CALIFORNIA BAY-DELTA FEDERAL BUDGET CROSSCUT

The California Bay-Delta program is a cooperative effort among the Federal Government, the State of California, local governments, and water users, to proactively address the water management and aquatic ecosystem needs of California's Central Valley. This valley, one of the most productive agricultural regions in the world, is drained by the Sacramento River in the north and the San Joaquin River in the south. The two rivers meet southwest of Sacramento, forming the Sacramento-San Joaquin Delta, and drain west into San Francisco Bay. The Bay-Delta is the hub of the Nation's largest water delivery system, providing drinking water to 25 million Californians. According to the State of California, it supports about $400 billion of annual economic activity, including a $28 billion agricultural industry and a robust and diverse recreational industry. The extensive development of the area's water resources has boosted agricultural production, but has also adversely affected the region's ecosystems. Bay-Delta program participants recognized the need to provide a high-quality, reliable and sustainable water supply for California, while at the same time restoring and maintaining the ecological integrity of the area and mitigating flood risks.

This recognition resulted in the 1994 Bay-Delta Accord, which laid the foundation for the CALFED Bay-Delta Authorization Act of 2004 (P.L. 108-361). The CALFED Act enacted a record of decision issued August 28, 2000, that directed federal agencies to coordinate activities with California state agencies. The program has since adapted and evolved into a broader Bay-Delta program that includes the Bay-Delta Conservation Plan, the Delta Science Program, and the Delta Plan, released in May of 2013. The Delta Plan was developed pursuant to California's Delta Reform Act, which called for the development of a plan to identify restoration efforts and goals in the San Francisco Bay Delta Watershed region. The implementation of the Delta Plan has been conducted by the Delta Plan Inter-agency Implementation Committee (DPIIC), which was created in 2013, and includes participation and leadership from federal agencies at the regional and Washington, DC headquarters levels and is primarily responsible for coordinating federal activities in the Delta.

Federal agencies contributing to the broader Bay-Delta program include: the Department of the Interior's Bureau of Reclamation, U.S. Fish and Wildlife Service, and U.S. Geological Survey; the Department of Agriculture's Natural Resources Conservation Service; the Department of Defense's Army Corps of Engineers; the Department of Commerce's National Oceanic and Atmospheric Administration; and the Environmental Protection Agency. This crosscut includes an estimate of Federal funding by each of the participating agencies, fulfilling the reporting requirements of P.L. 108-361.

Bay-Delta Federal Funding Budget Crosscut

(in millions of dollars)	--- Actuals ---																						Pres. Bud.
Agency / / Fiscal Year	**98**	**99**	**00**	**01**	**02**	**03**	**04**	**05**	**06**	**07**	**08**	**09**[1]	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
Bureau of Reclamation	153	115	139	80	103	74	76	81	100	101	66	157	95	186	175	121	157	138	128	128	125	129	116
Corps of Engineers	101	103	94	54	58	58	73	52	91	87	51	141	73	98	45	54	86	50	148	187	185	309	115
USDA NRCS	0	15	13	17	39	38	49	36	35	27	41	44	40	56	56	45	52	53	46	34	81	48	48
NOAA Fisheries (NMFS)	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2
Geological Survey	3	3	4	5	5	5	5	5	5	4	4	4	3	6	8	7	6	9	8	11	8	8	7
Fish and Wildlife Service	1	1	4	18	6	11	14	9	11	8	22	24	7	5	5	5	5	5	6	6	6	6	6
Environmental Protection Agency[2]	3	3	57	53	54	21	63	98	37	36	68	161	124	78	86	80	83	83	80	79	79	62	64
Totals:	**262**	**240**	**311**	**228**	**266**	**208**	**279**	**283**	**279**	**264**	**253**	**532**	**341**	**430**	**376**	**312**	**391**	**339**	**417**	**446**	**485**	**564**	**357**

[1]The FY 2009 total includes American Recovery and Reinvestment Act projects and activities.

CALIFORNIA BAY DELTA FEDERAL CROSS-CUT

Fiscal Year 2020

Agency Activities, Projects, and Programs contributing to the Environmental Restoration of California's Bay Delta

Disclaimer:

The numbers and descriptions included in this report are based on the best estimates available at the time of the preparation of this report, do not necessarily reflect final FY2019 Enacted or FY2020 Budget numbers, and are subject to change.

BAY DELTA AGENCY SUMMARY TABLE

FEDERAL BAY-DELTA FUNDING SUMMARY
California Bay-Delta Related Funding
(in millions of dollars)

	--- Enacted ---								Pres Bud
	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020
Total, All Agencies	**376.04**	**312.46**	**390.92**	**338.72**	**416.78**	**446.39**	**485.49**	**563.60**	**356.74**
Renewed Federal Partnership	3.07	2.86	2.77	2.85	9.73	14.60	22.94	12.05	10.15
Smarter Water Supply and Use	90.60	73.63	69.54	86.17	81.16	69.94	112.24	80.05	76.38
Habitat Restoration	242.18	197.55	226.22	203.87	201.96	188.37	203.71	185.85	163.86
Drought Floodplain and Management	40.19	38.42	92.39	45.83	123.94	173.48	146.59	285.66	106.35
Bureau of Reclamation	**175.16**	**120.92**	**157.38**	**137.68**	**128.24**	**128.02**	**125.02**	**128.65**	**115.57**
Renewed Federal Partnership	*2.00*	*1.80*	*1.70*	*1.70*	*1.70*	*2.20*	*2.19*	*1.70*	*1.70*
Smarter Water Supply and Use	*17.69*	*11.05*	*14.85*	*7.95*	*7.20*	*5.81*	*5.27*	*3.85*	*2.25*
Habitat Restoration	*155.47*	*108.08*	*140.83*	*128.03*	*119.34*	*120.01*	*117.56*	*123.10*	*111.62*
Drought Floodplain and Management	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
Corps of Engineers	**44.53**	**53.80**	**86.07**	**49.96**	**147.70**	**186.89**	**184.84**	**308.90**	**115.02**
Renewed Federal Partnership	*0.10*	*0.10*	*0.10*	*0.10*	*6.83*	*11.19*	*19.58*	*9.17*	*7.29*
Smarter Water Supply and Use	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
Habitat Restoration	*4.38*	*15.42*	*23.72*	*4.18*	*17.08*	*2.36*	*18.81*	*14.22*	*1.52*
Drought Floodplain and Management	*40.05*	*38.28*	*62.25*	*45.69*	*123.80*	*173.34*	*146.45*	*285.51*	*106.21*
USDA - NRCS	**56.08**	**44.91**	**52.16**	**52.97**	**46.01**	**33.79**	**80.58**	**48.00**	**48.00**
Renewed Federal Partnership	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
Smarter Water Supply and Use	*35.59*	*27.50*	*17.67*	*41.10*	*38.64*	*29.11*	*72.01*	*41.00*	*41.00*
Habitat Restoration	*20.48*	*17.41*	*4.48*	*11.88*	*7.37*	*4.68*	*8.57*	*7.00*	*7.00*
Drought Floodplain and Management	*0.00*	*0.00*	*30.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
NOAA Fisheries	**1.39**	**1.30**	**1.39**	**1.52**	**1.64**	**1.57**	**1.51**	**1.52**	**1.56**
Renewed Federal Partnership	*0.18*	*0.17*	*0.18*	*0.26*	*0.41*	*0.42*	*0.38*	*0.37*	*0.38*
Smarter Water Supply and Use	*1.00*	*0.94*	*1.00*	*1.18*	*1.11*	*1.03*	*0.98*	*0.99*	*1.02*
Habitat Restoration	*0.21*	*0.20*	*0.21*	*0.07*	*0.13*	*0.13*	*0.15*	*0.15*	*0.16*
Drought Floodplain and Management	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
Geological Survey	**8.14**	**6.88**	**6.04**	**8.63**	**7.57**	**11.06**	**8.18**	**8.18**	**6.96**
Renewed Federal Partnership	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
Smarter Water Supply and Use	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
Habitat Restoration	*8.14*	*6.88*	*6.04*	*8.63*	*7.57*	*11.06*	*8.18*	*8.18*	*6.96*
Drought Floodplain and Management	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
Fish & Wildlife Service	**4.86**	**4.86**	**4.86**	**4.86**	**5.96**	**5.96**	**5.94**	**5.97**	**5.71**
Renewed Federal Partnership	*0.79*	*0.79*	*0.79*	*0.79*	*0.79*	*0.79*	*0.79*	*0.80*	*0.78*
Smarter Water Supply and Use	*0.99*	*0.99*	*0.99*	*0.99*	*0.99*	*0.99*	*0.98*	*0.99*	*0.96*
Habitat Restoration	*2.94*	*2.94*	*2.94*	*2.94*	*4.04*	*4.04*	*4.02*	*4.04*	*3.83*
Drought Floodplain and Management	*0.14*	*0.14*	*0.14*	*0.14*	*0.14*	*0.14*	*0.14*	*0.14*	*0.14*
EPA	**85.90**	**79.79**	**83.01**	**83.10**	**79.65**	**79.10**	**79.43**	**62.39**	**63.93**
Renewed Federal Partnership	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
Smarter Water Supply and Use	*35.34*	*33.15*	*35.03*	*34.95*	*33.23*	*33.00*	*33.00*	*33.22*	*31.15*
Habitat Restoration	*50.56*	*46.63*	*47.99*	*48.15*	*46.43*	*46.10*	*46.43*	*29.17*	*32.77*
Drought Floodplain and Management	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*

FISCAL YEAR 2020

U.S. FISH AND WILDLIFE SERVICE

Renewed Federal State Partnership

Authority: Anadromous Fish Conservation Act, (P.L. 89-304), Endangered Species Act of 1973, as amended, (16 U.S.C. 1531-1544), Fish and Wildlife Act of 1956, as amended, (16 U.S.C. 742(a)-754), Fish and Wildlife Conservation Act, as amended, (16 U.S.C. 2901-2911), Fish and Wildlife Coordination Act, as amended, (16 U.S.C. 661-666(e)), and the Partners for Fish and Wildlife Act, (16 U.S.C. 3771 et. seq.).

FY 2020 Budget Request: $781,000

Project Description: The U.S. Fish and Wildlife Service (Service) is working to build and maintain Federal and State partnerships that are invested in restoring the California Bay-Delta. With support from our partners, the Service will identify water flow and habitat restoration actions to recover endangered and sensitive species and their habitats as well as address long-term critical water issues facing California.

Proposed Actions for 2020:

- Following the publication of the Supplemental Draft Environmental Impact Statement (SDEIS) on the BDCP and close of a formal public comment period, the Service will continue providing assistance to the State of California to facilitate the completion of a final BDCP as soon as feasible.
- Associated with the IFAP, the Service will work to align and function with new California State legislation focused on efforts to restore the Bay-Delta Estuary and better meet the State's water needs.
- The Service will continue to work with State and local interests to plan and implement activities under the IFAP.

Smarter Water Supply & Use

Authority: Endangered Species Act of 1973, as amended, (16 U.S.C. 1531-1544), Fish and Wildlife Act of 1956, as amended, (16 U.S.C. 742(a)-754), Fish and Wildlife Conservation Act, as amended, (16 U.S.C. 2901-2911), and the Fish and Wildlife Coordination Act, as amended, (16 U.S.C. 661-666(e)).

FY 2020 Budget Request: $957,000

Project Description: The Service will continue to collaborate with other Federal, State and local agencies to promote opportunities to maximize water supply for California. The Service will provide the technical expertise and environmental reviews to improve water conservation and management.

Proposed Actions for 2019:

- The Service will participate in consideration and implementation of smart water supplies and its uses during BDCP planning and implementation efforts.
- Associated with the IFAP, Federal agencies will align their water conservation programs and focus efforts to help reduce demand in targeted regions. One of the most important features of the recently-enacted State legislation is the adoption of State-wide conservation strategies as a part of a comprehensive water supply plan for California's future. The Service will facilitate IFAP implementation by providing technical assistance and environmental review.

Habitat Restoration

Authority: Anadromous Fish Conservation Act, (P.L. 89-304), Endangered Species Act of 1973, as amended, (16 U.S.C. 1531-1544), Fish and Wildlife Act of 1956, as amended, (16 U.S.C. 742(a)-754), Fish and Wildlife Conservation Act, as amended, (16 U.S.C. 2901-2911), Fish and Wildlife Coordination Act, as amended, (16 U.S.C. 661-666(e)), Migratory Bird Conservation Act, (16 U.S.C. 715-715d), National Wildlife Refuge System Administration Act of 1966, as amended, (16 U.S.C. 668dd et. Seq.), The National Wildlife Refuge System Improvement Act of 1997, (P.L. 105-57), and the Partners for Fish and Wildlife Act, (16 U.S.C. 3771 et. seq.).

FY 2020 Budget Request: $3,831,000

Project Description: The Service is leading habitat restoration activities within the Bay-Delta Estuary. This includes working with other Federal, State, and local agencies to plan and implement numerous programs, including the CALFED Ecosystem Restoration Program, the Central Valley Joint Venture, the Cooperative Endangered Species Conservation Fund, Endangered Species Recovery Program, Partners for Fish and Wildlife Program, Land Acquisition Program, the North American Wetlands Conservation Fund, and the Interagency Ecological Program. This overall effort so far has resulted in thousands of acres of restored and conserved habitats, providing benefits to numerous fish and wildlife species and the American public.

Proposed Actions for 2020:

- The Service will continue to assist implementing Ecosystem Restoration Program restoration grants and to work to approve additional projects as funding and authorization allow.
- The Service will reinforce cross-agency collaboration in its Bay-Delta Non-Native Invasive Species (NIS) program. The program will focus on preventing the introduction of new invasives (ex., quagga mussels), limiting or eradicating existing invasives (ex., *Egeria densa*), and reducing adverse impacts from infestations.
- The Service's work on the BDCP will assist that effort to identify and implement a set of water flow and habitat restoration actions to contribute to recovery of endangered and sensitive species and their habitats in the Bay-Delta Estuary.
- The Service will continue to lead the Federal, State, and City partnership, to support development of a facility designed to support the propagation and restoration of Delta native fish species.

- The Service will participate in short-term habitat restoration efforts such as restoration of flows on the San Joaquin River from Friant Dam to the confluence of the Merced River, and in efforts to restore self-sustaining habitat in Battle Creek, Cache Slough, and the Yolo Bypass Floodplain.
- The Service estimates it will restore, enhance, and protect thousands of acres of Delta and Delta watershed wetland and waterfowl-friendly agricultural habitats and will secure full water supplies for Central Valley State and Federal refuges.
- The Service, working with numerous landowners, estimates it will restore thousands of acres of Delta and Delta watershed wetland, riparian, and instream habitat for numerous fish and wildlife species and will provide extensive technical assistance.

Drought & Floodplain Management

Authority: Endangered Species Act of 1973, as amended, (16 U.S.C. 1531-1544), Fish and Wildlife Act of 1956, as amended, (16 U.S.C. 742(a)-754), Fish and Wildlife Conservation Act, as amended, (16 U.S.C. 2901-2911), and the Fish and Wildlife Coordination Act, as amended, (16 U.S.C. 661-666(e)).

FY 2020 Budget Request: $137,000

Project Description: The Service is participating with other Federal and State agencies to provide drought protection and floodplain management in California's Central Valley and Bay-Delta Estuary region.

Proposed Actions for 2020:
- The Service will continue to participate in planning and rapid response for permitting actions associated with drought protection in the State of California.
- The Service will participate with California's flood management effort, including participation in the Department of Water Resource's Delta Levees Flood Protection Program, FloodSAFE California Program and Central Valley Flood Protection Plan; and will continue to participate with the U.S. Army Corps of Engineers in its efforts to provide flood protection in the Delta and Delta watershed area.

FISCAL YEAR 2020

USDA NATURAL RESOURCES CONSERVATION SERVICE

Smarter Water Supply & Use

Authority: Environmental Quality Incentive Program, 16 U.S.C. 3839aa et seq.; Regional Conservation Partnership Program, 16 U.S.C. 3871 et seq.; the Soil Conservation and Domestic Allotment Act of 1935 and the Soil and Water Resources Conservation Act of 1977, Conservation Operations.

FY 2020 Budget Request (000's): Technical assistance funding is included in the base budget for Private Lands Conservation Operations.

Project Description: NRCS provides technical assistance for on-farm water conservation and water quality planning with owner/operators, assists non-industrial private forestland owners to reduce sediment for cleaner water supply, and assists tribal landowners and Tribes with water supply related conservation planning through its Conservation Operations authority, and provides technical assistance to agricultural producers and non-industrial private landowners (including Tribes) to assist with water conservation and other natural resource concerns through the Farm Bill authorities.

Current Status: NRCS provides Federal leadership for on-farm water conservation activities. The agency also provides technical and financial assistance to agricultural producers to assist with water conservation and other IFAP natural resource concerns. NRCS works closely with other Federal, State, local, and environmental constituents on water conservation issues through the State Technical Committee. NRCS is partnering with the Bureau of Reclamation on IFAP water conservation opportunities.

Water Conservation and Water Quality Projects

Authority: Environmental Quality Incentives Program (EQIP), 16 U.S.C. 3839aa et seq.; Regional Conservation Partnership Program, 16 U.S.C. 3871 et seq.

FY 2020 Budget Request (000's): Financial assistance funding for this activity is available through the Agriculture Improvement Act of 2018 (Pub. L. 115-334). Estimated FY 2020 financial assistance is $41 million.

Project Description: EQIP has on-farm water conservation as an eligible financial assistance project. Signups are held at local service centers located in the Bay Delta geographic area. Approved projects optimize environmental benefits while addressing natural resource concerns and are awarded based on local ranking criteria consistent with the performance goals of NRCS EQIP and complementing the Water Supply category of IFAP. NRCS continues partnering with the Bureau of Reclamation on IFAP water conservation opportunities.

Habitat Restoration

Authority: Agricultural Conservation Easement Program, 16 U.S.C. 3865 et seq.; Environmental Quality Incentive Program, 16 U.S.C. 3839aa et seq.; Regional Conservation Partnership Program, 16 U.S.C. 3871 et seq.; the Soil Conservation and Domestic Allotment Act of 1935 and the Soil and Water Resources Conservation Act of 1977, Conservation Operations.

FY 2020 Budget Request (000's): Technical assistance funding is included in the base budget for Private Lands Conservation Operations.

Project Description: NRCS provides technical assistance for natural resource concerns with emphasis on conservation planning for on-farm owner/operators, non-industrial private forestland owners, and Tribes through its Conservation Operations authority, and provides technical assistance to producers to assist with their natural resource concerns through the Farm Bill.

Current Status: NRCS continues to provide Federal leadership for on-farm natural resources conservation activities and other natural resource concerns.

Habitat Restoration Projects

Authority: Agricultural Conservation Easement Program, 16 U.S.C. 3865et seq.; Environmental Quality Incentive Program, 16 U.S.C. 3839aa et seq.; Regional Conservation Partnership Program, 16 U.S.C. 3871 et seq.; the Soil Conservation and Domestic Allotment Act of 1935 and the Soil and Water Resources Conservation Act of 1977, Conservation Operations.

FY 2020 Budget Request (000's): Financial assistance funding for this activity is available through the Agriculture Improvement Act of 2018 (Pub. L. 115-334). Estimated FY 2020 financial assistance is $7 million.

Project Description: Continue to support existing Agricultural Conservation Easement Program (ACEP) projects that complement the objectives contained in the IFAP Habitat Restoration Program and the objectives of ACEP.

Continue to support existing EQIP projects that complement the objectives contained in the IFAP Habitat Restoration Program for riparian and aquatic ecosystem restoration while focusing on-farms. There are no specific funding targets for the Bay Delta region; however, funding is expected to continue near current levels within funding limitations.

Current Status: The California NRCS State office has expanded its field-based wetlands teams and expects ACEP-WRE applications to expand proportionately within the state, and also expects producer interest in habitat restoration to continue under EQIP.

Drought & Floodplain Management

Authority: Emergency Watershed Protection Program- Floodplain Easement Program (EWPP-FPE) is authorized by 16 U.S.C. 2203. Environmental Quality Incentive Program, 16 U.S.C. 3839aa et seq.; Public Law 74-46, the Soil Conservation and Domestic Allotment Act of 1935 and the Soil and Water Resources Conservation Act of 1977, Conservation Operations.

FY 2020 Budget Request (000's): Specific project funding through EWPP or EQIP is requested per event.

Project Description: Implement projects using the Floodplain Easement Program (FPE) funding as provided through the Emergency Watershed Protection Program (EWPP). EWPP provides for the purchase of floodplain easements as an emergency measure. Floodplain easements restore, protect, maintain, and enhance the functions of the floodplain; conserve natural values including fish and wildlife habitat, water quality, flood water retention, ground water recharge, and open space; reduce long-term Federal disaster assistance; and safeguard lives and property from floods, drought, and the products of erosion. FPE complements the objectives contained in the IFAP.

Current Status: When emergency conditions indicate a need for emergency assistance, requests are made for funding consideration. EQIP eligible conservation practices include water use efficiency on irrigated lands, providing conservation cover on highly erodible lands subject to severe windblown erosion if they are not irrigated, and assisting grazing lands with water supply for livestock. NRCS will request additional needed funding for emergencies as the magnitude and scale of a given emergency is defined.

FISCAL YEAR 2020

BUREAU OF RECLAMATION (RECLAMATION)

Renewed Federal State Partnership

Authority: P.L. 108-361, Title I, Section 103 (f)(4)

FY 2020 Budget Request: $1,700,000

Project Description: Activities include Program support; program-wide tracking of schedules, finances, and performance; agency oversight and coordination of Program activities to ensure program balance and integration; development of agency crosscut budget; coordination of public outreach and involvement, including tribal, environmental justice, and public advisory activities; and Reclamation's administration of the storage, conveyance, water use efficiency, ecosystem restoration, science, and water transfer programs.

Smarter Water Supply & Use

Authority: P.L. 97-293 Section 210, P.L. 102-575, Section 3405 (e), P.L. 111-11

FY 2020 Budget Request: $2,250,000

Project Description: The Mid-Pacific Regional Office's Water Conservation Team (Team) administers the Central Valley Project (CVP) Water Conservation Program (Program) activities with assistance from the Area Offices. The Team performs duties required under the Central Valley Project Improvement Act of 1992 (CVPIA) (P.L. 102-575) and the Reclamation Reform Act of 1982 (RRA) (P.L. 97-293), which include the development and administration of various Criteria – the Standard Criteria for Evaluating Water Management Plans, the Regional Criteria for the Sacramento Valley, and the Criteria for Developing Refuge Water Management Plans. Section 3405 (e) of the CVPIA, P.L. 102-575, directs the Secretary of the Interior to establish and administer an office of Central Valley water conservation best management practices that shall ". . . develop criteria for evaluating the adequacy of all water conservation plans developed by project contractors, including those plans required by Section 210 of the RRA, P.L. 97-293."

Each year, the Funding Opportunity Announcements (FOA) enable Reclamation to encourage and match local funding of water conservation projects that implement Best Management Practices and the objectives of the CALFED Water Use Efficiency Program. Funded projects contribute to ecosystem restoration and increase both water supply reliability and water quality.

Proposed Actions for FY 2020: A majority of the funding will fund and administer water conservation and efficiency projects through the competitive water use efficiency FOA. The FOA funds projects that support local efforts to conserve water through more efficient delivery systems and better water management. The remaining funds will support the Team's outreach to water users and the public.

Habitat Restoration

Authority: P.L. 99-546, 100 Stat. 3052, October 27, 1986, Title XXXIV, P.L. 102-575, Section 3406, P.L. 85-624, Fish and Wildlife Coordination Act; P.L. 92-149, San Joaquin River Restoration Settlement Act, Title X, P.L. 111-11, P.L. 57-161, Reclamation Act of 1902, P.L. 75-392, Rivers and Harbor Act of 1937, P.L. 86-488, San Luis Unit, Central Valley Project, Title XXXIV, P.L. 102-575, Section 3408 (h), P.L. 108-361, Section 103(d)(2)(D), Title XI P.L. 104-333, November 12, 1996

FY 2020 Budget Request: $111,621,000

Project Description: Habitat Restoration efforts include: Suisun Marsh Protection, Anadromous Fish Restoration Program, Habitat Restoration Program (Other CVP Impacts), Anadromous Fish Screen Program, Water Acquisition Program (WAP), Dedicated Project Yield, Clear Creek Restoration, Spawning Gravel/Riparian Habitat, California WaterFix (formerly Bay Delta Conservation Plan (BDCP)), Red Bluff Fish Passage Monitoring and Evaluation, San Joaquin River Restoration Program (SJRRP)/San Joaquin River Basin Management, Comprehensive Assessment and Monitoring Program (CAMP), Tracy (Jones) Pumping Plant Mitigation Program, Yolo Bypass Salmonid Habitat Restoration and Fish Passage, Interagency Ecological Program (IEP), CALFED Science Activities Pelagic Organism Decline (POD), Collaborative Science and Adaptive Management Studies, Drainage Management Program, Land Retirement, San Joaquin River Salinity Management, Program to Meet Standards (PTMS), and Battle Creek Salmon and Steelhead Restoration Project.

Bureau of Reclamation's Bay-Delta Totals
(in thousands of dollars)

Functional Areas/Programs and Projects		FY 2020 President's Budget
Renewed Federal State Partnership		**1,700**
CA Bay-Delta Restoration	Program Management, Oversight, and Coordination	1,700
Smarter Water Supply & Use		**2,250**
CA Bay-Delta Restoration	Water Conservation Projects	2,250
Habitat Restoration		**111,621**
CVP, Delta Division	Interagency Ecological Program, Tracy (Jones) Pumping Plant Mitigation Program, Suisun Marsh Preservation	3,528
CVP, Friant Division	San Joaquin Restoration Program	28,264
CVP, Sacramento River Division	Red Bluff Diversion Dam Fish Passage, Yolo Bypass Implementation	688
CVP, Shasta Division	Clear Creek Restoration	80
CVP, W. San Joaquin Division	Drainage Management Program, Land Retirement	1,862
CVP Restoration Fund	Spawning Gravel/Riparion Habitat, Comp Assess & Monitoring Program, Anadromous Fish Screen Program, Anadromous Fish Restoration Program, Habitat Restoration Program (Other CVP Impacts), Dedicated Project Yield, Water Acquisition / Conveyance, Clear Creek Restoration, San Joaquin Restoration Program	48,149
CA Bay-Delta Restoration	CA WaterFix (Formerly Bay-Delta Conservation Plan), Yolo Bypass Implementation, Interagency Ecological Program, CALFED Science Activities (POD), Federal Science Task Force Studies, San Joaquin River Salinity Management, Program to Meet Standards (PTMS), Battle Creek Salmon and Steelhead Restoration Project	29,050
Reclamation Bay-Delta Total		**115,571**

For additional detail, please reference Reclamation's FY 2020 Congressional Justification documents, available at https://www.usbr.gov/budget.

FISCAL YEAR 2020

ARMY CORPS OF ENGINEERS

Renewed Federal State Partnership

Sacramento River (30 Foot) Project, CA

Authority: Rivers and Harbors Act of 1946

FY 2020 Budget Request (000's): *$2,030*

Project Description: The Sacramento Deep Water Ship Channel (DWSC) extends approximately 43 miles from the western region of the central valley near Collinsville to the port located in West Sacramento and has an authorized depth of 30 feet. The project is located in the counties of Sacramento, Yolo, and Solano. The channel directly supports a Coast Guard station for the California Bay Delta.

Current Status: The total FY 2020 budget request is $2,030,000 and will be used for maintenance dredging and the associated surveys, plans and specifications, and environmental coordination and compliance.

San Joaquin River, Port of Stockton, CA

Authority: Rivers and Harbors Act 1876, 1927 & 1950

FY 2020 Budget Request (000's): $4,530

Project Description: The Stockton Deep Water Ship Channel extends 41 miles from the Port of Stockton to Antioch, CA and has an authorized depth of 35 feet. The project is located in the counties of Contra Costa, Sacramento and San Joaquin.

Current Status: The total FY 2020 budget request is $4,530,000 and will be used for maintenance dredging and the associated surveys, plans and specifications, and environmental coordination and compliance

Sacramento River and Tributaries (Debris Control), CA

Authority: Rivers and Harbors Act of 1935

FY 2020 Budget Request (000's): *$1,621*

Project Description: Englebright and North Fork Dams are both thin wall concrete arch dams constructed by the California Debris Commission to contain mining debris. Englebright Dam is

about 20 miles east of Marysville on the Yuba River. North Fork Dam is on the North Fork of the American River about 5 miles northeast of Auburn. The projects are located in the counties of Yuba and Placer. The dams prevent mining debris from contaminating and clogging the California Bay Delta.

Current Status: The total FY 2020 budget request of $1,621,000 for navigation, recreation and environmental stewardship activities. Only $712,000 for navigation activities is directly related to the Bay Delta. The navigation funding provides for operation of Englebright Dam, maintenance of all appurtenant structures including monitoring and analysis of instrumentation and data collection, and mandated environmental compliance with the Yuba River biological opinion including federal, state and local coordination.

Habitat Restoration

Yuba River, CA

***Authority*: Rivers and Harbors Acts of 1896 & 1902**

FY 2020 Budget Request (000's): *$1,519*

Project Description: The project consists of fish passage, a debris barrier, and Daguerre Point Dam, with dikes across overflow channels and protective works (groins) downstream to maintain the Yuba River in its confined channel to the junction with the Feather River at Marysville. The project is located in Yuba County. Daguerre Point Dam retains over 4 million cubic yards of contaminated sediment and hydraulic mining debris that would otherwise cause infilling and shoaling of the high and moderate use navigation channels of the San Francisco Bay-Delta.

Current Status: The total FY 2020 budget request is $1,519,000 for navigation and environmental stewardship activities. The request is for routine operation and maintenance for navigation and for the fish ladders as well as activities such as gravel augmentation, sediment management, habitat oversight and monitoring, large woody material placement, and water quality monitoring identified in the 2014 Biological Opinion for Daguerre Point Dam.

Drought & Floodplain Management

American River, Common Features, Natomas Basin, CA

Authority: Water Resources Reform and Development Act of 2014 (Public Law 113-121), Section 7002(2)

FY 2020 Budget Request (000's): $59,000

Project Description: The Water Resources Reform and Development Act of 2014 authorized the construction of modifications of the ring levee system protecting the Natomas Basin of the

Sacramento Valley. Specific features of this authorization include construction of approximately 42 miles of levee widening, 35 miles of seepage cutoff wall and 8 miles of seepage berm. The ring levee protection of the Natomas Basin is a complete system of levees and therefore, the project is a complete system improvement.

Current Status: New start funding was provided in FY 2016 to initiate work on the Natomas Basin project. The Project Partnership Agreement (PPA) was signed in August 2016. FY 2020 funds of $59,000,000 will be used to continue construction.

Key Milestones:

- Reach B/I-5 Construction Contract Award
- Reach E Construction Contract Award

Black Butte Lake, CA

Authority: Flood Control Act of 1944

FY 2020 Budget Request (000's): *$8,050*

Project Description*:* The project is located on Stony Creek, a tributary of the Sacramento River, about 9 miles west of the town of Orland, California and consists of an earthen-fill dam with a maximum height of 140 feet, six dikes, an ungated spillway, and a reservoir with a gross storage capacity of 160,000 acre-feet. The project is located in Glenn and Tehama Counties. The Corps implements flood release protocols on this project in compliance with a 2008 Biological Opinion in an effort to minimize adverse effects of reservoir operations, including reducing the risk of delta island levee failure and saltwater intrusion. The project also provides irrigation water for central valley farming, reducing water consumption from the delta.

Current Status: The total FY 2020 request is $8,050,000 for flood risk management, recreation and environmental stewardship activities. Only $6,821,000 for flood risk management activities is directly related to the Bay Delta, of which $5,000,000 is to replace the headquarters building. The flood risk management funding provides for routine dam operation and maintenance. Operation of the project includes gate operation, dam safety and post-earthquake inspections, emergency actions, instrumentation monitoring, water management, and real estate inspections. Maintenance includes repairs to major equipment, vegetation control, and water control data systems modifications.

Buchanan Dam, H.V. Eastman Lake, CA

Authority: Flood Control Act of 1962

FY 2020 Budget Request (000's): *$4,977*

Project Description*:* The project is about 16 miles northeast of the City of Chowchilla on the Chowchilla River. The project is located in Madera and Mariposa Counties. The project

consists of an earthen-fill dam and a reservoir with gross storage capacity of 150,000 acre-feet. The project also includes about 2 miles of channel improvement work and levee construction on Ash and Berenda Sloughs, tributary channels of the river. The dam controls flows to the delta during flood events, reducing the risk of delta island levee failure and saltwater intrusion. The reservoir provides irrigation water for central valley farming, reducing water consumption from the delta.

Current Status: The total FY 2020 budget request is $4,977,000 for flood risk management, recreation and environmental stewardship activities. Only $4,038,000 for flood risk management activities is directly related to the Bay Delta, including $2,300,000 to repair a rockslide on the access road to Buchanan Dam. The flood risk management funding provides for routine dam operation and maintenance. Operation of the project includes gate operation, dam safety and post-earthquake inspections, bridge inspections, emergency actions, instrumentation monitoring, data collection, water management, and real estate inspections. Maintenance includes repairs to major equipment, vegetation control, and water control data systems modifications.

Farmington Dam, CA

Authority: Flood Control Act of 1944

FY 2020 Budget Request (000's): *$712*

Project Description*:* The project is located on Littlejohn Creek about 3½ miles upstream from Farmington and about 18 miles east of Stockton, and consists of a 56 foot high earthen-fill dam, an ungated saddle spillway, and a reservoir with a gross storage capacity of 52,000 acre-feet. The project is located in San Joaquin and Stanislaus Counties. The dam controls flows to the delta during flood events, reducing the risk of delta island levee failure and saltwater intrusion. The reservoir provides irrigation water for central valley farming, reducing water consumption from the delta.

Current Status: The total FY 2020 budget request is $712,000 for flood risk management activities directly related to the Bay Delta. The flood risk funding provides for routine dam operation and maintenance. Operation of the project includes gate operation, dam safety and post-earthquake inspections, emergency actions, instrumentation monitoring, water management, and real estate inspections. Maintenance includes repairs to major equipment, vegetation control, and water control data systems modifications.

Hidden Dam, Hensley Lake, CA

Authority: Flood Control Act of 1962

FY 2020 Budget Request (000's): *$2,638*

Project Description*:* The project consists of a 163 feet high earthen-fill dam on the Fresno River about 15 miles northeast of Madera, with a reservoir with gross storage capacity of 90,500 acre-feet. The project is located in Madera County.

Current Status: The total FY 2020 budget request is $2,638,000 for flood risk management, recreation and environmental stewardship activities. Only $1,613,000 for flood risk management activities is directly related to the Bay Delta. The flood risk management funding provides for routine dam operation and maintenance. Operation of the project includes gate operation, dam safety and post-earthquake inspections, emergency actions, instrumentation monitoring, water management, and real estate inspections. Maintenance includes repairs to major equipment, vegetation control, and water control data systems modifications.

Inspection of Completed Works (ICW), CA

Authority: Flood Control Act of 1944

FY 2019 Budget Request (000's): *$3,673*

Project Description*:* This program covers levees, floodwall systems and reservoirs throughout California. Upon completion, infrastructure built under this program is transferred to the sponsoring cities, towns, and special use districts that own and operate the projects. The projects require maintenance after construction in order to ensure the project will continue to function as intended. The priority of the ICW program has been levees because of public safety aspects. The basic objectives of the USACE Levee Safety Program are (1) to develop balanced and informed assessments of the nation's levees; (2) to evaluate, prioritize and justify levee safety decisions, and (3) to make recommendations to improve public safety associated with levee systems. One of the main activities is inspections of federally authorized projects operated and maintained by a non-federal sponsor. The purpose of the inspections is to determine if levee systems will perform as expected; identify deficiencies or areas which need monitoring or immediate repair; identify any changes over time; and collect information in order to be able to make informed decisions about future actions. Other activities include updating information in the National Levee Database; screening levees to begin ranking them in order of risk; coordinating Levee Safety Program efforts with public sponsors or stakeholders; reviewing sponsor proposed alterations, improvements, excavations or construction which are in accordance with USACE policy and guidance for such proposal i.e. Section 208/408 proposals; and updating project operation and maintenance manuals.

Coordination between USACE and other federal, state, and local agencies is essential for proper accomplishment of this program. In addition to satisfying USACE requirements, the improved inspection results will be made available on the National Levee Database and will be of great value to federal, state and local agencies tasked with the development and implementation of state and local Levee Safety Programs.

Current Status: The total FY 2019 budget request is $3,450,000, all for flood risk management and directly related to activities and projects in the Bay Delta. The program includes routine inspections of levee systems, consultation for conflicts relating to levee vegetation policy, communicating with local sponsors, providing policy updates, issuing PL 84-99 eligibility notifications, and technical review of Section 208.10 and section 408 alteration requests to

modify existing federal infrastructure.

Isabella Lake, CA

Authority: Flood Control Act of 1944

FY 2020 Budget Request (000's): *$1,696*

Project Description*:* The dam is located about 50 miles northeast of Bakersfield, near the confluence of the north and south forks of the Kern River; the auxiliary dam is about ½ mile east of the main dam. The project comprises a 185 foot high earthen-fill dam, an ungated concrete spillway, and a 100 foot high earthen-fill auxiliary dam, creating a reservoir with a gross storage capacity of 570,000 acre-feet. The project is located in Kern County. The project controls releases for farming irrigation in the Central Valley and reduces water consumption from the delta for agriculture needs. Isabella Lake is connected to Kern Friant Canal to deliver water through the Cross Valley Canal to the California Aqueduct for consumptive use.

Current Status: The total FY 2020 budget request is $1,696,000 for flood risk management and environmental stewardship activities. Only $1,461,000 for flood risk management activities is directly related to the Bay Delta. The flood risk management funding provides for routine dam operation and maintenance. Operation of the project includes gate operation, dam safety and post-earthquake inspections, emergency actions, instrumentation monitoring, water management, and real estate inspections. Maintenance includes repairs to major equipment, vegetation control, and water control data systems modifications.

Los Angeles County Drainage Area, CA

Authority: Flood Control Act of 1936 (as amended 1937, 1941, 1950)

FY 2020 Budget Request (000's): *$13,108*

Project Description*:* The project is located in the County of Los Angeles, California. The project includes operation and maintenance of five large flood risk management dams (Whittier Narrows, Santa Fe, Lopez, Hansen, and Sepulveda), and Haines Canyon Debris Basin as well as about 34 miles of 517 total miles of flood control channels within Los Angeles County.

Current Status: The total FY 2020 budget request is $13,108,000 for flood risk management, recreation and environmental stewardship activities. Only $12,038,000 for flood risk management activities is directly related to the Bay Delta. The flood risk management funding provides for routine dam operation and maintenance. Operation of the project includes dam safety, water management, and real estate inspections. Maintenance includes repairs to major equipment, vegetation control, and water control data systems modifications.

Merced County Streams, CA

Authority: Flood Control Act of 1944

FY 2020 Budget Request (000's): *$470*

Project Description*:* The project consists of the following flood control improvements:

1) Five flood retention dams
   Mariposa, 88 feet high (15,000 acre-feet), 18 miles east of Merced.
   Owens 75 feet high (3,600 acre-feet), 16 miles east of Merced.
   Bear, 92 feet high (7,700 acre-feet), 16 miles east of Merced.
   Burns, 53 feet high (7,000 acre-feet), 13 miles NE of Merced.
   Castle, 40 feet high (6,400 acre-feet), 6 miles NW of Merced.
2) Black Rascal and Owens Diversion Canals
3) Channel improvements on various streams in the vicinity of Merced

The project is located in Mariposa and Merced Counties. The dams control flows to the delta during flood events, reducing the risk of delta island levee failure and saltwater intrusion. The dams and diversion canals provide irrigation water for central valley farming, thereby reducing water consumption from the delta.

Current Status: The total FY 2020 budget request is $470,000 for flood risk management activities which are directly related to the Bay Delta. The flood risk management funding provides for routine dam operation and maintenance. Operation of the project includes gate operation, dam safety and post-earthquake inspections, emergency actions, instrumentation monitoring, water management, and real estate inspections. Maintenance includes repairs to major equipment, vegetation control, and water control data system modifications.

New Hogan Lake, CA

Authority: Flood Control Act of 1962

FY 2020 Budget Request (000's): *$3,583*

Project Description: The project is located on the Calaveras River, about 28 miles northeast of Stockton, and comprises a rock-fill dam with an impervious earth core and a maximum height of 200 feet together with four dikes with a maximum height of 18 feet, and a gated spillway creating a reservoir with a gross storage capacity of 325,000 acre-feet. The project is located in Calaveras County. The project controls flows to the delta during flood events, reducing the risk of delta island levee failure and saltwater intrusion. New Hogan Lake provides irrigation water for central valley farming, thereby reducing water consumption from the delta.

Current Status: The total FY 2020 budget request is $3,583,000 for flood risk management, recreation and environmental stewardship activities. Only $2,214,000 for flood risk management activities is directly related to the Bay Delta. The flood risk management funding provides for routine dam operation and maintenance. Operation of the project includes gate operation, dam safety and post-earthquake inspections, emergency actions, instrumentation

monitoring, water management, and real estate inspections. Maintenance includes repairs to major equipment, vegetation control, and water control data systems modifications.

New Melones Lake, CA

Authority: Flood Control Act of 1962

FY 2020 Budget Request (000's): *$2,197*

Project Description*:* The project extends along the Stanislaus River from Goodwin Dam to the confluence with the San Joaquin River. The project provides recreation access to the Lower Stanislaus River. The project is located in Calaveras, San Joaquin, Stanislaus, and Tuolumne counties. New Melones Dam controls flows to the delta during flood events, reducing the risk of delta island levee failure and saltwater intrusion. New Melones Lake provides irrigation water for central valley farming thereby reducing water consumption from the delta.

Current Status: The total FY 2020 budget request is $2,197,000 for flood risk management, recreation, and flood risk management activities. Only $495,000 for flood risk management activities is directly related to the Bay Delta. The flood risk management funding provides for routine dam operation and maintenance. Operation and maintenance includes minimum channel operation and maintenance to prevent failure and maintain integrity of the project; reducing inspections and engineering consultations.

Pine Flat Lake, CA

Authority: Flood Control Act of 1944

FY 2020 Budget Request (000's): *$4,226*

Project Description*:* Pine Flat Dam, located on the Kings River about 25 miles east of the city of Fresno, is a straight, gravity-type concrete structure, 429 feet high, with a gate-controlled spillway in the central section, and creates a reservoir of 1,000,000 acre-feet. The project is located in Fresno County. The project controls releases for irrigation in the central valley and reduces water consumption from the delta for agriculture needs. Pine Flat Lake is connected to Kern Friant Canal to deliver water through the Cross Valley Canal to the California Aqueduct for consumptive use.

Current Status: The total FY 2020 budget request is $4,226,000 is for flood risk management, recreation and environmental stewardship activities. Only $3,080,000 for flood risk management activities is directly related to the Bay Delta. The flood risk management funding provides for routine dam operation and maintenance. Operation of the project includes gate operation, dam safety and post-earthquake inspections, emergency actions, instrumentation monitoring, water management, and real estate inspections. Maintenance includes repairs to major equipment, vegetation control, and water control data systems modifications.

Santa Ana River Basin, CA

Authority: Flood Control Act of 1936 (as amended 1938)

FY 2020 Budget Request (000's): *$6,158*

Project Description*:* The project is located in the counties of Riverside, Los Angeles and Orange. The project includes routine operation and maintenance of five dams (San Antonio, Prado, Carbon Canyon, Brea, and Fullerton) with four recreational areas and about 15.7 miles of flood control channels along San Antonio and Chino Creeks within the Santa Ana River Basin.

Current Status: The total FY 2020 budget request is $6,158,000 for flood risk management, recreation and environmental stewardship activities. Only $5,377,000 for flood risk management activities is directly related to the Bay Delta. The flood risk management funding provides for routine dam operation and maintenance. Operation of the project includes water management, dam safety, and real estate inspections. Maintenance includes repairs to major equipment, vegetation control, and water control data systems modifications.

Scheduled Reservoir Operations, CA

Authority: Flood Control Act of 1944

FY 2019 Budget Request (000's): *$1,305*

Project Description: The project is a nationwide program to facilitate and coordinate the operations of federal and non-federal dams for which there is a federal interest and investment in providing dedicated flood space. The project includes coordination and management of channel flows and releases from 15 California Section 7 dams, and reduces the risk of delta island levee failure and saltwater intrusion.

Current Status: The total FY 2019 budget request is $1,344,000, all for flood risk management and directly related to activities and projects in the Bay Delta. The program includes data collection efforts and coordination for operational decisions with other federal and non-federal dams, especially for channel flows and flood releases, water control manual coordination under NEPA and ESA, and other activities associated with safe operation of Section 7 dams.

Success Lake, CA

Authority: Flood Control Act of 1944

FY 2020 Budget Request (000's): *$2,729*

Project Description*:* The project is located on the Tule River, about 6 miles east of Porterville,

and comprises an earthen-fill dam with a maximum height of 142 feet with an ungated saddle spillway, and an auxiliary earthen-fill dam or dike about 40 feet high, creating a reservoir gross storage capacity of 85,000 acre-feet. The project is located in Tulare County. The project controls releases for farming irrigation in the central valley and reduces water consumption from the delta for agriculture needs. Success Lake is connected to the Kern Friant Canal to deliver water through the Cross Valley Canal to the California Aqueduct for consumption use.

Current Status: The total FY 2020 budget request is $2,729,000 for flood risk management, recreation and environmental stewardship activities. Only $1,760,000 for flood risk management is directly related to the Bay Delta. The flood risk management funding provides for routine dam operation and maintenance. Operation of the project includes gate operation, dam safety and post-earthquake inspections, emergency actions, instrumentation monitoring, water management, and real estate inspections. Maintenance includes repairs to major equipment, vegetation control, and water control data systems modifications.

Terminus Dam, Lake Kaweah, CA

Authority: Flood Control Act of 1944

FY 2020 Budget Request (000's): *$3,205*

Project Description*:* The project is located on the Kaweah River about 20 miles east of Visalia, and comprises an earthen-fill dam with a height of 200 feet, with an auxiliary earthen-fill dam 130 feet high and fuse gates adjacent to the left abutment of the dam, creating a reservoir with a storage capacity of 185,630 acre-feet. The project is located in Tulare County. Terminus Dam controls releases for irrigation in the central valley which reduces water consumption from the delta for agriculture needs. Lake Kaweah is connected to the Kern Friant Canal delivering water through the Cross Valley Canal to the California Aqueduct for consumptive use.

Current Status: The total FY 2020 budget request is $3,205,000 for flood risk management, recreation and environmental stewardship activities. Only $2,152,000 for flood risk management activities is directly related to the Bay Delta. The flood risk management funding provides for routine dam operation and maintenance. Operation of the project includes gate operation, dam safety and post-earthquake inspections, emergency actions, instrumentation monitoring, water management, and real estate inspections. Maintenance includes repairs to major equipment, vegetation control, and water control data systems modifications.

FISCAL YEAR 2020

U.S. GEOLOGICAL SURVEY

Habitat Restoration

FY 2020 Budget Request (000's): *$6,959*

The California Bay-Delta Ecosystem (Delta) is recognized as one of the world's threatened treasures of biodiversity, supporting unique native species and their critical tidal and wetland habitats. Like other urban estuaries, this system has a history of anthropogenic changes involving multiple stressors including altered hydrodynamics, environmental contaminants, and invasive species that have degraded the ecosystem. The native fish fauna has been much reduced and key species are now protected by the Endangered Species Act. Among these species, the threatened Delta smelt most prominently impacts human decisions about the movement of water through the system. The conservation of this species while supporting human uses of Delta water requires an improved understanding of habitat and ecosystem functions within the Delta. Over time and as the population of California increases, policymakers must plan for systemic changes that influence all stressors and parts of the system, including watersheds, rivers, deltas, bays, and the ocean. To assist water and ecosystem managers, U.S. Geological Survey (USGS) scientists have developed a network of real-time flow monitoring stations in the Delta. These stations are being continually improved to better monitor sediment movement and real-time turbidity dynamics in the Delta, which have important implications for efficient water project operations during the winter and spring months. The USGS has pursued research efforts to understand how flow conditions, water quality, and fish behavior affect fish survival, including both native smelts and commercially important runs of Chinook salmon. In doing so, the USGS is advancing our understanding of the practical implications of Delta water dynamics and the interplay among the physical, chemical, biological, human factors and natural hazards associated with the Delta system. New USGS science informs crucial near- and long-term policy analysis and public investment decision-making by Federal and State agencies, water users, academics, and other, non-governmental organizations. The USGS is also working to make the data and findings more useable by all public and private parties, with improved support for access, visualization, and sharing of data and information about the Delta system. The 2020 budget reflects the continued focus on this important work.

Interagency Ecological Program

Authority: Organic Act of March 3, 1879, as amended (43 U.S.C. 31 et seq.)

FY 2020 Budget Request (000's): $3,559
Ecosystems (000's): *$935*
Natural Hazards (000's): *$538*
Water Resources (000's): *$1,186*
Core Science Systems (000's): *$900*

Project Description: In cooperation with other agencies in the Interagency Ecological Program (IEP: U.S. Fish & Wildlife Service, U.S. Bureau of Reclamation, USGS, U.S. Army Corps of Engineers, U.S. Environmental Protection Agency, CA Water Resources Control Board, CA Department of Water Resources, and CA Department of Fish & Game), the USGS is measuring within-Delta salt and water transfers and Delta outflow into the Bay, providing information needed for documenting salt transport mechanisms and managing freshwater flow and export pumping operations to meet salinity standards. These studies also include areas in Suisun Marsh and South San Francisco Bay, as well as measuring temperature and suspended sediment at the entrance of the San Joaquin River into the Delta and special scientific studies of flows and turbidity in the Cache Slough and Liberty Island area.

Added in 2010 was the addition of 16 flow stations and 14 turbidity sensors, associated with some of the added flow stations, to monitor and assess turbidity patterns and intensities in the Delta. These data may be used to compare to occurrences of Delta smelt in an attempt to collect information relating Delta smelt migration to turbidity.

Current Status: The hydrodynamic flow and salinity stations funded by the IEP are an integral part of the entire flow network for the Delta. The data from this flow network are used in real-time decisions by water operators to manage export pumping from the Delta to other parts of California (south and parts of the greater San Francisco bay area). More than 25 million Californians drink water originating from the Delta; as well, Delta water irrigates millions of acres of highly productive agricultural land. The monitoring network also plays a key role in ongoing monitoring and management of commercially important and threatened and endangered fish species in the Delta (salmon, steelhead, sturgeon, native smelts, etc.), and provides the framework for understanding the physical, chemical and biological interactions that are key to informing long-term policy on the complex ecological and water supply issues in the Delta.

Related activities include studies of flow and salt transport in the central and south Delta, and Suisun Marsh, and flow and turbidity fields in relation to phytoplankton and Delta smelt in the northern Delta.

Delta Science Program Oversight (Lead Scientist)

Authority: Organic Act of March 3, 1879, as amended (43 U.S.C. 31 et seq.)

FY 2020 Budget Request (000's): *$662*
Delta Science Program Oversight (000's): *$662*

Project Description: The U.S. Geological Survey provides support for the California Delta Science Program's Lead Scientist and a USGS staff Delta Liaison.

Public policy in the Delta is the product of a multi-decade, multi-billion dollar cooperative effort of more than 20 State and Federal agencies working to improve the quality and reliability of California's water supplies and to conserve the Estuary's ecosystems. California's Delta Stewardship Council (DSC) is the agency primarily responsible for setting and implementing state policy for the Delta, which emphasizes the statutorily defined "co-equal goals" of water

supply reliability and environmental conservation. The DSC houses a Delta Science Program to set policy for public science in the Delta and ensure that best-available, unbiased scientific information is developed and identified as a resource for policymakers. The Science Program is tasked with: providing a comprehensive and integrated scientific context for Delta activities; ensuring the advance of science needed to guide Bay-Delta decisions and water project operations; establishing a framework to identify and articulate relevant areas of scientific uncertainty; and developing strategies to reduce uncertainties and track progress toward Delta goals. This is carried out through funding research, synthesizing and communicating scientific information to policymakers and decision-makers, promoting disinterested, independent expert review, organizing and running public workshops on science topics of interest and coordinating with management agencies to promote science-based adaptive management.

The Delta Science Program is led by a term-appointed Lead Scientist who is housed at the USGS. The Lead Scientist is an important rotating leadership position that is conferred upon a very senior external scientist who works to ensure the effectiveness and professionalism of publicly supported science in the upper Estuary. The Lead Scientist oversees the work of Delta Science Program staff and works with the Delta Independent Science Board, Delta implementing agency managers and scientists, and the scientific community at large to implement the DSC's Delta Science Plan and, in general, to promote the production of high-quality, peer-reviewed science to inform Bay-Delta management decisions.

The Delta Lead Scientist is by agreement housed at the USGS, to ensure independence from State fish and wildlife and water management politics. The arrangement enhances the Lead Scientist's credibility to oversee technical review processes and provide unbiased scientific advice to policymakers, stakeholders, and the public. As well, the arrangement enhances and underscores scientific cooperation between the State and Federal governments to help ensure that high-quality, agenda-free scientific information is developed or identified to support decision-making pertaining to water and environmental issues affecting the Delta.

Current Status: The Lead Scientist and Staff continue to facilitate the collaboration among all the Bay-Delta partners and work with Delta Science Program staff to ensure science projects address issues identified by the partners.

Adaptive Management of SF Bay

Authority: Organic Act of March 3, 1879, as amended (43 U.S.C. 31 et seq.)

FY 2020 Budget Request (000's): $936
Ecosystems (000's) *$936*

Project Description: The objective of this work is to provide science in support of adaptive management of ecosystems that have near-term societal concern and significant long-term societal value. These studies are designed to serve local ecosystem management needs and to provide transferable knowledge and approaches. Efforts focus in areas where new integrated science approaches can be developed to address the needs of a diverse group of decision-makers. Activities require collaboration and integration of expertise to achieve a system-scale

understanding of the natural and anthropogenic factors affecting ecosystems and to better understand the interactive nature of resources and the environment.

Current Status: Primary support for interdisciplinary studies of fish, wildlife, and their habitats to understand the evolving state of the Estuary and its effects on California's crucial water delivery infrastructure, and to develop scientific tools to support Interior and State of California policy development. Current studies cover a range of activities from the watershed and Delta through Suisun Bay to South Bay and the Golden Gate dealing with climate forecasting, hydrodynamic processes, sediment budgets, and management-relevant contaminant and ecological processes. The information and knowledge produced is integral to the developing understanding of water project effects, wetland management and restoration effectiveness and performance, salt pond reclamation, salinity control, and the success of native fish and their movements within and through the Delta.

Status and Trends of Water Quality in the Bay-Delta Watershed

Authority: Organic Act of March 3, 1879, as amended (43 U.S.C. 31 et seq.)

FY 2020 Budget Request (000's): *$1,802*
Water Resources (000's): *$1,802*

Project Description: The National Water Quality Assessment (NAWQA) Project is a long-term, cyclical study designed to assess the status and trends of water quality in some of the largest and most important watersheds and aquifers in the Nation. Currently in its third decade (referred to as Cycle 3) , NAWQA efforts are focused on five major activities: (1) Assessment of trends in water-quality and ecological communities in streams; (2) Assessment of water-quality trends in ground-water quality, especially drinking water sources; (3) Numerical and statistical modeling of groundwater flow and quality to identify key governing processes and extrapolate impacts, and (4) Real-time monitoring of selected constituents to determine the scales of short-term variability and possible causes in both streams and groundwater. The Bay-Delta watershed is included in these activities with particular attention to the Central Valley and to understanding the factors that affect water-quality conditions and trends.

Current Status: Whereas planning and field work had previously been conducted separately in the Sacramento and San Joaquin watersheds, in Cycle 3 NAWQA Project activities for the entire Central Valley have been integrated. New to NAWQA Project studies is support for continuous monitoring of the concentration (and flux) of nitrate transported to the Delta from the Sacramento River in real time. Nutrient flux to the Delta is a key variable defining the ecosystem, and real-time monitoring will reduce uncertainty in the flux while shedding light on sources and causes of variability.

Because of the large and ever-changing array of agricultural chemicals in use – and hence available for transport to the Delta – the NAWQA Project has greatly expanded its analytical suite for Cycle 3. Samples from streams entering the Delta are now analyzed for 240 organic contaminants, including classes of new pesticides (such as selected neonicitinoids and

pyrethroids) as well as additional degradation products of pesticides long in use. An example of a critical addition is fipronil: this insecticide is broadly used as a replacement for organophosphate insecticides that have been recently phased out. Because of the high toxicity of insecticides, and particularly their high use during the orchard dormant spray period, this data will be helpful for those assessing chemical stressors in the Delta. Biological communities at three trophic levels (algae, invertebrates, and fish) will also be measured at all surface water sites in the Central Valley in Cycle 3 for trends assessment.

The recent drought in California brought the critical linkage between surface and groundwater resources to the fore, as the agricultural sector in the San Joaquin Valley turned to groundwater resources to replace cancelled surface water deliveries from the Delta. Balancing the goals of sustainable agriculture in the Central Valley and ecosystem restoration in the Delta are addressed by groundwater studies that provide information on the status and trends in groundwater quality. Most of the decadal-scale groundwater sampling in the Central Valley has already been completed; however, additional studies are underway examining the short-term variability in drinking water quality and vertical distribution of contaminants along a transect, both in the Fresno area. These field sites are embedded in a groundwater flow model that is being developed to shed light on the transport of contaminant at the local to sub-regional scale. Finally, numerical and statistical models are being constructed and melded at the scale of the entire Central Valley to explain the spatial distribution of specific contaminants (such as arsenic and nitrate) as well as the critical governing process (such as oxidation-reduction potential, and groundwater flow velocity and direction). In 2020, the USGS will continue to conduct long-term surface water quality monitoring at five sites; long-term groundwater quality monitoring in the Central Valley aquifer system; and surface and groundwater quality modeling.

FISCAL YEAR 2020

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

Renewed Federal State Partnership

General Oversight and Coordination

Authority: Fish and Wildlife Coordination Act (16 U.S.C. 661 et seq.), the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.)

FY 2020 Budget Request (000's): $226

Project Description: Activities include participation at CALFED agency coordination meetings, Bay-Delta Public Advisory Committee meetings, California Bay-Delta Authority meetings, input into the development of and review of CALFED program plans, crosscut budgets, and annual reports.

Current Status: NOAA is coordinating with other state and Federal agencies to implement the Delta wide science and strategic plans developed by the Delta Stewardship Council, the entity to which CALFED evolved, and to further the multi-agency effort of the Collaborative Science and Adaptive Management Program. This coordination has focused on identifying existing governance structures and opportunities for integrating state and Federal agencies, Delta Plan implementation, and other planning efforts that are underway in the Delta, including the development of the EcoRestore restoration program.

Interagency Ecological Program

Authority: Fish and Wildlife Coordination Act (16 U.S.C. 661 et seq.), the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.)

FY 2020 Budget Request (000's): $157

Project Description: The Interagency Ecological Program (IEP) is an estuarine ecological monitoring and special study collaboration by three state and six federal agencies with management and/or regulatory responsibilities in the San Francisco Estuary and Sacramento-San Joaquin Delta, California. The three state agencies are the California Department of Fish and Wildlife (CDFW), California Department of Water Resources (DWR), and California State Water Resource Control Board (SWRCB); the federal agencies include the U.S. Fish and Wildlife Service (USFWS), U.S. Bureau of Reclamation (USBR), National Oceanic and Atmospheric Administration (NOAA), U.S. Geological Survey (USGS), U.S. Environmental Protection Agency (USEPA), and the U.S. Army Corps of Engineers (USACE). The purpose of this collaboration is to gather in an efficient, coordinated and cooperative way the ecological information required by the agencies to effectively carry out their management and regulatory responsibilities.

The goals and objectives to address the mission of the IEP are (1) describe the status and trends of aquatic ecological factors of interest in the estuary; (2) develop an understanding of environmental factors that influence observed aquatic ecological status and trends; (3) use knowledge of the previous information in a collaboration process to support natural resource planning, management, and regulatory activities in the estuary; (4) continually reassess and enhance long-term monitoring and research activities that demonstrate scientific excellence; (5) provide scientific information about the estuary that is accurate, accessible, reliable, and timely; and (6) respond to management needs in a timely fashion.

Current Status: The IEP is comprised of long-term monitoring, water operations monitoring and special studies. The IEP is committed to conducting the mandated monitoring studies required by NOAA and FWS biological opinions and SWRCB Water Rights Decision D-1641. There is also a commitment to continue providing the "real-time" data needed to make water operation decisions. NOAA is one of nine agencies with IEP implementation responsibility. At present, the Assistant Regional Administrator represents NOAA as the IEP Director at quarterly meetings and staff participates on various work groups as needed. NOAA issued the IEP Scientific Collection permit.

Smarter Water Supply & Use

Water Operations Oversight and Coordination

Authority: Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.)

FY 2020 Budget Request (000's): $1,023

Project Description: On June 4, 2009, NOAA issued its biological opinion on the long-term operations of the CVP and SWP. USBR and the DWR are implementing the Opinion in consultation and coordination with NOAA.

Current Status: NOAA staff is assisting USBR and DWR in the implementation of NOAA's Operations Criteria and Plan (OCAP) Opinion, including ongoing reviews of operations forecasts, participating on technical teams, and assisting in adaptive management decisions regarding real time operations within the sideboards of the OCAP Opinion. Some of the reasonable and prudent alternative (RPA) actions require NOAA technical review of new studies and monitoring stations. Following issuance of the OCAP Opinion, Endangered Species Act (ESA) section 7 consultations on infrastructure projects, long-term water contracts, fish screens, temperature control structures, and fish passage above dams have been needed.

The USBR requested reinitiation of Section 7 consultation for the OCAP project on August 2, 2016. NMFS received the consultation package February 2019 and is targeting a June 2019 date for the biological opinion.

Habitat Restoration

Ecosystem Restoration Program (ERP) Oversight & Coordination

Authority: Fish and Wildlife Coordination Act (16 U.S.C. 661 et seq.), Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.), Magnuson-Steven Fishery Conservation and Management Act (16 U.S.C. 1801 et seq.)

FY 2020 Budget Request (000'): $53

Project Description: As an Ecosystem Restoration Program (ERP) implementing agency, NOAA will continue ERP planning efforts in collaboration with the FWS, CDFW and the California Bay-Delta Authority (CBDA). Activities include program planning and implementation, tracking schedules, finances, and performance; coordination of Program activities to ensure Program balance and integration with other CALFED Programs; coordination of public outreach and involvement, including tribal, environmental justice, and public advisory activities in accordance with the Federal Advisory Committee Act. NOAA, through an interagency process, is also involved in planning and developing the format and guidelines for preparing Action Specific Implementation Plans (ASIP) for all CALFED projects in order to meet the requirement of the ESA, California Endangered Species Act, and the Natural Community Conservation Planning Act (California).

Current Status: NOAA will continue management-level participation in Delta-wide coordination meetings, continue work on multi-year planning documents, work on defining and streamlining the adaptive management implementation plans, participate in Delta-wide collaborative science and restoration efforts such as CSAMP, participate in developing conceptual models to guide science and restoration , and contribute to proposal solicitation process planning and selection panels. Staff are highly engaged in the Yolo Bypass Fisheries Enhancement Project development and assessment and are members of the Steering Committee for the state's EcoRestore restoration program.

Screen Engineering and Review

Authority: Fish and Wildlife Coordination Act (16 U.S.C. 661 et seq.), Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.), Magnuson-Steven Fishery Conservation and Management Act (16 U.S.C. 1801 et seq.).

FY 2020 Budget Request (000's): $103

Project Description: Activities include technical review and comment of proposed projects under the Anadromous Fish Screen Program (AFSP). The AFSP is to protect juvenile Chinook salmon (all runs), steelhead trout, green and white sturgeon, striped bass and American shad from entrainment at priority diversions throughout the Central Valley. Section 3406(b)(21) of the Central Valley Project Improvement Act (CVPIA) requires the Secretary of the Interior to

assist the State of California in developing and implementing measures to avoid losses of juvenile anadromous fish resulting from unscreened or inadequately screened diversions on the Sacramento and San Joaquin Rivers, their tributaries, the Delta, and the Suisun Marsh. Additionally, all AFSP projects meet Goal 3 of the CALFED Ecosystem Restoration Program's (ERP) Draft Stage 1 Implementation Plan (8/1/01, Page 22) which states that "the goal is to maintain and/or enhance populations of selected species for sustainable commercial and recreational harvest, consistent with the other ERP Strategic Goals."

Current Status: Staff continue to review fish screens and improvement projects as they develop for compliance with section 7 of the ESA and existing biological opinions. Specific issues for program staff include reviewing the State Water Project and Central Valley Project Fish Collection Facilities in the Delta. Staff participates on the Tracy Technical Advisory Team, South Delta Fish Facility Forum, and Central Valley Fish Facility Team, all of which are involved in developing new ways to salvage fish from water and debris and return them unharmed to the Delta. Staff review and comment on fish studies, research projects, facility evaluations, and operations and maintenance of the Delta fish facilities for compliance with current biological opinions.

Many of the research projects are funded by either CVPIA or CALFED. Staff works with our engineers in Santa Rosa and at the Bureau of Reclamation to approve CVPIA funded fish screen projects. Current staffing is one biologist part-time in support of this program element. In the future there are studies and screen improvements required in the OCAP biological opinion that will have to be evaluated and commented on with respect to listed fish concerns.

FISCAL YEAR 2020

ENVIRONMENTAL PROTECTION AGENCY

EPA's support of the Bay Delta comprises four programs: San Francisco Bay-Delta Estuary Program, National Estuary Program, Clean Water State Revolving Fund, and Drinking Water State Revolving Fund.

The San Francisco Bay-Delta Estuary program is aimed at protecting and restoring water quality and ecological health of the estuary through partnerships, interagency coordination, and project grants. The FY 2019 Annualized Continuing Resolution includes $4.8 million to continue a competitive grant program to implement projects that improve water quality and restore habitat in San Francisco Bay watersheds. In FY 2020, the President's Budget request does not include funding for the San Francisco Bay Delta, instead returning the responsibility for funding local environmental efforts and programs to state and local entities.

In FY 2020, the President's Budget request does not include funding for the National Estuary Program. The EPA will encourage the state of California and local entities to continue to support the San Francisco Estuary Partnership's implementation of their Comprehensive Conservation and Management Plan (CCMP), including activities to address water quality impairments and habitat loss.

EPA's State Revolving Funds (SRFs) will continue to provide capitalization grants for state loan programs for water and wastewater infrastructure, with specific projects identified at the state and local levels. The estimated FY 2020 amounts ($32.7 million for the Clean Water SRF and $31.2 million for the Drinking Water SRF) are based on a projected distribution of California's total SRF allocation based on land area in the Bay-Delta watershed.