processing plants in the mid-Atlantic and southeastern U.S. is of considerable concern. Most landfills will no longer take this dense tonnage because crab chum releases ammonia and nitrates that can seep through soil, potentially polluting shallow aquifers, streams and creeks. Researchers working with support from the National Sea Grant Marine Biotechnology Initiative and Maryland Sea Grant have developed industrial scale processes for remediation of crab waste. While composting of crab waste is feasible, greater profits can be realized from purified chemical products such as chitosan, a derivative of chitin that has numerous high value industrial uses. Using novel enzyme technologies, studies were conducted to discover how the structure of chitosan could be controllably altered to allow manufacturers to tailor its properties for a variety of uses. These efforts have led to patents and ChitinWorks, a new independent company focused on producing chitosan from crab waste, in Cambridge, Maryland.
- A Texas Sea Grant extension specialist is developing a training program for the retail grocery industry aimed at significantly reducing the amount of seafood shrinkage (losses due to spoilage, contamination, mishandling, etc.), which costs the industry billions of dollars annually. The projected cost-savings of the program for the grocery industry could reach over a billion dollars a year.
- More than 12,000 graduate and undergraduate students has been supported through Sea Grant research efforts. Sea Grant-supported students represent a major component of the nation's skilled workforce in government, academia, and the private sector. As senior level personnel leave the federal government, and given the critical shortage of skilled workers in agencies such as NOAA to replace them, Sea Grant support for student education and training is more important now than ever.
- COAST: Operation Pathfinder, a Sea Grant-supported marine science program for teachers, has provided training to over 700 teachers from the United States, Puerto Rico, and the Pacific affiliates. These teachers have trained, through in-service workshops, an additional 14,000 teachers, who collectively have the potential of reaching over 5.5 million K-12 students about the relevance of the nation's oceans and coastal resources.

Thus, Mr. Chairman and members of the Committee, the Sea Grant Association offers the following comments and suggestions on the Committee discussion draft, H.R. 1071, and Sea Grant in general:

The SGA respectfully recommends that the proposed authorization level for fiscal year 2004 be increased, and that Sections 212(a)(1) and 212(a)(2) of the discussion draft include an escalating scale for authorization levels as is the case with the current Sea Grant authorization and with those proposed in Section 212(a)(3). While extremely successful, the ability of Sea Grant to live up to Congress's original expectations has been limited, as described in the 1994 National Research Council (NRC) review of the Program which concluded that "Sea Grant combines research, outreach, and education activities to approach these issues of importance to society and provides a great potential resource to its parent agency, the National Oceanic and Atmospheric Administration (NOAA)." However, the NRC goes on to say that "(t)he great potential of the program has not been achieved, however, because of fiscal limitations." Adoption of these recommendations will allow the Sea Grant Program to grow proportionally to increases in the cost of living and, more importantly, to an ever-increasing demand for Sea Grant services and products.

The SGA believes that the National Sea Grant College Program is more than capable to manage the Coastal Ocean Research Program as suggested in Section 212(a)(3) of the Committee's discussion draft. The Sea Grant Association believes that Sea Grant can and should become NOAA's primary university-based research, education and technical assistance program for coastal, marine, and Great Lakes resources. Placement of the Coastal Ocean Research Program within Sea Grant represents an initial step to consolidate NOAA's university-based research and outreach programs. The SGA concurs that Sea Grant can provide the necessary leadership and management in an increasingly complex programmatic arena and do so in an efficient and cost-effective manner.

The SGA respectfully requests that the Coastal Ocean Research Program, if included in the reauthorization of the National Sea Grant College Program, be exempt from both the matching funds provision placed on all other Sea Grant federal funds and the ban on the receipt of Sea Grant funds by federal scientists. Sea Grant by its very nature works in partnership with a variety of agencies and organizations. Exempting the Coastal Ocean Research Program from these Sea Grant requirements would allow the National Sea Grant Office to develop and leverage research and outreach initiatives both within NOAA and with such agencies as the National Science Foundation, the U.S. Environmental Protection Agency, and other federal funding institutions that do not require matching funds and do allow participation by federal scientists.

The Sea Grant Association respectfully requests that the Committee consider combining all NOAA university-based coastal, marine, and Great Lakes research and outreach programs, where appropriate, under one Assistant Administrator, and designate Sea Grant as the lead agency. A consolidated program and improved access to the Administrator will allow NOAA to better tap Sea Grant's unique grassroots contacts, its university brain trust, and its close working relationships with the scientific community and Congress.

As you can see, Mr. Chairman and Members of the Committee, Sea Grant is not just another government program. It is Science Serving America's Coast, a program that makes a significant and positive difference in the lives of citizens who depend on our shorelines and oceans. Sea Grant makes a difference by ensuring that—through rigorous scientific inquiry, directed educational outreach, technology transfer, and a focus on sustainability—the nation's invaluable coastal, marine, and Great Lakes resources will continue to provide benefits for future generations.

We ask that you provide the National Sea Grant College Program with the full resources it needs to build on this record of success and promise—a reauthorization that matches both the immediate and long-term needs of all who live, work, and play along the nation's coastlines.

The SGA looks forward to working with you, Mr. Chairman, and members and staff of the committee on Sea Grant reauthorization. Thank you again for the opportunity to testify before you this morning, and I will be glad to address any questions that you may have.

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Mr. GILCHREST. Thank you very much, Mr. DeVoe.

Dr. Evans, Dr. Richmond recommended a Sea Grant consortium, which would take in those islands in the Pacific—Guam, American Samoa, and so on—in an area that was basically larger than the continental U.S., which Mr. Underwood showed me on a map.

Could you comment on that recommendation? Is that something you have thought about before in NOAA? Is it something that would be worth the commitment in time, money, and personnel?

Mr. RICHMOND. The simple answer to your question—actually, all of those questions—is yes.

We have been working on this with Dr. Richmond and others from the region for probably slightly in excess of 2 years now, I believe. The former NOAA administrator at a coral reef task force meeting and meeting with the governor of Guam had discussions on this subject, brought the message back to NOAA headquarters and to Sea Grant headquarters.

And I think we have had an ongoing discussion, including providing some grant money to help fund the development of programs in the region.

We all believe that the region could benefit by being a Sea Grant consortium. We believe that there are benefits to flow both ways, if you will, both toward the marine community—

Mr. GILCHREST. Is this something that we need to put into the authorization?

Are you close to actually implementing this type of consortium?

Dr. EVANS. I think that, you know, our experience in developing other Sea Grant programs is that it takes a number of years to work on. I believe you or one of the other members cited Pennsylvania and Vermont; we have active programs to develop Sea Grant programs in those areas.

It tends to take a period of time. Oftentimes it begins with extension work. Program proposals are developed.

I guess my sense is that we have a process that does work and has worked in the past and is currently working to bring states' and regions' programs into the national program. And my own inclination is that that program will work in this case.

We have an ongoing dialogue with the folks in the region right now. In fact, we are currently sort of sitting here, waiting for the next funding proposal that will help move this process along. And we are prepared to offer some support, financial support, personnel-type support, of folks throughout the organization.

So my inclination is to say that a legislative fix for that is probably not required, that we have adequate mechanisms already.

Mr. GILCHREST. Dr. Richmond, do you think it is close to happening? Do we need a legislative fix? Is the process working in an orderly, prompt fashion?

Mr. RICHMOND. Certainly, I would like to recognize Dr. Evans personally for having been involved in these discussions for the last 2 years. And thanks to him and the previous undersecretary, Dr. James Baker, we have seen some progress. We actually have a \$200,000 grant that has been enabling us to do the first step, which was to bring the six institutions of higher education together in the Marshall Islands last May.

Mr. GILCHREST. So that is a NOAA grant?

Mr. RICHMOND. That was a NOAA grant, directly under the work that Dr. Evans and I were able to work together.

The biggest concern has been raised—and since I am in the House of Representatives, I suppose I should be diplomatic—that there—

Mr. GILCHREST. Please, the more blunt and frank—

[Laughter.]

—and to the point you can be, the more helpful you will be.

Mr. RICHMOND. Okay.

Mr. GILCHREST. The more diplomatic, things will just float along and not ever happen.

[Laughter.]

Mr. RICHMOND. Okay. It's a deal.

There is no question that there has been some very firm resistance to this idea for awhile.

Mr. GILCHREST. Firm resistance from?

Mr. RICHMOND. From certain administrators within the Sea Grant program. I don't think that it is necessary to go into all the details at this time. I will look to our delegate—

Mr. FALEOMAVAEGA. Mr. Chairman, I think we should. Tell us who.

Mr. RICHMOND. Bottom line, it has been that the director and the executive director of Sea Grant, certainly from our perspective, have been trying to block the effort of getting an independent Sea Grant program for the Pacific Islands.

Dr. D. James Baker, when he was the director of NOAA and the undersecretary, met with a number of the regional representatives over a period of years, including Lelei Peau—

Mr. GILCHREST. You are talking about making a distinct program for the islands in the Pacific, as opposed to an extension of the existing Sea Grant?

Mr. RICHMOND. As opposed to a program underneath the University of Hawaii Sea Grant—

Mr. GILCHREST. How do you feel about that?

Mr. RICHMOND. It simply hasn't worked. I have been out in Guam for 16 years. I have worked with these islands on a regular basis. I can say there have been some very good successes. And it has been unfortunate, but I think there have been some failures as well.

A lot of it has been that the decision-making process has been removed from the islands. Decisions have been based in Washington and Hawaii, thousands of miles away.

For those of you who aren't familiar, it is a 7-hour plane flight from Hawaii to Guam. We are over the dateline. Just to give you the logistics, there are only 12 hours when the workweek on Guam overlaps with the workweek in Hawaii, due to the dateline change and the 4-hour time difference.

So here we have people in Washington and Hawaii making firm decisions for the islands, and one of the things I have learned in 16 years of working in the islands is that I am effective at the technical level, but the bottom line is the decision-making process has to be made within the islands themselves.

The Marine Resources Pacific Consortium, which started this out, is a group of regional resource managers funded by the Department of the Interior Office of Insular Affairs. And what it has done is put the decision-making process into the hands of the islanders themselves.

The governing board is made up of two members of the institutions of higher education—that is Patrick Tellei from the Palau Community College and Yassai Yamada from the College of Micronesia-FSM; two marine resource management agencies; and then two nongovernment organizations, one from Palau and one from American Samoa.

And what we found, I have been relegated to simply being the principal investigator, which is the appropriate position for me. My major responsibility is to make sure we have accountability and that we are doing everything by the rules. But all decision-making is made by a regional board that is made up of 60 percent ethnic Pacific Islanders; it is four ethnic Pacific Islanders and two "Caucasians," haoles, whatever term you want to use.

Mr. GILCHREST. What was that? Caucasian and what?

Mr. RICHMOND. Haole.

Mr. GILCHREST. Haoles.

Mr. RICHMOND. That is the Hawaiian term.

Mr. GILCHREST. Paleface.

[Laughter.]

Mr. RICHMOND. That'll work.

[Laughter.]

Mr. GILCHREST. I am trying to get out in the sun a little more.

[Laughter.]

Mr. RICHMOND. That model has been extremely effective. And that is not saying that there haven't been some mistakes made. But the good news has been that, as a region, the resource managers know what needs to be done. The people within the communities are so close to the marine resources that they know what their needs are.

And since each of these islands has a different tenure system and a different cultural system, it is absolutely impossible for people outside of the islands and outside of the region to make decisions on what their priorities are. And that is our biggest concern, is that priorities need to come from within the islands, not from without.

And I will speak specifically to the extension project: Not one of the institutions has identified an extension proposal as being the highest priority. They are concerned about building the institutions to develop a marine sciences curriculum to be able to train their own students. They are concerned about books in their libraries. They are concerned about equipment to be able to teach their own people how to deal with these pressing issues.

Yet every time we come back to the executive director of Sea Grant with the proposals that are now being developed—the meeting we had last May was the first step. Step number two is a regional grant writing workshop, which should be held in Guam later this month, to develop a full-on proposal with the regional priorities, local priorities, and the identity of what the needs are in terms of equipment, supplies, and funding for individual positions.

And that is where I think the disconnect has been; the tail is wagging the dog.

We have cultures—for example, the extension agents in the region under the Hawaii system were all off-islanders, they were all Caucasians and haoles, with one exception.

One exception was there was a Pingelapese individual who was the extension agent when that program was funded from Hawaii for Pohnpei. Maybe it sounds like too detailed, but because this individual from Pingelap, he doesn't speak the language of the traditional chiefs in Pohnpei, and that is a huge problem at the extension level.

Extension has to be done at the local level where there is a respect for the local traditional system, being able to work with the chiefs. My role has been to train local individuals who do speak the right language and do understand the cultural nuances. They are the ones that are effective. I can't be effective in that role even though I have been there for 16 years; actually, over 20 years in the region.

So each of us has assets we can bring to the table, and that is where we look to Sea Grant as having tremendous assets and expertise.

And I do need to clarify that often this has been portrayed as a problem between the University of Guam and the University of Hawaii, and that is simply not true. I am actually an adjunct graduate faculty member in the University of Hawaii, a research affiliate at the Hawaii Institute of Marine Biology, and we look to the University of Hawaii en toto as a tremendous regional resource. We are tapping into their library for document delivery to these remote islands.

But this is the way it has been portrayed, and it is not the truth. The bottom line is that we have islands that have developed a tremendous capacity over the last 20 years. And it is just like someone being a 35-year-old with a family and kids saying, "Gee, Dad, can I have the keys to the car?" and hearing, "No, you're not ready yet."

The question is, when will the islands be ready? From my point of view, the islands have been ready for quite a while.

Mr. GILCHREST. I would like to be able to do that to my children—

[Laughter.]

—even though they are all away from home now.

I think what we will do, I will move on. In fact, I think we will have several rounds of questions, but to keep it in somewhat of an orderly fashion, we might turn the lights on. But the red light doesn't mean your questions are over. We will continue to circulate, because I am sure there are many other questions that we have.

But anyway, Dr. Richmond, I think it would be beneficial for us to continue to communicate. There are a lot of other things in Sea Grant that we want to pursue and implement and ensure, for example, Los Angeles has more than one, and some East Coast States have six, seven, eight, even nine, implement some of the concerns that they have.

But this is a fascinating proposal that I would like to continue to discuss during the rest of this hearing and certainly beyond to see what type of either in-house solution or legislative fix above the increased authorization to ensure that there is sufficient Sea Grant agents out there connecting with the appropriate end-users to make a difference.

Mr. RICHMOND. Thank you very much, Mr. Chairman.

Mr. GILCHREST. I yield now to Mr. Underwood.

Mr. UNDERWOOD. Thank you, Mr. Chairman. And thank you also for the opportunity to raise some specific issues as have been raised by Dr. Richmond and others.

And I don't want to make too much of a point of it, because I think most of the key issues have been raised in this context, other than to say that you represent Guam or any part of the Western Pacific, and as you have indicated, the map there indicates that a substantial part of ocean—I believe in Mr. DeVoe's testimony, he had mentioned that there was some 3.4 million square miles of EEZ. I think there is that amount in the region that we are talking about by itself, absent a concern of the coastal U.S.

And we always talk a lot about attention to the Pacific Rim. And everywhere I go, whether it is in defense issues or strategic issues or economic issue, and certainly there is an intersection here between economic and environmental issues, and the kind of work that Sea Grant is doing, there is always a large part of discussion about the Pacific Rim.

Well, technically speaking, the islands that we are talking about are not part of the Pacific Rim. They are actually the Pacific Basin; the rim is the surrounding part.

The Pacific Rim is like the doughnut and the Pacific Basin is like the hole. And sometimes if you don't have the hole, you don't have much of a doughnut. And sometimes you don't pay that much attention to the hole. And I think, in many respects, that is what we are confronting as we struggle with this.

I used to supervise Dr. Richmond as an academic vice president at the University of Guam, so he and I go back a long way. And one of the very first initiatives that actually we undertook, as a new academic vice president, he showed up in my office and said, "Can you give me some money so we can start working on a Sea Grant proposal?" That was a number of years ago.

And I guess we never thought that we would intersect in this way today, under your guidance, Mr. Gilcrest. We are very happy to reach this particular point.

I appreciate that there are a number of issues attendant to developmental questions about the progress of moving toward a full-fledged Sea Grant program. I am not unmindful of those. I think it is very clear that there are some issues attending to that, but I think the base commitment has to be there. And it has taken us awhile to get to that base commitment.

And I trust I don't have to ask for a show of hands today for that commitment, because I think it is there. And I think it was mentioned in all the testimonies, in one way or another, that we to move toward this direction.

Just generally, in terms of the legislation we are looking at today, which is to increase funding for the Sea Grant program, perhaps Dr. Evans can answer the question of, how can we move toward increased funding for the Sea Grant program when the administration hasn't even requested that the authorized amounts be spent for the upcoming fiscal year?

Dr. EVANS. Well, actually, I think the funding the Sea Grant program is sort of an interesting point of conversation. There has been, as you are well-aware, a long and checkered history of administration requests spanning a number of administrations, funding for Sea Grant.

I think we all, collectively, both on the administration side and on the congressional side, should take some pride in the accomplishments of the last few years.

In fact, in the last two congressional budget submissions from the President, the former President and the current President, requests for Sea Grant have been at or above the amounts of money that Congress had appropriated for Sea Grant in the previous year's appropriation. That is a precedent that had not been in place for probably 10 years prior to that.

The Sea Grant program inside my part of NOAA, inside my part of the organization, has actually had a more rapid rate of growth for its overall funding than the other component pieces of NOAA research, the laboratory program, for example, or some of our other grant programs.

So in an environment where there a lot of competing and worthy priorities, I think Sea Grant has actually done rather well, over the last couple of years in particular.

I think the burden that we have all struggled with over the past, of having Congress appropriate more money and then the President requesting significantly less is behind us. I believe that the establishment of Sea Grant as a credible program inside our research portfolio is well in hand. I think that the program growth that the program has shown has exceeded those of other research areas inside NOAA. And I am pretty confident that we are going to continue down that path in the future.

So rather than dealing with whether or not the amounts that the President has been able to request in balancing all of his priorities actually makes it to the authorized level, I think we really need to take a look at the progress that we have made.

Mr. GILCHREST. Thank you, Mr. Underwood. We can come back as people have questions.

Mr. Faleomavaega?

Mr. FALEOMAVAEGA. Thank you, Mr. Chairman.

I certainly want to thank Dr. Evans for his eloquent statement. I can't believe for \$62 million we deal with agricultural, aquatic nuisance species, coastal hazard reduction, commercial fisheries, education, marine biotechnology, seafood safety. For \$62 million, that is a tremendous amount of things that Sea Grant has been doing for all these years.

What is the annual budget of NOAA, anyway, Dr. Evans? What is the total budget that comes to NOAA every year?

Dr. EVANS. Approximately \$3 billion in the current request.

Mr. FALEOMAVAEGA. \$3 billion?

Dr. EVANS. That is right.

Mr. FALEOMAVAEGA. And what percentage of that goes to Sea Grant? \$62 million out of \$3 billion, right?

Dr. EVANS. It sounds like 5 percent.

Mr. FALEOMAVAEGA. One-tenth of 1 percent perhaps? Something like that?

I really, really am looking through your testimony. I like it. But, you know, when you mention aquaculture, do you mean marine aquaculture or—

Dr. EVANS. Yes, marine aquaculture.

Mr. FALEOMAVAEGA. Okay. Because we just had a royal battle between the Department of Commerce and the Department of the Interior when we talk about fisheries. When a fish goes to a certain distance, it becomes a commercial issue, so, therefore, the Department of Commerce has jurisdiction. But if it goes to a certain distance, it goes through the fisheries and conservation of the Department of the Interior.

And then they come out and say, well, we have to conserve it. I mean, we have a real interesting situation.

And talk about coral, the same situation.

Here's where I am coming from: Why are we having to import \$9 billion worth of fish from foreign countries? And it seems to me that Sea Grant, if aquaculture could be one area that could create jobs, there is economic growth for our country.

This is where I am coming from. I can talk about conservation also, but the bottom line is that other countries are way, way ahead of us, as far as marine aquaculture development is concerned.

Am I wrong in this assumption?

Dr. EVANS. No, I don't think you are wrong at all, sir. I think that other countries produce quite a lot more than we do.

Sea Grant really has led the way in building a broader aquaculture program that now extends beyond Sea Grant. We have other funds inside of NOAA research for supporting aquaculture. We have worked with the Department of Commerce to develop a policy position on fostering marine aquaculture throughout the country.

I think we actually have some successes to point to that mostly have come out of the Sea Grant-led program. In the current year, for example, moving to another part of the Department of Commerce, the ATP program at NIST, actually awarded some \$21 million for advanced development projects in aquaculture that have derived from the research activities that have been led by Sea Grant and other parts of our research activities.

So the total amount of money that is being spent on aquaculture isn't necessarily confined just to the resources that are in Sea Grant. I think we have recognized, especially in the last couple of years and following on some conversations that you and I have had in the past, in fact, the importance of aquaculture and the importance of promoting aquaculture.

One of the capabilities that Sea Grant brings to this, and that we have tried to encourage, is the development of what we call environmentally responsible aquaculture. Many of the countries that you cite, in terms of the large volume of fish produced in an aquaculture environment, have suffered very serious environmental consequences from the pursuit of their aquaculture programs.

And one of the things that we are able to do through the Sea Grant research efforts is to develop technologies, methodologies, that allow us to grow our aquaculture industry, help supply this need for seafood domestically, and do it in a way that maintains the integrity of our coastal resources.

Mr. FALEOMAVAEGA. Dr. Evans, you don't need to convince me about the importance of Sea Grant.

With the seven major areas that you have cited in your statement, I trust that you would be one of our strongest advocates within the administration for increased funding out of the \$3 billion that NOAA gets every year?

Dr. EVANS. I think that the programs that Sea Grant is engaged in are very, very important, and they are programs that I have responsibility for, so I am strong advocate for Sea Grant, funding, programs, and policies inside the administration, inside NOAA and inside the administration.

Mr. FALEOMAVAEGA. One of the issues I wanted to also discuss, you know, American Samoa is not in the Western Pacific. It is in the South Pacific.

And with due respect to Dr. Richmond and this consortium—and I am now going through this—I believe Mr. Lelei Peau was involved with the coral reefs conservation, but not particularly with the Sea Grant program. And I don't want to get into this as just a Western Pacific hearing process, but I want to get the collective as a whole what the Sea Grant program can do for our country as a whole. Given the special needs of those of us who are from the islands, we can understand that.

But more particularly to Dr. Knatz, we have over 100 universities—200 universities throughout the country—how did we end up with only 30 universities being given this special status of a Sea Grant institutional authority. Is this discretionary authority of the Secretary of Commerce or is it through your panel? What is the process for being among the 29 or 30 universities throughout the country being selected, like the University of Hawaii?

Ms. KNATZ. Well, the legislation does detail a process. And actually, the legislation tasks the review panel with the responsibility of advising the Secretary of Commerce and NOAA administration on the designation of new Sea Grant College Programs. So over a period of years, these applications have come in and a process has gone through that involves various steps and ultimately these programs were given full Sea Grant college status.

I can comment specifically on the application that came in from the University of Guam. That is a good example. An application came in to the Secretary of Commerce, and the NOAA administrator at that time asked the panel to provide advice on designation of a new Sea Grant college.

The panel set up a special Committee. It was chaired by Dr. John Toll from Maryland. I was actually the vice chair of that Committee. We had some outside members of that Committee review the application from the University of Guam, and we sent a report back to the NOAA administrator.

And that report basically said that the Sea Grant Review Panel was very supportive of a program in that area, that we saw a great need for a program out there, but we felt at that time the application was a little incomplete because it was unclear about the governance structure for the program. It came from the University of Guam, and we wanted to make sure that all of the islands were somehow brought into the governance of the program.

So we gave that advice back to the Secretary of Commerce, actually through the NOAA administration.

And so that is a function of the panel. And then the designation then occurs, I guess—

Mr. FALEOMAVAEGA. Am I to understand that the University of Hawaii was the regional institution that would have provided the needs for the colleges of the different island countries and territories?

Ms. KNATZ. Well, I know that as part, in the Hawaii program, because I have been out to visit that program, they have tried to do some things in the islands. There were some things done in the past. And I think that we recognized the fact that it is hard for Ha-

waii to service that entire area and have enough resources to do that.

They can participate in Sea Grant activities in that area as well.  
Mr. FALEOMAVAEGA. My question was, in the past, the University of Hawaii was the regional institutional of Sea Grant granting authority for the island territories; am I correct on this? In the past and still is?

Ms. KNATZ. Dr. Baird informed me that they didn't have a formal responsibility to cover that area, but they made the effort to go out and do some things.

Mr. FALEOMAVAEGA. So now the University of Guam wants to be a regional institution similar to the University to Hawaii. In other words, the 31st university within the system to be given that same equal status.

Ms. KNATZ. Right. Right, that was their application.

Mr. FALEOMAVAEGA. Okay. There is absolutely nothing wrong with that.

Ms. KNATZ. No, there is nothing wrong with that.

Mr. FALEOMAVAEGA. Okay. Now, my problem—

Mr. GILCHREST. Mr. Faleomavaega, we will come back.

Mr. FALEOMAVAEGA. All right.

Mr. GILCHREST. Mr. Pallone?

Mr. PALLONE. Thank you. I wanted to ask a question of either Mr. DeVoe or Dr. Evans, I guess.

I am very supportive of the National Sea Grant College Program Act, and I used to be part of Sea Grant at one time. I used to be an extension specialist within the New Jersey Sea Grant Program.

But I wanted to ask about allocation because in my home state of New Jersey, I am constantly getting complaints about the fact that we are not getting enough money. And they look at statistics, like 18 percent of New Jersey's land is coastal, and we rank fifth in the Nation in that respect.

And of course there is our economy. The coastal activity is very important to our economy. Fishing industries are valued at over \$2 billion. Related to that is about \$45 billion.

And coastal tourism is obviously very important.

But if you look at this chart in terms of all programs or programs in coastal states, we are almost at the bottom. If I could at California, which is \$4 million; Massachusetts, \$2.5. New Jersey is about the same size as Massachusetts, both geographically and population-wise, and we have more coastal area than Massachusetts, and we only get \$780,000.

So I am just wondering what can be done to change that. I have some ideas about maybe why it is happening.

In New Jersey we may be somewhat unique in that we have a consortium. In other words, we don't have, say, Rutgers as the Sea Grant college or Princeton as a Sea Grant college. We have a consortium that basically administers the program. And all the colleges and universities are part of that consortium. And I get the impression that maybe that's the reason why we are suffering.

In other words, a lot of the research money is going to particular Sea Grant colleges, and maybe because we have this consortium status and we don't have the research money going directly to the

state university, for example, that that is one of the reasons that we are suffering.

I think the consortium idea is a very good idea because it gets around the idea that just one university or one college gets all the money for Sea Grant research. And so it works well in New Jersey because all the colleges and universities feel very much a part of it.

The other thing is, I don't know how you allocate extension versus research. I was in the extension program, and I think extension is very good, because you are right out there in the field with the people, with the marine users. And it bothers me that it seems that extension also is sort of suffering from this.

I wasn't here earlier, but I think somebody talked about base funding, maybe there would be some minimum amount to every state for both research and extension.

But I just would if the two of you would comment on this. I don't understand why New Jersey is so low, and whether in fact it may be linked to the things that I mentioned.

Mr. DEVOE. I will begin, I guess, if that is all right.

I think this is an issue that we are all familiar with. As well as being president of the Sea Grant Association, I also am the executive director of the South Carolina Sea Grant Consortium, so I am a consortium.

We have 33 independent public universities and colleges in South Carolina. And our State Legislature decided, in order to provide equal opportunity for those institutions, to create this consortium framework to allow competition to occur among those institutions. I think it has worked quite well.

I can answer you question a little bit from my perspective in South Carolina. The South Carolina Sea Grant Program started up in 1972. For its first eight or 10 years, it was relatively level funded. In the 1970's, there was rapid growth in the program, where some programs did better than other programs.

So I think one of the things we are seeing today is, where the 30 programs lie now is a function somewhat of history, in terms of where they came from early on. And it does have a lot to do with the amount of appropriations that are available for the program as a whole over time.

I feel, from my perspective, that South Carolina is also underfunded. I think I can speak for some of my other colleagues that they feel that their programs are underfunded. We are dealing with very critical issues, and not only issue but opportunities.

And I think of this phrase that I have heard many times, a rising tide floats all boats. And I think if the opportunity is there to provide increased resources for the core Sea Grant program, then all of our programs that are all hurting, that are all having staff affected by not having the funds keeping up with demand and also inflation, I think we will all benefit from that.

Mr. PALLONE. I know the time is up, but just this concern that I have that extension gets the short shrift? And also, do you feel that by having a consortium that somehow because you are not putting these grants necessarily at a major university, that that is a factor?

Mr. DEVOE. Your latter point, I don't think so.

What is really interesting and unique about Sea Grant is that it is 30 programs and they are run according to the needs, demands, and culture of those states. I think a lot of that decision-making process occurs at that level.

But overall, I do think that, again, if you look at my extension program, I am down two people from what I had five to 6 years ago. So I don't think that the New Jersey situation is unique.

Mr. PALLONE. Dr. Evans?

Dr. EVANS. May just add one comment on that, with respect to the extension question?

Half of the money that goes to the program is required to be spent on research. But beyond that, the decision on the break between how much goes into the research programs, education programs, and extension, it is really decided by the program itself. It is not decided by the national program office.

Mr. PALLONE. Okay.

Dr. EVANS. So somehow or another, that mix is a local decision. And how that decision is made and what comes of that decision, in fact, goes into the evaluation of the programs when they are all evaluated nationally.

Mr. PALLONE. Okay. Thank you.

Thank you, Mr. Chairman.

Mr. GILCHREST. Thank you, Mr. Pallone.

Dr. Knatz, I think your recommendation for the reauthorization was \$100 million. Part of the purpose for that was to increase the number of people in the Sea Grant program, and I think you said there were too few extension agents that would help you with things like essential fish habitat, subaquatic vegetation, dredging issues, expanding ports, and so on.

Now, based on Mr. Pallone's question of the sort of distribution of where Sea Grant puts its program, its research programs and its extension programs, do you have any recommendation as to what California might do to sort of bring in more Sea Grant people to California, more than just one in the Port of Los Angeles? What can we do and what can California do?

Ms. KNATZ. I think like other programs, California, even though it is the largest funded Sea Grant program, has also suffered from the fact that their buying power is less than what it was. Their extension program is really stretched along that coastline.

So I think a good chunk of this money needs to go to the programs as core funding, so they can use it for some of the basic services that they provide, including increasing the number of extension agents.

Mr. GILCHREST. As part of a panel, have you put in to your report any specific recommendations? It is sort of like you are asking us for more money; we are asking you to ask for more money; we keep going back and forth like that.

Did you make any specific recommendations to NOAA for them to ask in this reauthorization process for more dollars specific to Sea Grant and then specific to these extension agents?

Ms. KNATZ. Well, it is part of the panel policy—I think it has been for some time—that we wanted to double the Federal appropriations for Sea Grant. And I think the NOAA administration has heard that loud and clear from the panel for a number of years.

Mr. GILCHREST. So when the panel has recommended doubling the appropriation or the authorization—

Ms. KNATZ. Right, the authorization.

Mr. GILCHREST. Has there been specific recommendations to NOAA about actual formulation of policy for using those funds earmarked specifically for Sea Grant researchers here or Sea Grant extension agents? Or would you rather leave that up to the purview of the state?

Ms. KNATZ. No, in actuality, the review panel working with the Sea Grant Association has formed a Committee that we call the allocation Committee. And that Committee was looking at some of these issues that have already been raised here—the small states with the high populations; if we got a larger part of money, how would it be divided up among the programs in order to address the issues. And that Committee's work is ongoing.

So we have not at this time given NOAA a specific recommendation for the \$100 million, "We want so much for and so much for that"—not at this time.

Mr. GILCHREST. First of all, you would like another, at least, extension agent that you could have access to in Los Angeles?

Ms. KNATZ. Yes. I think my testimony made the comment that in the whole Los Angeles metropolitan area, there is only one now, which is not that much really. But there is none in San Francisco; the bay area has no extension agent.

Mr. GILCHREST. Would you make any recommendation to us to see—can you work with NOAA or the state to increase that number? Is there anything you would suggest that we do to help increase that number?

Ms. KNATZ. Well, I think, you know, just the increase in overall budget. If you increase the core funding going to the programs, they will be able to provide for more extension agents. I would go to the California director and talk about what areas really need coverage the most and let's put the new money into putting somebody there. So I would work with him on that.

Mr. GILCHREST. Would you agree with that, Mr. DeVoe? You said you lost two Sea Grant people over the course of the last year or so. Would you like to see them come back? Can you operate fine they way you are? Would you agree with Dr. Knatz about how to get those other extension agents back?

Mr. DEVOE. I would agree with Dr. Knatz, yes. Again, the nature of the Sea Grant program is that it is this partnership between the Federal Government and the states and our stakeholders, our constituents.

Each of our programs receive a lot of input from our stakeholders, what I call real people, as I mentioned before. Those are the folks who really help us decide the kinds of things we do.

And then based on that input, we decide how to allocate the resources we get to address those programs or opportunities that our stakeholders have identified.

So I think, again, the rising tide floats all boats thing applies here, where if there were more resources available, that they could be available to the state core programs. And through the core programs' process of identifying issues and opportunities, they can al-

locate those resources among research, among extension, education, that sort of thing.

Mr. GILCHREST. I hear you saying that it might even be better from your perspective for the Sea Grant program to just have a larger, maybe up to \$100 million authorization, and hopefully you can convince the appropriators, but you would rather not see us designate a specific formula for research and agents or a specific number of extension agents, but just increase the dollars.

Mr. DEVOE. Yes, sir, I would agree with that.

And if I could mention, we are not just asking for an increased authorization for appropriations because we are good people—although that's part of it.

[Laughter.]

Mr. GILCHREST. We were assuming that.

[Laughter.]

Mr. DEVOE. But we have worked together, the panel, the national Sea Grant office, the state Sea Grant programs, and the staff, on putting together a series of thematic one-pagers, we call them. And these identify nine programmatic areas that we worked on to identify what we would do with increased authorization and hopefully increased appropriations level.

So we have a plan, and we know what we want to do.

In terms of the implementation and the details, that is what I am referring to, those things can be dealt with principally through how the state Sea Grant programs want to implement their plan.

Mr. GILCHREST. Thank you. And we will take a look at that.

Mr. DEVOE. Good.

Mr. GILCHREST. Mr. Underwood?

Mr. UNDERWOOD. Thank you, Mr. Chairman.

Just for the record, I would also like to introduce into the record a communique from the PAIRS organization, which basically is a statement about the regional collaboration on this ongoing effort to establish a Sea Grant in the Western Pacific.

Mr. GILCHREST. Without objection.

[The information referred to follows:]

**Pacific Islands Regional Sea Grant****Communiqué**

10 May 2001

A group of 20 individuals representing the six regional institutions of higher education (American Samoa Community College, the College of Micronesia - FSM, the College of the Marshall Islands, Northern Marianas College, Palau Community College, and the University of Guam), the Marine Resources Pacific Consortium (MAREPAC), the Republic of the Marshall Islands government and local chiefs, land owners and community-based organizations participated in the inaugural meeting of the Pacific Islands Regional Sea Grant Consortium Governing Board at the College of the Marshall Islands (CMI) Arrak Biodiversity Center. The welcoming remarks were made by CMI President, Alfred Capelle, who offered the hospitality of his institution and island and encouraged the participants to work together to make this worthwhile effort succeed.

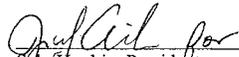
The group agreed to work cooperatively to attain a new and independent Sea Grant consortium program to address pressing needs in the area of marine resource use and protection for the benefit of the people of the islands.

Issues discussed and agreed to, included:

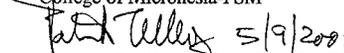
- Acceptance of the goals, objectives and governance structure presented in the developmental proposal submitted to and funded by the National Oceanic and Atmospheric Administration (NOAA).
- Agreement to name the consortium the Pacific Islands Regional Sea Grant program (PAIRS).
- Selected Mr. Patrick Tellei, President of Palau Community College, as Chair of the Regional Governing Board, with a term to be determined during future board meetings. President Tellei humbly accepted and promised to work with his counterparts to make this effort successful.
- The Board accepted a series of tasks and time lines aimed at developing and submitting a unified application for formal Sea Grant Consortium Program status, and recognizing this is a multi-year process, is requesting interim program status with appropriate funds of \$750,000 per year for the next two years for project and program development.
- The proposal preparation workshop will be held at the University of Guam Marine Laboratory in September, 2001, with input and representation from all six institutions. The proposals brought from each individual institution will be based on the input from broad-based local advisory committees.

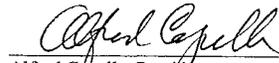
- The Board agreed to offer *ex officio* membership to the University of Hawaii, with the understanding that if the UH Sea Grant College Program Governing Board offers voting status to a member of the Pacific Islands Regional Sea Grant program chosen by the PAIRS Board, they will reciprocate.
- The participants expressed their profound gratitude to President Capelle, the faculty and staff of the College of the Marshall Islands, the local government, chiefs, community leaders, land owners and non-governmental organizations for their kind hospitality and support.
- The Board acknowledged the substantial contributions of Guam Governor Carl T.C. Gutierrez, Guam Delegate Robert Underwood, Hawaii Senator Daniel Inouye, The Dept. of the Interior/OIA, and the administrators of NOAA in supporting the development of this important regional program. Gratitude was also expressed to Mr. Lee Webber, publisher of the Pacific Daily News for sending Ms. Tanya Mendiola to cover the proceedings, to Mr. Giff Johnson of the Marshall Islands Journal and Pacific Magazine, Mr. Roger Layng of Hawaii Public Radio, the Outrigger Marshall Islands Resort, and to the University of Guam and the Guam Division of Aquatic and Wildlife Resources for technical and administrative support during the developmental process.
- The participants congratulated Waan Aelon Majel on its efforts at preserving the seafaring and traditional knowledge of the Marshall Islands, and discussed the importance of developing a regional approach to protection of traditional island knowledge, intellectual property rights and rights associated with indigenous plants and animals. The participants were also made aware of the expertise and technology available within the RMI and region to produce quality educational materials.
- The Board accepted the gracious invitation of Northern Marianas College President, Mr. Joaquin Sablan, to hold the next regional board meeting in the Commonwealth of the Northern Marianas Islands.

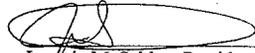
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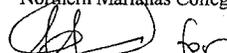
  
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John Hunkin, President  
American Samoa Community College

  
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Susan J. Moses, President  
College of Micronesia-FSM

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Patrick U. Tellei, President  
Palau Community College

  
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Alfred Capelle, President  
College of the Marshall Islands

  
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Joaquin M. Sablan, President  
Northern Marianas College

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Roy T. Tsuda, President  
University of Guam

Mr. UNDERWOOD. And also, just for clarification, sometimes we use regional terms kind of loosely, and sometimes people say South Pacific when they really mean Western Pacific.

And actually, there is only one South Pacific entity, and that is Mr. Faleomavaega. The rest of the other island entities are in the North Pacific, because we are north of the equator. And sometimes we just loosely refer to it as the Western Pacific.

Mr. FALEOMAVAEGA. Northwest.

[Laughter.]

Mr. UNDERWOOD. All right, Northwest, the great Northwest.

[Laughter.]

I want to ask a question on evaluation. I know Dr. Evans and Dr. Knatz have both referred to the issue of evaluation and that in evaluating the existing Sea Grant programs, I think 22 have been evaluated and 16 have received excellent ratings.

Dr. Knatz, is that correct?

Ms. KNATZ. I don't recall. I gave some numbers, and that 30 programs have now been evaluated by the panel and 16 of those received an excellent rating.

Mr. UNDERWOOD. Okay.

Ms. KNATZ. Out of 30.

Mr. UNDERWOOD. Sixteen out of 30.

And I assume that part of the evaluation process is the fact that they are behaving in a collaborative way with their stakeholders and that in fact working toward consortia type of arrangements and that is a central feature of these. Am I correct in assuming that?

Ms. KNATZ. Yes.

Mr. UNDERWOOD. Okay. For the ones that didn't make the excellent rating, what kind of recommendations do we have? And are some of those items related to that specific issue of collaboration with regional entities or consortia-type arrangements? Or did they have any other kind of problems that you could make general statements about which would be helpful to the Committee, in terms of drafting legislation?

Ms. KNATZ. Each of the programs that was evaluated got a separate letter with a list of specific recommendations. I can generalize about a few of them, but they were really tailored for each program.

For some of the programs, for example, we asked them to expand the number of stakeholders on their advisory Committee, because as part of the planning process for dealing with the issues in that state, we expect the programs to interact with the community, with the stakeholders, with local government. In many of our reviews, we have asked that that issue be addressed.

We have also asked that some of the programs develop more thorough strategic plans. We expect them to be looking out toward the future—what are the issues in the marine and coastal policies that they are going to have to deal with—and position themselves so they can do that kind of work.

So a number of the programs got recommendations along that line.

We always also encourage the programs to develop regional collaborations, and many of the programs have done that. And I can't

recall any specific recommendations on any of the programs I was involved with in that regard, but we split up. I haven't done all 30. I have done a smaller group of them, and we kind of share the workload among the panel members.

Mr. UNDERWOOD. Okay. Dr. Evans, do you have any recommendations regarding the results of these evaluations that would be useful to the Committee?

Dr. EVANS. I think that they have prepared a document that gives a summary of the—let me just ask Dr. Knatz.

You have just completed an evaluation of the first round of program evaluation processes. Is there a document that is available on that yet?

Ms. KNATZ. Yes, there is a document on our evaluation process that the panel is going to act on at our meeting later on today. So we do continually go back and look at the evaluation process and fine tune it and do that.

We also prepare an annual report, kind of a state of Sea Grant. And we are just getting ready to develop our annual report for this year. This goes to the Secretary of Commerce.

And that annual report will provide kind of a summary of what the evaluations were and other panel activities. But, frankly, I can't think of anything from that report that would be appropriate for legislation. Most of those things are things that the panel can revise in our own procedures ourselves.

Mr. UNDERWOOD. Well, I guess what I am trying to get at is that if in fact consortia-type arrangements are a central feature or a problem in terms of the programs undergoing evaluation, then that could be reemphasized in the authorization. And I am just trying to search out whether there are particular problems or commonalties in your evaluation that would inform the Committee so that could be addressed. Or are they so idiosyncratic or are they just poorly managed programs? I mean, there are a whole number of issues that conceivably be part of the equation.

I just want to get a sense because the consortia issue, I think Mr. DeVoe proclaimed that he was a consortia in his testimony, and that seems to be a central feature here, and I just wanted to get a sense whether there was some programmatic element or some emphasis needed to be given there.

Dr. EVANS. Let me comment on the evaluation process. The evaluation process was put in place in the last authorization for the Sea Grant program. And the process that Dr. Knatz was talking about is the way that the panel has recommended, and the national office has tried to implement that evaluation process.

I am personally anxious to see the report. I know that they have done it, and I have seen some drafts of their evaluation of how well that process worked. This is something that really was new for the Sea Grant program, to provide a kind of comprehensive national evaluation of the programs like this.

In the reports that I have seen, in the individual program evaluations that I have seen, and in the study that they have done of their own process, nothing leaps out.

Mr. UNDERWOOD. Okay.

Dr. EVANS. I haven't seen one single fact that is common to lots of programs and where we need to have sort of a national fix.

These have been individual program reviews against a standard set of criteria, and some programs are stronger in some areas and weaker in others.

And I think the panels have done a good job of trying to identify them on a program-by-program basis.

Mr. UNDERWOOD. Okay. Just a quick question, if I could, Ms. Dalton, Mr. DeVoe. Obviously, there is great support for increasing the overall amount spent for Sea Grant. Is there any support for the notion of increasing the matching share? Or do we like it the way it is now?

Ms. DALTON. Increasing the percentage? I think we would support it at the level that it is now and possibly making additional competitive grant funding without a match.

Mr. UNDERWOOD. Okay. Very good.

Mr. DEVOE. I support that statement.

Mr. UNDERWOOD. Very good. Succinct.

[Laughter.]

That's what I like.

Mr. GILCHREST. Thank you, Mr. Underwood.

Mr. Faleomavaega?

Mr. FALEOMAVAEGA. Thank you, Mr. Chairman.

I wanted to offer this suggestion to Dr. Evans. I am a generalist; I don't get into micromanaging the situation.

But this is my offered proposal for authorization: First 4 years, \$100 million; then the 3 years after that, \$200 million per year; and then the remaining 3 years, \$300 million per year.

It still comes out substantially much less than what the Land Grant institutions get per year, so I think that is a very reasonable numbering, don't you think, Dr. Evans?

[Laughter.]

Dr. EVANS. I think that the Sea Grant College Program would have no difficulty spending that kind of money if it were made available to them.

[Laughter.]

Mr. UNDERWOOD. Well, with such a tremendous amount of resources in the seven major areas that the current Sea Grant program is now weighing, with 54 percent of our Nation's population living in coastal states dealing with environmental issues, commercial issues, things that will allow the American people to make an honest living—it so wide.

And I can understand why Land Grant was such an important institution because our country was basically an agrarian, agricultural nation. And those members who represented the rural areas, in their ingenuity and genius, came out with the Land Grant system to assist those institutions, which I support very much.

But I think, now that this is the beginning of the 21st century, we have to look now at that situation very seriously, about the fact that what we do with ocean or the marine environment and the resources available where our country or our citizens could also benefit.

So I am throwing that out for a starter, to see what we can come up with. There may be recommendations also from Mr. DeVoe and Ms. Dalton and Dr. Knatz. I am just throwing this out for digestion, okay?

On the question of subjectiveness of evaluations, I am a little troubled by this. Am I to understand that there is no statutory mandates or guidelines or criteria that a university can then—let me ask you this: What does a university get once it is selected by the Secretary of the Interior to be a regional Sea Grant institution, like the University of Hawaii? Among the 30 universities, what do they get initially as Sea Grant institutions?

Dr. EVANS. There is no specific formula. They receive that designation and they can submit proposals as part of the annual process, but there is no specific formula. There is no entitlement, as it were.

Mr. FALEOMAVAEGA. I see. So among the 30 institutions, they have to compete themselves for whatever grants that are available of the \$10 million pittance that we are dealing with that they have to divide among themselves; am I correct on this?

Dr. EVANS. The funding for the individual programs is really based on, I would say, largely on the evolution of the programs, when they came into the program, their traditional amounts of funding, the amounts of the funding that they had in the previous year—they tend to be operated like many government programs, with sort of incremental funding applications. There are competitive funds that programs can request.

But the basic funding the programs is that which has been established through the tradition, when they came in. There is sort of a long history that predates me in the program by a significant amount.

One of the things that has been added in the recent time, however, as a part of the competitive process, is that their increments—that is, the amount of money that goes into the base program—is influenced by how well they do as a part of this evaluation process.

Mr. FALEOMAVAEGA. So as a contrast, the 30 university regional institutions that are part of our Sea Grant program, how does that compare to the 4-year colleges that are granted Land Grant status? We are talking about hundreds of Land Grant colleges that do participate; am I correct on this?

Dr. EVANS. I actually don't know.

Mr. FALEOMAVAEGA. I would like to ask if we could put that in the record.

Dr. EVANS. Sure thing.

Mr. FALEOMAVAEGA. This is my next question, if it is all right with the Chairman. I know my time is about ready to be up.

It is a natural why Land Grant is given over a \$1 billion, because we are talking about hundreds of universities and 4-year colleges that participate in the program.

One of the things that probably you are not aware of—this is something that single-handedly the late Congressman Phil Burton literally unilaterally by legislation—and I will never tell how he did it—two-year colleges to become Land Grant institutions, when for 100 years before that, you had to be a 4-year institution in order to qualify to become a Land Grant-status institution. Are you aware of that?

This is how the community colleges in the islands became Land Grant institutions, because of this one man, Phil Burton from California, that did this.

Now, in contrast—and I think perhaps this is one reason—we are somewhat restrictive in giving only 30 universities to be given these programs. Is it because of the small funding? Or is it perhaps, if we get more funding, we can get more universities and colleges also to participate similar to the Land Grant institutions?

Dr. EVANS. The 30 programs that we refer to really are 30 programs, but there are, I believe, over 200 colleges and universities that participate in the Sea Grant program. The 30 institutional arrangements that we have provide for local administration of those programs.

So that, for example, the proposal that we are working on now for the Pacific Islands would involve a number of institutions, but there would only be one program there that would be collectively managed among them.

And whether done as a consortium or whether done with a single lead program in a state to which other institutions can then apply, there are about 200 that are involved now.

Mr. FALEOMAVAEGA. That one program comes under the University of Hawaii; am I correct?

Dr. EVANS. There is a program at the University of Hawaii.

Mr. FALEOMAVAEGA. For the Pacific region?

I am sorry. My time is up. I will get back to you.

Dr. EVANS. Not formally. I don't think that the University of Hawaii has been designated or granted authority to be the umbrella program for the Pacific. I don't think that is the case now or it ever really has been the case.

They are a state program, and in the course of doing their work, they have done work throughout the Pacific. But that is different than having a lead program in a particular state to which other state institutions would then apply as part of a consortium.

Mr. FALEOMAVAEGA. I am sorry, Mr. Chairman. My time is up. I will come back again.

Mr. GILCHREST. That is all right, Mr. Faleomavaega.

Dr. EVANS, I understand there is going to be an oyster research summit next fall, dealing with Chesapeake Bay oysters. And I would just like to recommend that the summit either be held in Chestertown, Maryland—

[Laughter.]

Actually that is where Dr. Toll lives, the president of Washington College, which is a sort of a hook into bringing it to Chestertown, besides the fact I live 10 miles north of there.

[Laughter.]

Or it could be held in Annapolis. But just those two suggestions.

Could you, though, on that topic, give us some type of idea about what your priorities are for oyster research?

Dr. EVANS. The oyster research program, as you know, has been going on for about 10 years, and I think the program has already spent about \$17 million, I think.

I think that work has proceeded in the past on a number of problems dealing with disease, several different kinds of disease; dealing with genetic problems and trying to develop strains which are

resistant to disease and which will be productive. There has actually been some pretty significant progress made on that front in recent times, with the development of triploid oysters, dealing with better meat production, and avoiding some of the difficulties that one can encounter with genetic mixing of introduced stocks.

The purpose of the meeting, as I understand it, it is supposed to happen in the spring—

Mr. GILCHREST. This coming spring.

Dr. EVANS. The information I was provided was that this summit is supposed to occur this spring.

Mr. GILCHREST. I can make some great recommendations for—

Dr. EVANS. For spring locations as well?

Mr. GILCHREST. —certain locations, restaurants.

[Laughter.]

Dr. EVANS. Okay.

I think the program would probably welcome that kind of advice at this point.

Mr. GILCHREST. I guess what I am asking is, as research goes forward, and there has been a great deal of money spent on it, and I know there has been a growing understanding about disease and resistant oysters and so on, is the research basic, general research as you continue this process as to how an oyster can survive? Is the research oriented toward developing an oyster that can be harvested for human consumption? Or is research more oriented toward how you develop an oyster that can survive disease and be a part of the filtering action of the whole physics of the system in the Chesapeake Bay? Is there any of that being discussed?

Dr. EVANS. I think that actually all of those issues are on the table. There is work that has been done in looking at the disease, the natural occurrence of the disease, the causes of it. There is work, as I indicated, on the aquaculture side and developing resistant stocks and how they would be distributed. I think there is general ecosystem work that has taken place, recognizing the importance of oysters and filter feeders for maintaining the health of the bay overall.

All the aspects of that program have been addressed.

My understanding that the reason for having the summit, actually—

Mr. GILCHREST. And the summit is with whom? All the other parties that are involved in the process of oyster restoration?

Dr. EVANS. That is right.

Mr. GILCHREST. That would be the universities of Maryland, Virginia, Department of Natural Resources, the private sector?

Dr. EVANS. Yes. My guess, and I haven't talked in detail to the program people who are planning it, is that there will be a rather wide call for the summit. It really is to take stock after 10 years of work and pretty substantial investment of what we have learned, what are the appropriate next steps, sort of a priority-setting and regrouping at this point.

Mr. GILCHREST. I see.

Dr. EVANS. I think the scientists feel that they have made some real progress and it is time to kind of consolidate that progress and set a course for the continued work.

Mr. GILCHREST. That can all happen in Chestertown.

[Laughter.]

Just another quick question. Ms. Dalton, part of your testimony gave five important areas of Sea Grant. One of those important areas that has sort of been a theme throughout the testimony we have heard this morning is education, using a Sea Grant fellow, the Sea Grant program, to get the information to people on the ground that will make good use of it, hopefully the end-users.

As agricultural extension agents, they come from universities that have really become a part of the fiber of the whole community of agriculture and they have made significant progress with improving farming practices. That is often referred to as the seed corn of the next generation.

Emerson had a similar quote: a thousand forests from one acorn.

Would you make any suggestions or recommendations for the part of the Sea Grant program that deals with the extension agents that have been referred to here this morning that are so valuable that can not only get into the communities of the end-users—in some cases, recreational fishermen, commercial fisherman, the ports that dot our coastline—and certainly into the public schools, where Dr. Knatz made a comment that rings true here in Maryland as well: prepare the students for the test so the school gets more money and bypass the unique ingenuity of a school teacher to bring that diversity into the classroom.

What can you tell us this morning about that Sea Grant agent and what value they are and how you might improve upon it?

Ms. DALTON. I guess we would probably view the extension agents and the education program as two separate components.

One of the things that we are beginning to talk to the national Sea Grant program about, from a CORE perspective, is the National Science Foundation is trying to put together centers of excellence in elementary education, and they have a proposal out on the street. One of the things that we love to see is for other Federal agencies to go ahead and join in that effort and really be able to develop a national program.

Right now, the National Science Foundation has about \$1.5 million available that would fund a national center and then two regional centers. There is interest in the community for probably at least six or seven of those centers around the country.

And it is very possible that Sea Grant could play a key role in helping those regional centers go forward.

In terms of extension agents and working with fishermen, one of the things that we are very interested in, in my former incarnation, is developing closer cooperation between the National Marine Fisheries Service and Sea Grant in how they provide outreach and public education. Not that one of them replaces the other, but they work in a complementary fashion.

National Marine Fisheries Service badly needed to improve its outreach. And we were interested in working more closely with Sea Grant to not replace them or not compete with them but so that what you got is a better understanding the outside community of what was going on, the need for Federal regulations, and also improvement in the effectiveness of those regulations.

Mr. GILCREST. I only have 15 seconds, fellows.

NMFS will sometimes, depending on the coastal area, have an observer on a boat to collect data. Would there be any value in including the Sea Grant agent as part of that process to collect data?

Ms. DALTON. I don't think you want to drag Sea Grant into the regulatory arena.

Right now, they are honest brokers. They have an enormously valuable role to play in helping—

Mr. GILCHREST. Almost separate from the regulatory part, but just raw data, just how many fish are out there.

Ms. DALTON. They do work and go on fishing vessels and help collect the data. They also, in the situation of sea turtles in the Southeast, it was Sea Grant extension agents and researchers that developed all of the initial turtle excluder devices that actually worked.

So they already do play that role, and it is an integral part of the Sea Grant program.

Mr. GILCHREST. That's great.

Mr. Underwood, Mr. Faleomavaega, follow-up questions?

Mr. Underwood?

Mr. UNDERWOOD. Yes, thank you.

Not to beat this seahorse to death—

[Laughter.]

I know, Dr. Evans, as you were trying to characterize the Hawaii program, the program at the University of Hawaii, that it was necessarily a Pacific region program, but it was a state program that took on I guess the elements of a Pacific program. That is a fair assessment of what you said earlier, is it not?

Dr. EVANS. Yes, it is.

Mr. UNDERWOOD. Okay.

Dr. Richmond, could you just describe to the Committee what was the nature of the decision-making process, as you understood, and the level of interaction and authority or participation, including the University of Guam, of the community colleges in the Micronesian region, in terms of their participation and the decisions that were made at the Sea Grant program at the UH?

Mr. RICHMOND. Generally, we had some input but were excluded from the decision-making process.

As a matter of fact, I just had a discussion with Dr. Steven Amesbury, who is the present director of the marine lab, who proceeded me also on the rotation, and he was actually asked to step out of the room when the decision-making was going on.

In retrospect, he began to wonder if that was even legal under U.S. law because it is a Federal program.

But when I was the director of the Sea Grant program, it was very much the same thing: You can come to the meeting, you can have some input, but when the decisions were made, please leave the room.

I think this gets to the bigger issue, again, of a very sensitive development of this consortium of island institutions, to make sure that every institution gets to select what they want and set their own priorities.

And Delegate Faleomavaega is absolutely correct. In Lelei Peau's situation, he is the chair of the all-islands group. That group has really set a good precedent of recognizing equality among institu-

tions, equality among islands, that nobody is a position to tell another island what their priorities are, but rather to work as a group and that there is power in numbers.

And as Mr. DeVoe has said, high tide floats all boats. The understanding here is that the islands do better together as a region. Instead of competing with one another, we are working together.

And that has really been the way in which this has developed. From looking at one program at the University of Guam, quite frankly, I had recommended against it, saying, why would you have a Sea Grant program from one small university with a very limited group of people? But in 1999, in the Federal Register in January, there became this new regional consortium opportunity, and that is when we jumped on it.

It was to recognize that here was an opportunity for all six institutions to be equal partners. The way the governance plan has come together is each institution is represented. It was Salu Hunkin at the time, the president of American Samoa Community College, an invitation simply said, "Do you want to participate?" And the answer was yes. The same invitation went out to all the regional colleges, and it was their decision to participate.

And at the meeting we just had, all institutions were represented, and that is really the concern I have, is that I don't want another repeat of the University of Guam becoming to the other institutions what we felt this system had been to us.

So what we have tried to do is put in checks and balances where everybody is equally represented, and the strength of the region is in, as Dr. Baird had pointed out, to remove redundancy in administration. You don't want to waste a lot of money on administration when in fact you can put it into programs and projects.

And that has been the goal from the start, is recognition of each individual institution's autonomy, but to work together to save money on administrative oversight, but to make sure everybody can participate meaningfully in their own decision-making process.

Mr. UNDERWOOD. I know there has been a lot of attention given to making comparisons to the Land Grant institutions. Of course Land Grant institutions have at least 100 years history on Sea Grant institutions, so it is very difficult to try to make up that kind of time.

And of course, part of it is historically the Land Grant institutions were responding to what we always thought was the heartland of America. And now that we are all living by the coasts, now the sense of heartland has shifted somewhat.

Does anyone any kind of comments as to how we can just get the country to understand this in a more comparable framework?

You've got 15 seconds.

[Laughter.]

Dr. EVANS. I will take a quick crack at it.

I think actually Sea Grant does a pretty good job or has been doing a pretty good job at getting that message out. Part of the extension and education program that they put together in many of the programs really puts a lot of effort on raising people's awareness of the importance of the coast. A lot of the statistics that were cited at this hearing today about coastal development, coastal pop-

ulation, the importance of coastal economy, the effect of ports, I think is becoming more and more widely appreciated.

And so I think that it is not so much a matter of battle; I think it is a matter of education. And I think that our collective awareness is really growing toward the importance of the coasts.

You see coastal programs growing in a variety of ways inside NOAA, Sea Grant among them. But I think the emphasis has begun to—I think the recognition is coming.

Mr. UNDERWOOD. Well, then if that is really the venue, if education is really the venue for this, then certainly I think the attention given to extension agents and the outreach given at that level is very critical.

Dr. EVANS. I agree.

Mr. UNDERWOOD. Thank you.

Mr. GILCHREST. Thank you, Mr. Underwood.

Mr. Faleomavaega, follow-up questions?

Mr. FALEOMAVAEGA. Thank you, Mr. Chairman.

I am still fuzzy on my previous question in understanding exactly the process and the procedure and how a university becomes a Sea Grant institution.

Mr. GILCHREST. We could go to lunch and clear that up, probably.

[Laughter.]

Mr. FALEOMAVAEGA. We could go to Chestertown and do that, Mr. Chairman.

[Laughter.]

Mr. FALEOMAVAEGA. I would like to offer this as another possible area for legislation that is now pending as part of our authorization legislation to define it better. Because I am wondering that maybe the process becomes somewhat subjective.

If I were the president of the University of Guam, I would be the first person to say that as an institution in the middle of the Pacific, with all the marine resources and potential for doing fantastic things dealing with the oceans, I would think that as an institution, the Department of Commerce or the Secretary of Commerce should look at favorably an institution that automatically is right there for possible resources and study and doing whatever is necessary to bring that institution into the fold.

I am still bothered by the fact, why only 30 institutions?

And the criteria seems almost impossible, in my hearing. When the University of Guam submitted its application, it still did not meet that criteria. And I want to know, what is the criteria? And if the criteria is such that it is above and beyond anybody's ability to meet that requirement, then maybe we ought to do it legislatively.

Can you comment on that, Dr. Evans?

Dr. EVANS. In the Federal Register notice that Dr. Richmond referred to, I think there were—I can't remember the number—but I think there were five very specific criteria that were identified for consortia to acquire Sea Grant status. And the proposals, to be responsive, have to address each of those issues, and there were very specific ways of evaluating those issues.

I honestly don't know them off the top of my head, but I would be happy to make that information available to you for your consideration as to whether they are appropriate or not.

Mr. FALEOMAVAEGA. Submit them for the record, please.

Dr. EVANS. We will be happy to submit that for the record, so that it is part of these proceedings.

But there are very specific criteria that need to be met by any group that wants to become part of the Sea Grant program.

And those were the criteria that were used by the panel in their evaluations, and they refer to them very specifically in their letter back to the Secretary, in terms of evaluating that Guam proposal in particular.

Mr. FALEOMAVAEGA. And I want to say to Dr. Richmond, I know the gentleman from Hawaii is not here, and I am not trying to defend the University of Hawaii, whatever administrative problems and experiences that you may have had with them, especially also the administrators of other colleges, but with all due respect, I do not want America Samoa to be part of the consortium for the simple reason of the proximity and the distance.

The University of Hawaii has worked very closely with our institution for a good number of years, and I intend to make that known to Mr. Peau. And the current president, the new president that we now have at the college, is just recently working Mr. Peau on a proposed grant for the Sea Grant program.

But I just Dr. Richmond to know that I don't know who signed this consortium here. It is not Dr. Salu Hunkin's signature. It is some person; I don't know who it is that signed off on this.

But I definitely am going to make that known to the current president.

But I want to say that another aspect of the Sea Grant program, Dr. Evans, I am going to be delivering a paper at the end of this month at an ornamental industries conference in Florida.

Mr. Chairman, this is a \$6 billion industry—\$6 billion industry—where, here again, Sea Grant could be a very, very valuable resource, not only for study, for research. We have clams that sell right now for about \$60 to \$90 a pop, simply because of its beauty. It is blue, and you cannot find it in Hawaii, but it is in Samoa.

And there are many other resources. The ornamental industry is such a tremendous potential for those of us who come from the islands.

And I suspect it is probably true even maybe for Maryland. Let's go Chestertown.

[Laughter.]

Maybe we might do an ornamental farm there for something.

But I just wanted to share with you that I think there is such a tremendous potential.

Just as it is the reality of the current Sea Grant program, I will submit humbly, Mr. Chairman, I am not satisfied, not only with the funding, but with the tremendous amount of areas that the Sea Grant provides for, I think we are doing a tremendous injustice not only to the American people but even to the young people of America to see that this program ought to be sitting right along our friend's from the Land Grant institution, to see where we can carry this.

So with that, Mr. Chairman, I want to thank the members of the panel. And thank you for your leadership in calling this hearing. I look forward to working with you and our distinguished ranking member to see if we can get a better authorization bill.

And I am sure Dr. Evans will just be happy to support, especially the funding aspects of it.

[Laughter.]

Thank you, Mr. Chairman.

Mr. GILCHREST. Thank you, Mr. Faleomavaega.

I am not sure if some of those clams consider themselves ornamental.

[Laughter.]

Mr. FALEOMAVAEGA. Well, we also eat them, Mr. Chairman.

Mr. GILCHREST. As long as there are enough left in the deep blue sea.

[Laughter.]

I think there were some sparks here today of insight and ingenuity that we will take advantage of and work with you as we continue the process. I think just about everybody here said "a rising tide floats all boats." And I will just add one other analogy to Dr. Knatz, I am sure you consider dredging will help float more boats.

[Laughter.]

That has been an issue back here in Maryland and I hope we find some common ground.

Thank you all very much for traveling, especially you, Dr. Richmond. And I hope you enjoy your stay here on the East Coast for the time that you are here.

And we will continue to stay in touch with you as we go through the process.

Thank you all very much.

The hearing is adjourned.

[Whereupon, at 12:42 p.m., the Subcommittee was adjourned.]

