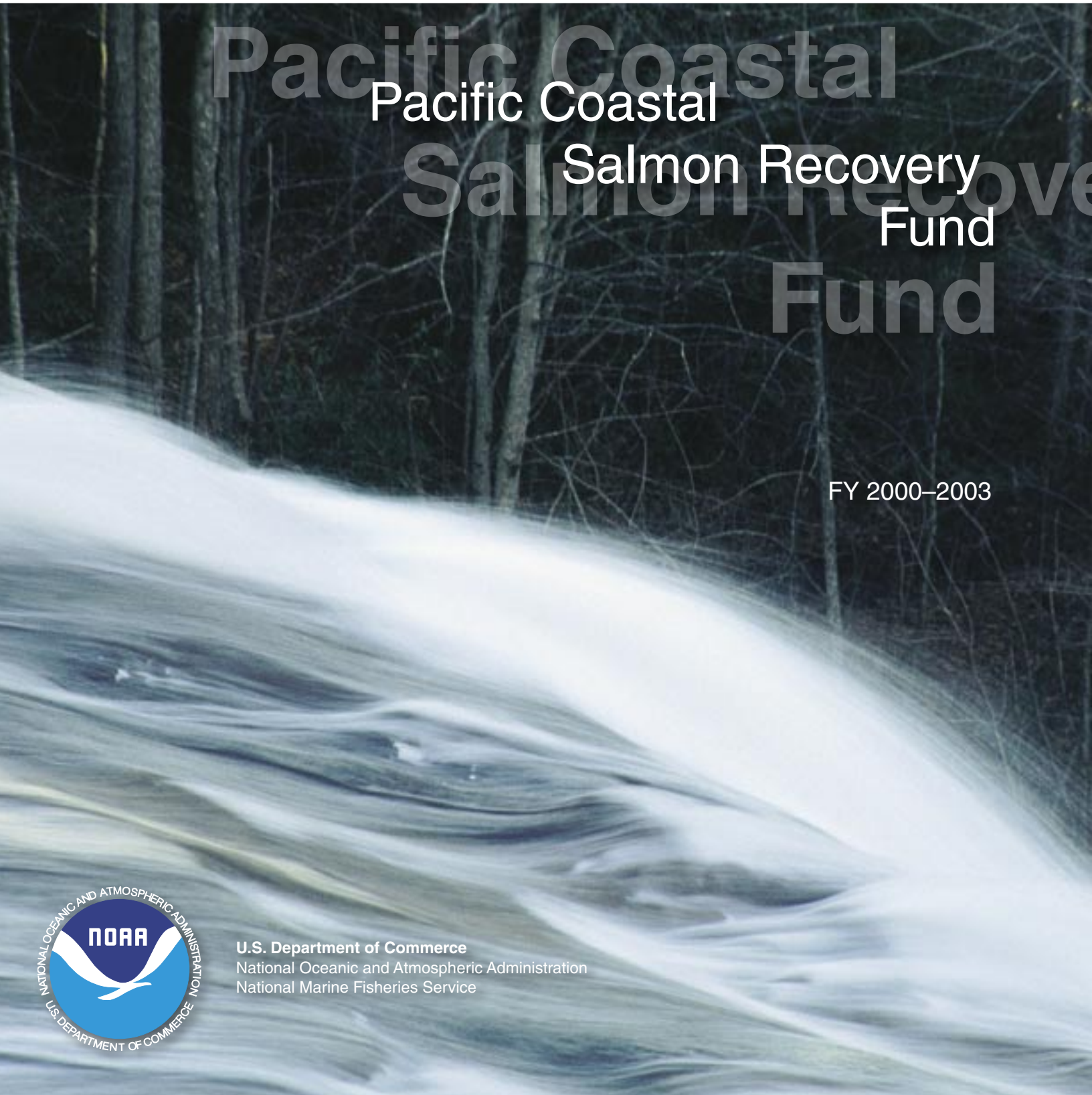
2004 Report to Congress



Pacific Coastal Salmon Recovery Fund

FY 2000–2003

U.S. Department of Commerce
National Oceanic and Atmospheric Administration
National Marine Fisheries Service

Pacific Coastal Salmon Recovery Fund

2004 Report to Congress

FY 2000–2003

August 2004

Copies of this report may be obtained by contacting:

NOAA National Marine Fisheries Service
Northwest Region
7600 Sand Point Way NE
Seattle, WA 98115

An online version of this report is available at http://www.nwr.noaa.gov/pcsrf/2004_PCSRF_Report.htm.

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Executive Summary

The annual report to Congress on the Pacific Coastal Salmon Recovery Fund (PCSRF) provides information on the administration of the PCSRF, accomplishments by states and tribes in salmon conservation and recovery using PCSRF funds through December 2003, and recent progress on the newly implemented performance tracking system for the PCSRF. The report also provides an update on the status of Endangered Species Act (ESA) listed salmon and steelhead and the development of recovery plans.

The PCSRF was established by Congress in fiscal year (FY) 2000 to provide grants to Pacific coast states and tribes to assist state, tribal, and local salmon conservation and recovery efforts. The goal of the PCSRF is to make significant contributions to the conservation and restoration of sustainable Pacific salmon and steelhead runs and the habitats upon which they depend. In response to requests by Congress and the Office of Management and Budget (OMB), the National Oceanic and Atmospheric Administration's (NOAA) National Marine Fisheries Service (NMFS), in conjunction with the states and tribes, recently identified performance indicators and developed a database for tracking and reporting progress in standardized ways toward the PCSRF goal. With this performance tracking and reporting system now in place, NMFS is working with states, tribes and local entities to annually report progress and accomplishments on specific annual and long-term performance indicators for better program accountability.

The annual report reflects initial efforts to use the performance tracking and reporting system to assess progress toward the goal through analysis of a consistent set of program-wide performance indicators for PCSRF funded projects. Indicators currently identified focus primarily on activities (inputs and outputs). These indicators will continue to be refined and new outcome measures (e.g., increased salmon populations) will be developed as research, monitoring, and evaluation (RM&E) programs begin to generate results. RM&E programs are needed to address the challenge of the long time scale inherent in salmon recovery efforts. New indicators will also be identified as sub-basin and watershed recovery plans identifying limiting factors are completed. Performance indicators that are responsive to limiting factors will be added to the performance tracking and reporting system over time.

Congressional appropriations to PCSRF for states and tribes to achieve the PCSRF goal are shown in Exhibit ES–1. Congress included PCSRF funding for the State of Idaho in the FY 2004 appropriations. Idaho's PCSRF program as well as the other state and tribal FY 2004 programs will be reported in the 2005 Report to Congress.

Exhibit ES–1: Congressional Appropriation of PCSRF Funds (in millions)

	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004
Washington	$18.00	$30.20	$34.00	$27.80	$25.99
Alaska	$14.00	$19.50	$27.00	$21.90	$20.65
California	$9.00	$15.10	$17.00	$13.90	$12.99
Oregon	$9.00	$15.10	$17.00	$13.90	$12.99
Idaho	•	•	•	•	$4.95
Pacific Coastal Tribes	$6.00	$7.40	$11.00	$8.90	$8.41
Columbia River Tribes	$2.00	$2.50	$4.00	$3.00	$3.06
Total	**$58.00**	**$89.80**	**$110.00**	**$89.40**	**$89.04**

The report highlights a number of successful projects that are beginning to show direct benefits to the status of salmon populations, such as salmon using newly opened or improved habitat. The report describes the precarious status of some salmon populations, as well as recent increases in other populations. In many cases, it will take several to many years after restoration and recovery efforts are completed before the accrued benefits to salmon can be shown by increases in salmon abundance.

The report describes 3,213 projects funded with FY 2000–2003 PCSRF and matching state funds through December 31, 2003. Approximately 1,500 of these are salmon habitat protection and restoration projects. The remaining more than 1,700 projects support salmon recovery through watershed planning and assessment, salmon enhancement, research and monitoring, and public education and outreach activities.

Chapter 1: Introduction

Background

The Pacific Coastal Salmon Recovery Fund (PCSRF), established by Congress in FY 2000, provides grants to assist state, local, and tribal salmon conservation and recovery efforts in Washington, Oregon, California, and Alaska. (The FY 2004 appropriations included the State of Idaho.) The PCSRF was requested by the governors of these states in response to Endangered Species Act (ESA) listings of Pacific salmon and steelhead populations, as well as harvest restrictions placed on the Southeast Alaska salmon fisheries through the 1999 Pacific Salmon Treaty Agreement. The National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NMFS) is the federal agency responsible for implementation and oversight of the PCSRF, in conjunction with states and tribes.

Declines of historic salmon and steelhead populations and deterioration of their habitats are the result of a multitude of actions, both human and natural, over the past century. Habitat alterations through activities such as urban development, logging practices, grazing, agriculture, and power generation, have resulted in loss of important spawning and rearing habitat. Past harvest practices, hatchery production, and other factors have affected salmon abundance and left populations more susceptible to fluctuations in the natural environment, such as changing ocean conditions, droughts, fires, and floods. The recovery of sustainable salmon runs requires substantial investments of time and other resources over many life cycles. There is a significant time lag between physical cause and biological effect, a fact that complicates the detection of changes in abundance and trends. Thus, in most cases, it will be several to many years after restoration and recovery efforts are initiated before increased numbers of fish occur. The declines in wild salmon and steelhead populations have occurred over the last century and will require decades to restore.

The goal of the PCSRF is to make significant contributions to the conservation and restoration of salmon and steelhead runs and the habitats on which they depend. The PCSRF supplements existing federal, state, and tribal programs to foster development of partnerships in salmon and steelhead recovery and conservation, while at the same time promoting efficiencies and effectiveness in local recovery efforts through enhanced leveraging of capabilities, expertise, and information. To date, the largest percentage of PCSRF and matching state funds have been directed to on-the-ground habitat restoration activities, since loss and degradation of habitat have been identified as principal factors contributing to salmon and steelhead decline. The next largest category of funding has been watershed planning and assessment efforts that develop the critical infrastructure necessary to prioritize and optimize further salmon and steelhead recovery investments. Some of the projects supported by PCSRF are already successfully demonstrating direct benefits to anadromous fish, such as salmon and steelhead using newly opened or improved habitat. Many projects, however, take several years to complete. Throughout the report, examples of the use of PCSRF funds for projects are highlighted. Details on the processes, projects, and performance indicators are provided in the remainder of the report.

Organization of the Report

The report is organized into five chapters. The remainder of this chapter describes general procedures for state and tribal distribution of funds and the development and use of performance indicators to assess PCSRF expenditures and progress toward the PCSRF goal. Chapter 2 provides a context for understanding the critical needs for PCSRF investments by outlining the geographic distribution of salmon listings, available information about current populations, and processes for salmon recovery. Chapter 3 displays the information currently available for the PCSRF performance indicators across program objectives. Chapter 4 provides more detail on current procedures in place by states and tribal commissions for distributing PCSRF funds and the patterns of fund distribution. Chapter 5 draws some preliminary conclusions related to the use of performance indicators in assessing outcomes and the ongoing progress being made with PCSRF funds. Throughout the report, the term salmon is generally used to refer to salmon and steelhead (salmonid) populations. Indicators described in this report can be accessed and manipulated in the PCSRF data system at http://webapps.nwfsc.noaa.gov/pcsrf/.

Funding Distribution and Processes

MOUs and Identification of State Processes

The initial Congressional appropriation report for the PCSRF in FY 2000 encouraged development of Memoranda of Understanding (MOUs) between NMFS and states and tribal commissions for distribution of PCSRF funds to qualifying projects. These MOUs were not established to require NMFS approval of individual projects, but were structured to set criteria and processes for funding priority projects. NMFS entered into MOUs with Washington, Alaska, California, Oregon, the Northwest Indian Fisheries Commission (NWIFC) on behalf of 20 western Washington treaty tribes[1], the Columbia River Inter-Tribal Fish Commission (CRITFC) on behalf of four Columbia River basin treaty tribes[2], and the Klamath River Inter-Tribal Fish and Water Commission (KRITFWC) on behalf of four Klamath River basin tribes.[3] Seven non-affiliated tribes[4] received PCSRF funds directly (without MOUs) for specific projects.

The MOUs established processes for state/tribal distribution of the funds based on criteria for effective use of the funds toward salmon conservation and recovery. The MOUs include processes for considering projects including scientific review, requirements for reporting, monitoring, and

[1] Nisqually, Squaxin Island, Puyallup, Jamestown S'Klallam, Port Gamble S'Klallam, Lower Elwha Klallam, Skokomish, Swinomish, Sauk-Suiattle, Upper Skagit, Tulalip, Makah, Stillaguamish, Muckleshoot, Suquamish, Nooksack, Lummi, Hoh, Quinault, and Quileute Tribes. These are Pacific coastal tribes.

[2] Nez Perce Tribe (ID), Confederated Tribes of the Umatilla Indian Reservation (OR), Confederated Tribes of the Warm Springs Reservation of Oregon (OR), and the Confederated Tribes and Bands of the Yakama Nation (WA). These are Columbia River tribes.

[3] The Karuk Tribe of California (CA), Yurok Tribe (CA), Hoopa Valley Tribe (CA), and The Klamath Tribes (OR). These are Pacific coastal tribes.

[4] The Pacific coastal tribes not affiliated with an Inter-tribal Commission are Round Valley Indian Tribes in the Eel River Basin (CA), Confederate Tribes of the Chehalis Reservation (WA), Coquille Indian Tribe (OR), Confederated Tribes of Grand Ronde (OR), and Confederated Tribes of the Siletz Indians (OR). The Columbia River tribes not affiliated with an Inter-tribal Commission are Colville Confederated Tribes (WA) and Shoshone-Bannock Tribes (ID).

evaluation, and other measures to ensure full accountability and public access to the information and data collected with these funds.

History, Types, and Locations of Projects Funded

In the initial year of the program (FY 2000), Congress appropriated $58 million and authorized funding for salmon habitat restoration, salmon stock enhancement, salmon research, and implementation of the 1999 Pacific Salmon Treaty Agreement and related agreements.[5] In accordance with the enabling legislation, the PCSRF appropriation was distributed primarily to the states ($50 million), with the remainder ($8 million) to the Pacific coastal tribes and the Columbia River tribes. The authorizing legislation in FY 2000 also mandated that PCSRF funds be subject to a 25 percent non-federal match by states, and that administrative expenditures by states be limited to 3 percent.[6]

Over the last three years, an average of $96 million per year has been appropriated, with the total FY 2000–2003 PCSRF funding reaching $347.2 million. Of the funds appropriated in FY 2000–2003, $302.4 million (87 percent) went to the four states, and $44.8 million (13 percent) to the tribes. (The FY 2004 appropriation of $89 million will be discussed in the 2005 Report to Congress.) The PCSRF funding to the states was matched with $164.9 million in state funds, a 55 percent match on the PCSRF

[5] See Section 623(d)(3) of P.L.106-113.

[6] See P.L. 106-113. The conference report further restricted Washington to a one percent limit on administrative expenditures.

Before

After

Habitat Protection and Restoration

Washington—Sherwood Creek Fish Passage

In 1997, the South Puget Sound Salmon Enhancement Group and Allyn Community Association proposed replacing fish blocking culverts on Sherwood Creek in Mason County to provide access to 18.6 miles of high-quality spawning and rearing habitat for several species of salmon, including chinook, chum, coho, and cutthroat. Because the stream is approximately 30 feet wide, project sponsors determined a new bridge would be the most cost-effective and biologically-sound solution. Culminating a large fund raising effort ($1.1 million) and much hard work by project sponsors, the new railroad bridge was built in the summer of 2002. The new bridge allows fish passage for adults and juveniles of all species, and also restores watershed processes, allowing streambed material and woody debris to migrate downstream.

The project partnership included the local salmon recovery lead entity, federal and state agencies, railroad, tribal, and private parties. Contributions were made by the U.S. Navy, Washington State, PCSRF, and private volunteers. In the fall of 2002, volunteers reported thousands of salmon using the newly opened habitat upstream of the bridge.

funds, significantly exceeding the 25 percent requirement match. Exhibit 1–1 shows the percent allocations of PCSRF funds among states and tribes for FY 2000–2003.

Authorization for appropriations through FY 2003 was provided in the FY 2001 Appropriations Act.[8] With this legislation, PCSRF funds to the states were authorized for "salmon habitat restoration, salmon stock enhancement, and salmon research including the construction of salmon research and related facilities;" while PCSRF funds to the tribes were authorized for "salmon habitat restoration, salmon stock enhancement, salmon research, and supplementation activities." Exhibit 1–2 shows the distribution of PCSRF funds and state matching funds across objectives through December 31, 2003.

This report describes the distribution and use of the PCSRF funding by the states and tribes through December 31, 2003, accounting for most, but not all, of PCSRF funding appropriated.[9] PCSRF funds are awarded to the states and tribes as appropriations become available, which normally occurs well after the October 1 start of the federal fiscal year. States and tribes must prepare grant applications each year, which are submitted soon after the appropriations become available to NMFS. These grant applications then continue through the NOAA grants process, sometimes resulting in issuance of grant awards close to the end of the fiscal year. The grant awards are then followed by state and tribal processes and cycles for screening and selecting priority projects and distributing the funds. Thus, many of the PCSRF funds are committed to projects in the year following the availability of appropriations.

Exhibit 1–1: Allocation of FY 2000–2003 PCSRF Funds to States and Tribes

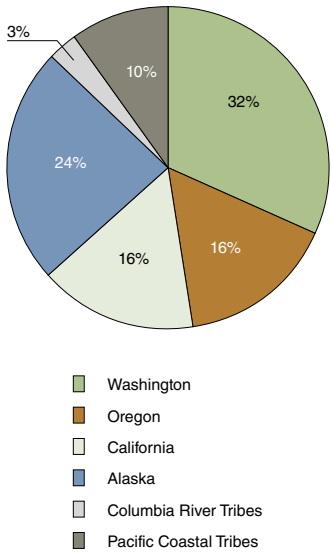
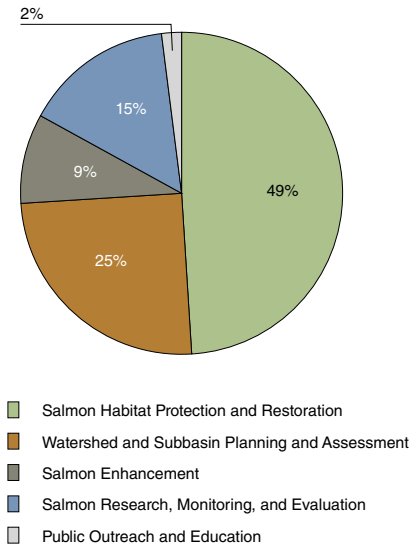


Exhibit 1–2: Distribution of PCSRF and State Funds by Objective Through December 2003



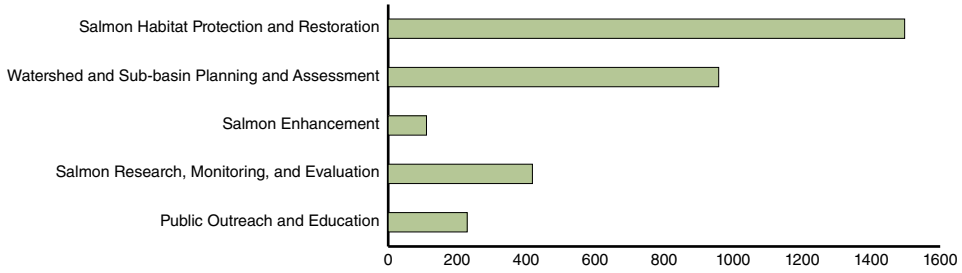
[8] P.L.106-553.

[9] As of December 31, 2003, about half of the FY 2003 PCSRF funds had not been committed to projects through the applicable state and tribal processes due to the issuance of most PCSRF grant awards in the last month of the fiscal year. In the case of California and Alaska, 100 and 90 percent respectively of their FY 2003 PCSRF funds were not committed in 2003. They will be committed in calendar year 2004 and reported in the 2005 Report to Congress.

Actual project completion can take several additional years because of construction windows, the seasonal nature of salmon work, permitting delays, and processes required to issue contracts for the work to be done. Additionally, in some cases, projects may be cancelled or terminated for a variety of reasons. The funds then revert back to the state or tribe processes for re-issuance to new projects.

Approximately 85 percent of the FY 2000–2003 PCSRF appropriated funds was committed to 3,213 projects as of December 31, 2003, with about 39 percent of these projects completed. Exhibit 1–3 shows the number of projects funded by objective. Exhibit 1–4 shows the distribution of funds to projects by watershed basin. This report accounts for the funds committed to projects under the five objectives previously mentioned, but does not include all of the administrative and overhead costs.

Exhibit 1–3: Projects Funded (PCSRF and State Funds) by Objective Through December 2003

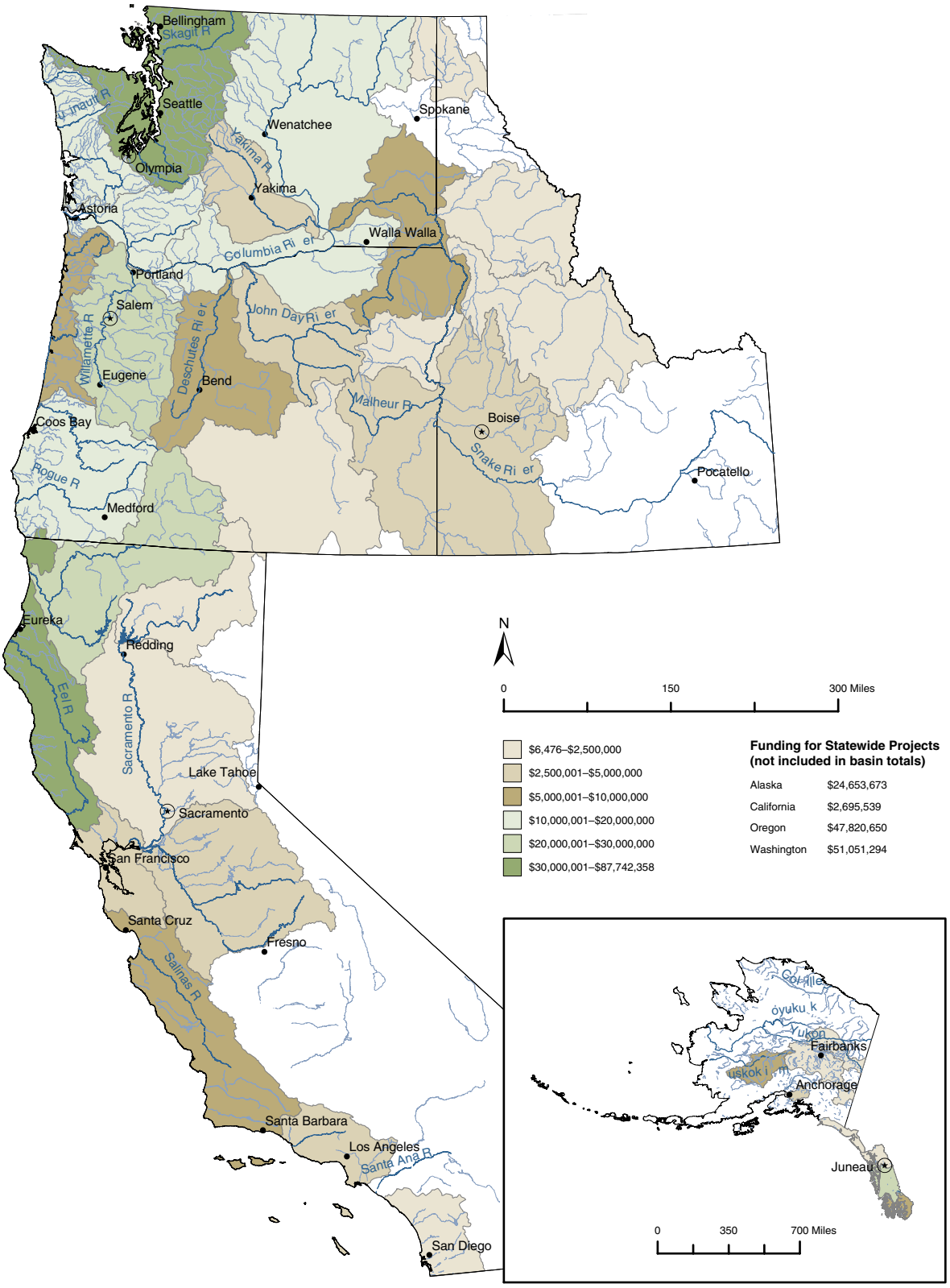


Developing Performance Measures

Understanding the progress being made toward the overall goal of Pacific salmon recovery is essential to ensure wise investments of resources to accomplish specific outcomes. The PCSRF is a relatively new program, receiving funding only since FY 2000. The lack of a PCSRF performance measurement system across the four states (Washington, Oregon, California, and Alaska) was noted in the "Performance and Management Assessments" section of the "Budget of the United States Government Fiscal Year 2004." A "Performance Assessment Rating Tool" (PART) was applied to the PCSRF by the Office of Management and Budget (OMB), resulting in a rating of "results not demonstrated." The basis for the rating was: 1) program-wide performance measures had not yet been developed, although each state was developing performance measures related to its individual needs; 2) the program had not been able to allocate funds based on recovery needs of specific salmon populations; and, 3) the long-term goal of the program is to contribute to recovery and conservation of Pacific salmon, and the program, which started in 2000, had not finalized annual measures yet. Although MOUs between NMFS and the states and tribes established criteria and goals for prioritizing PCSRF funds to projects designed to conserve and restore Pacific salmon, they lacked program-wide performance measures and thus did not meet the PART requirements when it was conducted in 2002. The PART evaluation of the PCSRF program was not reassessed in the FY 2005 Budget process and therefore does not reflect recent progress made in developing performance indicators.

In response to the OMB assessment, NMFS and the PCSRF grantees (states and tribes) worked together over the last year to develop performance indicators to track progress and report on the

Exhibit 1–4: Distribution of PCSRF Funds by Watershed Basin Through December 2003



status of the program. Previous reports have focused primarily on grantee (states and tribes) programs and accomplishments. This report is the first attempt to track performance through analysis of a consistent set of program-wide reporting indicators for PCSRF funded projects. Rather than simply reporting the number of projects funded to improve habitat, the new indicators will provide annual outputs such as the number of stream miles actually treated to improve habitat and the number of culverts replaced or repaired to allow fish passage.

It is not possible at this time to report indicators for all projects, nor is it possible to report on specific outcome measures. The indicators were developed recently, and not all projects funded in earlier years tracked the specific indicators currently identified. Further, not all projects funded have been completed. Research, monitoring, and evaluation (RM&E) programs have been established to begin to develop the needed correlations between PCSRF activities and salmon returns. These RM&E efforts will lead to the development of performance measures to assess outcomes. All projects funded in FY 2004 and thereafter include requirements for collection of the new indicators as appropriate for use in measuring annual and long-term performance.

States and tribes have agreed to report on 70 different indicators across five broad program objectives. Measuring program performance is an iterative process, and over time, knowledge gained from the variety of performance indicators under each objective will contribute to the cumulative understanding of outcomes and program effectiveness. Reporting metrics and performance indicators will be periodically revised to better assess outcomes as the program evolves.

Program Objectives and Performance Indicators

There are five broad program objectives within the PCSRF. Reporting metrics and performance indicators have been identified under each of these to track annual performance and long-term effectiveness of the program. The PCSRF performance indicators reported by the states and tribes through December 2003 are aggregated in Chapter 3 of the report and summarized by individual grantee in Chapter 4 under the following program objectives.

1. **Salmon Habitat Protection and Restoration**
   The objective is to implement habitat improvements that restore ecosystem characteristics and processes that address priority factors limiting salmonid production. Projects include "on-the-ground" habitat projects that protect, preserve, restore, and enhance salmon habitat and watershed functions, as well as property acquisition for conserving salmon habitat.

2. **Watershed and Sub-basin Planning and Assessments**
   The objective is to develop comprehensive plans or reports (e.g., recovery plans, watershed plans, sub-basin plans, habitat inventory reports) that identify and prioritize factors limiting wild salmonid production at different spatial scales and address measures needed to eliminate limiting factors. Projects include recovery planning and participation in NMFS Technical Recovery Teams, watershed assessments including mapping/inventory for plans, sub-basin planning, technical assistance, development of habitat inventory reports, support for salmon restoration groups including watershed councils, and organizational infrastructure and staffing for local conservation groups and tribal entities.

3. **Salmon Enhancement**
   The objective is to conduct activities that: 1) enhance depressed stocks of wild anadromous salmonids through hatchery supplementation, 2) reduce fishing efforts on depressed wild stocks, or 3) enhance Pacific salmon fisheries on healthy stocks in Alaska.

4. **Salmon Research, Monitoring, and Evaluation**
   The objective is to conduct research and monitoring on salmonids and/or their habitat to: 1) assess watershed health and salmonid recovery, 2) assess the effectiveness of habitat restoration actions, 3) improve long-term fisheries management, and 4) implement the research and monitoring requirements of the 1999 Pacific Salmon Treaty Agreement. Projects include investigations, studies, and validation monitoring.

5. **Outreach and Education**
   The objective is to educate constituencies on the value of, and actions taken for, conservation, restoration, and sustainability of healthy Pacific salmonid populations and their habitat. Projects include workshops, forums, preparation of educational materials, training, and citizen participation.

Chapter 2: Status of Salmon and Steelhead Populations

Status of ESUs

Fifty-two Evolutionarily Significant Units (ESUs) of Pacific salmon and steelhead have been identified in Washington, Oregon, California, and Idaho. An ESU is a group of individual populations of salmon or steelhead that share common genetic, ecological, and life history traits, and differ in important ways from populations in other ESUs. As of December 2003, 26 of the 52 ESUs were listed as endangered or threatened under the ESA (listings between 1990–2000). These 26 ESUs were organized by NMFS into 8 recovery domains for the purpose of developing recovery plans (See Exhibit 2–1 for the geographic areas and ESUs covered by the recovery domains).

The Pacific coast is home to seven different species of Pacific salmonids (genus *Oncorhynchus*), of which five—chinook, coho, sockeye, chum, and steelhead—have ESUs listed as threatened or endangered in some portion of their range. Exhibit 2–2 displays the distribution of these species and the listed ESUs.

The status reviews of the 26 listed ESUs were recently updated by Biological Review Teams (BRTs) for NMFS' reconsideration of the ESA listing determinations. The BRT's February 2003 report, *Preliminary Conclusions Regarding the Updated Status of Listed ESUs of West Coast Salmon and Steelhead*, provides the best available comprehensive picture of salmon and steelhead listed populations for the entire Pacific Coast region (available at http://www.nwfsc.noaa.gov/trt/brtrpt.htm). Summary data from the report are presented in the following maps and graphics of domains and ESUs. This information includes the following.

- Status of each population (e.g., threatened, endangered) and the year listed.
- Historical abundance levels based on the best data available (rough estimates).
- Abundance totals over time for aggregated populations (including both hatchery and wild fish) within the ESU.[10]
- Recent percentages (last five years) of wild (natural origin) and hatchery fish returns for ESUs where this information is available.

The historical abundance estimates provide perspective on the significant declines that have occurred in some ESUs. In most cases, populations do not have to reach historic abundance levels to be considered recovered. (More information on what it means to be "recovered" and the recovery planning process is included at the end of this chapter.) As noted on the graphs, some of the ESUs have shown increases in abundance over the last few years. It is not known whether these recent

[10] The ESU-level abundance data for the North-Central California Coast, Central Valley, and Southern California Coast Recovery Domains do not exist. Where available, data for a single representative population in the ESU are shown to demonstrate abundance trends.

Exhibit 2–1: Recovery Domains and Evolutionarily Significant Units

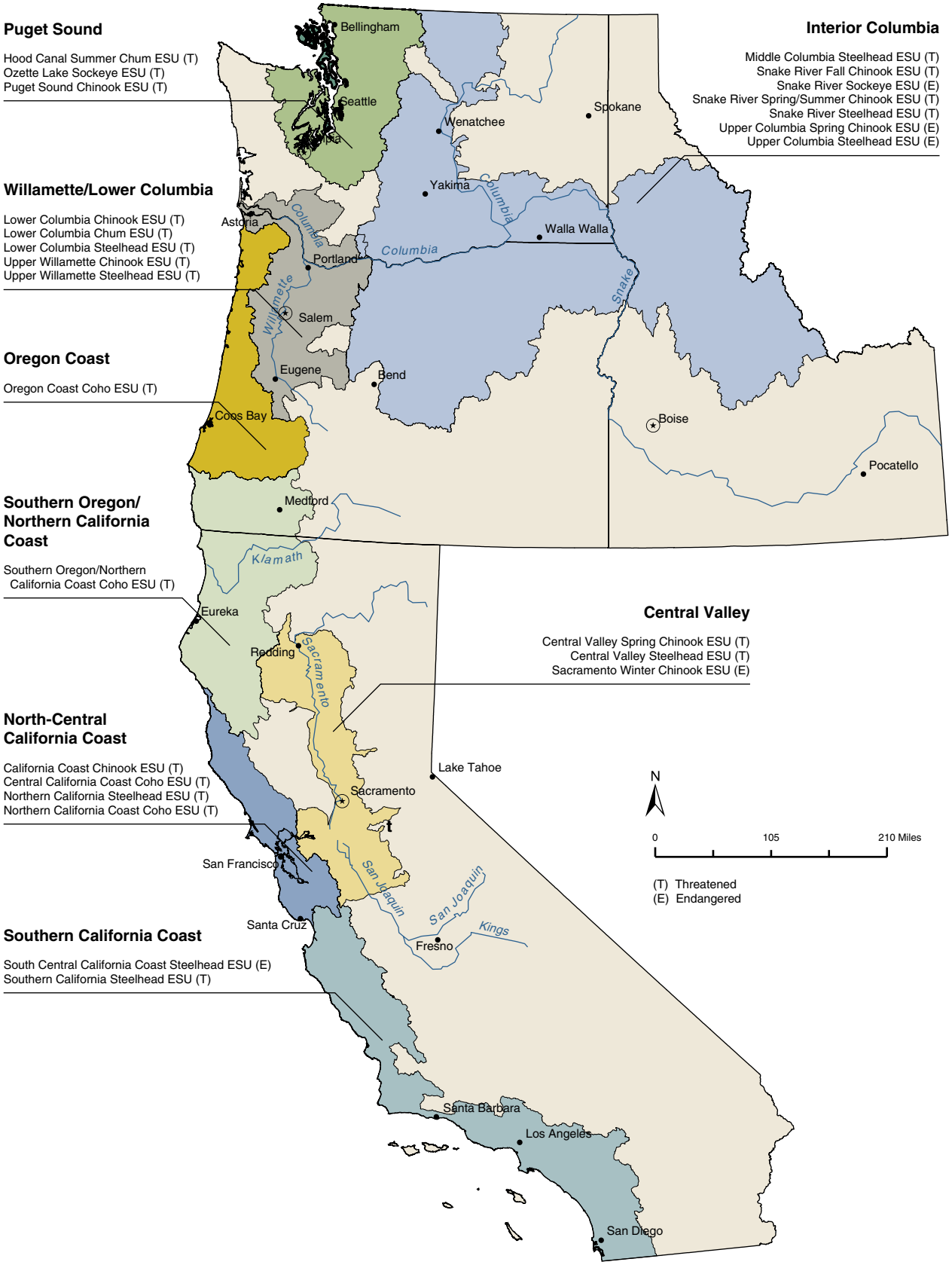
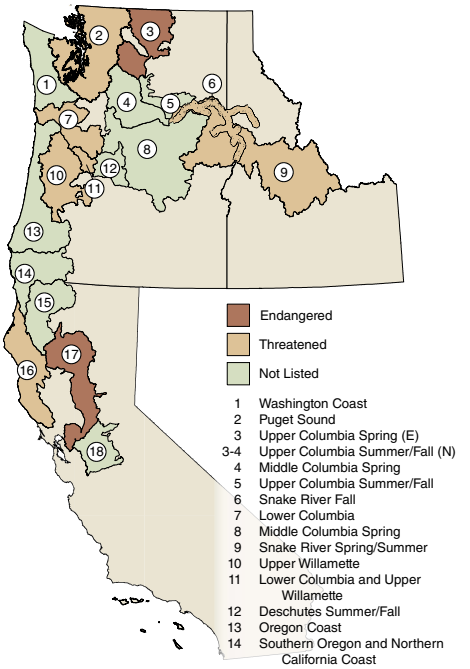
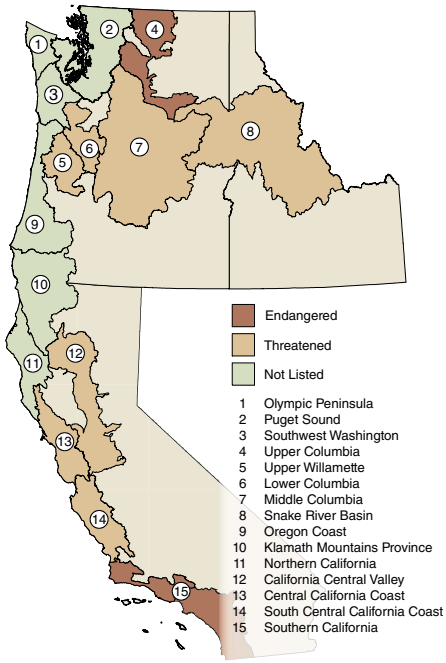


Exhibit 2–2: Distribution of Salmon and Steelhead ESUs

Chinook



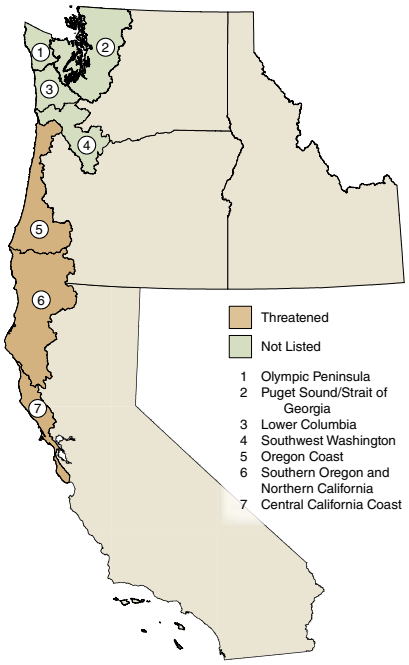
Steelhead



Sockeye

Chum

Coho



increases represent the beginning of a long-term upward trend in abundance. Recent changes in ocean conditions have contributed to the increase in the abundance levels of many populations, while improvements in land use practices and habitat conditions also have played a role in the increased numbers of returning fish. Some of these improvements are the result of investments of PCSRF funds, as well as other federal, state, and local funding.

Also identified in the following graphics for each domain are the "factors of concern." These are factors that have contributed to salmon declines or limit recovery of salmon. The factors of concern are defined in more detail in Exhibit 2–3.

Exhibit 2–3: Factors of Concern

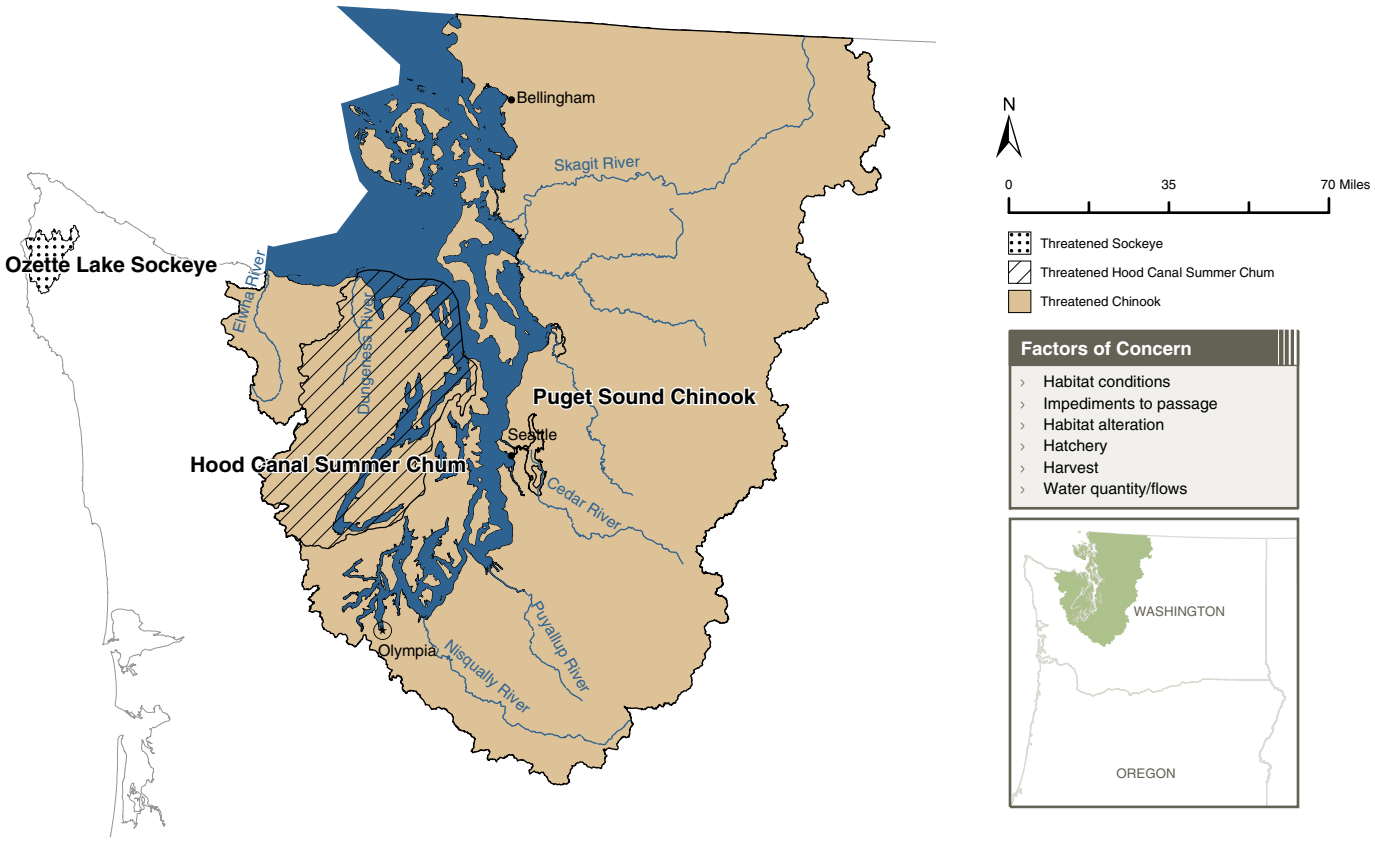
Habitat conditions	Degraded instream habitat conditions, including physical habitat, water quality, temperature, sediments, riparian condition
Impediments to passage	Impediments affecting survival of migrating fish (rather than access), including dam passage, unscreened diversions
Habitat alteration	Including channelization, urbanization
Hatchery	Negative effects of hatchery practices
Harvest	Effects of over-harvesting or harvest timing
Access	Loss of access to suitable habitat (complete impassable barriers)
Water quantity/flows	Irrigation diversions, flow impairment
Biotic factors	Exotic species, predator/competitor interactions, trophic cycling

Numerous actions have contributed to the decline of salmon and steelhead populations, especially in the four arenas most often cited: harvest, hatcheries, habitat, and hydropower. The factors that have contributed to declines were initially identified in the status reviews and are currently being reviewed by Technical Recovery Teams (TRTs) in each of the eight recovery domains. Many of the factors that led to the decline of salmon and steelhead may also hinder recovery, but the relative impact may have changed over time. For example, overharvest was a significant factor leading to the decline of some populations; however, harvest methods and rates have been adjusted and in some cases harvest is no longer a major factor limiting recovery.

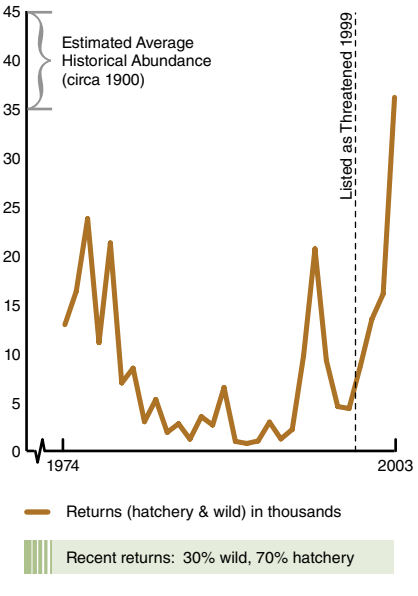
The factors that affect the recovery of salmon are called "limiting factors." The TRTs are establishing the limiting factors for recovery of listed populations in each recovery domain using information developed by watershed planning efforts throughout the region, including sub-basin planning in the Columbia River basin. The identification of limiting factors is important in understanding where investments for recovery should be made. Limiting factors include conditions that limit the productivity of salmon habitat. These conditions include degraded habitat, altered stream channels and flows, barriers to fish passage, and loss of spawning and rearing grounds.

The data presented in the following graphics and maps provide the context for PCSRF investments. PCSRF exists because of the declines in salmon populations and the need to recover and conserve them. These data help describe the challenges facing that recovery.

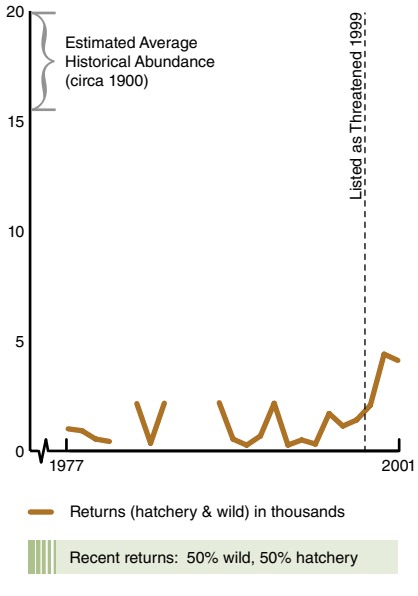
Exhibit 2–4: Puget Sound Recovery Domain



Hood Canal Summer Chum ESU



Ozette Lake Sockeye ESU



Puget Sound Chinook ESU

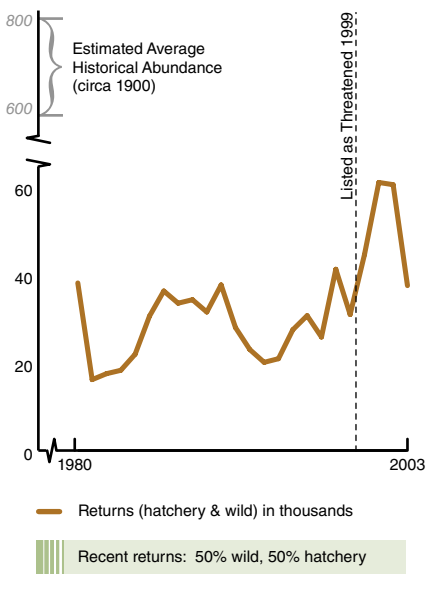
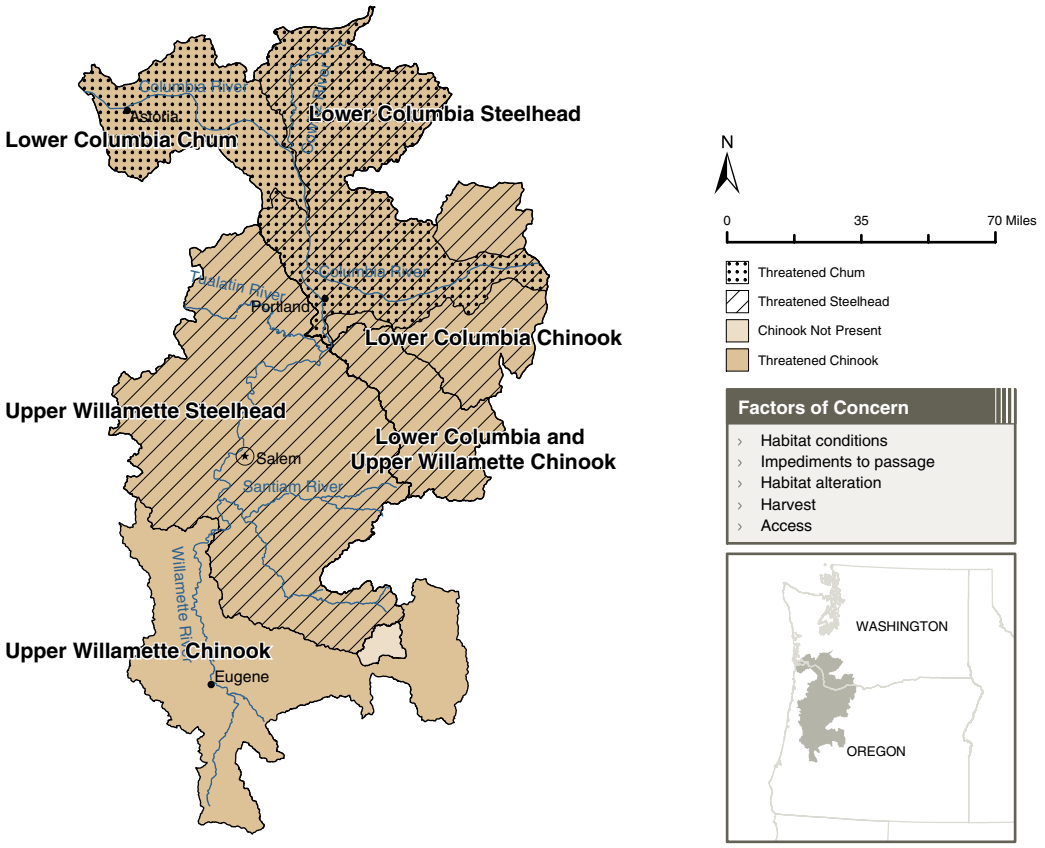
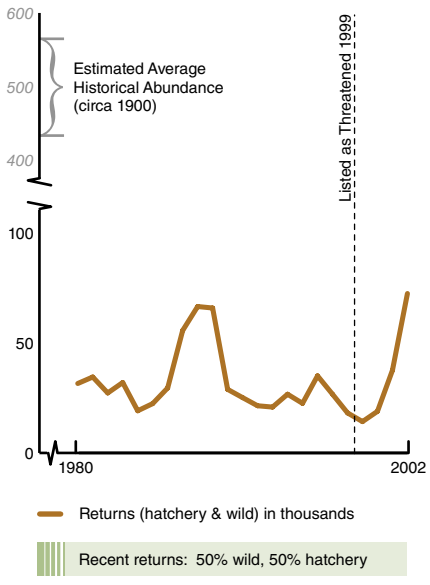


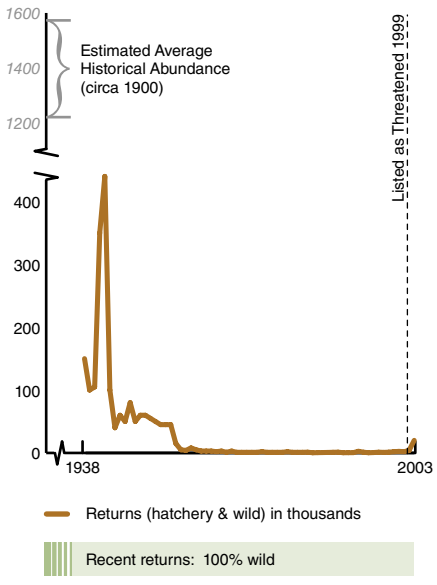
Exhibit 2–5: Willamette/Lower Columbia Recovery Domain



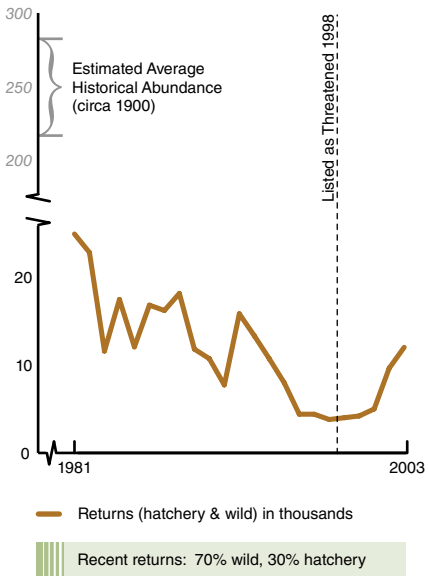
Lower Columbia Chinook ESU



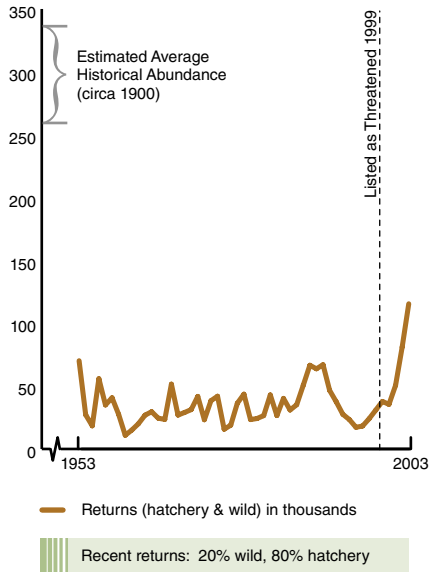
Lower Columbia Chum ESU



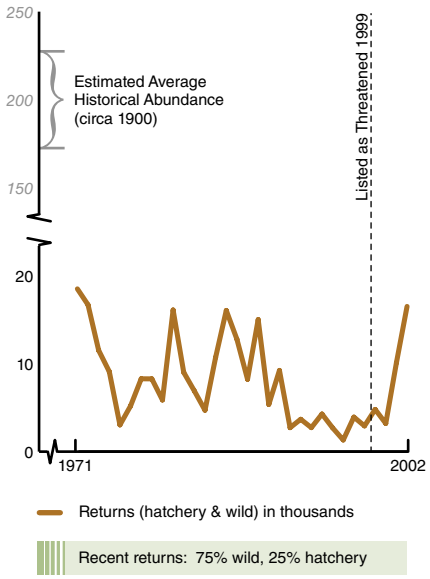
Lower Columbia Steelhead ESU



Upper Willamette Chinook ESU



Upper Willamette Steelhead ESU



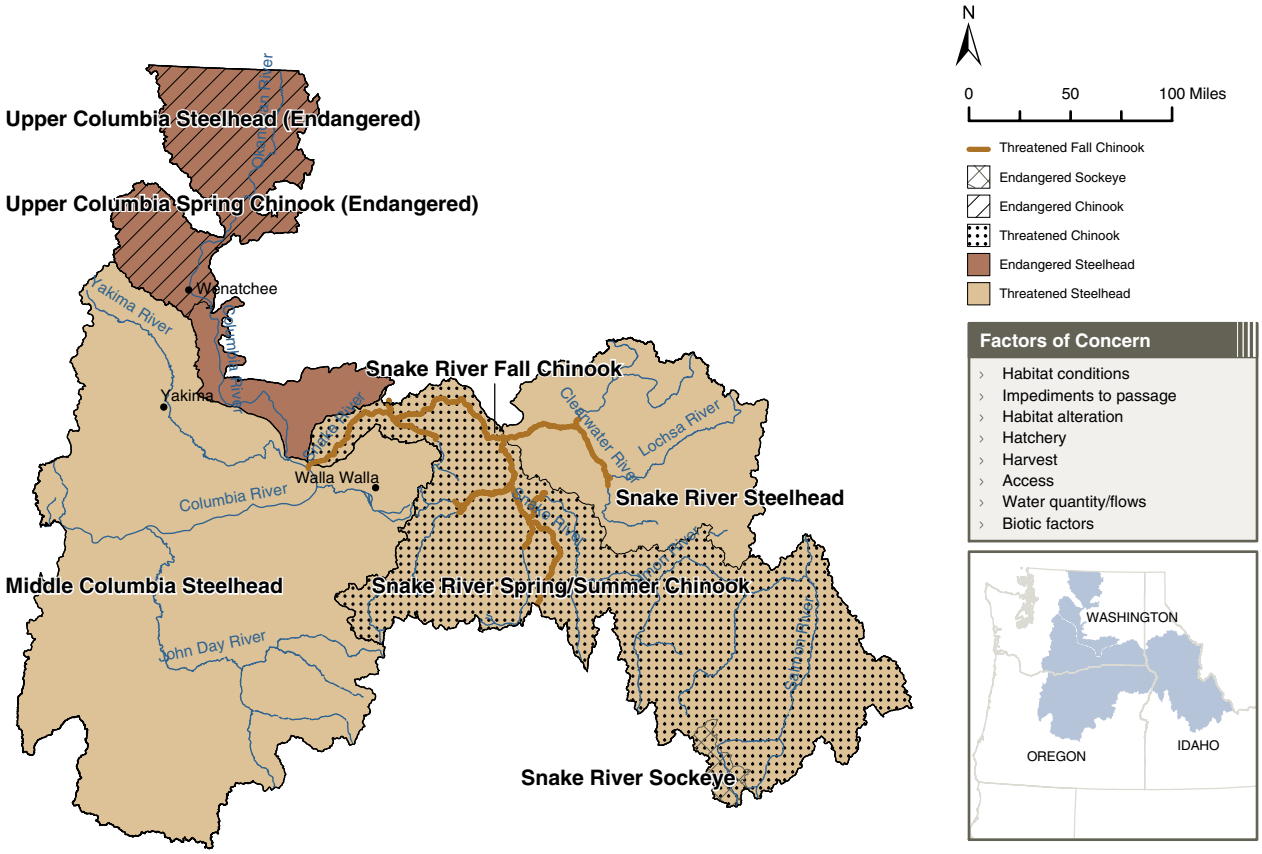
Participants in the Seaside Estuary and Watershed Discovery Program

Outreach and Education

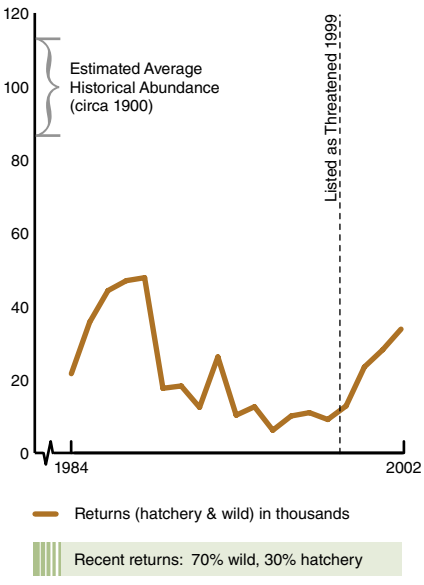
Oregon—Seaside Estuary and Watershed Discovery Program

The City of Seaside has an inventive way of communicating the wonders and challenges of its coastal environment to residents and visitors while giving its citizens the information they need to participate in important land use decisions. Since its inception in 1996, the city's Estuary and Watershed Discovery Program has developed a comprehensive education program that includes sites for hands-on activities around the Necanicum watershed. The program includes a walking trail with interpretive signs in the 50-acre Neawanna Natural History Park, canoe tours, plankton and invertebrate sampling stations, and onsite and classroom presentations. These activities educate participants about the salmon and other resources in the watershed, from upland forests to salt marshes. By providing the scientific information required to make informed decisions about growth and development in the region, the City of Seaside is achieving several state and local planning goals. The goals target effective citizen involvement, protection and restoration of natural resources, and cooperation among local jurisdictions in managing the estuary. PCSRF funds allowed Seaside to expand the program from several days a week during the summer, to a year-round program that will reach 2,000 participants in formal school settings and 3,000 participants through its informal education and outreach program. For more information see http://www.seaside.k12.or.us/steeward/index.htm.

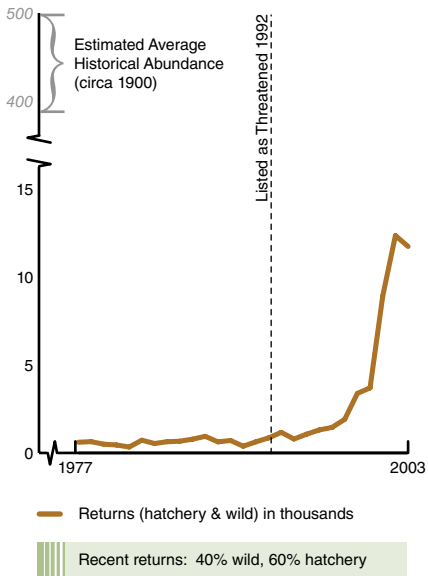
Exhibit 2–6: Interior Columbia Recovery Domain



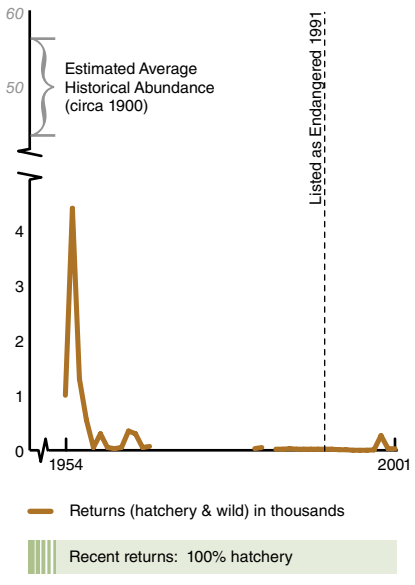
Middle Columbia Steelhead ESU



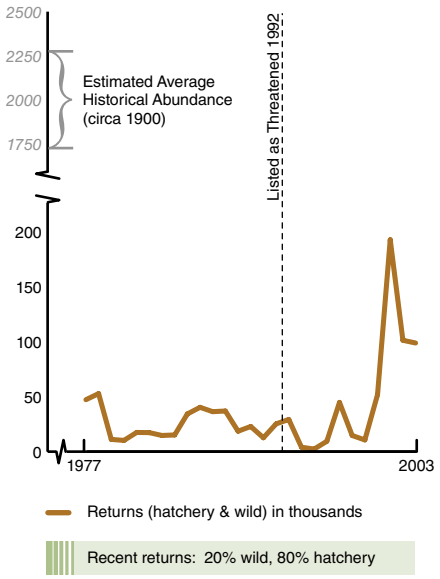
Snake River Fall Chinook ESU



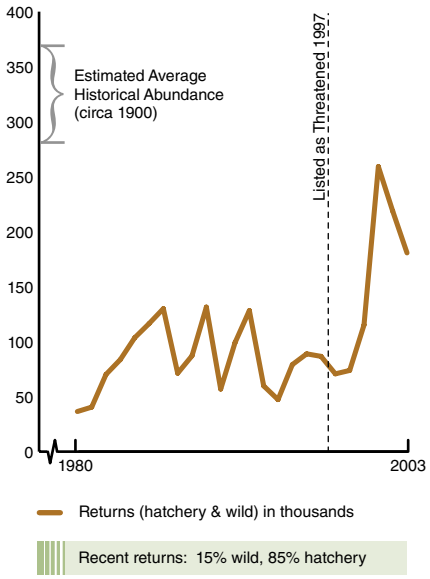
Snake River Sockeye



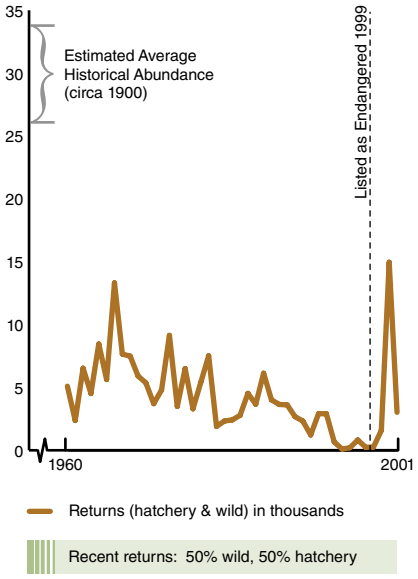
Snake River Spring/Summer Chinook ESU



Snake River Steelhead ESU



Upper Columbia Spring Chinook ESU



Upper Columbia Steelhead ESU

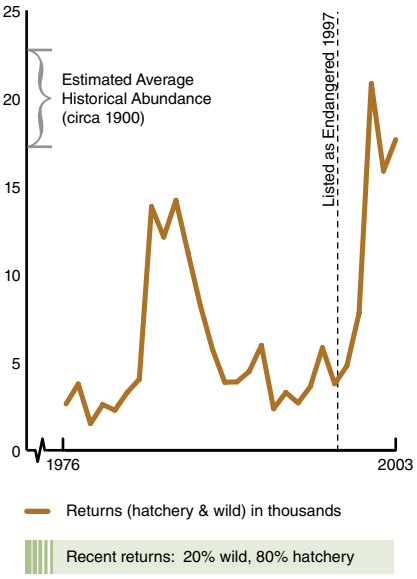
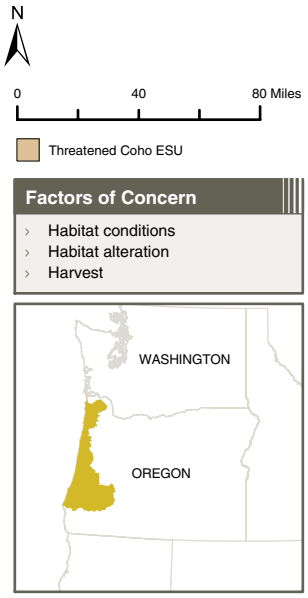


Exhibit 2–7: Oregon Coast Recovery Domain



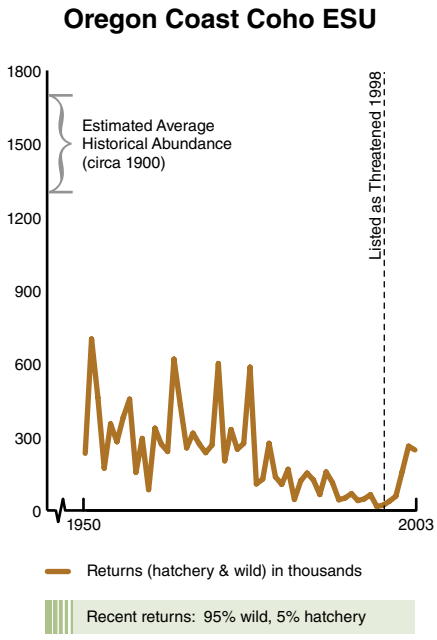
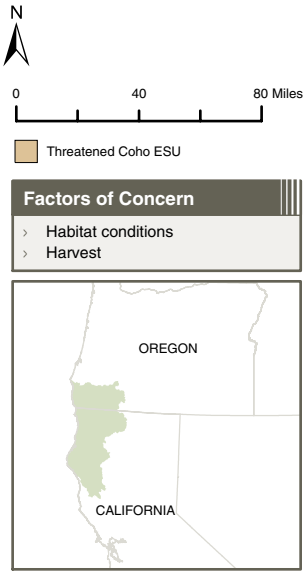


Exhibit 2–8: Southern Oregon/Northern California Coast Recovery Domain



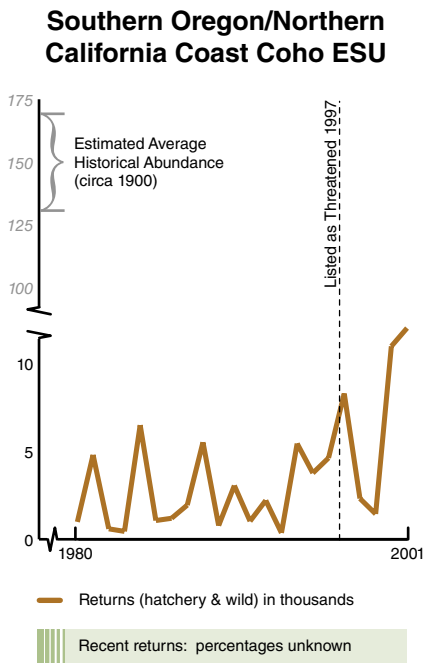
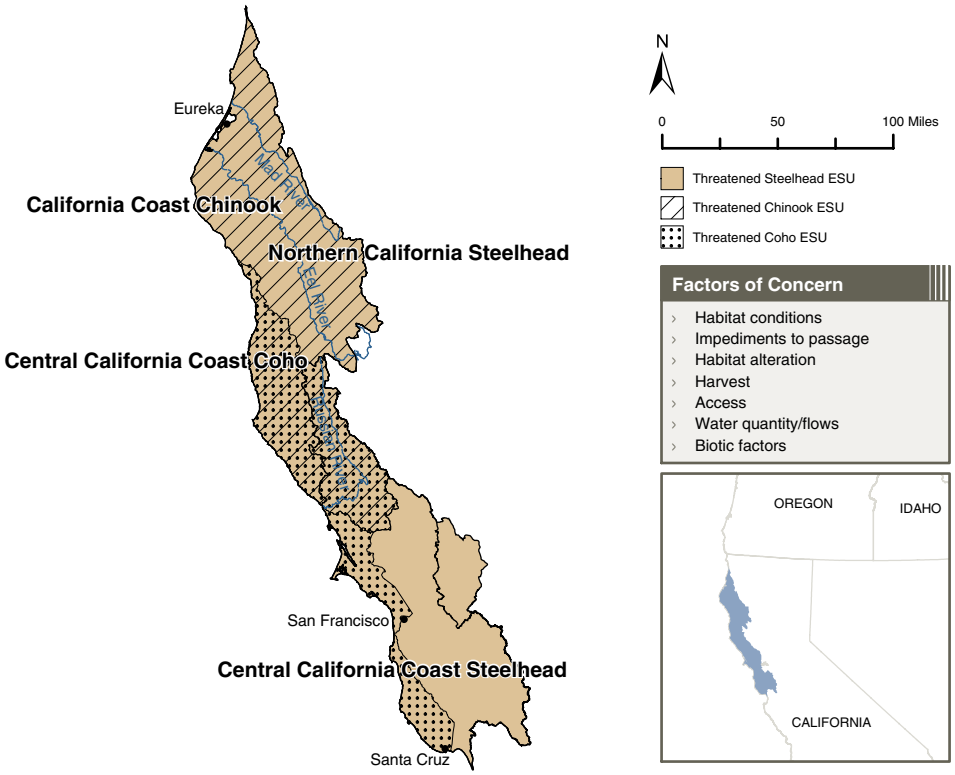
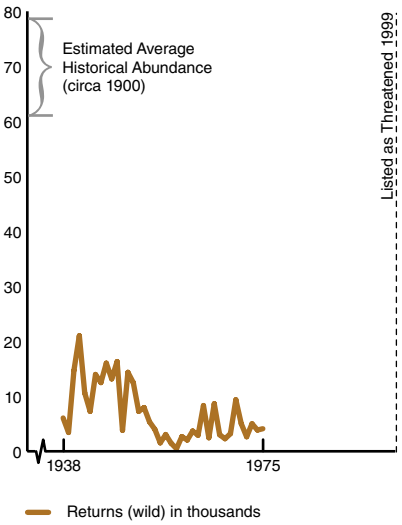


Exhibit 2–9: North-Central California Coast Recovery Domain



Note: There are no time series ESU abundance data for the four ESUs within this recovery domain. For the California Coast Chinook ESU and the Northern California Steelhead ESU shown below, data from dam counts on the South Fork Eel River from 1938–1975 represent the best proxy for the ESU as a whole and are shown here. This basin was a major producer of chinook salmon and steelhead.

California Coast Chinook ESU



Northern California Steelhead ESU

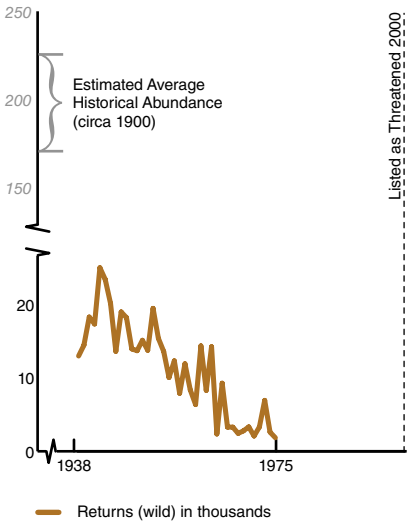
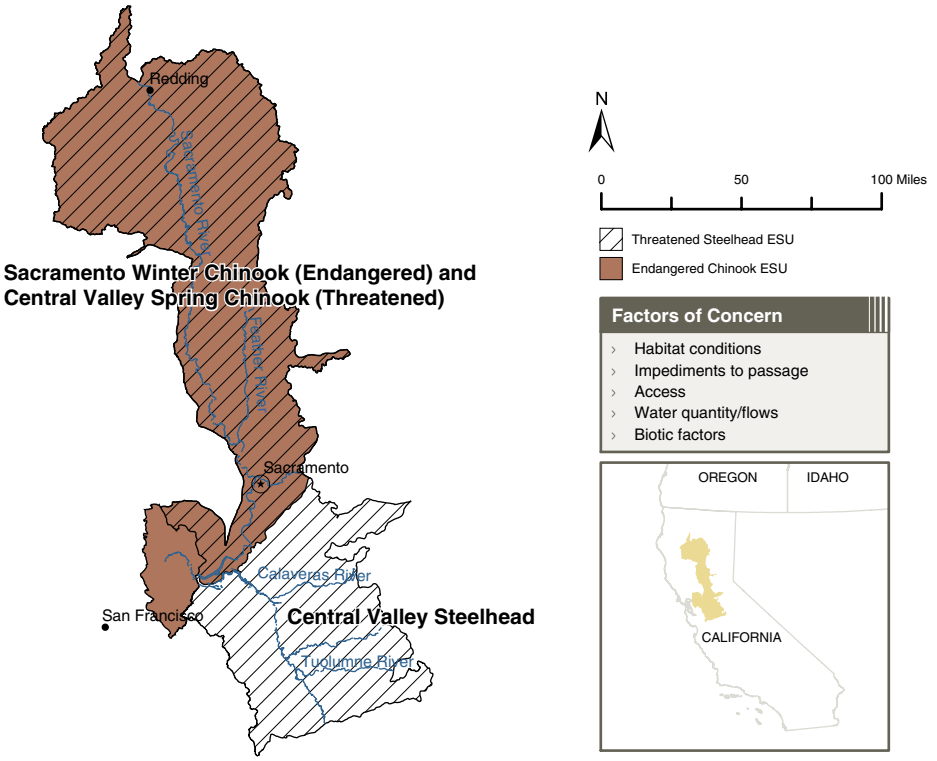
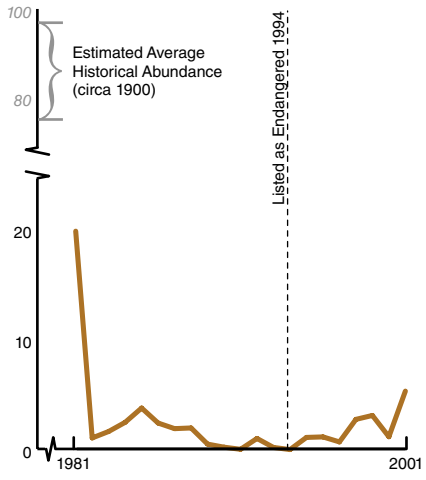


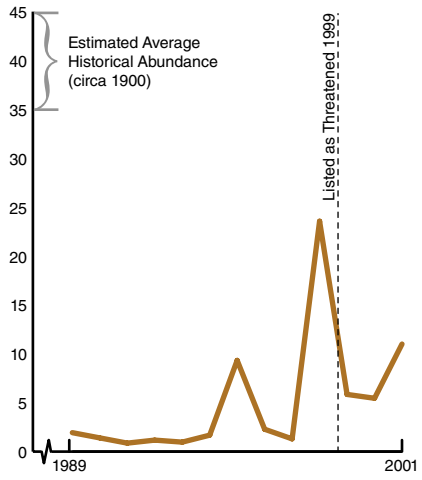
Exhibit 2–10: Central Valley Recovery Domain



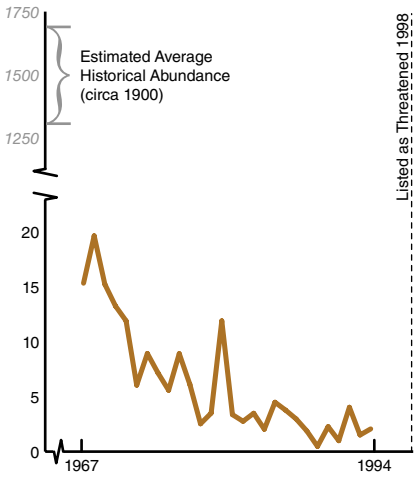
Sacramento Winter Chinook ESU



Central Valley Spring Chinook ESU

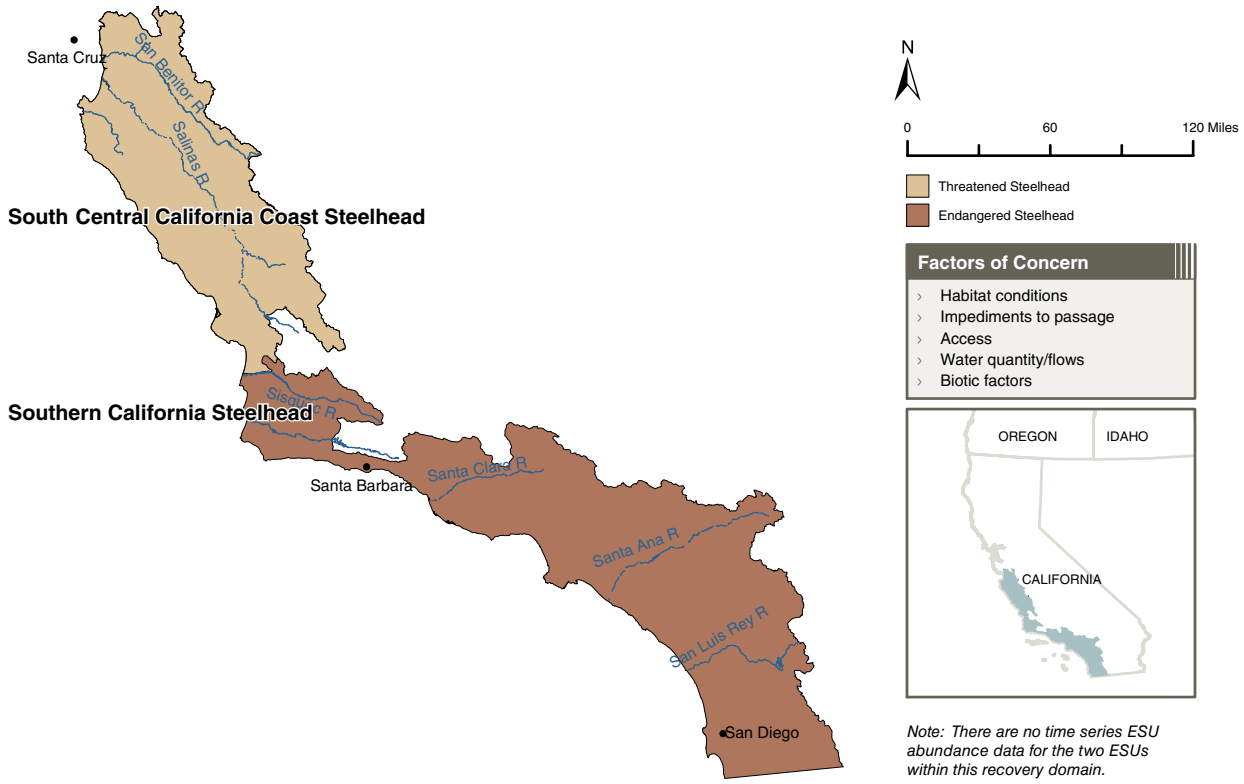


Central Valley Steelhead ESU



Note: The data set represents dam counts at the Red Bluff Diversion Dam fish ladders, providing information on only a representative portion of the ESU.

Exhibit 2–11: Southern California Coast Recovery Domain



Recovery Planning

The ESA requires that recovery plans be developed and implemented for listed species to address actions needed to prevent the species from becoming extinct and actions needed to recover the species. TRTs have been convened for each recovery domain to develop the technical basis for recovery plans, including recommending recovery criteria and evaluating the threats or factors limiting recovery. TRTs consist of six to nine experts in salmon biology, population dynamics, conservation biology, ecology, and other relevant disciplines. TRTs also include at least one member with experience in and knowledge of the specific geographic area and the salmonid species that inhabit the area. TRTs advise recovery planners on the relationships between habitat and fish productivity (number of returning adults produced by the parent spawner), the spatial distribution of fish and their habitats, and aspects of diversity including the expression of different life history traits (run timing, relative habitat use, age structure, size). These four elements—abundance, productivity, spatial distribution, and genetic diversity—must all be considered when developing recovery plans and determining whether a species is recovered.

An important first step in the recovery planning process is development of preliminary recovery goals for individual fish populations within an ESU. The TRTs in each recovery planning domain have completed, or are in the process of completing, the technical work necessary to establish these goals. These preliminary goals are a starting point, designed to give recovery planners and scientists a sense of the magnitude of population increase needed to move from current abundance and productivity levels to levels that support self-sustaining populations over time. Recovery goals will also address spatial distribution and genetic diversity. The TRTs are working with federal, state, and tribal biologists to ensure the most current and accurate technical information is used in developing and refining these goals.

Recovery goals are set population by population within an ESU. Since most TRTs are still in the process of developing recommended recovery goals, it is not possible to provide ESU-wide information demonstrating current abundance in relation to both historical estimates and recovery goals. Examples of two chinook populations within the Puget Sound recovery domain, where recovery planning goals have been set, are shown in Exhibits 2–12 and 2–13.

Exhibit 2–12 shows the Upper Skagit chinook population where current abundance is relatively close to the recovery goal. The historic spawner abundance for this population is estimated to average 35,000, while the recovery planning range for this population is 15,600–26,000.

Exhibit 2–12: Recovery Goal for Upper Skagit Chinook

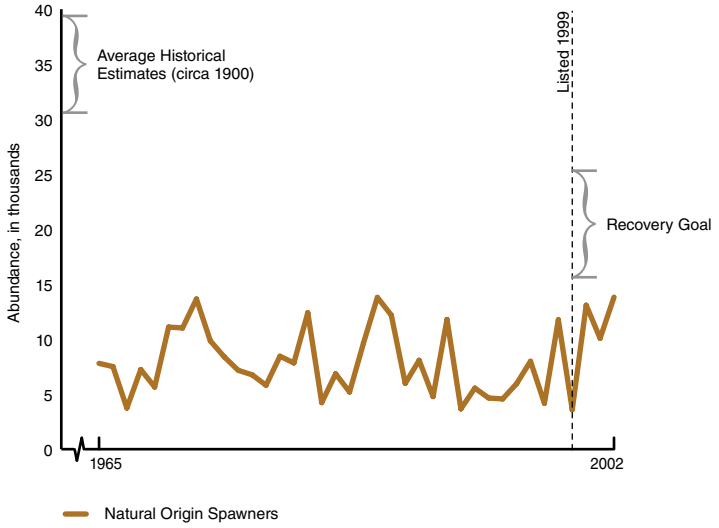
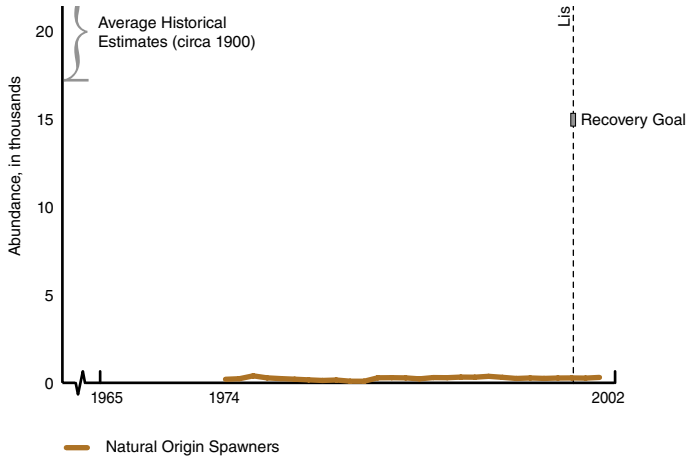


Exhibit 2–13 depicts the South Fork Stillaguamish chinook population where current abundance indicates significant improvements are needed to achieve recovery. Historical spawner abundance for this population is estimated to average 20,000 fish. The recovery planning target is 15,000 fish. The most recent spawner abundance is indicated by the green line (less than 300 fish) and provides a sense of the magnitude of change needed to achieve recovery.

Exhibit 2–13: Recovery Goal for South Fork Stillaguamish Chinook



The status and productivity of populations, recovery goals, current condition of the habitat, factors affecting recovery, and actions necessary to resolve or eliminate those factors are the necessary components of recovery plans. Recovery planning occurs at many levels and through a multitude of coordinated efforts. In the Columbia River basin, for example, $15.2 million of Bonneville Power

Airlifting a conifer tree toward the Upper Umatilla River

Habitat Protection and Restoration

Columbia River Tribes—Wood Placement in the Upper Umatilla River and its Tributaries

Whole conifer trees, ranging from 38–50 feet in length and 18 inches in diameter, with rootwad intact, were airlifted by helicopter from stockpile points on watershed ridge tops and placed in the Buckaroo and Iskuulpa Creek flood plains. Trees were placed on gravel bars in complexes of 2–5 trees. Twenty-five trees were placed in Buckaroo Creek and 126 trees were placed in Iskuulpa Creek. The Iskuulpa and Buckaroo watersheds provide critical spawning habitat for threatened summer steelhead. Land acquisitions and other improvements within these watersheds have been a major focus of the Umatilla Tribes using PCSRF funds.

Completed in the winter of 2003, the project resulted in a significant increase in large wood frequency within both creeks. In Buckaroo Creek, large wood frequency increased from 8 pieces per mile to an average of 23 pieces per mile. In Iskuulpa Creek, large wood frequency increased from 4 per mile to a minimum of 18.3 per mile. The trees will provide an immediate roughness element in the channel that will create localized areas of reduced stream flow energy, provide areas of fine sediment accumulation and retention, and allow for subsequent riparian shrub, hardwood, and coniferous tree development.

Administration ratepayer funds has been provided to 62 local sub-basin groups[11] to develop sub-basin plans in accordance with regional guidelines (http://www.nwcouncil.org/library/2001/2001-20.pdf). The PCSRF is augmenting these planning efforts, having provided nearly $80 million in funding to planning groups throughout the region. These regional planning groups have been established to help prepare recovery plans that build consensus on recovery actions and integrate many smaller plans into larger recovery plans. Even as these plans are under development, local conservation groups, agencies, tribes, industry, and individuals are acting to protect and restore productive salmon habitat. Planning and assessments are coastwide priorities that fit into the overall recovery strategy.

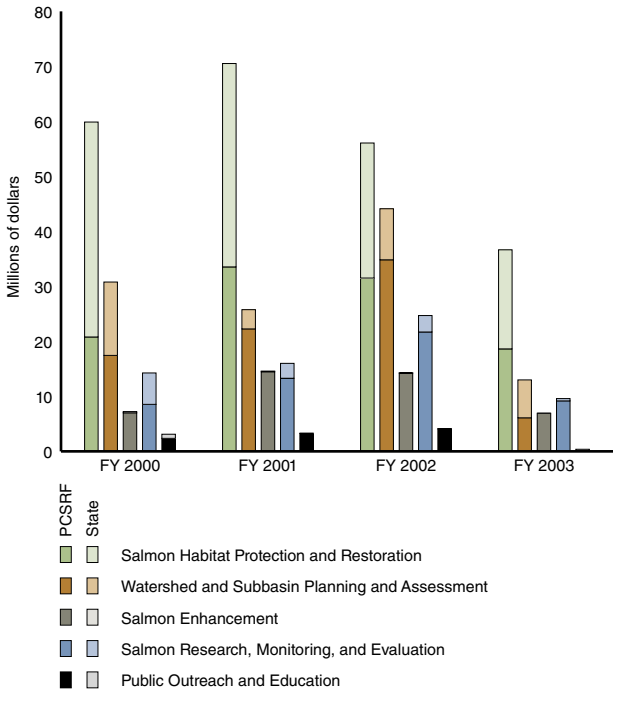
[11] Thirty-three of the 62 sub-basins have anadromous fish.

Chapter 3: PCSRF Performance by Objective

States and tribes are beginning to describe the progress they are making toward salmon recovery using the performance indicators under each of the five PCSRF performance objectives: 1) salmon habitat protection and restoration; 2) watershed and sub-basin planning and assessment; 3) salmon enhancement; 4) salmon research, monitoring, and evaluation; and, 5) public education and outreach. Exhibit 3–1 depicts the total expenditures of PCSRF and state matching funds across the various objectives. As described in Chapter 1, this is the first year that common performance indicators for each of these objectives have been used by the states and tribes receiving PCSRF funds. With a performance tracking and reporting system now in place and ongoing RM&E efforts, NMFS is working with the states and tribes to set timelines and targets for annual and long-term performance measures that will measure not only outputs of various funded projects, but also address the collective outcomes of the investments.

Measuring performance through specific objectives is designed to ensure reporting is consistent across the entities receiving funds. Continued development of annual and long-term performance measures will improve accountability in the use of federal and state resources. Performance measures shift the focus of reporting from the amount of money spent on projects to the actual results achieved from federal and state investments in salmon recovery and conservation. States and tribes have begun to provide performance information to NMFS for this report based on data available for 3,213 projects funded in FY 2000–2003. Examples of the reporting are provided in the following sections. The locations of habitat restoration and watershed planning projects are shown in Exhibit 3–2. The reporting of specific performance indicators is a requirement for funds distributed in future fiscal years. PCSRF performance indicators will likely evolve over time, as improvements are gained in understanding the relationship between on-the-ground projects and returns of wild salmon, and in the ability to monitor

Exhibit 3–1: PCSRF and State Funds Distributed by Objective



Note: Only half of the FY 2003 funds was committed as of December 2003.

Exhibit 3–2: Location of PCSRF Habitat Restoration and Watershed Planning Projects Funded Through December 2003

and evaluate progress toward salmon recovery. A complete list of the performance indicators and their definitions is available at http://www.nwr.noaa.gov/pcsrf/.

Salmon Habitat Protection and Restoration

Nearly half of the PCSRF projects funded through 2003 (about 1,500 projects) support activities to protect and restore habitat for Pacific salmon. These projects address the priority factors limiting salmon recovery and restore ecosystem characteristics and processes essential for the survival of salmon. The ten types of habitat projects funded by PCSRF can be categorized as shown in Exhibit 3–3. The majority of the habitat projects restore instream habitat (21 percent), restore riparian habitat (20 percent), or improve fish passage (18 percent).

Exhibit 3–3: Habitat Projects by Type

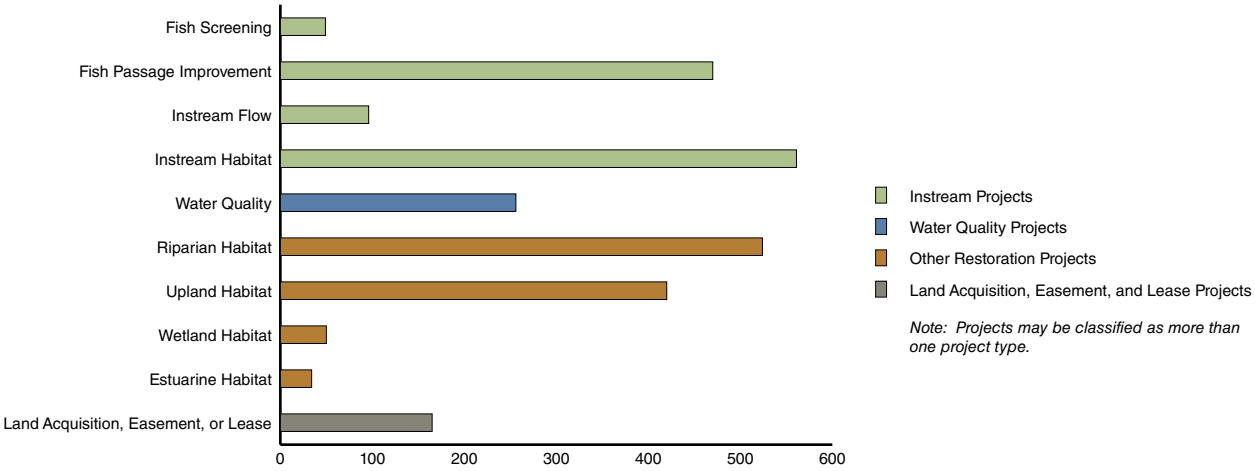
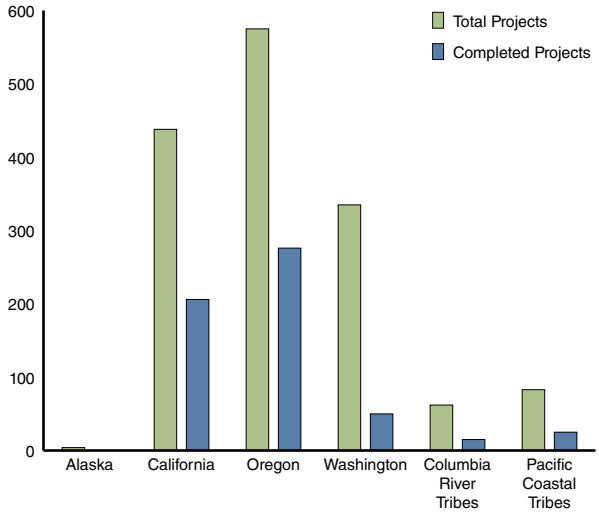


Exhibit 3–4 displays the number of habitat projects and those completed by states/tribes. About 38 percent of the habitat projects overall has been completed.

PCSRF habitat protection and restoration projects have restored miles of salmon habitat both within and along streams across the region. In the northern California coastal region, for example, 49 projects funded in FY 2000–2001 restored almost 10 miles of stream habitat. California and the Round Valley Tribe restored about 19 additional stream miles of habitat in the northern coastal region through

Exhibit 3–4: Salmon Habitat Protection and Restoration Projects by States and Tribes



44 projects funded in FY 2002–2003. CRITFC tribes restored almost 4 miles of stream habitat in the Clearwater basin of the Columbia River through two PCSRF projects in 2001. In the Puget Sound basin of Washington, 38 PCSRF projects have restored about 22 stream miles of habitat.

Instream Projects

Under the category of "instream" projects, the specific activities described below have improved the quality of the instream environment for salmonids, including their ability to access quality habitat. Across the region, there were 49 fish screening projects, 470 fish passage improvement projects, 96 instream flow projects, and 561 instream habitat projects. Examples of PCSRF accomplishments include the following.

- At least 37 fish screens have been—and many more are proposed to be—installed or upgraded. These screens prevent salmon from passing into areas such as irrigation diversion channels, resulting in increased survival of juvenile fish.

INDICATORS FOR HABITAT PROJECTS:
Instream Projects

- Fish screens installed
- Flow rate of water diverted through fish screens
- Quantity of water protected by fish screens
- Fish passage blockages removed or improved
- Stream length made accessible to salmon by the improvement or removal of culverts
- Stream length made accessible by the removal of barriers other than culverts
- Water returned to the stream
- Water flow gauges installed
- Volume of water leased or purchased
- Length of streambank stabilized
- Length of instream habitat treated, excluding bank stabilization

California—Bull Creek Instream Restoration in the Eel River Basin

Bull Creek, in the South Fork of the Eel River Basin in northern California, was devoid of many of the habitats essential for anadromous salmonids. The stream was a wide, low gradient reach dominated by large cobble and shallow riffles that provided no habitat for rearing summer juveniles or spawning adults.

From 2000 to 2002, PCSRF funds were used to implement habitat improvement projects, including the construction of large boulder/log structures to narrow and deepen the channel and create pools, and willow plantings to stabilize sections of bank and store fine sediments to promote riparian revegetation. Habitat was also improved by adding logs and root masses to the pools, and logs and boulders as deflectors to create areas of scour, eddy pools, and run habitats. Floodplain terraces were planted with 8,500 redwood and Douglas fir seedlings to eventually provide shade and maintain cooler water temperatures during summer months.

The improved portion now has a narrower and deeper channel with a much higher level of habitat diversity and is utilized by all salmonid life stages at various times of the year. A recent spawning survey over a 3.7 mile reach found that 54 percent of the chinook salmon nests or "redds" were found within the project reach, which was only 27 percent of the survey. Surveys found far more juvenile steelhead within the project reach than above or below it.

Prior to construction, summer 2000

After construction, summer 2003

- Under the fish passage performance indicators, 473 culverts and other fish passage barriers across the region have been removed or upgraded to improve fish passage. In addition, most of the state and tribal entities receiving PCSRF funds have proposed to remove or upgrade even more culverts through their existing fish passage programs.
- Fish passage improvements have opened up miles of previously inaccessible stream habitat for salmon. There were 26 projects completed in California, for example, that opened over 19 miles of stream habitat to salmon. Pacific coastal tribes have opened up over 16 stream miles of habitat through eight projects.
- In the middle Columbia River and Deschutes River watersheds, two instream flow projects have returned an additional four cubic feet per second of water to provide needed habitat conditions for salmon. Instream flow projects include releases from dams or impoundments and water conservation projects that reduce stream diversions or extractions.
- PCSRF funds have supported the restoration and protection of miles of instream habitat across the region, through activities such as placement of woody debris in streams, bank stabilization and slope adjustment, channel reconfiguration, rock control (weirs), insertion of deflectors or barbs, creation of pools, and other treatments. The State of Washington, for example, has funded 158 instream habitat projects that have treated about 9 stream miles through 2003, and will treat as many as 385 total stream miles when complete.

In future fiscal years, as more reporting metrics are accumulated and projects are completed, a better assessment of the effectiveness of these activities on salmon recovery will be possible.

Water Quality Projects

Water quality is a crucial aspect of salmonid habitat. States and tribes used PCSRF funds to fund 256 water quality projects. These projects improve water quality through a variety of means, such as water treatment, installation of sediment traps to capture

INDICATORS FOR HABITAT PROJECTS:
Water Quality

- Temperature
- Turbidity
- Bacteria
- Dissolved oxygen
- Pesticides
- pH
- Heavy metals
- Nutrients

Pacific Coastal Tribes—Stillaguamish Tribe Research on Threats Posed by Abandoned Fishing Gear

Sometimes called "ghost nets," the abandoned fishing gear in Northwest waters lives up to the nickname; derelict gill nets and crab pots are both hard to see and dangerous for scuba divers, boaters, and fishermen. The area's fish, including threatened chinook salmon are, however, the most threatened by these discarded relics. Modern monofilament gill nets do not decompose and can continue to trap fish, birds, and other wildlife for years.

The Stillaguamish Tribe is working to remove those threats. A recent effort by the tribe will identify and remove derelict nets and other gear in the Port Susan area. The project, which is funded with PCSRF dollars, looks to remove the more dangerous gill nets first. The project uses advanced technology to catalog where the gear exists: high-resolution "side scan" sonar produces detailed images of the underwater environment, showing precisely where the ghost nets rest. The data gathered through this effort will improve fisheries management efforts by giving the Tribe a clearer picture of the types of habitat in Port Susan and information on species killed by the nets.

highway runoff, and reductions in the use of herbicides, pesticides, and fertilizers. NMFS and the states and tribes receiving PCSRF funds have agreed upon a set of water quality indicators, so water quality treatment objectives can be tracked at the basin level. Projects funded by the State of Oregon, KRITFWC, and the Colville, Coquille, and Shoshone-Bannock Tribes, for example, have addressed the following indicators: dissolved oxygen, temperature, turbidity, bacteria, nutrients, and pH. Other possible indicators include heavy metals and pesticides.

Riparian, Upland, Wetland, and Estuarine Habitat Restoration Projects

PCSRF has provided funding support for a considerable array of habitat restoration projects beyond instream areas in the Pacific coastal region—524 projects restored riparian habitat, 420 projects restored upland habitat, 50 projects protected or restored wetland areas, and 34 projects protected or restored estuarine areas. Further descriptions of these projects and examples of accomplishments follow.

INDICATORS FOR HABITAT PROJECTS:
Riparian, Upland, Wetland, and Estuarine Habitat Restoration Projects

- Length of riparian stream bank treated
- Amount of riparian area treated for invasive plant species
- Amount of riparian area treated, excluding invasive species treatment
- Amount of upland habitat area treated
- Length of road treated
- Amount of wetland/estuarine area treated
- Amount of artificial wetland/estuarine area created
- Amount of wetland/estuarine area treated for invasive species

- Riparian habitat projects affect areas above the normal high water mark of the stream but within the flood plain to improve environmental conditions for salmon throughout their life cycle. Activities in riparian areas include improvements in irrigation practices, planting, weed control, fencing, conservation grazing management, livestock exclusion, and livestock water development. Oregon, for example, treated about 49 miles of riparian streambank habitat in the northern coast of Oregon.
- Upland projects are landscape-level projects above the flood plain that indirectly affect salmonid habitat by, for example, changing the quality and quantity of water. Upland habitat projects include activities such as improvements to road stream crossings and drainage systems, road removal, and upland erosion control through planting, sediment control basins, conservation land management, and other activities. California, for example, had 51 projects that treated about 54 miles of road to improve salmon habitat. In the coastal area of Washington, the Chehalis Tribe treated 13.6 acres of upland habitat in two PCSRF projects.
- Wetland habitat projects aim to protect, create, or improve connected wetland areas to support salmon production. Salmon populations, especially juveniles, can benefit from access to connected wetland areas that provide food, protection from high flows, and protection from predators. PCSRF also supported the creation of new wetlands to provide salmon habitat, as well as the planting of wetland vegetation and other enhancements to existing wetlands known to support salmon.
- Estuarine habitat projects are designed to improve or increase the availability of estuarine habitat for salmon. Projects include tidal channel restoration, improved floodplain connectivity, tide gate fish passage improvements, and dike breaching or removal. Estuaries are important for salmon out migration as juvenile salmonids begin the transition from fresh to salt water environments. In Puget Sound, for example, a PCSRF project treated 1.3 acres of estuarine habitat in 2001.

As with the performance indicators for other types of projects, NMFS and the states and tribes receiving PCSRF funds are increasing their capacity for monitoring and reporting on the results of investments in habitat restoration in these areas. The aim is to provide aggregate, regional data on the stream miles and acres of different types of habitat treated to improve salmonid habitat.

Land Acquisition, Easement, and Lease Projects

States and tribes also use PCSRF funds to protect and further improve habitat conditions for salmon by acquiring or leasing riparian and adjacent areas. There were 165 land acquisition, easement, and lease projects across the region. Performance indicators for this type of project include the amount of land, estuarine, or wetland area protected and the length of stream bank protected. CRITFC tribes, for example, acquired 176 acres of land in the middle Columbia River basin to protect spawning and rearing habitat for salmon. Moreover, a PCSRF project in the central California coastal area protected 0.75 miles of stream bank (on both sides of the stream) through a land acquisition.

INDICATORS FOR HABITAT PROJECTS:
Land Acquisition, Easement, and Lease Projects

- Amount of land, wetland, or estuarine area protected by land acquisition, easement, or lease
- Length of stream bank protected through land acquisition, easement, or lease

Washington—Nisqually Estuary Restoration

The Nisqually Indian Tribe seeks to double the production of chinook salmon in the Nisqually River delta (Pierce and Thurston Counties) by restoring nearly 150 acres of salt marsh. The delta is seen as a rare chance to restore an estuary in Puget Sound, where 70 to 80 percent of the estuarine environment has already been lost. Estuary restoration will make a significant contribution to chinook salmon recovery, as well as chum, coho, and cutthroat.

The project began with the Tribe's acquisition of a 400-acre farm just west of Interstate 5 from a willing seller, whose family had farmed the land for several generations. The land had been diked and drained to provide pasture. With PCSRF and state funds from the Washington Salmon Recovery Funding Board (85 percent of total project cost), the Tribe removed the dikes adjacent to Red Slough in the summer of 2002, and restored 31 acres of tideland, which will revert to salt marsh, providing cover and nutrients for juvenile salmon as they make the transition to saltwater.

Before

After

Watershed and Sub-basin Planning and Assessments

Watershed planning and assessment projects are key to ensuring that recovery funds are spent wisely and appropriately on the factors most affecting the decline and recovery of salmon. Planning projects identify and prioritize future actions, as well as build partnerships through cooperative and collaborative planning groups. Planning efforts are underway in every state receiving PCSRF funds. PCSRF has supported 958 watershed and sub-basin planning and assessment projects, and about 42 percent of these projects are complete.

Projects can include recovery planning and participation in NMFS TRTs, watershed assessments and mapping, sub-basin planning, development of habitat inventory reports, and organizational infrastructure and staffing support for watershed councils, local conservation groups, and tribal entities. A major goal of planning and assessments is to identify key factors that limit salmon recovery to provide knowledge about where investments should be made. These projects often also address measures needed to eliminate limiting factors. Exhibit 3–5 depicts the number of watershed and planning projects and those completed by states and tribes.

INDICATORS FOR WATERSHED AND SUB-BASIN PLANNING AND ASSESSMENT PROJECTS:

- Projects that support local watershed councils
- Projects that support tribal or other agency infrastructure for assessments and recovery planning
- Plans and assessments that incorporate the biological goals consistent with Technical Recovery Team recommendations or state or tribal conservation plans
- Plans and assessments that identify actions necessary to meet the goals
- Plans and assessments that have been used by a local watershed group to guide restoration activity
- Stream miles containing anadromous Pacific salmon that have been surveyed and assessed
- Stream miles surveyed in areas with disturbed riparian vegetation

Watershed Planning and Assessment

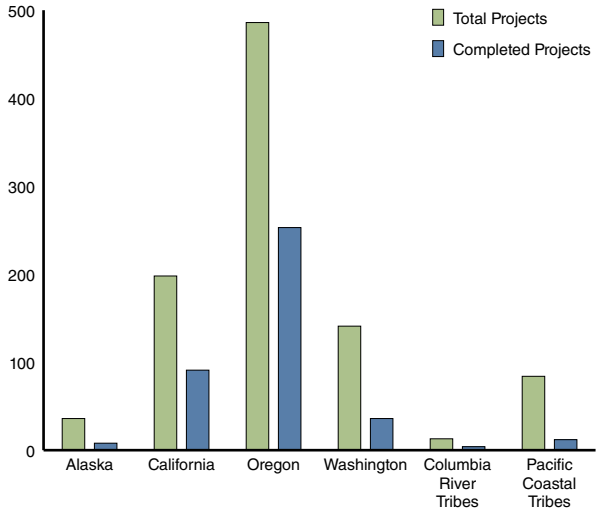
California—Eel River Cooperative Sediment Reduction and Water Quality Improvement Program

PCSRF and the State of California are supporting the Humboldt County Resource Conservation District (HCRCD) in creating a network of locally led groups and organizations to conduct conservation activities. This network works with private landowners to improve water quality, reduce soil erosion, and improve fisheries habitat in the South Fork Eel and Van Duzen Rivers in northern California. HCRCD developed the Eel River Cooperative Sediment Reduction and Water Quality Improvement Program to guide this effort. Program goals include: increasing communication with and involvement of local landowners and stakeholders, reducing erosion and sediment delivery to stream systems, improving and enhancing riparian habitat, and improving instream habitat conditions and water temperatures for anadromous fish.

HCRCD has developed key partnerships with many different landowners, watershed groups, and agency representatives. These partnerships have resulted in identifying, prioritizing, and implementing erosion prevention and riparian corridor enhancement projects including on-site assessment and project design; educational/training workshops; and other logistics and technical assistance activities to landowners and landowner based groups. Examples of projects include road upgrading and decommissioning, gully stabilization, and riparian habitat improvements such as fencing, revegetation, and bank stabilization. For more information see: http://www.carcd.org/wisp/humboldt/factsheet.pdf.

Across the region, 93 different watershed and sub-basin plans are under development. Twenty-one of these 93 plans are now complete. Limiting factor assessments have been completed in many of the plans, thus helping to determine what actions are needed to recover ESA listed salmon. As described in Chapter 2, limiting factors include a wide variety of physical and biotic components, such as loss of access to suitable spawning and rearing habitat, alteration or deterioration of habitat, introduction of exotic species, water quality degradation, water quantity changes, overharvest, and negative effects of hatchery practices.

Exhibit 3–5: Watershed and Sub-basin Planning and Assessment Projects by States and Tribes



Planning for salmon recovery occurs at multiple geographic scales. These efforts often involve many participants and range from plans and habitat inventory reports for individual watersheds or sub-basins to regional recovery plans and Tribal Resource Management Plans. Many of the PCSRF planning investments include components to ensure opportunities for landowners and other interested parties to engage in salmon recovery efforts.

In future fiscal years, NMFS, states, and tribal entities will measure and report accomplishments from watershed and sub-basin planning and assessment projects using the more refined performance indicators listed on the previous page. Not only will grantees report on plans and assessments that are in development or complete, but also on the content of those plans and assessments and other uses of planning and assessment funding.

Salmon Enhancement

Total PCSRF funds spent on enhancement projects was about $43 million. Enhancement projects in Alaska accounted for 70 percent (or nearly $30 million) of this total.

Salmon enhancement projects address depressed stocks of wild anadromous salmonids through hatchery supplementation, reduction in fishing efforts on depressed wild stocks, and enhancement of Pacific salmon fisheries on healthy stocks in Alaska. In some watersheds, hatchery supplementation may be an important feature of recovery plans, particularly as tribal treaty fishing rights must be balanced with harvest restrictions and other recovery actions. Current hatchery reform efforts underway are designed to reduce conflicts between hatchery and wild stocks. Additionally, salmon harvest plans are developed and carried out to ensure weak stocks are afforded maximum protection from unintended harvest through various restrictions (i.e., time, place, effort, gear). In Alaska, PCSRF funds are specifically used to help offset harvest restrictions set through the 1999 Pacific Salmon Treaty Agreement, which is a salmon management agreement between the United States and Canada.

A total of 111 salmon enhancement projects was funded through PCSRF, nearly all of which reported on specific performance indicators. Exhibit 3–6 depicts the number of these projects and those completed. Overall, 36 percent is complete. The primary focus of these projects has been rebuilding weak stocks (64 percent), which focus on reduced harvest and minimizing adverse impacts on depressed wild stocks; and supplementation (23 percent), which involves the capture of wild stock that are spawned in captivity with resulting progeny raised in hatcheries and released as juveniles. Salmon enhancement projects vary from improvements and modifications to hatchery sites (i.e., rearing/acclimation ponds) to fish marking programs that will ensure harvesting of hatchery stocks only.

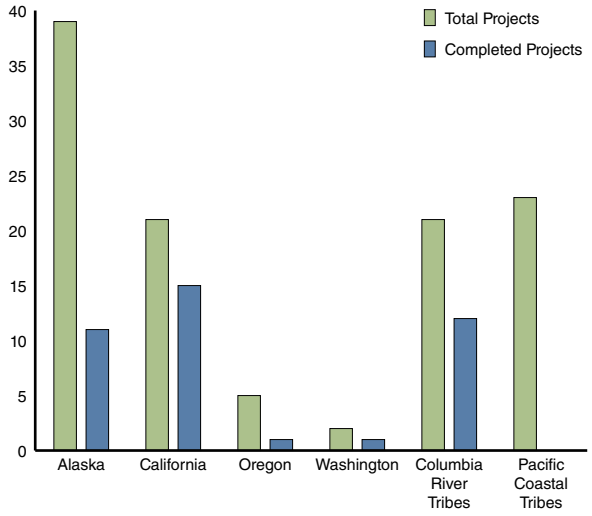
Fish marking programs allow easy identification of hatchery fish on fishing grounds for selective harvests that avoid taking of wild stocks. Reported projects indicate more than 25 million fish were marked using PCSRF funds, primarily in Alaska and the Columbia River. In addition, 128 million fry and smolt were produced in hatcheries through improvements made to production facilities with PCSRF funds. Increased fry survival and number of outmigrating smolts are part of supplementation efforts.

In future reports, as more data are reported, additional information will be available about PCSRF projects that assist the Alaska salmon industries and dependent communities, including improvements in infrastructure, product quality, and marketing programs.

INDICATORS FOR SALMON ENHANCEMENT PROJECTS:

- Habitat restoration project (if any) complemented
- Hatchery fry/smolt released that re-direct harvests, supplement weak or depressed stocks, or compensate for reduced harvest levels set by the Pacific Salmon Treaty
- Hatchery fry/smolt released from wild fish
- Fish marking projects
- Fry/smolt produced through technology improvements
- Projects that evaluate sites or strategies for enhancement efforts
- Projects that involve marketing salmon (in Alaska only), including:
  - Number of permit holders/gear groups/communities/ processors assisted
  - Number of consumers reached by marketing efforts
- Number of permit holders, gear groups, communities, or seafood processors benefitting from infrastructure improvements
- Projects that improve the quality of salmon products, including percent of salmon chilled at capture, pounds of fish filleted, percentage of pink salmon diverted from canning, and new product development

Exhibit 3–6: Salmon Enhancement Projects by States and Tribes



Salmon Research, Monitoring, and Evaluation (RM&E)

Salmon recovery and conservation decisions must be based on solid science, monitored to verify results, evaluated to measure progress, and adjusted as necessary. RM&E projects provide information needed to assess—with some measure of scientific certainty—whether recovery actions are appropriate and effective. Information on the health and status of watersheds and salmon stocks, migration pathways, habitat preferences, harvest rates, impacts of hatchery fish, and other management questions is essential to the overall recovery strategy. NMFS has requested that all monitoring be coordinated as part of a regional effort to ensure salmon recovery goals and objectives are met. One of the performance indicators established under this objective is that a minimum of 10 percent of PCSRF funds distributed to each state or tribal commission will be expended toward monitoring and evaluation.

INDICATORS FOR SALMON RESEARCH, MONITORING, AND EVALUATION PROJECTS:

- Projects related to key salmon management questions
- Projects that are part of a comprehensive monitoring strategy
- Number and names of cooperating organizations
- Number of reports prepared that assess progress, report results of monitoring, or report research results
- Information on research related to the Pacific Salmon Treaty
- Description of findings from RM&E projects
- Number of miles of stream length assessed or monitored

Coho smolts released in a Clearwater River tributary

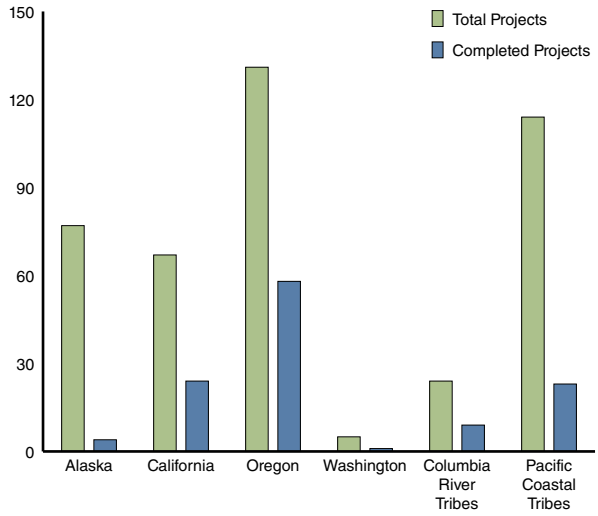
Salmon Enhancement

Columbia River Tribes—Coho Salmon Production in the Clearwater River, Columbia River Basin

With the support of the Columbia River Inter-Tribal Fish Commission, the Nez Perce Tribe is implementing a multi-year project to establish a natural population of coho salmon in selected streams in the Clearwater River basin. The re-establishment of coho salmon in the Clearwater River basin began in 1995 with the release of 630,000 coho salmon parr into five streams, and restoration efforts continued with the release of eggs, parr, and smolts from 1996-2002. With the support of PCSRF, over one million coho salmon were released annually in 2000-2002 through this project. The primary goal of the project is to reintroduce and restore coho salmon to levels of abundance and productivity sufficient to support sustainable runs and annual harvest. The project also involves monitoring and evaluating the results of the reintroduction program so operations can be adaptively managed to optimize hatchery and natural production and minimize deleterious ecological impacts.

A total of 418 RM&E projects has been funded through PCSRF. Exhibit 3–7 displays the numbers of RM&E completed projects by entity; 28 percent has been completed. These RM&E projects are designed to address key management questions regarding the recovery and/or sustainability of healthy salmon stocks. Key management questions include the biological impacts of management actions, such as the effectiveness of harvest restrictions, results of hatchery reform efforts, and success of habitat-related actions.

Exhibit 3–7: Research, Monitoring, and Evaluation Projects by States and Tribes



In addition to RM&E projects related to key management questions, grantees reported 112 cooperative projects designed to provide regional coordination across the various federal, state, and tribal data collection efforts. An average of about seven entities per project cooperate on RM&E projects, based on performance indicators reported to date.

Research, Monitoring, and Evaluation

Alaska—Genetic Stock Identification in the SE Alaska Troll Fishery

PCSRF and the Chinook Technical Committee of the Pacific Salmon Commission are funding the development of a genetic baseline for DNA markers in Southeast Alaska troll fisheries. The Alaska Department of Fish and Game is conducting the project to genetically identify stock from troll fisheries to enhance the ability of accurately estimating the true stock composition of groups of chinook salmon in the fishery. The fishery harvests mixed stocks of chinook salmon in winter, spring, and summer originating from Alaska, British Columbia, and the Pacific Northwest. A quota is specified by the Pacific Salmon Commission based on the projected abundance of chinook salmon stocks estimated using techniques such as catch, escapement, coded-wire tag recovery, and recruitment information. These estimates vary in accuracy because of data gaps on all stocks contributing to the fishery and changes in the fishery over time.

Sitka, Alaska is the central port for most of the chinook salmon troll fishery

Genetic stock identification provides an independent and more accurate and comprehensive source of information on stock abundance. Data on genetic stock structure of chinook throughout its range have been collected, standardized, and combined into a coastwide baseline managed by the NMFS Northwest Fisheries Science Center. The project has provided useful insights into the chinook fishery such as independent confirmation that the majority (> 60 percent) of the chinook salmon harvested in the spring fishery are from local stocks. In the spring of 2004, the project will be expanded to include gillnet, seine and sport fisheries.

One of the goals of the PCSRF program is that a representative number of habitat restoration projects include monitoring as part of a larger comprehensive program to evaluate the effectiveness of restoration efforts. PCSRF grantees identified 227 habitat projects that have a monitoring component; 62 percent of these (141 projects) are Oregon projects.

The remaining performance indicators for RM&E projects include scientific and technical reports prepared and the number of stream miles proposed for monitoring. There were 14 RM&E projects monitoring streams for habitat conditions, water quality, fish abundance/productivity, and watershed conditions. A total of 1,841 miles of stream will be monitored through these projects.

Public Outreach and Education

Conservation, restoration, and long-term sustainability of healthy Pacific salmon and steelhead populations, as well as the habitat upon which they depend, is the ultimate goal of the PCSRF. Educating the individuals who live and work in the Pacific coast states about needed planning and assessment

INDICATORS FOR OUTREACH AND EDUCATION PROJECTS:

- Focus of the project (e.g., sustainability, restoration, maintenance of watershed and fish population health)
- Number of workshops or training events held
- Number of individuals who participated in the workshop or training
- Number of documents produced
- Number of schools or institutions reached

Outreach and Education

Oregon—Crossing Boundaries Education Program

Students participating in the Crossing Boundaries Education Program

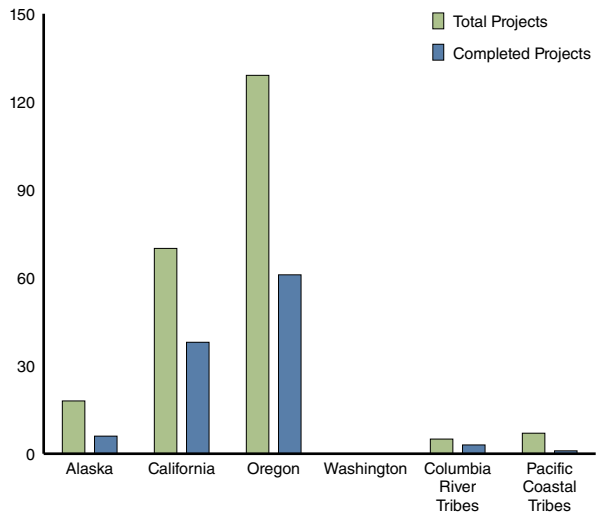
The "Crossing Boundaries Education Program" in Northwest Oregon is teaching 1,000 students at nine different K–12 schools about salmon in their regional watershed, the lower Columbia River and its estuary. Each participating school in communities from western Clatsop County and east to Corbett in Multnomah County develops its own study site for use by participants from all sites. Local students help teach visiting students about the elements unique to their sites. The program's main teaching tool is a technically sound water quality monitoring program, with data collected by students and made available to watershed councils and other interested parties. Students get hands-on opportunities to learn about salmon, water quality, wetlands, forestry, soils, and watersheds. Public school teachers receive support for training, student transportation, substitute teacher costs, supplies, and equipment. The Oregon Watershed Enhancement Board (OWEB) provided grants to both the Crossing Boundaries Consortium (in 1999) and, using PCSRF funds, to the Lower Columbia River Estuary Program (LCREP) in 2001. The Program is also supported by local agencies, watershed councils, and non-governmental organizations. For more information see: http://www.lcrep.org/boundaries.htm.

efforts, recovery actions, and the value of those recovery actions is an essential part of changing and improving current conditions.

There were 229 outreach and education projects funded under the PCSRF, with 48 percent of them completed (See Exhibit 3–8). At least 23 of the outreach and education projects included workshops or events sponsored with PCSRF funds. Over 1,100 participants attended these workshops and events.

As with other types of projects, more complete information on the results of outreach and education projects—including regional totals of outreach documents produced, and schools and people reached through education projects—will be available for future reports.

Exhibit 3–8: Public Outreach and Education Projects by States and Tribes



Chapter 4: State and Tribal Salmon Recovery Efforts

This chapter presents a summary of how individual state and tribal entities are distributing PCSRF funds to protect and restore salmon populations. Descriptions are provided for each state or tribal entity on the allocation of PCSRF funds to advance the program's objectives. The resources expended and number of projects supported are reported below. In most places, total dollar amounts have been rounded. Given that processes and timing for distributing funds vary among states and tribes, the funding amounts committed to projects do not reflect all funds granted by NMFS.

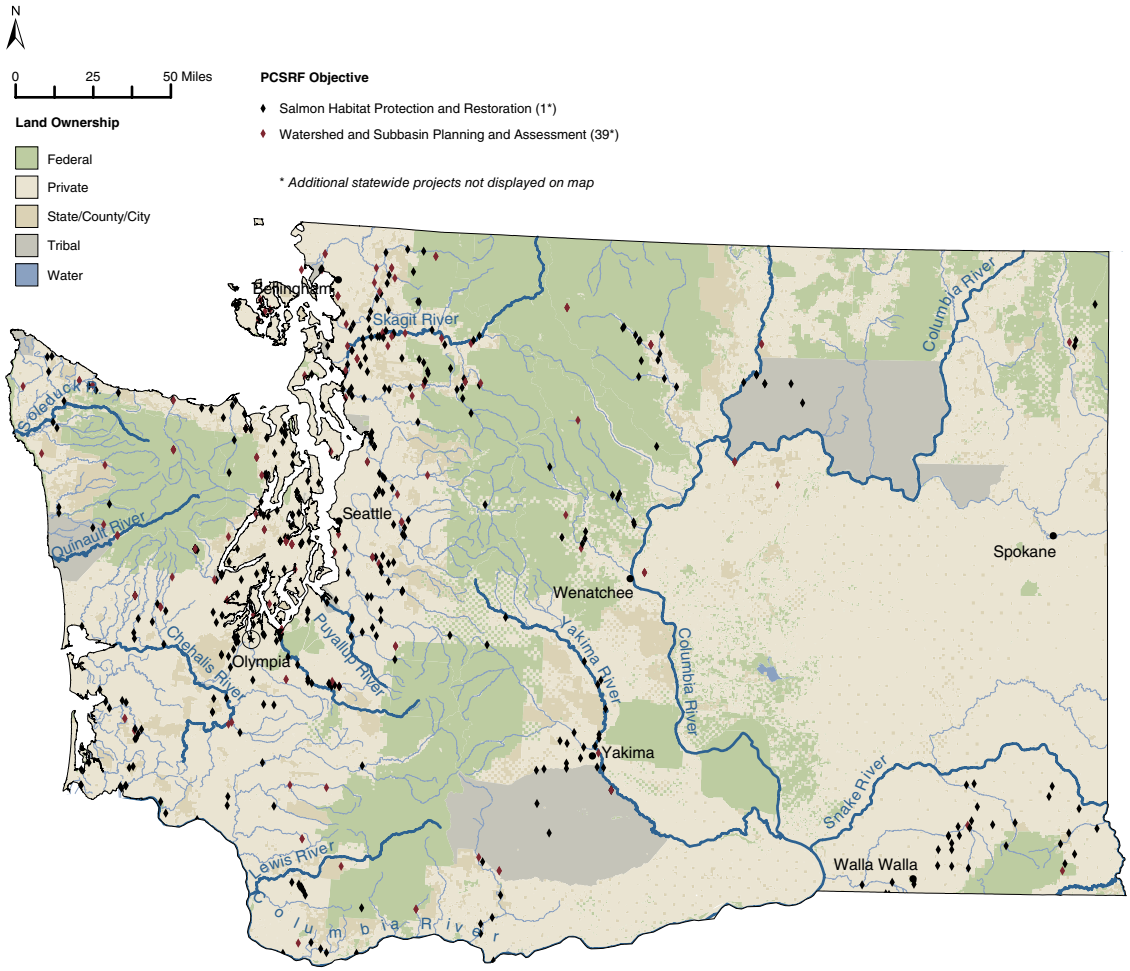
Washington

Washington Fund Distribution Process

Washington PCSRF funds were provided to the Salmon Recovery Funding Board (SRFB), a body created by the State Legislature in 1999 to effectively invest federal and state funds for salmon habitat protection and restoration projects and related activities that produce sustainable and measurable benefits for salmon and their habitat (http://www.iac.wa.gov/srfb). The SRFB supports various local salmon recovery efforts in Washington. Recovery boards in five regions provide the focus and visibility needed to mobilize action on behalf of salmon recovery, coordinate the myriad activities involved in salmon recovery, and ensure recovery plans are developed and adopted. The SRFB's role is to select the best salmon habitat project proposals and activities reflecting local priorities and the best available science. It conducts its work in consultation with the Governor and according to the State salmon strategy, *Extinction is Not an Option* (http://www.governor.wa.gov/gsro).

State and local governments, private landowners, conservation districts, tribes, non-profit organizations, and special purpose districts are eligible to receive project funding for habitat restoration; acquisition of land, rights, and easements; and plans and assessments. Projects are submitted to or generated by one of the 26 geographically distributed "lead entity groups," which are organizations of local or regional citizen committees that prioritize local habitat projects. Each lead entity group submits a prioritized list to the SRFB after a local technical advisory group and a citizen committee group have reviewed it. The SRFB uses a technical panel of scientists to review project proposals for scientific and technical merit and makes final funding decisions based on published criteria in open public meetings. SRFB funds are administered through the Office of the Interagency Committee. The locations of PCSRF and state matching fund habitat restoration and watershed planning projects in Washington through December 2003 are shown in Exhibit 4–1.

Exhibit 4–1: Location of PCSRF Projects in Washington



Washington PCSRF Distribution Summary

Washington committed most of its share of the PCSRF funds to salmon habitat protection and restoration projects and watershed and sub-basin planning and assessment projects, with the remaining funds supporting salmon research, monitoring, evaluation, and enhancement projects. The $101.4 million of PCSRF funds committed by Washington to projects and activities was matched by $53.4 million in state funds (53 percent match on federal funds), which the SRFB allocated exclusively for habitat projects and planning and assessment projects. A summary of Washington's distribution of PCSRF and matching state funds by objective is shown in Exhibit 4–2. Not all of Washington's PCSRF appropriated funds were committed as of December 31, 2003. Details about Washington's projects by objective are shown in Exhibit 4–3.

Exhibit 4–2: Washington's Distribution of PCSRF and State Funds

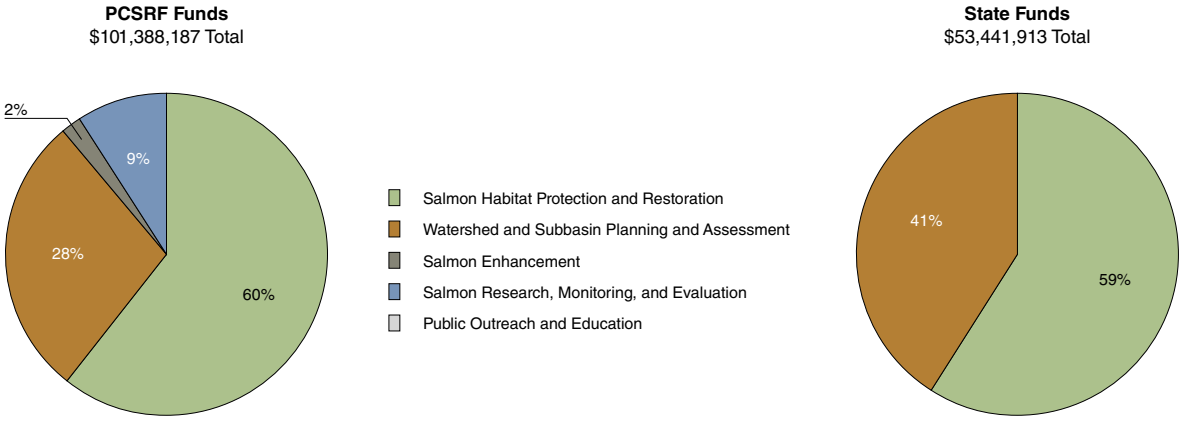


Exhibit 4–3: Washington's Projects by Objective (funds in millions)

Objective	Projects	PCSRF Funds	State Funds
Salmon Habitat Protection and Restoration	335	$61.15	$31.62
Watershed and Sub-basin Planning and Assessment	141	$28.34	$21.82
Salmon Enhancement	2	$2.53	$0.00
Salmon Research, Monitoring, and Evaluation	5	$9.37	$0.00
Public Outreach and Education	0	$0.00	$0.00
Total	**483**	**$101.39**	**$53.44**

Washington Accomplishments

With the support of PCSRF, Washington made key investments in efforts to recover salmon. Federal and state funds distributed by the SRFB have enabled Washington to make significant progress in five areas:

- **Grassroots Responsibility and Capacity.** To build on-the-ground support and capacity for long-term salmon recovery needs, the SRFB helped organize and fund 26 community-based groups of citizens, landowners, scientists, tribes, and elected officials in salmon watersheds. To assist local efforts, Washington has provided the *Roadmap for Salmon Habitat Conservation at the Watershed Level*, available at http://www.governor.wa.gov/gsro/watershed/roadmap.htm, and the *Guidance on Watershed Assessment for Salmon*, which is also available online at http://www.governor.wa.gov/gsro/watershed/watershed.htm.
- **Recovery Planning.** Salmon recovery plans will be completed by June 2005 for the Puget Sound, Lower Columbia, Middle Columbia (or Yakima), Upper Columbia, and Snake River basins, and a separate recovery plan will be submitted for Hood Canal summer chum. Washington has developed a framework to guide salmon recovery planning in a manner that lends consistency

among various planning processes. It is the *Washington Outline for Recovery* at http://wdfw.wa.gov/recovery/salmon_recovery_plan_model_dec03.pdf.

- **Early Action.** Fish passage barrier removal projects funded at least in part by PCSRF have opened an estimated 360 miles of salmon habitat. In addition, an estimated 30 miles of stream riparian area have been restored. The Forest and Fish Agreement has increased protection for 60,000 miles of streams. Harvest changes have increased the number of spawning fish. Scientific management plans for most hatcheries have been completed, and hydropower dams are undergoing fish-friendly license renewals.
- **Monitoring.** To increase accountability for investments in salmon recovery, the SRFB funded two programs that implement recommendations in the *Washington Comprehensive Monitoring Strategy and Action Plan for Watershed Health and Salmon Recovery*, which is available at http://www.iac.wa.gov/srfb/docs.htm. The first program involves monitoring fish abundance on a watershed scale to determine whether aggregate investments in habitat protection and restoration are having a detectable and positive effect on fish populations (validation monitoring). The second program is a statistically rigorous approach to test the effectiveness of nine types of projects using independent observers. In addition, the *Assessment of Monitoring Methods and Benefits for SRFB Projects and Activities (June 2003)*, also developed for the SRFB, assessed the effectiveness of 143 completed salmon recovery projects and activities funded with SRFB funds. This document is available at http://www.iac.wa.gov/documents/SRFB/Monitoring/SRFB_Final_Report_June-2003.pdf.
- **Cost-Effectiveness.** Since 2000, PCSRF has helped leverage an estimated $60 million in resources—more than the value of the State's share—and about 38 percent of the total value of federal and state funding provided for habitat protection and restoration during that time.

These five areas of accomplishment represent significant progress. Strong federal and state commitment to salmon recovery has enabled Washington to create institutions along watershed and bioregional boundaries. These efforts have allowed new participants to come to the table, to embrace principles of ecosystem restoration and guide citizens in their application, to improve habitat conditions for salmon across Washington, and to improve management of natural resources and water-based infrastructure. Despite this progress, recovery of ecosystem functions will take many years and continued funding support.

Oregon

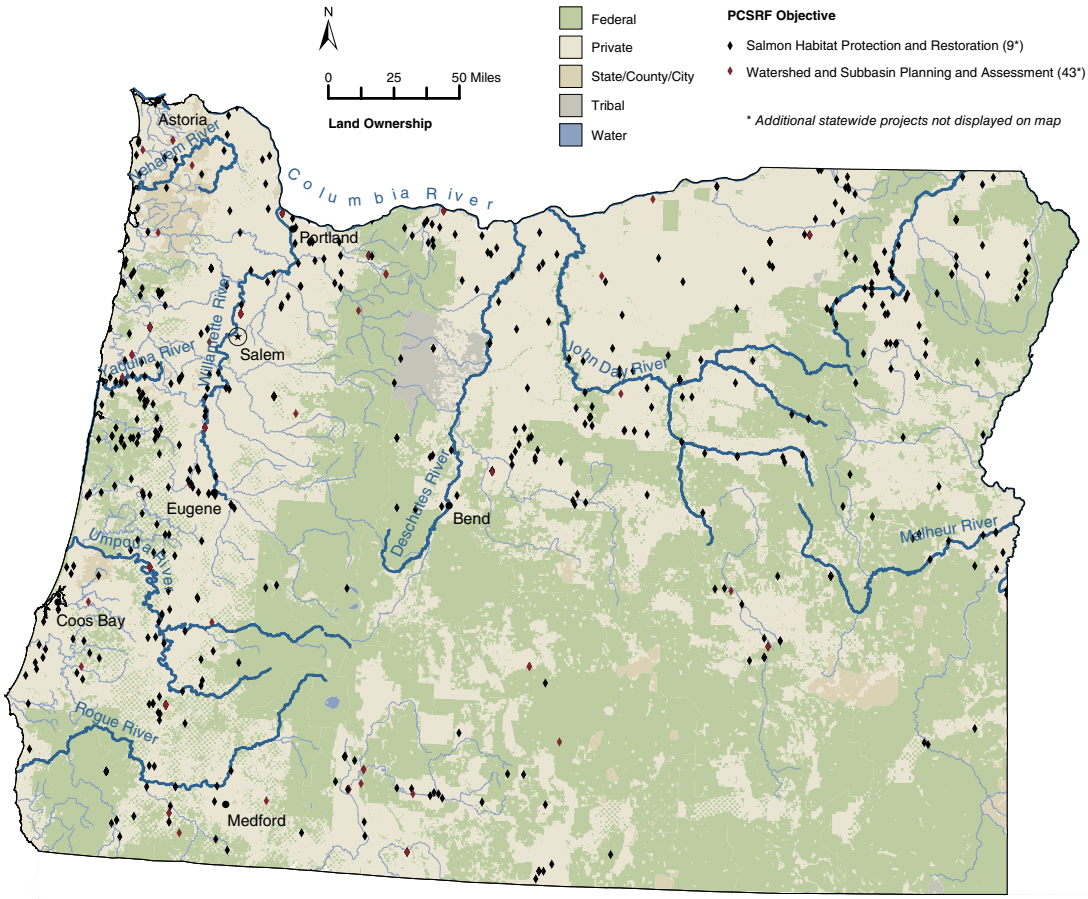
Oregon Fund Distribution Process

PCSRF funds for Oregon were provided to the Oregon Watershed Enhancement Board (OWEB), which distributed the PCSRF funds in tandem with state restoration funds. This approach provides flexibility to target investments to both meet local needs and achieve significant, long-term improvements in salmon and watershed health. Guided by the Oregon Plan, Oregon invested up to $15 million annually from state lottery funds in on-the-ground watershed and salmon habitat improvement projects. Since the majority of state funds must be spent on habitat projects, PCSRF funds provide OWEB with important flexibility to support watershed councils, watershed assessments, monitoring, and education and outreach, all of which are essential to achieving restoration of salmon and watershed health. By integrating use of the PCSRF funds into Oregon's existing infrastructure, OWEB is able to substantially enhance the effectiveness of the Oregon Plan in recovering salmon.

In 2003, due to the fiscal crisis faced by the State, PCSRF funds were used to ensure the continuity and integrity of ongoing monitoring, data collection, and technical assistance programs, in addition to supporting the infrastructure of citizen watershed groups that plan and implement watershed restoration projects.

OWEB achieves strategic investment of public funds and cost-effective restoration through rigorous technical review of grant proposals, monitoring of restoration projects, and balanced board leadership and policy direction. OWEB's project selection process is guided by a 17-member board composed of one representative from each of Oregon's natural resource commissions, a tribal representative, five federal agencies, the land grant university extension service, and five citizens from different regions of Oregon. Criteria for assessing proposals and awarding funds are established by Oregon administrative rule, and are applied through regional teams composed of federal and state natural resource field staff with first-hand knowledge of local conditions. These teams use the criteria in rules and their collective expertise to review grant applications and make funding recommendations to OWEB. Exhibit 4–4 shows the locations of habitat restoration and watershed planning projects in Oregon through December 2003.

Exhibit 4–4: Location of PCSRF Projects in Oregon



Oregon PCSRF Distribution Summary

Oregon committed about three-quarters of its PCSRF funds to projects in two program objectives: watershed and sub-basin planning and assessment and salmon research, monitoring, and evaluation, as shown in Exhibit 4–5. Oregon used the vast majority of its $73.3 million in matching state funds (138 percent match on federal funds) for salmon habitat protection and restoration projects. As a result, 57 percent of Oregon's total federal and state spending on salmon recovery has supported habitat protection and restoration projects, with PCSRF funds providing most of the support for projects in other program objectives. Oregon's projects by objective are shown in Exhibit 4–6.

Exhibit 4–5: Oregon's Distribution of PCSRF and State Funds

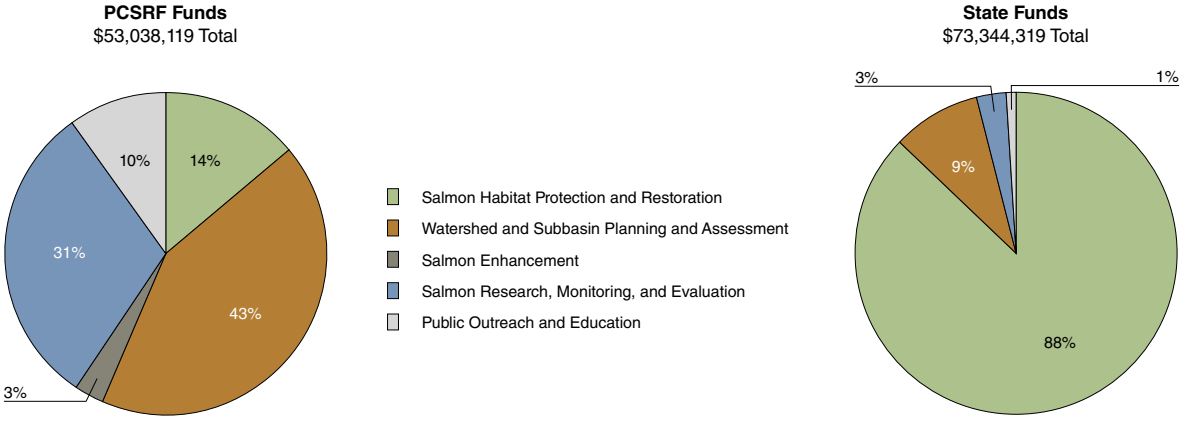


Exhibit 4–6: Oregon's Projects by Objective (funds in millions)

Objective	Projects	PCSRF Funds	State Funds
Salmon Habitat Protection and Restoration	575	$7.16	$64.34
Watershed and Sub-basin Planning and Assessment	486	$22.78	$6.43
Salmon Enhancement	5	$3.44	$0.00
Salmon Research, Monitoring, and Evaluation	131	$14.59	$2.16
Public Outreach and Education	129	$5.06	$0.42
Total	**1,326**	**$53.03**	**$73.35**

Oregon Accomplishments

PCSRF provided crucial support to OWEB in implementing the *Oregon Plan for Salmon and Watersheds* (Oregon Plan) (http://www.oregon-plan.org), a comprehensive statewide effort initiated in 1997. Two key activities supported by PCSRF include improving local restoration capacity and monitoring habitat conditions and fish populations, as described further below.

- **Investment in Local Restoration Capacity.** Using PCSRF funds, OWEB (http://www.oweb.state.or.us) provides staffing support to increase the capacity of soil and water conservation districts (45 statewide) and watershed councils (92 statewide) to conduct watershed restoration activities. These local groups have engaged citizens from all walks of life to work cooperatively for salmon recovery and watershed restoration. The soil and water conservation districts are working to create and implement Agricultural Water Quality Management Area Plans to address agricultural impacts to water quality. The watershed councils have organized local constituents and conducted watershed assessments to identify conditions needing improvement to address listed fish species' declines; they are also the primary vehicle for implementing millions of dollars in voluntary restoration projects on privately owned lands each year to improve salmon habitat and water quality. Guidance is provided in the *Oregon Aquatic Habitat Restoration and Enhancement Guide*, available online at http://www.oweb.state.or.us/publications/habguide99.shtml, and the *Oregon Watershed Assessment Manual*, which is at http://www.oweb.state.or.us/publications/wa_manual99.shtml.
- **Monitoring Investments.** OWEB used PCSRF funds to expand the monitoring of fish population and habitat conditions of anadromous fish in Oregon. OWEB has, for example, cooperated with other state and federal agencies to conduct random sample-based monitoring of fish seasonal abundance, macro invertebrates, water quality, and instream and riparian habitat conditions throughout the Lower Columbia Basin. In addition, OWEB is using PCSRF funding to evaluate progress toward recovering listed salmon stocks on the North Coast of Oregon and to conduct an evaluation of coastal wetland losses from the Oregon coastal lowlands. These investments in information will help to steer future investments in restoration.

California

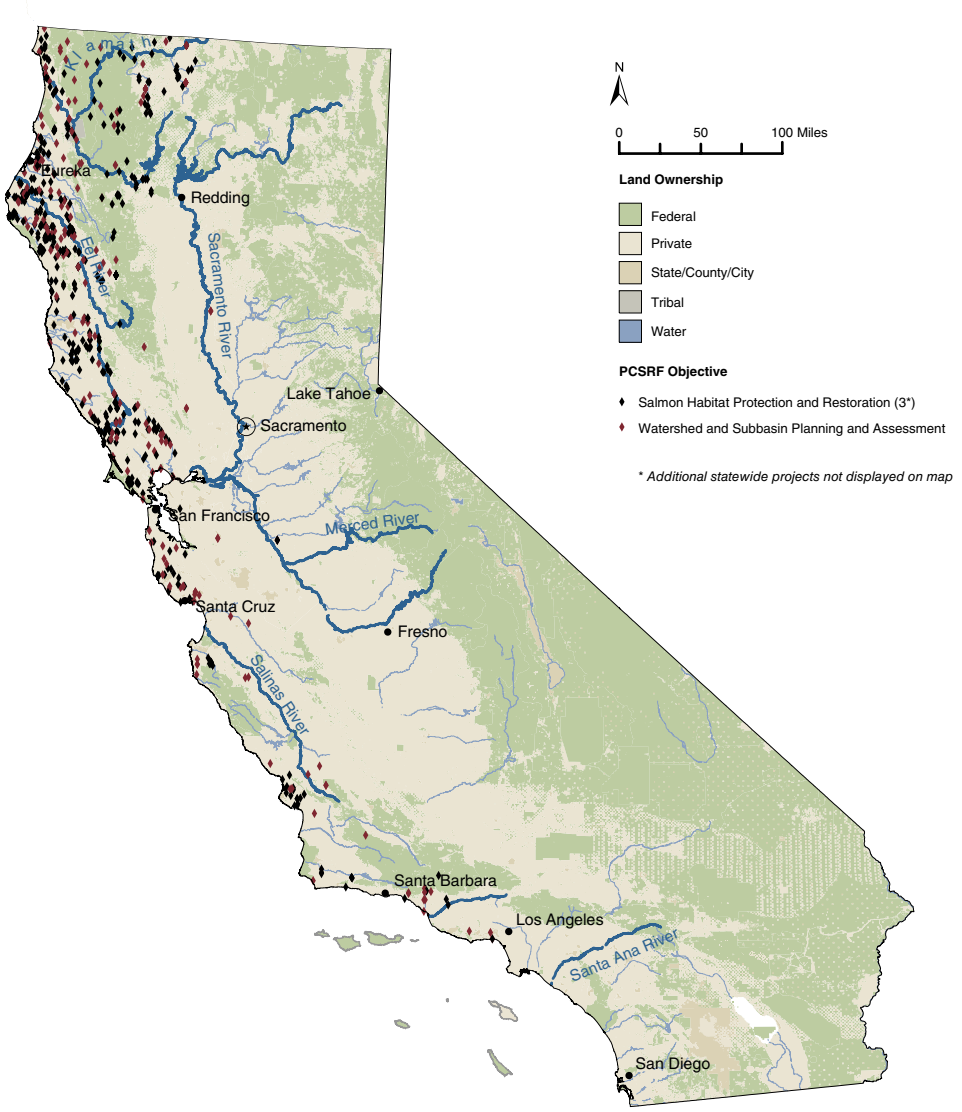
California Fund Distribution Process

Through the California Department of Fish and Game (CDFG), the Fisheries Restoration Grant Program (FRGP) awards project grants through an annual competitive process involving five levels of review by Technical Review Teams, regional field evaluators, the California Coastal Salmonid Restoration Grants Peer Review Committee, and the Director of the CDFG. Through this process, reviewers evaluate the biological soundness and the technical and cost effectiveness of proposals and make recommendations for funding based on coastwide and regional goals and priorities. The program has been continually adapted since it began in 1981 to improve administrative efficiency and incorporate advances in restoration science. In particular, watershed restoration plans have helped focus project proponents on the areas of greatest need, and have helped engage a wider variety of stakeholders in the restoration process.

To track projects over time, CDFG joined NMFS and the Pacific States Marine Fisheries Commission to develop the California Habitat Restoration Project Database (CHRPD) to manage and disseminate data about habitat restoration projects in California benefitting anadromous fish. In addition to serving as a comprehensive repository for information about California habitat restoration projects, the georeferenced project locations in the database enable geographic analyses of projects, aiding analysis of past trends and planning of future restoration work. The CHRPD database and the FRGP solicitation now include the recently developed PCSRF performance indicators described previously. Information on the FRGP and a new brochure describing the program can be found at http://www.dfg.ca.gov/nafwb/fishgrant.html. Exhibit 4–7

shows the locations of habitat restoration and watershed planning projects in California through December 2003.

Exhibit 4–7: Location of PCSRF Projects in California



California PCSRF Distribution Summary

As shown in Exhibit 4–8, CDFG committed the majority of its PCSRF and matching state salmon recovery funds, a total of $48.4 million, to habitat protection and restoration projects. Another priority for funding has been watershed and sub-basin planning and assessment projects. Overall, California augmented its $39.3 million PCSRF funds through FY 2002 with $31.8 million in state funds (a nearly 81 percent match on federal funds). Due to late receipt of its FY 2003 PCSRF grant, California did not commit any of its FY 2003 allocation to projects in 2003. This will occur in calendar year (CY) 2004. California's projects by objective are shown in Exhibit 4–9.

Exhibit 4–8: California's Distribution of PCSRF and State Funds

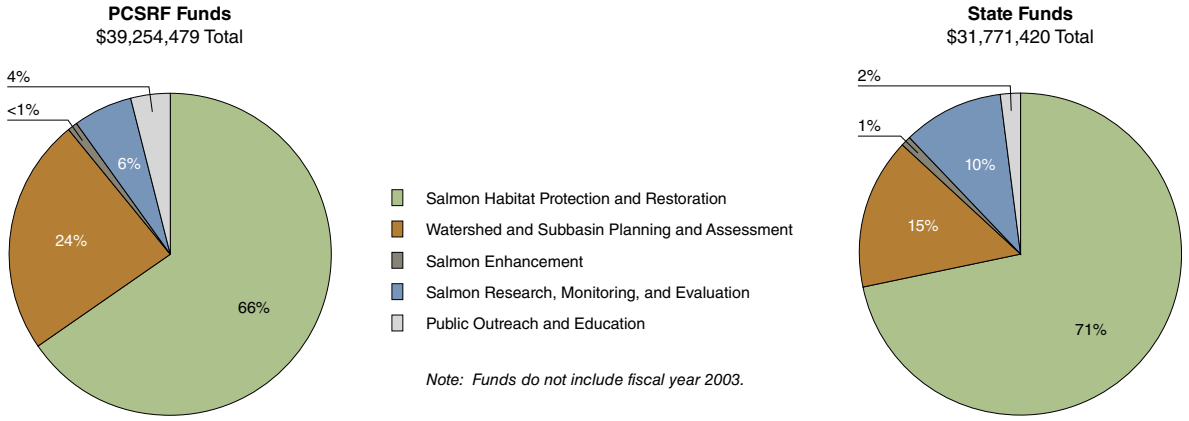


Exhibit 4–9: California's Projects by Objective (funds in millions)

Objective	Projects	PCSRF Funds	State Funds
Salmon Habitat Protection and Restoration	438	$25.78	$22.66
Watershed and Sub-basin Planning and Assessment	198	$9.34	$4.77
Salmon Enhancement	21	$0.18	$0.37
Salmon Research, Monitoring, and Evaluation	67	$2.49	$3.33
Public Outreach and Education	70	$1.47	$0.64
Total	**794**	**$39.26**	**$31.77**

California Accomplishments

The FRGP focuses on restoring anadromous fish habitat to ensure the survival and protection of salmon and steelhead in coastal areas of California. The PCSRF augmented state funds, and the combined funds have helped California improve its ability to recover and manage coastal salmon. Federal and state funds provide resources for coastal salmon recovery efforts implemented by non-profit organizations, local public agencies, small businesses, and private individuals. California initiated about 800 salmon recovery projects using federal and state funds. CDFG guidance documents for these restoration efforts include *Recovery Strategy for California Coho Salmon*, which is available at http://www.dfg.ca.gov/nafwb/cohorecoverydoc.html, and *California Salmonid Stream Habitat Restoration Manual* at http://www.dfg.ca.gov/nafwb/pubs/manual3.pdf.

The California FRGP funds have been aimed at many projects, including restoring and rehabilitating degraded or blocked freshwater habitat. In addition, the funds have helped to strengthen watershed efforts along the coast of California, and have expanded local capacity to conduct watershed assessments and develop watershed plans. FRGP funds are catalyzing an effort to create a blueprint—a California version of the "Oregon Plan" (described above)—for anadromous fish monitoring on the coast of California. Furthermore, California used PCSRF and state funds to develop validation monitoring protocols to evaluate the effectiveness of efforts to restore and conserve anadromous fish habitat. These protocols are reported in the *California Coastal Salmonid Restoration Monitoring and*

Evaluation Program: Interim Restoration Effectiveness and Validation Monitoring Protocols, available at http://www.dfg.ca.gov/nafwb/pubs/2003/200303_Interim_Protocol_Manual.pdf. Once formalized in the spring of 2005, these protocols will be incorporated into an updated *California Salmonid Stream Habitat Restoration Manual*.

Alaska

Alaska Fund Distribution Process

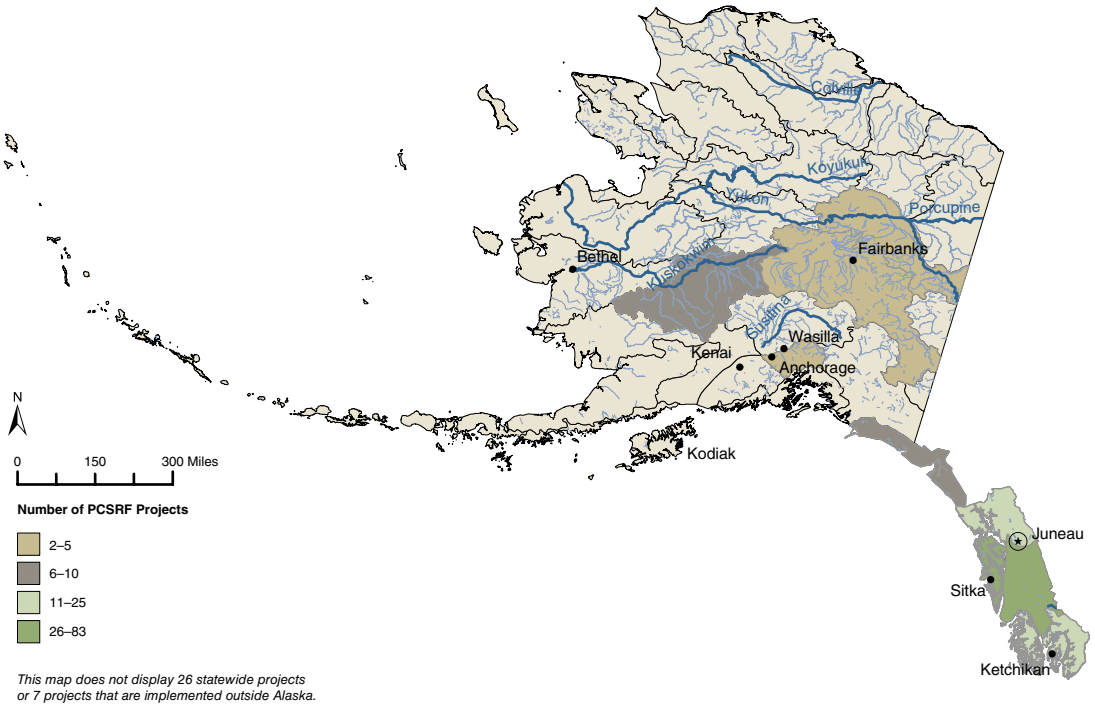
The Alaska Department of Fish and Game (ADFG) administers Alaska's Pacific Coastal Salmon Recovery Funds. The Department established the Southeast Sustainable Salmon Fund (SSSF) in 2000 for management of the PCSRF funds. Funds not Congressionally designated for specific projects in other regions of Alaska have primarily been targeted for the Pacific Salmon Treaty region of Southeast Alaska (the area of Alaska east of Cape Suckling). PCSRF funds are used for projects that complement the Sustainable Fisheries Policy for the State of Alaska adopted by the Alaska Board of Fisheries in March 2000, and for implementation of the 1999 Pacific Salmon Treaty. ADFG provides online information on its use of PCSRF funds at http://www.adfg.state.ak.us/special/sssf.php. The following sites include links to and information on Alaska's Sustainable Salmon Policy, http://www.adfg.state.ak.us/special/susalpol.pdf, and the Pacific Salmon Treaty and Commission, http://www.psc.org/Index.htm.

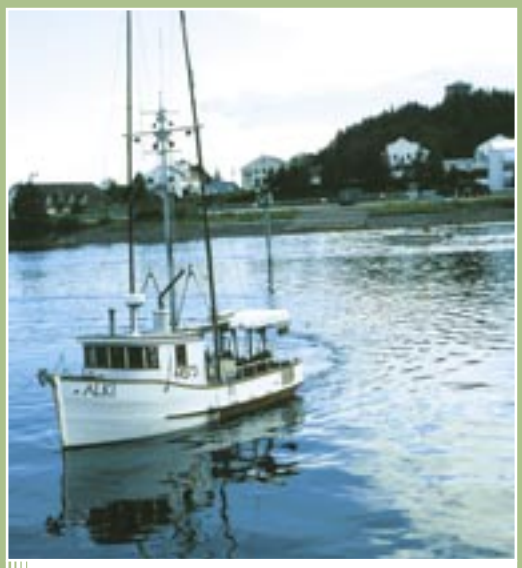
ADFG has two panels to provide input on the use of the funds. An Advisory Panel is composed of the commissioners of the Department of Natural Resources and the Department of Environmental Conservation, and representatives of the Governor's Office. An interagency Science Coordination Panel includes representatives from NMFS, the U.S. Environmental Protection Agency, the U.S. Forest Service, the U.S. Fish and Wildlife Service, state agencies, and the University of Alaska. The Advisory Panel and the Science Coordination Panel meet to determine high priority issues and recommend project funding for four primary activities: 1) salmon research and monitoring, 2) salmon habitat stewardship and restoration, 3) increasing economic opportunities for Southeast Alaska salmon fishermen (which is part of the salmon enhancement program objective for PCSRF), and 4) cooperative salmon and habitat projects, including projects with Columbia River tribes and Canada. The distribution of Alaska projects is shown in Exhibit 4–10.

Alaska PCSRF Distribution Summary

As shown in Exhibit 4–11, ADFG committed almost half of its PCSRF funds to salmon enhancement projects, with the majority of the remaining funds spent on salmon research, monitoring, and evaluation projects and watershed planning and assessment projects. Alaska's $62.3 million PCSRF commitments leveraged an additional $6.3 million in state funds, all for research, monitoring, and evaluation projects. Alaska's projects by objective through December 2003 are shown in Exhibit 4–12. Due to the late receipt of its FY 2003 PCSRF grant, Alaska had not committed about 90 percent of its FY 2003 allocation to projects by December 2003. This will occur in CY 2004.

Exhibit 4–10: PCSRF Projects in Alaska





The F/V Alki arriving at fish processing plant in southeast Alaska

Salmon Enhancement

Alaska—Economic Development Matching Grant Program in Southeast Alaska

An important component of the long term sustainability of salmon and salmon habitat in Alaska is the sustainability of the fishing industry. Sustainability depends on advocacy of salmon fishermen, the availability of salmon processing and related industries, and healthy salmon-dependent communities. While Alaska's wild salmon runs remain healthy, the salmon industry has been significantly affected by management regimes under the Pacific Salmon Treaty and by farmed salmon in the marketplace.

As part of the PCSRF funding, Alaska implemented an Economic Development Matching Grant Program to improve the sustainability and viability of Alaska's wild salmon fishing industry through infrastructure investment for product quality, product diversity, and market access. The program is designed to provide support for salmon industry infrastructure improvements, including chilling, freezing, value added processing, and fish buying capacity. Funds currently have been approved for 12 to 15 projects located throughout Southeast Alaska. Grantees are selected through a competitive grant process directed by the Alaska Departments of Fish and Game, Community and Economic Development, and Labor and Workforce Development, and the Office of the Governor. All grantees must provide a cash match of 25–50 percent.

Exhibit 4–11: Alaska's Distribution of PCSRF and State Funds

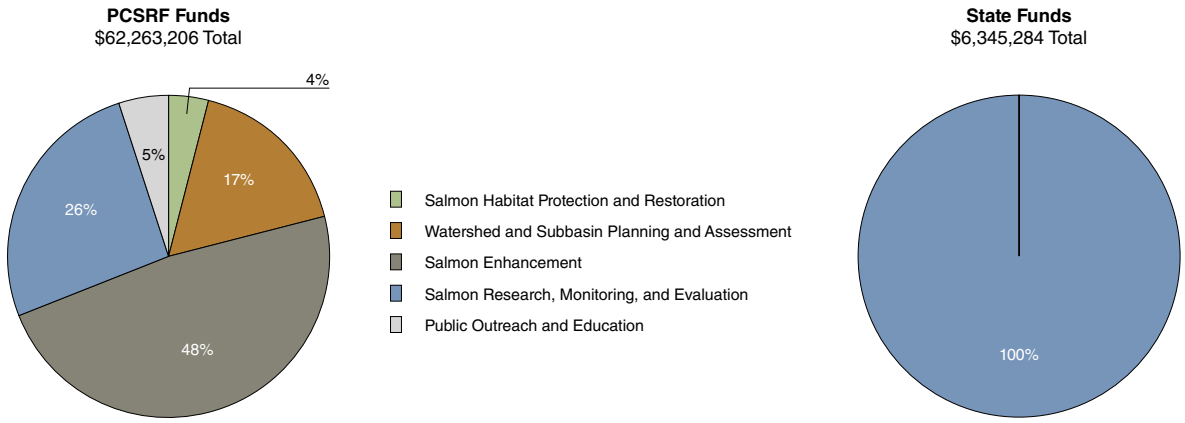


Exhibit 4–12: Alaska's Projects by Objective (funds in millions)

Objective	Projects	PCSRF Funds	State Funds
Salmon Habitat Protection and Restoration	4	$2.65	$0.00
Watershed and Sub-basin Planning and Assessment	36	$10.82	$0.00
Salmon Enhancement	39	$29.79	$0.00
Salmon Research, Monitoring, and Evaluation	77	$16.13	$6.35
Public Outreach and Education	18	$2.87	$0.00
Total	**174**	**$62.26**	**$6.35**

Alaska Accomplishments

Alaska established more than 170 projects using PCSRF funds. These projects are assisting the State with important salmon research, assessment, monitoring, and habitat restoration, as well as providing economic support for salmon fishermen and salmon-dependent communities affected by the management provisions of the 1999 Pacific Salmon Treaty Agreement. The increased levels of assessment and monitoring significantly aid Alaska in ongoing efforts to sustain salmon populations and salmon habitat. In addition, projects sustaining cultural and economic opportunities help assure that people dependent upon salmon continue to be strong advocates for the sustainable management of salmon resources and habitat.

Columbia River Tribes

Columbia River Tribes Fund Distribution Processes

NMFS distributed PCSRF funds to six Columbia River tribes and/or their tribal commission to support salmon conservation and recovery in the Columbia River basin. The Columbia River Inter-Tribal Fish Commission (CRITFC) received the majority of Columbia River Tribes PCSRF funds for

the Nez Perce Tribe, the Confederated Tribes of the Umatilla Indian Reservation, the Confederated Tribes of the Warm Springs Reservation, and the Confederated Tribes and Bands of the Yakama Nation. NMFS also provided PCSRF funds directly to the Colville Confederated Tribes and the Shoshone-Bannock Tribes for specific projects proposed by the tribes.

CRITFC distributes its PCSRF funds to member tribes based on the MOU with NMFS and salmon restoration strategies described in *Wy-Kan-Ush-Mi Wa-Kish-Wit*. A Tribal Science Review Team evaluates project proposals from the tribes or the Commission itself to ensure projects are consistent with the MOU, and tribal staff take final project proposals to their respective Fish and Wildlife Committee or Natural Resources Committee for public review and approval before presenting the proposals to the Commission.

Columbia River Tribes PCSRF Distribution Summary

The Columbia River tribes used the majority of their PCSRF funds on salmon habitat protection and restoration projects and on salmon enhancement projects, as shown in Exhibit 4–13. The $11 million in PCSRF funds for Columbia River tribes supported 126 projects in all five program objectives. The Columbia River tribes' projects by objective are shown in Exhibit 4–14. Not all funds had been committed to projects as of December 31, 2003.

Salmon Enhancement

Columbia River Tribes—Fish Production Assessment on the Warm Springs Reservation

As part of a multi-year project, several monitoring activities have been conducted related to the production of anadromous salmonids from Reservation streams. A mark/recapture escapement estimation of spring chinook, steelhead, redband, and bull trout, along with index area redd counts have been conducted in Shitike Creek and Warm Springs River basins. Snorkeling in 25 index transects to: (1) obtain juvenile abundance estimates, and (2) observe habitat utilization and species interaction of juvenile salmonids have been completed in Reservation streams. The operation of migrant traps to estimate juvenile salmonid migration is an additional part of this monitoring effort.

Snorkeling surveys of juvenile salmonids

Outplanting and evaluation of adult spring chinook into Shitike Creek is a further objective of the project. In 2001, 265 adult spring chinook were outplanted at five sites on Shitike Creek. Detailed monitoring of the Shitike Creek chinook supplementation outplanting was conducted, including species interaction observations, collection of tissue samples for genetic pedigree analysis and radiotelemetry of outplanted adults. Random pools were snorkeled to compare densities with index abundance transects. Data collected are currently being analyzed.

Exhibit 4–13: Columbia River Tribes' Distribution of PCSRF Funds

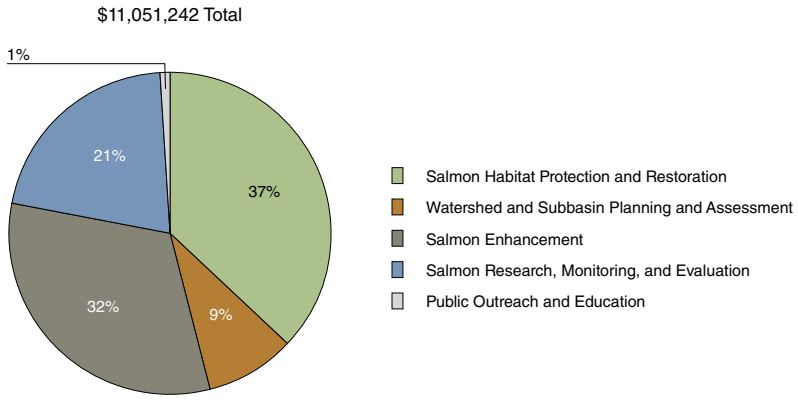


Exhibit 4–14: Columbia River Tribes' Projects by Objective (funds in millions)

Objective	Projects	PCSRF Funds
Salmon Habitat Protection and Restoration	62	$4.11
Watershed and Sub-basin Planning and Assessment	13	$0.95
Salmon Enhancement	22	$3.55
Salmon Research, Monitoring, and Evaluation	24	$2.31
Public Outreach and Education	5	$0.13
Total	**126**	**$11.05**

Columbia River Tribes Accomplishments

With the support of PCSRF, Columbia River tribes have implemented salmon habitat restoration projects that benefited communities across a large geographic area. CRITFC worked collaboratively with other tribes and non-tribal entities such as watershed groups, landowners, and agencies to promote salmon recovery according to the principles of *Wy-Kan-Ush-Mi Wa-Kish-Wit*. The Columbia River tribes have demonstrated success because of their relationships with federal, state, and local entities in cooperative recovery efforts.

Pacific Coastal Tribes

Pacific Coastal Tribes Fund Distribution Process

NMFS distributed PCSRF funds allocated for Pacific coastal tribes to 29 tribes and/or their respective tribal commissions in Washington, Oregon, and California. The funding was distributed to the Northwest Indian Fisheries Commission (NWIFC) on behalf of 20 western Washington treaty Indian

tribes, the Klamath Inter-Tribal Fish and Water Commission (KRITFWC) on behalf of four Klamath River basin tribes in northern California and southern Oregon, the Round Valley Indian Tribes in the Eel River Basin in California, the Confederated Tribes of the Chehalis Reservation in Washington, the Coquille Indian Tribe in Oregon, the Confederated Tribes of Grand Ronde in Oregon, and the Confederated Tribes of the Siletz Indians of Oregon. (PCSRF funds were initially provided directly to the Yurok Tribe, Hoopa Valley Tribe, and The Klamath Tribes. In FY 2001, these tribes joined with The Karuk Tribe of California to have the KRITFWC obtain PCSRF funding on behalf of all four Klamath River basin tribes.)

The majority (about 80 percent) of the PCSRF funds allocated to Pacific coastal tribes was provided to the NWIFC on behalf of 20 Northwest treaty Indian tribes. The NWIFC is the western Washington inter-tribal organization created in 1974 to assist tribes in conducting biologically sound fisheries and providing a unified voice on fisheries management and conservation issues. NWIFC member tribes receiving PCSRF funds are the Nisqually, Squaxin Island, Puyallup, Jamestown S'Klallam, Port Gamble S'Klallam, Lower Elwha Klallam, Skokomish, Swinomish, Sauk-Suiattle, Upper Skagit, Tulalip, Makah, Stillaguamish, Muckleshoot, Suquamish, Nooksack, Lummi, Hoh, Quinault, and Quileute Tribes. Working closely with NMFS, the NWIFC has established efficient application and reporting requirements to ensure accountability and the achievement of Congressional and tribal salmon recovery goals. NWIFC technical and policy staff review and monitor tribal proposals to ensure each provides sustainable and measurable benefits for salmon and their habitat. The tribes have flexibility in identifying salmon recovery priorities for tribal watersheds, governments, and communities. At the same time, the tribes' efforts are connected through the NWIFC to regional salmon recovery efforts.

KRITFWC received about 11 percent of PCSRF funds allocated to Pacific coastal tribes on behalf of the Hoopa Valley Tribe, The Karuk Tribe of California, Yurok Tribe, and The Klamath Tribes. Each KRITFWC tribe has one seat on the Board of Directors, which governs the Commission. The KRITFWC Board meets annually to prioritize their PCSRF funding for projects undertaken by member tribes in accordance with the MOU between KRITFWC and NMFS.

Pacific Coastal Tribes—Puyallup Tribe

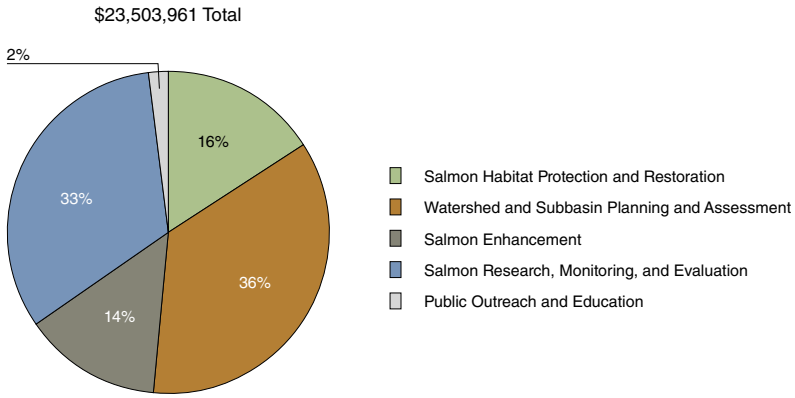
When salmon start returning in the fall, the Puyallup River is obscured by a chalky mix of glacial till, making it almost impossible for the adult spawning salmon to be seen and preventing accurate counts of returns. Starting in the fall of 2003, with the aid of Pacific Coastal Salmon Recovery funding, the Puyallup Tribe of Indians used Dual Frequency Identification Sonar (DIDSON)—an advanced sonar system—to peer though the murky waters.

Images presented by the DIDSON system are black and white and are highly accurate compared to other types of sonar. The images are so accurate that biologists can tell the difference between species. Tracking salmon populations over the years is a basic and critical requirement of assessing recovery. Data provided from this project will help contribute to better understanding of the timing of the salmon run and allow for better fishery management decisions.

Pacific Coastal Tribes PCSRF Distribution Summary

As shown in Exhibit 4–15, the Pacific coastal tribes committed $23.5 million in PCSRF funds primarily for two activities: watershed and sub-basin planning and assessment and salmon research, monitoring, and evaluation. Pacific coastal tribes' projects by objective are shown in Exhibit 4–16. Due to the late receipt of most of the FY 2003 PCSRF grants to the tribes and tribal commissions, about 87 percent of the Pacific coastal tribes FY 2003 funds was not committed to projects as of December 2003. This will occur in CY 2004.

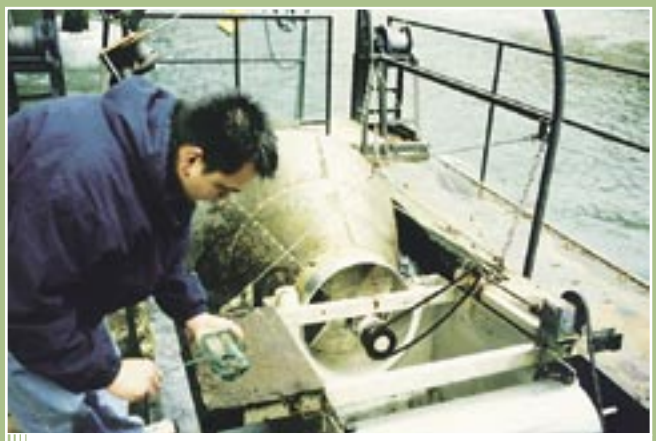
Exhibit 4–15: Pacific Coastal Tribes' Distribution of PCSRF Funds



Research, Monitoring, and Evaluation

Pacific Coastal Tribes—Port Gamble S'Klallam Tribe

The smolt trap on the Hamma Hamma River is a large, water-powered device that safely catches young salmon, allowing the fish to be studied and returned to the river unharmed. It's anchored near the shore of the river just below the site where a tributary reaches the mainstem of the Hamma Hamma. It is part of a PCSRF funded project conducted by the Port Gamble and Skokomish tribes, a local landowner, Long Live the Kings, the Hood Canal Salmon Enhancement Group and the Washington Department of Fish and Wildlife to obtain an accurate count of how many juvenile fish—or smolts—are migrating from the freshwater into the saltwater



Smolt trap

The level of smolt production reflects the quantity and quality of freshwater salmon habitat available in the watershed. The information collected about the Hood Canal summer chum population which is listed as threatened under the ESA, is used to forecast future adult salmon returns and determine what is best for the Hamma Hamma River in terms of harvest management, stock enhancement and habitat restoration. Declining chinook, pink, and coho salmon, along with steelhead populations, also will be studied.

Exhibit 4–16: Pacific Coastal Tribes' Projects by Objective (funds in millions)

Objective	Projects	PCSRF Funds
Salmon Habitat Protection and Restoration	83	$3.65
Watershed and Sub-basin Planning and Assessment	84	$8.45
Salmon Enhancement	22	$3.18
Salmon Research, Monitoring, and Evaluation	114	$7.86
Public Outreach and Education	7	$0.36
Total	**310**	**$23.50**

Pacific Coastal Tribes Accomplishments

Over the past three decades, in response to dwindling salmon populations and a commitment to sustainable fisheries, western Washington tribes and the State of Washington have worked together as co-managers, modifying and reducing harvests to protect individual populations of salmon and reforming hatchery operations to minimize their impacts on wild salmon. Tribes have worked to protect and restore watersheds that support salmon. At the forefront of the effort for salmon recovery in western Washington is the Shared Strategy, a collaborative effort by federal, state, local, and tribal governments, and private sector leaders aimed at creating healthy ecosystems to produce and support wild salmon at a level that will once again sustain commercial, ceremonial, and subsistence harvest.

PCSRF funds provided to western Washington tribes enabled the tribes to begin realizing their appropriate role as central participants in salmon recovery efforts. The NWIFC used PCSRF funds to restore habitat to improve conditions essential to viable salmon populations, to conduct research to increase understanding of what salmon need and how to best provide those needs, to supplement wild salmon stocks without impeding their recovery, and to undertake hatchery reforms to minimize the impacts of artificial propagation on wild salmon. Backed by solid systems of accountability and a strong strategic coordinating function provided by the NWIFC, the tribes ensure salmon recovery resources directly benefit salmon.

Watershed Planning and Assessment

Pacific Coastal Tribes / Washington—Puget Sound Shared Strategy

PCSRF funds have been used to support the Puget Sound Shared Strategy, a collaborative recovery planning effort to restore and protect salmon runs in the region. It involves federal, state, local, and tribal leaders supporting the planning work being done at the watershed level by various groups addressing watershed health and salmon recovery, and the marine and estuarine environments. The Shared Strategy seeks to write a recovery plan that:

- Represents regional consensus on measurable fish population recovery goals;
- Integrates needed recovery actions in harvest, habitat, and hatcheries;
- Includes decision-making that represents joint policy and technical interactions; and
- Obtains the necessary commitment at all levels to achieve desired results and improve conditions for salmon.

For more information see http://www.sharedsalmonstrategy.org.

In northern California and southern Oregon, KRITFWC provides a forum for discussions about fisheries and water quality issues in the Klamath and Trinity River Basins. This forum helps to educate and disseminate information concerning the conditions in the watershed basins in these regions and to seek and accept funds to maintain and restore fish populations and habitats. In the fall of 2002, the Klamath River experienced a fish kill of 35,000 adult chinook and coho salmon as the result of low water flows combined with poor water quality. With the support of PCSRF, KRITFWC has been working diligently to study this fish kill and analyze scientific data in hopes of preventing any future fish kills.

Chapter 5: Conclusions

The PCSRF has provided funding support to the Pacific coast states and tribes to assist state, tribal, and local salmon conservation and recovery efforts in accordance with Congressional and Administration direction since inception in FY 2000. A total of $347.2 million has been appropriated to the PCSRF program through FY 2003, and these funds were allocated to the states and tribes as set forth in the Congressional appropriations. The FY 2000 through FY 2003 funds were distributed to projects in accordance with MOUs between NMFS and the states/tribes that establish criteria and processes for prioritizing disbursement of the PCSRF funds to priority salmon recovery and conservation projects and activities. Due to the lateness of grant issuance in FY 2003, not all of the PCSRF funds were committed to projects and activities by December 31, 2003. About 85 percent of the funds were committed by the end of 2003 to 3,213 projects.

The states, tribes, and NMFS developed a comprehensive performance tracking system for the PCSRF in 2003 in response to requests by Congress and OMB for better and more consistent program accountability. The data system developed for the performance indicators is available to the public at: http://webapps.nwfsc.noaa.gov/pcsrf/. Although it is still too early in the performance reporting process to draw conclusions about the contributions of PCSRF projects to salmon recovery and conservation, progress is being made and on-the-ground habitat changes will become obvious over the next few years.

The PCSRF is making progress toward the goal of significant contributions to the conservation and restoration of sustainable Pacific salmon runs and the habitats upon which they depend. Over 3,200 projects and activities have been funded with PCSRF and state funds, demonstrating collaboration and the leveraging of resources to achieve common goals in the recovery and conservation of Pacific salmon. Many PCSRF projects have shown success in providing direct benefits to salmon, such as salmon using newly opened or improved habitat. Increased returns have been reported for many of the ESA listed ESUs. However, in many cases, it will be several to many years after restoration and recovery efforts are complete before the accrued benefits to salmon can be documented through direct changes in salmon abundance.

The majority of the PCSRF funds has been spent on habitat restoration activities as this is where the greatest needs exist for salmon recovery. Many miles of habitat have been opened to fish, and miles of stream beds have been restored. Fish screens have been installed, culverts have been cleared and replaced, inaccessible habitat has been re-opened, banks have been stabilized, and channels reconfigured. Exhibit 5–1 shows the overall distribution of PCSRF funds and investments in program objectives. The PCSRF program has filled a vital planning need in its support of local and tribal recovery planning and infrastructure building so the long-term goal of salmon recovery can be achieved. Policy and science-based groups across the region are working on plans, strategies, and critical actions to address factors that limit recovery. As watershed and sub-basin plans are developed, progress will be shown through the identification of actions needed to ensure overall

Exhibit 5–1: PCSRF and State Funds (in millions) Committed by Objective

		Habitat Protection & Restoration	Watershed Planning & Assessment	Salmon Enhancement	Research, Monitoring, & Evaluation	Public Outreach & Education	Total
PCSRF	Washington	$61.15	$28.34	$2.53	$9.37	$0.00	**$101.39**
	Oregon	$7.16	$22.78	$3.44	$14.59	$5.06	**$53.03**
	California	$25.78	$9.34	$0.18	$2.49	$1.47	**$39.26**
	Alaska	$2.65	$10.82	$29.79	$16.13	$2.87	**$62.26**
	Columbia River Tribes	$4.11	$0.95	$3.55	$2.31	$0.13	**$11.05**
	Pacific Coastal Tribes	$3.65	$8.45	$3.18	$7.86	$0.36	**$23.50**
	Total PCSRF Funds	$104.50	$80.68	$42.67	$52.75	$9.89	**$290.49**
State Matching Funds		$118.62	$33.02	$0.37	$11.84	$1.06	**$164.91**
Total PCSRF & State Funds		**$223.12**	**$113.69**	**$43.04**	**$64.59**	**$10.95**	**$455.40**

recovery and conservation of salmon and through the measures taken with PCSRF funding to address those needs.

At the same time that PCSRF investments are contributing to salmon recovery, improvements in other activities such as hydropower, hatcheries and harvest are being made. These activities, in conjunction with the specific projects funded by the PCSRF, require continued monitoring, reporting, and evaluation to assess interactions, priorities, and progress on these many fronts. PCSRF has a goal that at least 10 percent of the PCSRF funds be allocated for coordinated monitoring and evaluation of salmon recovery efforts. As of December 2003, 14 percent of the PCSRF and state funds have been used for RM&E projects. This validation monitoring, coupled with watershed assessments that delineate the factors limiting recovery, will provide the complementary scientific basis to move forward on the path to recovery.

Performance Measures

Significant steps have been taken toward the establishment of a consistent set of reporting indicators that allow for individual state and tribal project actions to be rolled up at different scales, such as ESUs, recovery domains, or regionally. A total of 70 performance indicators were identified in 2003, and the states/tribes already have made data available on almost half of them. While all of these performance indicators cannot be reconstructed from projects completed before the performance system was implemented, and they currently focus on outputs and do not completely address outcomes, they are creating a baseline against which to measure progress. The development of annual and long-term performance measures over the next few years, based on research, monitoring, and evaluation currently underway, will enhance the assessment of progress toward the PCSRF goal of salmon sustainability. The aggregation of performance indicators is beginning to provide a summary picture of salmon recovery and conservation efforts along the Pacific coast that will be tied directly to changes in productivity in salmon populations.