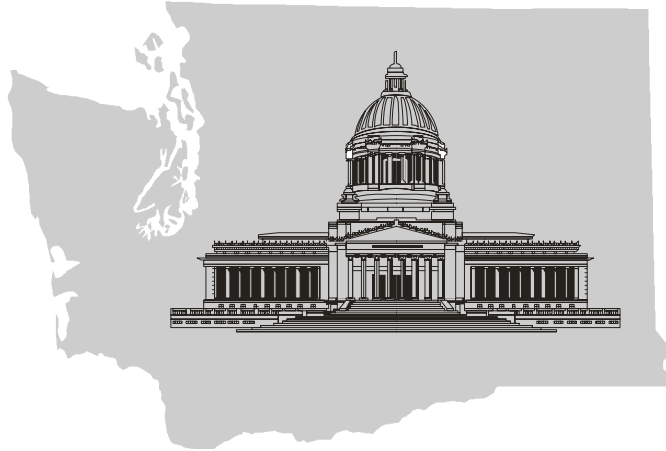


State of Washington  
Joint Legislative Audit and Review Committee (JLARC)



# Fish Management Division: Activity and Cost Analysis

Report 03-12  
Volume II  
Fish Species Group Appendices

December 3, 2003

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in alternative formats for persons with disabilities.*

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**JOINT LEGISLATIVE AUDIT AND REVIEW COMMITTEE**

506 16<sup>th</sup> Avenue SE  
PO Box 40910  
Olympia, WA 98501-2323  
(360) 786-5171  
(360) 786-5180 Fax  
<http://jlarc.leg.wa.gov>

---

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The Joint Legislative Audit and Review Committee (JLARC) carries out oversight, review, and evaluation of state-funded programs and activities on behalf of the Legislature and the citizens of Washington State. This joint, bipartisan committee consists of eight senators and eight representatives, equally divided between the two major political parties. Its statutory authority is established in RCW 44.28.

JLARC staff, under the direction of the Committee and the Legislative Auditor, conduct performance audits, program evaluations, sunset reviews, and other policy and fiscal studies. These studies assess the efficiency and effectiveness of agency operations, impacts and outcomes of state programs, and levels of compliance with legislative direction and intent. The Committee makes recommendations to improve state government performance and to correct problems it identifies. The Committee also follows up on these recommendations to determine how they have been implemented. JLARC has, in recent years, received national recognition for a number of its major studies.

**FISH MANAGEMENT DIVISION:  
ACTIVITY AND COST  
ANALYSIS**

**REPORT 03-12  
VOLUME II  
FISH SPECIES GROUP APPENDICES**



DECEMBER 3, 2003

STATE OF WASHINGTON  
JOINT LEGISLATIVE AUDIT AND REVIEW  
COMMITTEE

**STUDY TEAM**

LINDA BYERS  
STEPHANIE HOFFMAN

**LEGISLATIVE AUDITOR**

TOM SYKES

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on the JLARC website at:

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or contact

Joint Legislative Audit & Review Committee  
506 16<sup>th</sup> Avenue SE  
Olympia, WA 98501-2323  
(360) 786-5171  
(360) 786-5180 FAX

## INTRODUCTION

These appendices explore the activities of the Washington Department of Fish and Wildlife's Fish Management Division with regard to seven specific fish species groups: salmon and steelhead, marine fish, shellfish, resident native fish, warm water fish, sturgeon, and aquatic nuisance species. An eighth "Multiple Species" group includes Division activities that could not be attributed to a single species group.

Part I of each appendix includes background information to provide a context for understanding the results reported in Part II. Part I begins with a brief description of the fish included in the species group, then describes the larger management environment in which the Fish Management Division conducts its activities. Part I also includes information on state laws and Fish and Wildlife Commission policies that have an impact on Fish Management Division activities.

Part II of each appendix provides the results from JLARC's Fish Management Division database for that particular fish species group. This includes information on activities, expenditures, FTEs, and fund sources.

Volume I of this report contains a more general description of all Fish Management Division activities, including a description of the annual Fish Management Cycle and the Division's "Other Activities."

These appendices are not intended as a comprehensive explanation of all aspects of fish management in Washington. **The purpose of these appendices is to provide a context for and an explanation of Fish Management Division activities for the various fish species groups.**



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# APPENDIX A – SALMON AND STEELHEAD

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This appendix explores the activities of the Washington Department of Fish and Wildlife's Fish Management Division with regard to salmon and steelhead. Part I provides background information on the management of salmon and steelhead. Part II of this appendix provides the results from JLARC's Fish Management Division database specific to salmon and steelhead activities and expenditures. This appendix is not intended to be a comprehensive explanation of all salmon and steelhead management; **its purpose is to provide a context for understanding the salmon and steelhead activities of the Fish Management Division.**

## PART I. BACKGROUND AND CONTEXT

### The Fish

#### Salmon

Five salmon species are native to Washington: chinook, coho, pink, chum, and sockeye. The fish are anadromous, hatching and rearing in freshwater, then migrating to the Pacific Ocean. Here they spend one to four years before returning to their natal streams or hatcheries to spawn and die. Stocks are further defined by the seasonal timing of their return as adults to freshwater (e.g., spring, summer, fall) and by area of origin.

#### Steelhead

Washington is also home to native steelhead, an anadromous form of rainbow trout. Like salmon, steelhead stocks are defined by the seasonal timing of their return to freshwater as adults (winter or summer) and by area of origin. Unlike salmon, adult steelhead may return to freshwater more than once to spawn.

### The Larger Management Context

The work of the Fish Management Division on salmon and steelhead centers on estimating fish population levels before fishing begins, monitoring harvest after fishing begins, and assessing spawning population sizes after fishing is completed. For salmon, this work fits into a much broader planning framework used each year to allocate the fish among two countries, four states, tribal fisheries, and eventually among Washington's commercial and recreational fisheries. While the annual planning umbrellas for steelhead do not include the international and ocean fisheries components, steelhead has its own planning umbrellas to allocate fish among tribal fishers and Washington, Oregon, and Idaho non-tribal anglers. Salmon and steelhead management both fall under the larger planning umbrella of compliance with the federal Endangered Species Act.

The framework for the annual salmon allocation process is described below. Where appropriate, information on steelhead planning umbrellas is included as well. Brief background information is also provided on three entities with a connection to Fish Management Division salmon and steelhead activities: the Pacific States Marine Fisheries Commission, the Northwest Power &

Conservation Council, and the Federal Energy Regulatory Commission. The discussion then turns to Washington state laws and Fish and Wildlife Commission policies with a direct link to Fish Management Division salmon and steelhead activities.

### The Pacific Salmon Treaty

The United States and Canada entered into the Pacific Salmon Treaty in 1985. This agreement was revised substantially in 1999 with a shift to a greater focus on salmon conservation. The treaty offers both countries a forum in which to acknowledge and address the fact that salmon originating in one country migrate into ocean waters that fall under the jurisdiction of the other country. The treaty also directs both countries to take into account the conservation of steelhead when making management recommendations for salmon.

The governments of the U.S. and Canada created the Pacific Salmon Commission to implement the provisions of the treaty and to allocate salmon harvest between the two countries. While commissioners on the panel represent a variety of interests, each country ultimately gets one vote; the two countries must agree for a Commission decision or recommendation to move forward. The Commission is assisted in its work by regional panels, species-specific technical panels, and work groups assembled on specific topics. Fish Management Division staff serve on some of these technical panels.

The annual allocation under the Pacific Salmon Treaty may be thought of as making the first slices in the year's harvestable "salmon pie," recommending a "slice" for Canada, one for Alaska, and a portion to be further divided in the U.S. Pacific Northwest. These "slices" include allowing enough salmon to return to their spawning grounds to maintain the salmon populations.

### The Pacific Fishery Management Council

A portion of the Pacific Northwest's total salmon allocation is further allocated to ocean fisheries for chinook, coho, and pink salmon within the U.S.' exclusive economic zone, in the area from three to 200 miles off the coasts of Washington, Oregon, and California. This task falls to the Pacific Fishery Management Council. Created by Congress in 1976, the Pacific Fishery Management Council is one of eight regional councils established to manage fisheries in these offshore waters.

The Council is made up of representatives from the Washington, Oregon, Idaho, and California state fish and wildlife agencies, treaty tribes, NOAA-Fisheries,<sup>1</sup> and citizen sport and commercial fishing interests. There are non-voting members from the Coast Guard, the Pacific States Marine Fisheries Commission (described below), the U.S. Fish and Wildlife Service, and the state of Alaska. Washington's Department of Fish and Wildlife is represented on the Council via the Department's Intergovernmental Resource Management group. Like the Pacific Salmon Commission, the Council receives assistance in its work from technical support committees. Fish Management Division staff participate on the Council's Scientific and Statistical Committee and the Salmon Technical Team. The Council's fish management recommendations are reviewed by NOAA-Fisheries and are ultimately signed into effect by the Secretary of Commerce.

The Council has adopted a Salmon Fishery Management Plan. The annual Council allocation of salmon among tribal and Washington, Oregon, and California's commercial and recreational

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<sup>1</sup> NOAA stands for the National Oceanic and Atmospheric Administration. NOAA-Fisheries was formerly the National Marine Fisheries Service or NMFS.



ocean fisheries takes place in tandem with the “North of Falcon” process described below for fisheries in Washington and Oregon waters. The number of salmon allocated to the ocean fisheries determines the number that remain to be harvested in the state fisheries.

### Tribal Co-Management

Federal court decisions, in particular *U.S. v. Washington*<sup>2</sup> and *U.S. v. Oregon*,<sup>3</sup> have clarified the fishing rights reserved to Northwest Indian tribes in the Stevens Treaties signed in the 1850s. Tribal co-management of fisheries is now well established in Washington and Oregon. Each treaty tribe typically has its own fish management and enforcement staff as well as its own legally-defined usual and accustomed fishing areas. On the mainstem Columbia River, there is a common tribal fishing area for the Stevens Treaties tribes in the basin.

Tribal fisheries management is often coordinated through the Northwest Indian Fisheries Commission in the *U.S. v. Washington* case area (which includes Puget Sound and much of the Olympic Peninsula) and the Columbia River Inter-Tribal Fish Commission in the *U.S. v. Oregon* case area in the Columbia River basin. Another product of implementation of *U.S. v. Oregon* is a Technical Advisory Committee. This Committee is comprised of representatives from the four *U.S. v. Oregon* tribes, the Shoshone-Bannock tribes, the Columbia River Inter-Tribal Fish Commission, the Fish and Wildlife agencies from Washington, Oregon, and Idaho, and two federal agencies: NOAA-Fisheries and the U.S. Fish and Wildlife Service. This Committee provides a forum for the parties to reach agreement on technical analyses, data, forecasts, and modeling. The Intergovernmental Resource Management group represents Washington’s Department of Fish and Wildlife on the Committee.

Tribal and state co-management of steelhead is accomplished differently in the two case areas. In the *U.S. v. Washington* case area, Fish Management Division staff work each year with their counterparts in each of the tribes to reach agreement on escapement estimates, a total harvest amount, and a proposal for allocating that harvest among the co-managers. This is somewhat unusual in that the Intergovernmental Resource Management group usually has the lead in reaching such agreements. In the *U.S. v. Oregon* case area, the Technical Advisory Committee is responsible for the resolution of technical issues. Fishing proposals, based on the technical analysis, are worked out among the co-managers and between the three states.

For salmon, tribal negotiators and analysts participate in the Pacific Salmon Commission and the Pacific Fishery Management Council forums to secure each tribe’s slice of the salmon “pie.” The allocation of salmon in Washington waters and in the joint Washington/Oregon waters is largely accomplished through the “North of Falcon” process described below. In the *U.S. v. Oregon* case area, the Technical Advisory Committee also plays a key role. In the course of participating in these layers of planning umbrellas, the co-managers seek to reach agreement on the pre-season forecasts, the number of salmon that can be harvested in each location, the allocation of this total amount among the co-managers, the responsibilities for monitoring the commercial and recreational harvest, and assessment of reaching management objectives.

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<sup>2</sup> 384 F. Supp. 312.

<sup>3</sup> 302 F. Supp. 899.

### “North of Falcon”

With slices of the salmon pie allocated to Canada, Alaska, and the ocean fisheries, the remaining portion of the pie must be allocated among fisheries in the waters over which Oregon and Washington have jurisdiction. This includes compliance with the obligations to the treaty tribes in Washington and on the Columbia River and its tributaries. It also includes an allocation among commercial fisheries (of various gear types) and recreational anglers. As at the beginning of the process with the Pacific Salmon Commission, the allocation must still include enough adult salmon reaching the spawning grounds and hatcheries to maintain the populations.

To accomplish this final annual slicing of the salmon pie, Oregon, Washington, and the treaty tribes have adopted a process called “North of Falcon.” The name refers to Cape Falcon on the northern Oregon coast. In tandem with the Pacific Fishery Management Council process for setting the ocean seasons, the states and tribes convene a set of meetings with interested parties to debate alternative fishing options, which affect allocation. Part of the North of Falcon process is quite technical, e.g., debates over the accuracy of models used to make pre-season population forecasts, model parameters used to predict the outcomes of various fishing scenarios, and suitable catch monitoring sampling rates to retain the integrity of the coastwide monitoring system. Other aspects of the process are sometimes heated and emotional as the co-managers and representatives of commercial and recreational fishing interests make their arguments about why one area or approach to fishing should receive a greater or smaller slice of the remaining pie. Participants are quite cognizant that more fish caught in one place means fewer fish available elsewhere, and many participants are passionate about their fishing.

While the Intergovernmental Resource Management group makes the final decisions on the state’s position in the North of Falcon and Pacific Fishery Management Council salmon negotiations, Fish Management Division staff play an important role in these planning processes, for example, working with their tribal and Oregon counterparts to reach consensus on pre-season forecasts and working as a team with the Intergovernmental group to design non-tribal fisheries. Once the year’s various negotiations are concluded, Fish Management Division staff are responsible for carrying out the harvest monitoring and population data collection activities assigned to the Department.

### The Columbia River Compact

The states of Oregon and Washington have a long-standing compact for managing the commercial fisheries of the Columbia River and its tributaries, a compact approved by Congress in 1918. The two states have concurrent jurisdiction over the waters of the Columbia River. The Intergovernmental Resource Management group represents Washington on the Compact. The two states work together on salmon and steelhead management based on information provided by the Technical Advisory Committee and using the processes outlined above. Once the year’s fishery negotiations have been completed, the staffs from the two states continue to work together to adopt compatible sport and commercial fishing regulations.

### The Endangered Species Act

In recent years, the already-complex annual salmon and steelhead allocation processes and numerous other aspects of fish management have been further complicated by the listing of certain bull trout, salmon, and steelhead stocks as threatened or endangered under the federal

Endangered Species Act (ESA). The results of the annual negotiations over the ocean and inland fisheries must now also pass muster with the federal NOAA-Fisheries as being in compliance with the ESA. Needless to say, this has become a key factor in management planning and negotiations.

Compliance with the ESA has affected Fish Management Division staff in many ways. It has intensified population field data collection and harvest monitoring for both listed and unlisted fish species. In designing fish management regimes, Division staff must have the data and analysis to convince NOAA-Fisheries that listed species will not be unduly harmed. For the 2001-03 biennium, Fish Management Division staff provided information for and review of the work of the Hatchery Scientific Review Group, an effort to bring Hatchery Division operations into compliance with the ESA. The Fish Management Division has a unit in headquarters whose primary activity is securing and maintaining the necessary ESA permits for fish research, hatchery propagation, and so that people in Washington can go fishing.

### The Pacific States Marine Fisheries Commission

Three additional entities should be identified as part of the larger context of understanding Fish Management Division salmon and steelhead activities. The first of these is the Pacific State Marine Fisheries Commission. The Commission is a multi-state entity that predates the Pacific Fishery Management Council, having been authorized by Congress in 1947. The Commission is comprised of 15 members from the states of Washington, Oregon, California, Idaho, and Alaska. One-third of these members are appointed by their respective state legislatures, one-third by each state's governor, and one-third are the directors of the state agency that manages fisheries. A representative from the Commission sits as a non-voting member of the Pacific Fisheries Management Council.

The Pacific States Commission does not have regulatory or fisheries management authority. It serves as an important collection point for multi-state data including information on coast-wide coded wire tag recovery, commercial fish harvest (PacFIN), and marine recreational harvest (RecFIN). The Commission lobbies Congress on fishery issues of interest to the five states. The Commission also works to facilitate interjurisdictional fishery agreements and acts as a primary contractor for various grants, projects, and contracts for its member states and others. Commission employees or contracts are heavily involved in the monitoring of adult salmon and steelhead passing through the mainstem dams on the Columbia and Snake rivers. The Commission also conducts or funds other salmon and steelhead population data collection efforts in the Northwest.

### The Northwest Power Act/Northwest Power & Conservation Council

Another entity that is part of the larger salmon and steelhead management context is the Northwest Power & Conservation Council. In 1980, Congress enacted the Pacific Northwest Electric Power and Conservation Planning Act. Pursuant to the legislation, the four states of Washington, Oregon, Idaho, and Montana created what is now the Northwest Power & Conservation Council (formerly known as the Northwest Power Planning Council). The Council plays an important role in regional electricity planning and management. The Council also is responsible for preparing a program to mitigate the damage imposed on fish and wildlife species from the development and the operation of the Columbia River hydropower system. Much of the Council's planning in this area has focused on salmon and steelhead, though the program covers

resident fish and wildlife as well. Implementation of the items in the Council's fish and wildlife plan is paid for by the Bonneville Power Administration, using a portion of the revenues generated from the operation of the hydropower system.

In 2000, the Council launched a new effort to redesign its fish and wildlife plan. The overall plan is being assembled through the design of new plans for each subbasin of the Columbia River and its tributaries in all four Northwest states. Fish Management Division staff are participating at the local level in the development of these subbasin plans. In addition, the state fish and wildlife agencies and the Columbia Basin tribes formed the Columbia Basin Fish and Wildlife Authority shortly after the Council itself was created. This group reviews fish and wildlife project proposals before the proposal moves forward for Council review. Division staff participate as part of this project review process. Fish Management Division staff also work on projects approved as part of the Council's fish and wildlife plan.

### Federal Hydropower Project Relicensing

A third additional entity to introduce is the Federal Energy Regulatory Commission. Under the Federal Power Act, the Federal Energy Regulatory Commission (FERC) is responsible for licensing private, municipal, and state hydroelectric projects. When a license nears the end of its term, the owner of the project goes through a relicensing process. As part of the licensing and relicensing review, the Commission can require the owner to modify plans or project operations. The Federal Power Act directs the Commission to consider a number of different factors as part of the licensing or relicensing review, including adequate protection, mitigation, and enhancement of fish and wildlife.

State and federal fish and wildlife agencies participate in these licensing and relicensing processes to ensure that the Commission is cognizant of fish and wildlife impacts associated with a project, as well as steps for mitigation of negative impacts. Fish Management Division staff participate in this activity for certain projects. A FERC license for a project lasts for between 30 and 50 years, so the activity on a given project is infrequent; however, the activity may be a time-consuming one for staff during the years of the licensing or relicensing process. Mitigation work associated with a hydroelectric project may require ongoing Fish Management Division activities.

### State Laws

There are numerous state laws that have something to do with salmon or steelhead. Examples from recent years include laws creating the lead entity process for local salmon recovery efforts, the Salmon Recovery Funding Board, the regional fisheries enhancement groups, and the Governor's Salmon Recovery Office. A 1998 measure establishes a special steelhead recovery program for Clark, Cowlitz, Lewis, Skamania, and Wahkiakum counties. There are also state laws that definitely promote recreational fishing, e.g., Chapter 77.105 RCW and RCW 77.12.710, the latter being a 1990 measure that directed the Department to look at the feasibility and cost of doubling game fish production, including steelhead.

The activities of the Fish Management Division yield information and analysis that can be important for these efforts. However, this appendix highlights the state laws that have more of a direct connection with or an impact on Fish Management Division activities.

## Department Mandate

RCW 77.04.012 directs the Fish and Wildlife Commission, director, and Department to “preserve, protect, perpetuate, and manage” the state’s fish and wildlife, including food fish and game fish. The Department must conserve fish in a manner that does not impair the resource. Consistent with this, the Department must try to maintain the economic well-being and stability of the fishing industry. The Department must promote orderly fisheries, and enhance and improve recreational and commercial fishing in the state.

## Consistency with Broader Planning Umbrellas

According to RCW 77.12.045, the Fish and Wildlife Commission may adopt rules that are consistent with the regulations adopted by the U.S. Department of Commerce (Pacific Fishery Management Council) for offshore waters. The same is true for regulations or recommendations from the Pacific [States] Marine Fisheries Commission, the Columbia River Compact, and the Pacific Salmon Commission.

## Steelhead – Recreational Harvest Only

The Legislature has directed that, with regard to non-tribal anglers, steelhead must be managed solely as a recreational fishery (RCW 77.12.760). For the Fish Management Division, this makes an obvious difference in steelhead harvest monitoring: there is no commercial steelhead harvest to monitor.

## Commercial Salmon Fishing Requirements

Chapters 77.65 and 77.50 RCW describe various kinds of license requirements for commercial salmon fishers and specific restrictions regarding the timing, place, and gear that can be used for commercial salmon harvest. Chapter 77.70 RCW includes license limitation programs for salmon charter boats and commercial salmon fishing licenses. These state statutory directives establish parameters for the Department’s work in establishing regulations on time, place, and manner of harvest, which in turn affects the level of activity in the Fish Management Division. For example, limitations on the number of salmon charter boats and commercial licenses is a factor in determining the level of effort required to monitor commercial and recreational salmon harvest.

## Fish Marking

In 1995, at the urging of the Department, the Legislature adopted a measure to promote the marking of hatchery coho salmon, using the clipping of the adipose fin as a way to identify a hatchery-origin fish. Hatchery steelhead had long been marked in a similar fashion. In 1998, the Legislature extended this program to hatchery chinook. Oregon also launched a program to mark its hatchery fish. This marking of hatchery fish offers fish managers a way to target the harvest of hatchery fish in situations where the wild and hatchery stocks are mixed together; harvesters can be “selective” in determining which fish to keep and which to release.<sup>4</sup>

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<sup>4</sup> There are still differences in views between the states and the tribes regarding the mass marking of hatchery fish, for example, regarding the impacts of selective fishing on allocation and recovery actions. The co-managers are working on a plan to determine appropriate marking levels. The opportunities and management challenges associated with fish marking and selective fishing will increase in the future. Earlier this year, Congress passed a measure requiring the mass marking of salmonid stocks from federally-operated or federally-financed hatcheries in the Northwest. The measure applies to hatchery fish that are intended for harvest and includes steelhead, and coho and chinook salmon.

Prior to the adipose fin clipping of coho and chinook hatchery fish, a clipped adipose fin on salmon indicated the presence of a coded wire tag, the basis for a long-standing information database for the entire Pacific coast. In making the transition to marked hatchery salmon and selective fishing, Washington and Oregon had to convince their tribal and Canadian counterparts that the use of new detection equipment could identify fish with coded wire tags and retain the integrity of this coastwide management tool. For Fish Management Division staff, the move to marked hatchery fish means that staff must purchase and use this new equipment when monitoring the commercial and recreational harvests as well as when conducting stream surveys for returning adults. One such tool is a wand that, when passed over a fish, indicates the presence of a coded wire tag.

### Monitoring Watershed Health and Salmon Recovery

In 2001, the Legislature enacted SSB 5637 to establish a comprehensive framework for evaluating efforts underway and needed to monitor watershed health, with an emphasis on salmon recovery. The legislation was based in part on the recommendations of the Independent Science Panel created as part of 1998 salmon recovery legislation and on the recommendations of JLARC's report *Investing in the Environment*. The 2001 legislation created a multi-agency Monitoring Oversight Committee and directed this group to develop a coordinated and comprehensive strategy and action plan.

The Monitoring Oversight Committee presented its first reports to the Legislature in December 2002. This Committee offers a mechanism for considering the adequacy and appropriateness of the Department of Fish and Wildlife's various monitoring activities within a larger context. For the Fish Management Division, the Monitoring Oversight Committee could provide a forum for review of activities such as commercial and recreational harvest monitoring, adult return and redd counts, and tracking of salmon smolt outmigration.

### Wanapum Band Salmon Fishing

In 1981, the Legislature provided special recognition of the fishing needs of the Wanapum Band of tribal fishers near Priest Rapids Dam. Pursuant to this legislation, the director of the Department may issue permits to members of the Wanapum Band to take salmon for ceremonial and subsistence (not commercial) purposes. Fish Management Division staff in Region 3 (Yakima) implement this permit process.

## Fish and Wildlife Commission Policies

### Steelhead Management Plan

The Department developed a draft Steelhead Management Plan in 1994. The primary goal for the agency identified in this document is

to restore and maintain the diversity and long-term productivity of Washington's steelhead stocks/runs and their habitats. In a manner consistent with this primary goal, the Department will seek to develop and manage steelhead fisheries and other activities to achieve cultural, economic, and ecosystem benefits for the citizens of Washington state.

Fish Management Division staff are currently in the process of revising the Steelhead Management Plan, which would then go before the Commission for review and approval.

### Wild Salmonid Policy

At the direction of the Legislature, the Fish and Wildlife Commission adopted a Wild Salmonid Policy in 1999. The policy includes specific components on spawning escapements and harvest management. Fish Management Division activities contribute the information that the Commission can use to determine whether its overall policy in these subject areas is being implemented.

### North of Falcon Guiding Policies

In 1999, the Commission permanently delegated authority to the Department's director to make harvest agreements with treaty tribes and with other governmental agencies and to adopt permanent and emergency regulations resulting from the North of Falcon process. However, the Commission does adopt a policy statement for North of Falcon each year at the beginning of the process.

While state law makes the decision to allocate non-tribal steelhead harvest to recreational anglers, there is no state legislation to guide the allocation of non-tribal salmon harvest among commercial and recreational fisheries. The Commission provides some guidance through its North of Falcon policy guidelines.<sup>5</sup> These allocation directives guide the Department's decision-making in the North of Falcon process, which in turn shapes Fish Management Division responsibilities and resource needs for monitoring the various commercial and recreational salmon harvests.

### Catch Record Cards for Salmon and Steelhead

State law allows the Fish and Wildlife Commission to adopt rules requiring sport fishers to use and turn in catch record cards. This provides another source of information for monitoring recreational harvest. The Commission has adopted the requirement for sport anglers to keep catch record cards for salmon and steelhead, as well as for sturgeon, halibut, and Dungeness crab.

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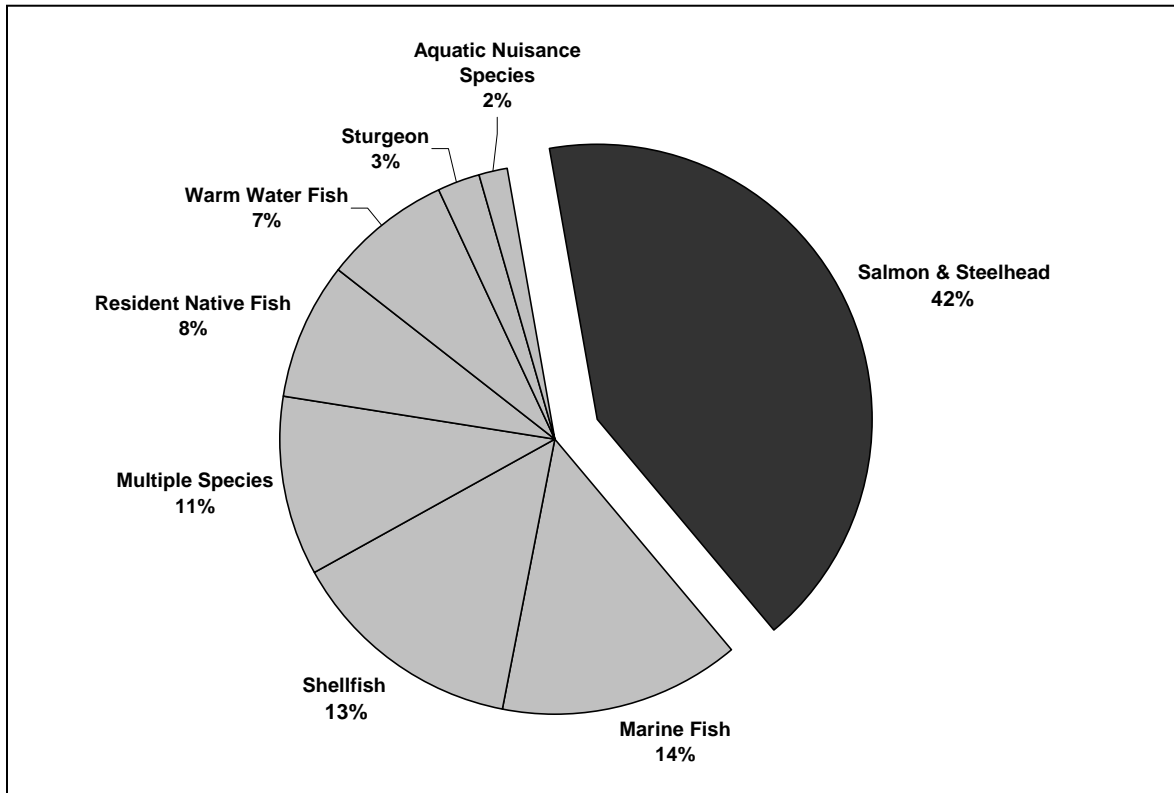
<sup>5</sup> For example, in its 2003-2004 North of Falcon guidelines, the Fish and Wildlife Commission assigns a higher priority order to commercial fisheries for the harvest of chum, pink, and sockeye stocks in the marine areas (except for Lake Washington sockeye), and a higher priority order to providing recreational fishing opportunities for the harvest of Puget Sound chinook and coho stocks.

## PART II. FISH MANAGEMENT DIVISION EXPENDITURES AND ACTIVITIES FOR SALMON AND STEELHEAD

### 2001-03 Expenditures and Staffing Levels

In the 2001-03 biennium, the Fish Management Division spent approximately \$16.6 million on activities related to salmon and steelhead. As Figure A-1 below indicates, this represents 42 percent of the Fish Management Division biennial budget. Staffing averaged 155 FTEs annually for the period.

Figure A-1: 2001-03 Fish Management Division Expenditures by Species Group: Work On Salmon and Steelhead Accounts for 42 Percent of Expenditures



Source: JLARC Fish Management Division Database.

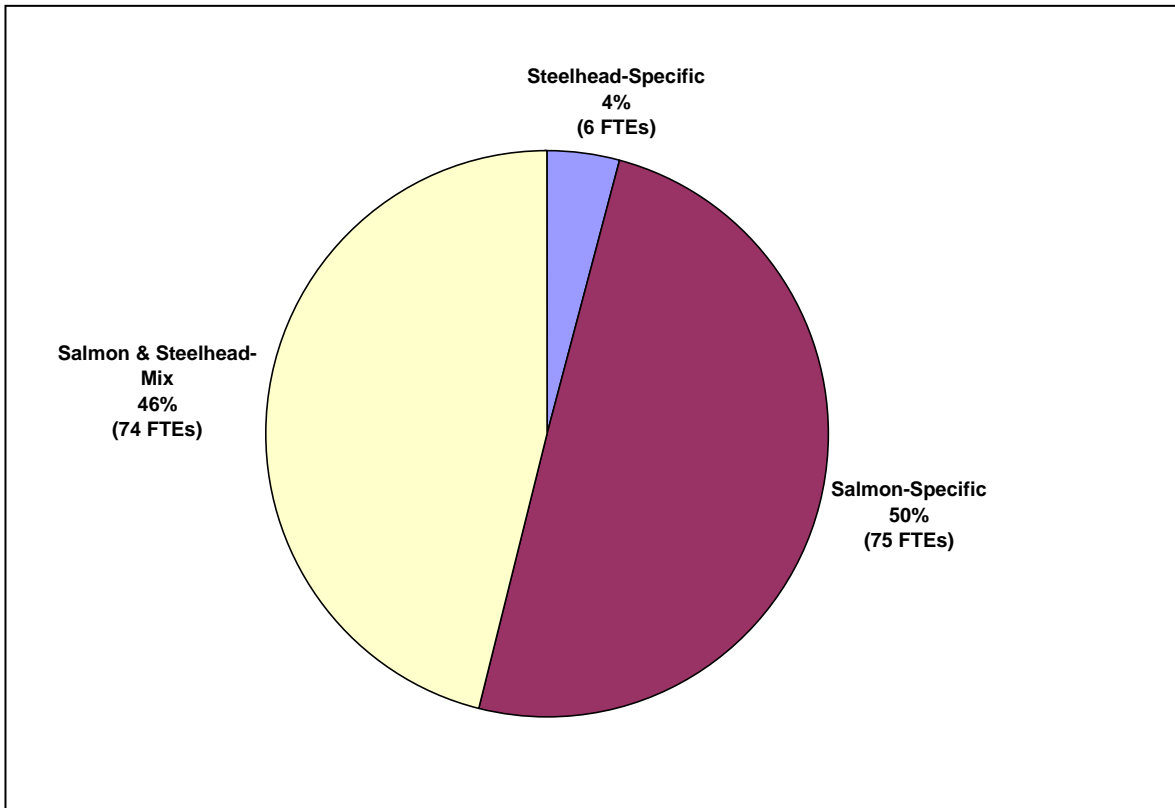
Figure A-2 on the following page, shows this expenditure information broken into three categories: expenditures specific to salmon, those specific to steelhead, and expenditures for both salmon and steelhead (“Salmon & Steelhead – Mix”). This latter category includes expenditures such as the fish counters at the dams on the Columbia and Snake rivers who count both salmon and steelhead as part of their work. As Figure A-2 indicates, expenditures are fairly evenly divided between Salmon-Specific and the Salmon and Steelhead – Mix categories, with a much smaller percentage (4 percent) allocated to activities specific to steelhead.

Some additional expenditures for salmon or steelhead appear in the “Multiple Species” category outlined in Appendix H. The Multiple Species category is for expenditures for activities



covering more than one species, for example, a harvest monitoring effort that picks up both salmon and marine harvest.

Figure A-2: 2001-03 Fish Management Division Expenditures on Salmon & Steelhead, by Species Category



Source: JLARC Fish Management Division Database.

### Allocation of 2001-03 Expenditures and FTEs to Activities

Figure A-3 on the following page shows how Fish Management Division expenditures and FTEs were allocated among activities for the management of salmon and steelhead. Approximately 85 percent of expenditures were for activities that fall within the Fish Management Cycle. Fifteen percent of expenditures were for activities on the “Other Activities” list.

Within the Management Cycle activities, 34 percent of Fish Management Division expenditures are for population field data collection. This includes the counting of returning adult salmon at dams on the Columbia and Snake rivers. It also includes the Division’s work in the field to count the number of returning adults, redds, and, in some cases, smolts. Fish Management Division staff use this and other information to generate pre-season forecasts of salmon and steelhead runs in future years. The data analysis activity accounts for 14 percent of the Fish Management Division’s salmon and steelhead expenditures. These higher allocations to field data collection and data analysis are not surprising in light of the complex allocation processes outlined in Part I: all of these allocation processes depend on getting an accurate estimate of how many fish there will be to allocate in a given year. Eight percent of Fish Management Division expenditures are for staff’s participation in the larger planning umbrellas.

## Volume II Fish Species Group Appendices

The other major allocation of resources within the Fish Management Cycle is for harvest monitoring: 5 percent for monitoring commercial fish harvests and 12 percent for monitoring recreational harvest. This includes the Fish Management Division's efforts to monitor the harvest of fish in the ocean fisheries, in Puget Sound, and in the inland waters. The higher allocation of expenditures to harvest monitoring is also not surprising, given the allocation structure described earlier. Fisheries are based on fishers getting some allocation of fish, so fishery managers have to keep track of who is catching what and where. This job falls to the Fish Management Division for monitoring the salmon and steelhead harvest by Washington's non-tribal fishers.

**Figure A-3: Fish Management Division Activity Allocation for Salmon and Steelhead  
2001-03**

Type of Activity	Activity	2001-03 Expenditures	% of Total Expenditures	Average Annual FTEs	% of Total FTEs
Management Cycle	Data Analysis	\$2,399,738	14%	20	13%
	Planning Umbrellas	\$1,384,230	8%	11	7%
	Rule Development	\$281,760	2%	2	1%
	Rule Adoption	\$7,445	<1%	<1	<1%
	Monitor Commercial Harvest	\$836,853	5%	8	5%
	Monitor Recreational Harvest	\$1,943,463	12%	21	13%
	Monitor Other Fisheries	\$111,657	1%	1	1%
	Emergency Rules	\$258,561	2%	2	1%
	Estimate Non-Fishing Mortality	\$236,732	1%	2	1%
	Population Data Collection – Salmon & Steelhead	\$5,664,806	34%	56	36%
	Population Data Collection – Other Fish & Shellfish	\$57,924	<1%	1	<1%
	Supervise Budgets, Programs, and Personnel	\$961,228	6%	7	5%
<b>Management Cycle Total</b>		<b>\$14,144,396</b>	<b>85%</b>	<b>130</b>	<b>84%</b>
Other Activities	Public Outreach	\$47,304	<1%	<1	<1%
	Educate Commission	\$24,607	<1%	<1	<1%
	Educate Others	\$309,622	2%	3	2%
	Produce Fish & Shellfish	\$6,339	<1%	<1	<1%
	ESA Permitting	\$136,993	1%	1	1%
	Pikeminnow Predator Control	\$1,733,716	10%	19	12%
	Subbasin Planning	\$70,853	<1%	<1	<1%
	FERC Relicensing	\$26,652	<1%	<1	<1%
	Maintain Equipment	\$62,759	<1%	1	<1%
	Admin/Office Support	\$23,991	<1%	<1	<1%
<b>Other Activities Total</b>		<b>\$2,442,836</b>	<b>15%</b>	<b>25</b>	<b>16%</b>
<b>Grand Total</b>		<b>\$16,587,232</b>	<b>100%</b>	<b>155</b>	<b>100%</b>

Source: JLARC Fish Management Division Database.

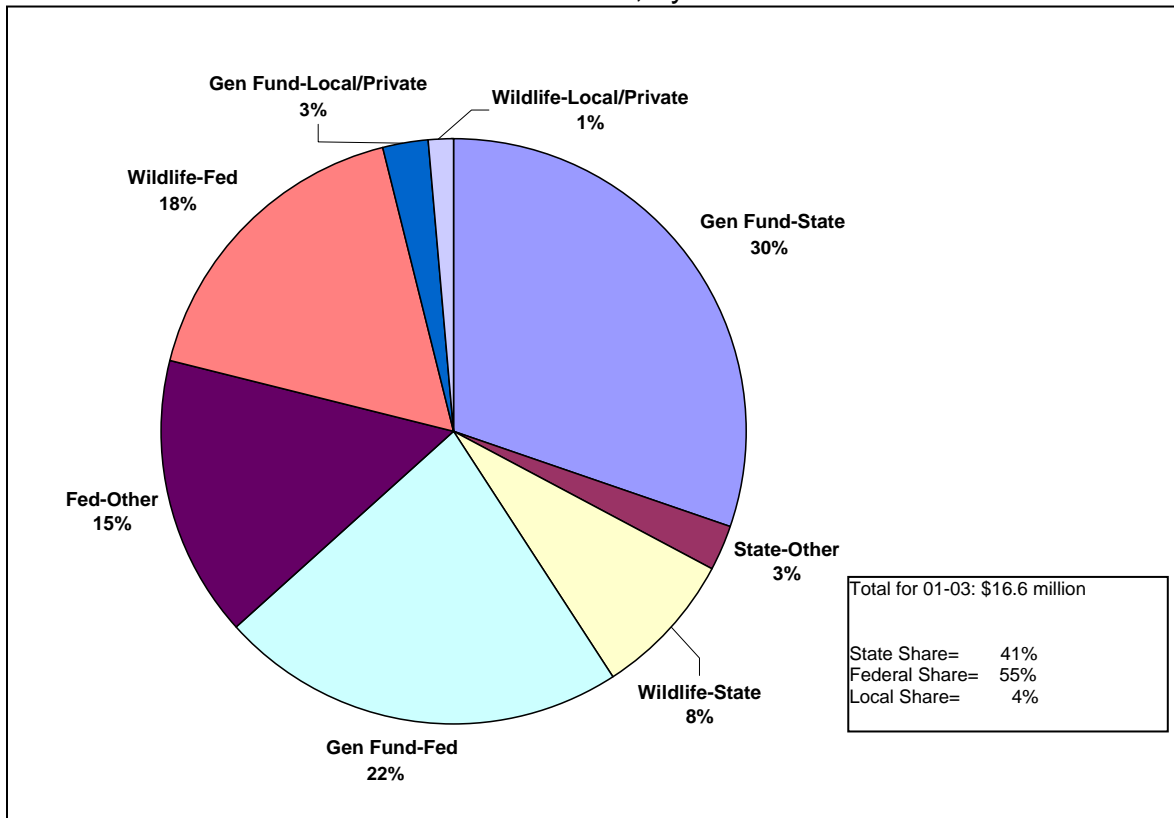
With regard to the “Other Activities,” there is one stand-out in terms of expenditures: the managing of the northern pikeminnow sport reward fishery (10 percent of expenditures). Northern pikeminnow are a resident native fish that eat salmon smolts. The sport reward program pays anglers for each pikeminnow above a certain size that they catch on the Columbia River system and turn in to a registration station. The idea is that reducing the number of pikeminnow reduces salmon smolt predation. The Bonneville Power Administration pays for this program, which is part of the Northwest Power & Conservation Council’s fish and wildlife plan.

### Fund Sources for Fish Management’s Salmon and Steelhead Activities

Figure A-4 below depicts the array of federal, state, and local/private fund sources used to pay for the Fish Management Division’s salmon and steelhead activities. More than half of the funding for these activities comes from the federal government (55 percent). This includes funding from General Fund-Federal, Wildlife Fund-Federal, and federal agencies such as the Bonneville Power Administration and the Army Corps of Engineers. Federal funds are also coming to the Division via the Pacific States Marine Fisheries Commission.

State dollars pay for 41 percent of expenditures, with General Fund-State dollars accounting for 30 percent of total expenditures. Other state funding comes from the State Wildlife Fund and the Aquatic Lands Enhancement Account. Local and private sources account for 4 percent of total expenditures. Local/private sources include the mid-Columbia public utility districts, Seattle City Light, and PacifiCorp.

Figure 4-A: 2001-03 Fish Management Division Expenditures on Salmon and Steelhead, by Fund Source



Source: JLARC Fish Management Division Database.



# APPENDIX B – MARINE FISH

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This appendix explores the activities of the Washington Department of Fish and Wildlife's Fish Management Division with regard to marine fish. Part I of this appendix provides background information on the management of marine fish. Part II provides the results from JLARC's Fish Management Division database for marine fish activities and expenditures. This appendix is not intended as a comprehensive explanation of all marine fish management; **its purpose is to provide a context for understanding the marine fish activities of the Fish Management Division.**

## PART I. BACKGROUND AND CONTEXT

### The Fish

Fish Management Division activities on marine fish include work on:

#### Groundfish

Groundfish are fish species that generally live on the sea bottom. There are some 80 different species of groundfish in Puget Sound waters and off the Washington coast. These include rockfish, flatfish such as flounder, and roundfish such as lingcod and sablefish. Groundfish are subject to both commercial and recreational fishing.

#### Halibut

Sometimes included with groundfish, Pacific halibut are large flatfish that can be found from California to the Bering Sea. The species is broken out here because of its distinct management context and because the Fish Management Division is doing some work specific to halibut. Halibut are also subject to both commercial and recreational harvest.

#### Forage Fish

Forage fish are small, schooling fish such as herring, anchovies, and smelt. These fish serve as an important food source for other fish and for birds and marine mammals. They are also harvested commercially and recreationally, as a direct food source for people and as a favorite fishing bait.

The Pacific sardine is a type of forage fish that was once abundant off the Washington coast but whose population declined dramatically back in the 1930s. Sardine are mentioned here specifically because the recovered population is currently the subject of a trial fishery in Washington.

#### Highly Migratory Species

Highly migratory fish species such as tuna and sharks are those that travel great distances in ocean waters. Currently Fish Management staff are monitoring the commercial harvest of tuna.

## Volume II Fish Species Group Appendices

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Figure B-1 below provides a snapshot of commercial marine fish landings in Washington in 2001 and 2002. Figure B-1 includes non-treaty and treaty commercial fisheries and some fish caught outside of Washington waters.

Figure B-1: Commercial Marine Fisheries Landings in Washington, 2001 and 2002  
(Includes Non-Treaty and Treaty Commercial Marine Fisheries)

<b>Species Group:</b>	<b>2001</b>		<b>2002</b>	
	<b>Lbs Harvested</b>	<b>Est. Value</b>	<b>Lbs Harvested</b>	<b>Est. Value</b>
Halibut	2,527,871	\$5,471,571	2,528,644	\$6,442,569
Rockfish	3,369,300	\$1,520,301	2,356,582	\$1,085,687
Sole	3,935,518	\$1,869,996	3,851,446	\$1,951,606
Flounder	4,782,957	\$553,440	4,355,059	\$428,733
Sablefish	3,612,770	\$4,809,365	2,567,132	\$3,617,477
Lingcod	109,348	\$61,763	206,922	\$119,604
Pacific Cod	942,347	\$459,021	2,090,399	\$1,050,165
Pacific Whiting	39,532,290	\$1,331,664	23,563,692	\$1,034,736
Smelt	328,833	\$108,296	770,711	\$147,588
Sardines	24,531,010	\$1,092,505	34,904,382	\$1,902,980
Tuna	9,170,333	\$7,925,744	11,811,227	\$7,376,099
Other Marine	5,685,888	\$1,377,946	14,078,138	\$1,801,959
<b>Total Marine</b>	<b>98,528,465</b>	<b>\$26,581,612</b>	<b>103,084,334</b>	<b>\$26,959,203</b>

Source: Department of Fish and Wildlife, October 2003.

### The Larger Management Context

The work of the Fish Management Division on marine fish is not conducted in isolation but rather as part of broader planning and management umbrellas. This broader framework includes:

#### The Pacific Fishery Management Council

Created by Congress in 1976, the Pacific Fishery Management Council is one of eight regional councils established to manage fisheries in the U.S.' exclusive economic zone, from three to 200 miles off the U.S. coastline. The Pacific Council is responsible for management of fisheries in these waters off the coasts of Washington, Oregon, and California.

The Council is made up of representatives from the Washington, Oregon, Idaho, and California state fish and wildlife agencies, treaty tribes, NOAA-Fisheries,<sup>6</sup> and citizen sport and commercial fishing interests. There are non-voting members from the Coast Guard, the Pacific States Marine Fisheries Commission (described below), the U.S. Fish and Wildlife Service, and the state of Alaska. Washington's Department of Fish and Wildlife is represented on the Council via the Department's Intergovernmental Resource Management group, with technical support from Fish Management Division staff. Fish Management Division staff serve on the Council's Scientific and Statistical Committee.<sup>7</sup> The Council's fish management recommendations are reviewed by NOAA-Fisheries and are ultimately signed into effect by the Secretary of Commerce.

In September 2002, the Pacific Fishery Management Council adopted a new management regime for groundfish which includes significant curtailment of fishing that would otherwise directly or indirectly harvest overfished groundfish species. Of particular concern are certain depleted stocks of rockfish. The Council has also developed management plans for coastal pelagic species (forage fish) and highly migratory species. The Council wrestles with the difficult questions of how best to allocate fish resources among tribal ocean fisheries and the three states' commercial and recreational ocean fisheries. The tribal allocation is sometimes further defined by federal court order, e.g., for halibut.

### International Pacific Halibut Commission

The International Pacific Halibut Commission pre-dates the Pacific Fishery Management Council significantly, having been established in 1923 by a convention between the U.S. and Canadian governments. Each country's government appoints three commissioners. The Halibut Commission conducts work each year on halibut biology and harvest levels.

As a part of the broader fishery management context, the Halibut Commission establishes a total allowable catch of halibut each year, allocating this catch by regulatory areas covering the western U.S, British Columbia, and Alaska. Regulatory Area 2A covers California, Oregon, and Washington. The Pacific Fishery Management Council then allocates the Area 2A total allowable catch among treaty Indian fisheries, non-treaty commercial and incidental catch fisheries for the three states, and sport fisheries north and south of the Columbia River. A federal court decision allocates 35 percent of the total allowable halibut catch for Area 2A to certain tribal fishers within the *U.S. v. Washington* case area.

### Pacific States Marine Fisheries Commission

The Pacific States Marine Fisheries Commission is a multi-state entity that also predates the Pacific Fishery Management Council, having been authorized by Congress in 1947. The Commission is comprised of 15 members from the states of Washington, Oregon, California, Idaho, and Alaska. One-third of these members are appointed by their respective state legislatures, one-third by each state's governor, and one-third are the directors of the state agency that manages fisheries.

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<sup>6</sup> NOAA stands for the National Oceanic and Atmospheric Administration. NOAA-Fisheries was formerly the National Marine Fisheries Service or NMFS.

<sup>7</sup> Fish Management Division staff working on marine fish issues also serve on the Scientific and Statistical Committee and the Groundfish Management Plan Committee of the North Pacific Fishery Management Council, another of the eight regional councils managing fisheries in the U.S.' exclusive economic zone.

The Pacific States Commission does not have regulatory or fisheries management authority. It serves as an important collection point for multi-state data including information on coastwide coded wire tag recovery, commercial fish harvest (PacFIN), and marine recreational fish harvest (RecFIN). The Commission lobbies Congress on fishery issues of interest to the five states. The Commission also works to facilitate interjurisdictional fishery agreements and acts as a primary contractor for various grants, projects, and contracts for its member states and others. Several of the marine Fish Management Division activities are funded through this Commission.

### Tribal Co-Management

Federal court decisions, most notably *U.S. v. Washington*<sup>8</sup> and *U.S. v. Oregon*,<sup>9</sup> have clarified the fishing rights reserved to Northwest Indian tribes in the Stevens Treaties signed in the 1850s. Tribal co-management of fisheries is now well established in Washington and Oregon. Co-management efforts are often coordinated by the Northwest Indian Fisheries Commission in the *U.S. v. Washington* case area (which includes Puget Sound and much of the Olympic Peninsula) and the Columbia River Inter-Tribal Fish Commission in the *U.S. v. Oregon* case area in the Columbia River basin. Inclusion of the tribal co-management aspect of fisheries means that the co-managers must reach agreement on issues such as the amount of marine fish that can be harvested in various areas, the allocation of these fish among the co-managers, and responsibilities for monitoring marine fish harvest.

While salmon and steelhead management have long been emphasized with regard to fisheries co-management, co-management extends to shellfish and marine fish as well. The original Boldt decision notes that marine species such as halibut, cod, flounder, lingcod, rockfish, herring, smelt, eulachon, and dogfish “were taken and were important to varying degrees as food and as items of trade.” Treaty tribal marine fisheries include halibut, herring, and groundfish such as sablefish and Pacific whiting.

### Columbia River Compact

The states of Oregon and Washington have a long-standing compact for managing the commercial fisheries of the Columbia River and its tributaries, a compact approved by Congress in 1918. The two states have concurrent jurisdiction over the waters of the Columbia River. For marine fish, the Compact comes into play with regard to the management of eulachon or Columbia River smelt, a forage fish. Smelt return each year to spawn in the lower Columbia River and its tributaries, particularly in the Cowlitz River in Washington.

### Puget Sound/Georgia Basin International Task Force

In 1992, the Governor of Washington and the Premier of British Columbia created what is called the Environmental Cooperation Council to communicate and cooperate on a range of shared environmental issues. In 1993, this Council formed the Puget Sound/Georgia Basin International Task Force to focus specifically on the protection of shared inland marine waters. Task force members on the U.S. side include representatives from state agencies (including the Department of Fish and Wildlife), federal agencies, and the Northwest Indian Fisheries Commission.

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<sup>8</sup> 384 F. Supp.312.

<sup>9</sup> 302 F. Supp. 899.



The Council appointed a panel of scientists to make recommendations for the management of these shared marine waters. The Task Force has since prioritized the recommendations from the science panel and has assigned the highest priority to recommendations to (1) protect marine life; (2) establish marine protected areas; (3) prevent nearshore habitat loss; and (4) prevent introduction of non-indigenous species. Efforts to implement these recommendations for marine management are perhaps best reflected in the action items contained in the Puget Sound work plan described below.

### Northwest Straits Marine Conservation Initiative

In 1998, Congress authorized the Northwest Straits Marine Conservation Initiative to help protect the marine resources of the Strait of Juan de Fuca and northern Puget Sound. At a local level, a Marine Resources Committee has been established in each of the seven counties in the area (Clallam, Jefferson, Whatcom, Skagit, San Juan, Island, and Snohomish). A 13-member Northwest Straits Commission helps to guide and coordinate the county-level efforts; this Commission is comprised of a representative from each of the county groups, five appointments by the Governor including a representative from the Puget Sound Water Quality Action Team, and one tribal representative selected by the Secretary of the Interior.

The current work of the county Marine Resources Committees includes establishing marine protected areas, evaluating and mapping nearshore habitat, and bottomfish recovery. With the assistance of Fish Management Division staff, the county groups are measuring herring populations and spawning success and are also evaluating nearshore habitat for surf smelt and sand lance. The local Marine Resources Committees are funding much of the Fish Management Division's work on forage fish.

### State Laws

In addition to these broader planning and management umbrellas, Fish Management staff are to conduct their activities in accordance with state laws and Fish and Wildlife Commission policies. Relevant marine fish-related state laws and Commission policies are outlined briefly below.

### Department Mandate

RCW 77.04.012 directs the Fish and Wildlife Commission, director, and Department to “preserve, protect, perpetuate, and manage” the state’s fish and wildlife, including food fish. Many of the marine fish species fall under the statutory definition of “food fish.” The Department must conserve food fish in a manner that does not impair the resource. Consistent with this, the Department must try to maintain the economic well-being and stability of the fishing industry. The Department must promote orderly fisheries, and enhance and improve recreational and commercial fishing in the state.

### Consistency with Broader Planning Umbrellas

RCW 77.12.045 allows the Fish and Wildlife Commission to adopt rules that are consistent with fishing regulations or recommendations adopted by the U.S. Department of Commerce (Pacific Fishery Management Council), the Pacific [States] Marine Fisheries Commission, the Columbia River Compact, the Pacific Salmon Commission, and the International Pacific Halibut Commission.

### Marine Fish License Limitation Programs

The Legislature has enacted provisions to limit entry into commercial fishing for herring, herring-spawn-on-kelp, and Puget Sound whiting (Chapter 77.70 RCW). The presence of limited entry fisheries helps define Fish Management Division resource needs for activities such as monitoring commercial harvest.

### Bottom Trawling in Puget Sound

In 1989, the Legislature enacted a ban on commercial bottom trawling in Puget Sound and Hood Canal (RCW 77.50.090). The commercial bottom trawling effort taking place prior to this enactment primarily targeted groundfish. The bill documentation notes concerns were raised about the negative impacts of bottom trawling to the sea floor, the bottomfish population, and recreational fishing for bottomfish. Like the license limitation programs, this statute changes the Division's harvest monitoring activities in Puget Sound for certain fisheries.

### Recreational Salmon and Marine Fish Enhancement Program

Legislation in 1993 was also intended to promote recreational fishing in Puget Sound, particularly for salmon and for marine fish (Chapter 77.105 RCW). Fish management related directives regarding marine fish in this legislation include conducting research on marine bottomfish production limitations, evaluating sources of marine fish mortality, and developing plans for increased recreational access to marine fish resources. The legislation also includes direction to the Department to pursue the artificial rearing and release of marine bottomfish species.

### Emerging Commercial Fisheries

In 1990, the Legislature authorized the director of the Department of Fish and Wildlife to designate by rule an "emerging commercial fishery" (RCW 77.65.400). These are commercial fisheries for the harvesting of a newly classified species of food fish or shellfish, or the use of gear not previously used to harvest a species, or the taking of a species from an area where it had not previously been harvested. The Department has used this provision of law to designate a trial commercial fishery for Pacific sardine. The fishery regulations for sardine adopted by Washington must conform to the overall regulatory framework for forage fish adopted by the Pacific Fishery Management Council.

### Puget Sound Action Team

In 1996, the Legislature revised what had been the Puget Sound Water Quality Authority to create the Puget Sound Water Quality Action Team. The Action Team consists of a chairperson, the directors of numerous state agencies including the Department of Fish and Wildlife, representatives of cities, counties, and federally recognized tribes, and ex officio representatives of three federal agencies. One of the tasks assigned to the Action Team is to prepare a Puget Sound work plan and budget. The items in the work plan are then considered in the deliberations over each of the representative agency's budgets during the legislative session.

For the 2001-03 biennium, the Legislature funded the first seven action items in the Department of Fish and Wildlife portion of the Puget Sound work plan. All are connected in some way to marine fish or the greater marine environment:

- (1) Marine bird and mammal monitoring;
- (2) Fish contaminant monitoring;
- (3) Soundwide technical assistance for water quality and habitat;
- (4) Soundwide technical assistance for wetlands;
- (5) Local area technical assistance for water quality and habitat;
- (6) Aquatic nuisance fauna control and ballast water legislation implementation; and
- (7) Management and recovery plans for ground and forage fish/establish marine protected areas.

Fish Management Division staff are involved in implementing some of these action items. For marine fish in particular, the key action items are (2) and (7).

### Derelict Fishing Gear

In the 2002 legislative session, the Legislature directed the Department of Fish and Wildlife to create and maintain a database of known derelict fishing gear (RCW 77.12.865 and .870). This lost or abandoned gear can continue to catch fish and injure marine mammals and other marine species. The legislation also calls for the publication of guidelines for the safe removal and disposal of derelict gear. The bill directs the Department to work in consultation with the Northwest Straits Commission, which has received a federal grant for similar undertakings in the Northwest Straits. Fish Management Division staff have been working on the implementation of the derelict gear legislation.

### Fish and Wildlife Commission Policies

The Fish and Wildlife Commission has adopted time, place, manner, and quantity regulations for the management of marine fish as directed under the general department mandate. In addition, the Commission has adopted certain policies and management plans pertaining specifically to marine fish.

### Groundfish

In 1996, the Commission opted to adopt a conservative management regime for Puget Sound groundfish “to minimize the risk of overharvest and to ensure the long-term health of the resource.” A 1998 Puget Sound Groundfish Management Plan implements this Commission policy directive. The plan notes that “the majority of key groundfish stocks in Puget Sound are in below average abundance” and recommends development of a separate conservation plan and use plan for each key groundfish species.

## Forage Fish

The Commission adopted the forage fish management plan in 1998 and chose what the Department calls an “ecosystem approach:”

Most management plans emphasize yield (or catch) as a major goal. This plan emphasizes the role of forage fish in the ecosystem and considers catch on a secondary basis. The availability of forage fish to provide a source of food for salmon, other fish, marine birds and marine mammals will be a primary consideration. To achieve this, potential catch will be foregone if needed.

## Columbia River Smelt

Smelt are discussed as part of the forage fish management plan. Columbia River smelt have been managed under a Joint Oregon/Washington Management Plan since 2001. The joint policy calls for a precautionary approach to smelt management; the role of smelt in both the marine and freshwater ecosystems and maintaining sufficient populations of smelt for proper ecosystem functioning must be considerations in designing fishery management plans. Within these parameters, the Commission policy calls for opportunities for both commercial and recreational smelt harvest in the lower Columbia River and its tributaries.

## Halibut

In 1997, the Commission adopted a policy on Pacific halibut management that acknowledges the allocation between tribal and non-tribal fisheries under *U.S. v. Washington* and advocates actions to produce accurate bycatch data. The Commission also allocated the first 200,000 pounds of Washington’s non-tribal share of halibut to recreational anglers and to incidental catch by commercial trollers. Allocations in excess of 200,000 pounds are allocated to the commercial fishery.

## Marine Fish Culture

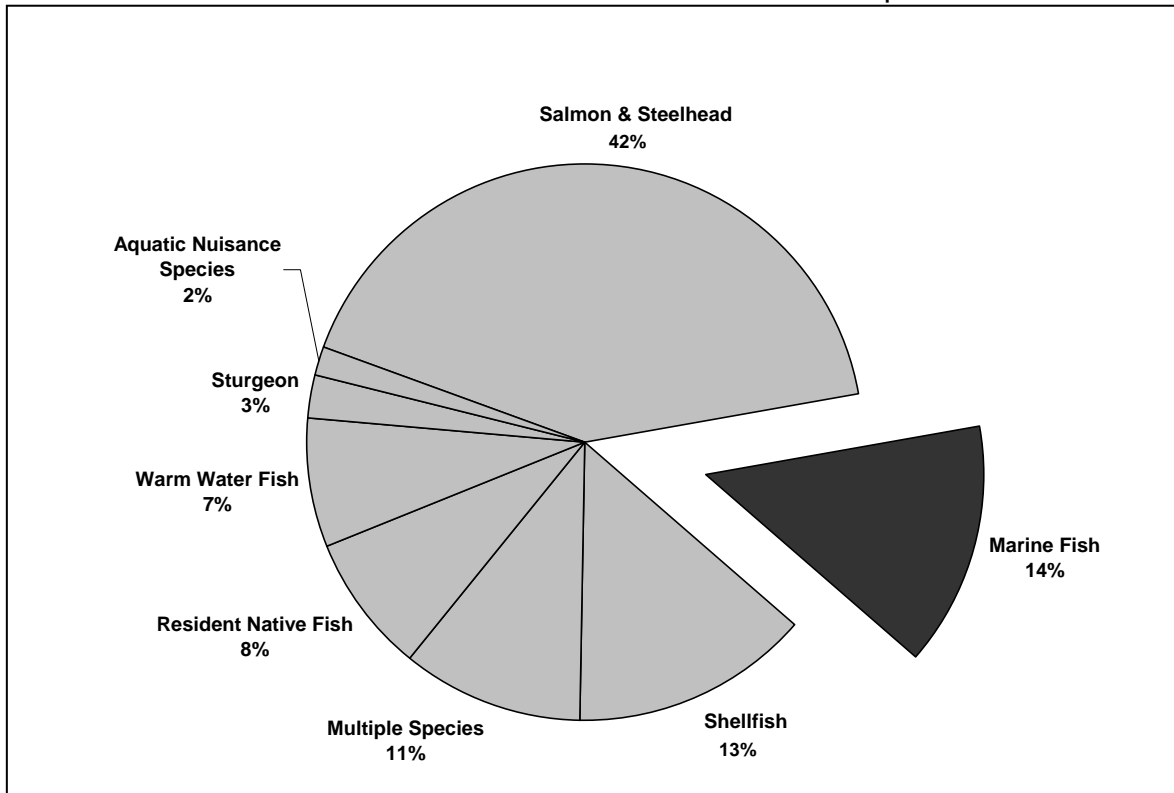
As mentioned earlier, legislation in 1993 directed the Department to implement programs for the artificial rearing and release of bottomfish, primarily to be a source for enhancing recreational fishing opportunities. In 2000, the Commission adopted a much more conservative policy with regard to marine fish culture. The policy indicates that the Department will rely on natural production to meet marine fish conservation objectives unless a stock is designated as depleted and meets certain other conditions and constraints. Augmentation of native marine stocks must be conducted so as to (a) maintain genetic diversity displayed in the native stock; (b) protect the effective population size of the native stock; (c) preserve the ecological balance in the enhanced marine community; and (d) avoid negative impacts on the recovery of a state or federal species listed as threatened or endangered. Fish Management Division staff report working with NOAA-Fisheries under this policy on the artificial rearing of marine fish.

## PART II. FISH MANAGEMENT DIVISION EXPENDITURES AND ACTIVITIES FOR MARINE FISH

### 2001-03 Expenditures and Staffing Levels

In the 2001-03 biennium, the Fish Management Division spent approximately \$5.6 million on activities related to marine fish. As Figure B-2 below indicates, this represents 14 percent of the Fish Management Division biennial budget. Staffing averaged 40 FTEs for the period.

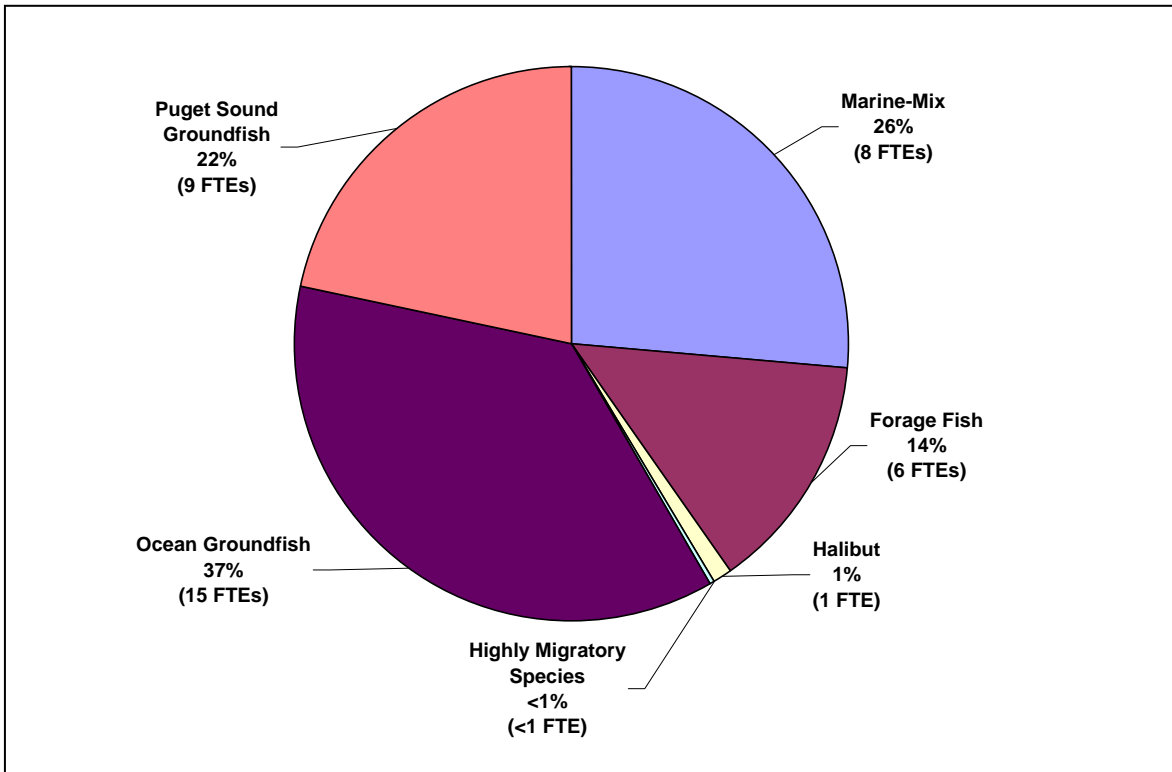
Figure B-2: 2001-03 Fish Management Division Expenditures, by Species Group; Work on Marine Fish Accounts for 14 Percent of Expenditures



Source: JLARC Fish Management Division Database.

Figure B-3 on the following page provides more detail on expenditures by species category within the marine fish species group. More than half of the marine fish expenditures are for work on groundfish (59 percent), either off the coast or in Puget Sound. The “Marine-Mix” category is for efforts that are aimed more at the larger marine environment than a particular species of marine fish, for example, the testing of fish tissue for contaminants mentioned earlier under the Puget Sound Action Team. The forage fish expenditures include the Fish Management Division’s work on Columbia River smelt, the sardine trial commercial fishery, and with the county Marine Resources Committees in the Northwest Straits. The small percentage of expenditures on highly migratory species is primarily for monitoring the commercial harvest of tuna, while the small percentage for halibut is for monitoring recreational harvest.

Figure B-3: Fish Management Division Expenditures for Marine Fish, by Species Category



Source: JLARC Fish Management Division Database.

Some additional expenditures for marine fish appear in the “Multiple Species” category outlined in Appendix H. The Multiple Species category is for expenditures for activities covering more than one species group, for example, a harvest monitoring effort that picks up both marine fish and salmon harvests.

### Allocation of 2001-03 Expenditures and FTEs to Activities

Figure B-4 on the following page shows how the Fish Management Division expenditures and FTEs were allocated among activities for the management of marine fish. Approximately 79 percent of expenditures were for activities that fall within the Fish Management Cycle. Twenty-one percent of expenditures were for activities on the “Other Activities” list.

Within the Management Cycle activities, 37 percent of expenditures are for field population data collection and data analysis combined. This represents Fish Management Division work to assess the abundance and distribution of marine fish populations. The other key activity from the Management Cycle is determining how many marine fish are being caught; 17 percent of expenditures are for monitoring the commercial harvest and 10 percent of expenditures are for monitoring the recreational harvest of marine fish.

Volume II Fish Species Group Appendices

Figure B-4: Fish Management Division Activity Allocation For Marine Fish 2001-03

Type of Activity	Activity	2001-03 Expenditures	% of Total Expenditures	Average Annual FTEs	% of Total FTEs
Management Cycle	Data Analysis	\$956,305	17%	6	15%
	Planning Umbrellas	\$305,458	5%	2	5%
	Non-Umbrella Planning	\$36,142	1%	<1	<1%
	Rule Development	\$72,739	1%	<1	1%
	Rule Adoption	\$47,391	1%	<1	1%
	Monitor Commercial Harvest	\$977,082	17%	9	21%
	Monitor Recreational Harvest	\$551,944	10%	6	14%
	Monitor Other Fisheries	\$25,347	<1%	<1	<1%
	Emergency Rules	\$25,347	<1%	<1	<1%
	Estimate Non-Fishing Mortality	\$98,748	2%	1	1%
	Population Data Collection – Other Fish & Shellfish	\$1,104,444	20%	7	18%
	Supervise Programs, Budget, and Personnel	\$271,187	5%	2	5%
<b>Management Cycle Total</b>		<b>\$4,472,134</b>	<b>79%</b>	<b>33</b>	<b>83%</b>
Other Activities	Public Outreach	\$117,109	2%	1	2%
	Education Commission	\$11,250	<1%	<1	<1%
	Educate Others	\$36,861	1%	<1	1%
	Fish Contaminant Analysis	\$496,966	9%	3	6%
	Sample for DOH, DOE	\$41,414	1%	<1	1%
	Marine Protected Areas	\$159,567	3%	1	3%
	Puget Sound/Georgia Basin Task Force	\$30,900	1%	<1	<1%
	Assemble Geographic Information Systems Data	\$131,051	2%	1	2%
	Provide Info on Derelict Fishing Gear	\$22,500	<1%	<1	<1%
	Offsite Mitigation	\$44,445	1%	<1	1%
	Maintain Equipment	\$32,937	1%	<1	1%
	Admin/Office Support	\$33,750	1%	<1	1%
<b>Other Activities Total</b>		<b>\$1,158,749</b>	<b>21%</b>	<b>7</b>	<b>17%</b>
<b>Grand Total</b>		<b>\$5,630,883</b>	<b>100%</b>	<b>40</b>	<b>100%</b>

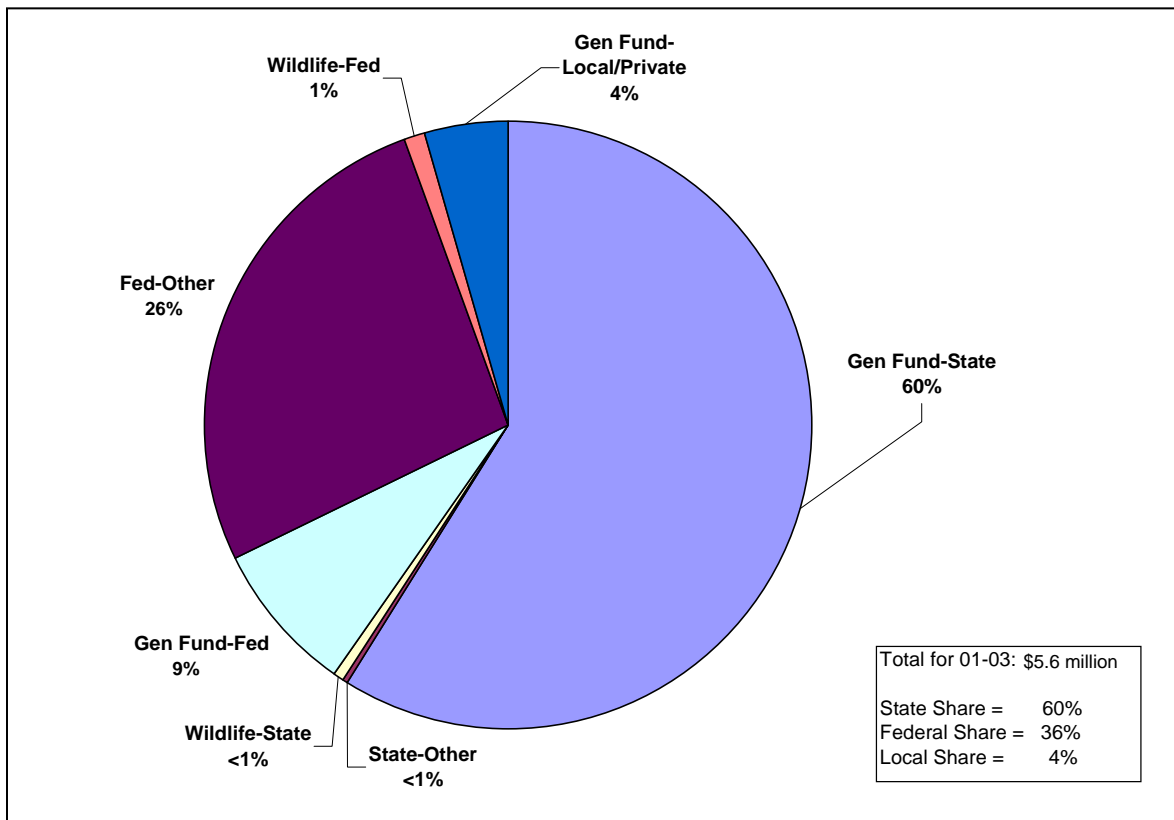
Source: JLARC Fish Management Division Database.

In terms of “Other Activities,” the largest expenditure is for the fish contaminant analysis as part of the Puget Sound Action Team (9 percent of marine fish expenditures). Another 3 percent of expenditures are for identifying, working to establish, and studying marine protected areas. Figure B-4 shows more small-percentage expenditures for “Other Activities” such as participating in the Puget Sound/Georgia Basin task force, assembling GIS data, and responding to the legislative mandate to create a database on the location of derelict fishing gear.

### Fund Sources for the Fish Management Division’s Marine Fish Activities

Figure B-5, below, illustrates the fund sources for the Fish Management Division’s marine fish activities. As the figure shows, marine fish activities are primarily funded using General Fund-State dollars (60 percent of expenditures). Federal dollars provide just over a third of marine fish resources (36 percent). The local funds (4 percent) are coming primarily from the county Marine Resources Committees, under the auspices of the Northwest Straits Initiative, with additional private funds coming from the sardine fishers to pay for the monitoring of the test commercial fishery.

Figure B-5: 2001-03 Fish Management Division Expenditures for Marine Fish, by Fund Source



Source: JLARC Fish Management Division Database.



# APPENDIX C – SHELLFISH

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This appendix explores the activities of the Washington Department of Fish and Wildlife's Fish Management Division with regard to shellfish. Part I of this appendix provides background information on the management of shellfish. Part II provides the results from JLARC's Fish Management Division database for shellfish activities and expenditures. This appendix is not intended as a comprehensive explanation of all shellfish management; **its purpose is to provide a context for understanding the shellfish activities of the Fish Management Division.**

## PART I. BACKGROUND AND CONTEXT

### The Fish

Fish Management Division activities on shellfish include work on:

#### Dungeness Crab

Dungeness crab is an economically valuable shellfish species that is harvested off the Washington coast and in Puget Sound waters. The commercial value of Dungeness crab exceeds the commercial value of other marine fish and shellfish harvests in the state. In addition to the commercial harvest, Dungeness crab also support a popular recreational fishery.

#### Shrimp

Shrimp fisheries in Washington may be further specified as commercial fisheries for ocean pink shrimp, commercial fisheries for ocean spot shrimp (prawns), and Puget Sound commercial and recreational shrimp fisheries.

#### Clams and Oysters

Oysters and clams may be found in intertidal and subtidal areas along the coast and all around Puget Sound. Hardshell clams and oysters are harvested by recreational diggers from the intertidal area. The Washington coast is home to razor clams, a popular recreational fishery as well as a commercial fishery to supply crab bait. Geoduck clams live in deeper, subtidal areas. Often in water too deep for recreational harvest, commercial harvests of geoduck clams support management of state-owned aquatic lands and fund the Aquatic Lands Enhancement Account (ALEA).

#### Sea Urchins and Sea Cucumbers

Found along the ocean floor, commercial harvests of sea urchins and sea cucumbers are largely targeted to Asian markets. The sea urchins are primarily harvested for their gonads or roe, while sea cucumbers are processed into muscle strips and dried skins.

Figure C-1 on the following page provides a snapshot of commercial shellfish landings in Washington in 2001 and 2002. Figure C-1 includes non-treaty and treaty commercial fisheries and some shellfish harvested outside of Washington waters.

Figure C-1: Commercial Shellfish Landings in Washington, 2001 and 2002  
(Includes Non-Treaty and Treaty Commercial Shellfish Fisheries)

<b>Species Group:</b>	<b>2001</b>		<b>2002</b>	
<b>Shellfish</b>	<b>Lbs Harvested</b>	<b>Est. Value</b>	<b>Lbs Harvested</b>	<b>Est. Value</b>
Dungeness Crab	19,047,213	\$36,383,746	21,402,599	\$33,998,667
Spot Shrimp	316,520	\$1,598,204	319,603	\$1,370,402
Other Shrimp	7,448,487	\$2,104,683	10,937,311	\$3,126,317
Geoduck Clams	4,343,830	\$19,038,919	4,926,593	\$22,217,950
Other Clams	7,258,655	\$6,990,157	7,067,572	\$7,327,148
Oysters and Mussels	11,022,620	\$18,826,166	10,166,035	\$18,100,287
Sea Urchin	757,465	\$559,099	538,489	\$460,951
Sea Cucumber	661,657	\$917,150	549,127	\$598,820
Other Shellfish	25,708	\$14,433	57,060	\$30,578
<b>Total Shellfish</b>	<b>50,882,155</b>	<b>\$86,432,557</b>	<b>55,964,389</b>	<b>\$87,231,120</b>

Source: Department of Fish and Wildlife, October 2003.

## The Larger Management Context

With the exception of tribal co-management, there are fewer broad planning and management umbrellas for shellfish as compared to salmon, steelhead, and marine fish. Tribal co-management and some of the other agreements with Western states are described briefly below.

### Tribal Co-Management

Federal court decisions, in particular *U.S. v. Washington*<sup>10</sup> and *U.S. v. Oregon*,<sup>11</sup> have clarified the fishing rights reserved to Northwest Indian tribes in the Stevens Treaties signed in the 1850s. Tribal co-management of fisheries is now well established in Washington and Oregon. Each tribe typically has its own fishery management and enforcement staff as well as legally defined usual and accustomed fishing areas. Tribal fisheries management is often coordinated through

<sup>10</sup> 384 F. Supp. 312.

<sup>11</sup> 302 F. Supp. 899.

the Northwest Indian Fisheries Commission in the *U.S. v. Washington* case area (which includes Puget Sound and much of the Olympic Peninsula) and the Columbia River Inter-Tribal Fish Commission in the *U.S. v. Oregon* case area in the Columbia River basin.

In 1994, a subproceeding under *U.S. v. Washington* decided by Judge Rafeedie further clarified that the Stevens Treaties also included rights to harvest shellfish.<sup>12</sup> The tribes in the *U.S. v. Washington* case area, the Department of Fish and Wildlife, and others are now implementing co-management of shellfish resources. Treaty tribes in different parts of Puget Sound and along the coast are harvesting hardshell clams, razor clams, geoduck, oysters, Dungeness crab, shrimp, sea urchins, and sea cucumbers. Co-management of these shellfish resources includes reaching agreement on the total amount of shellfish resources that can be harvested in a given area on a sustainable basis, determining an allocation of those resources among the co-managers, and assigning responsibilities for monitoring the harvest.

Fish Management Division staff play a role in and provide important technical information for negotiations with the treaty tribes regarding shellfish management. The Department's Intergovernmental Resource Management group has the lead responsibility in co-management negotiations and agreements.

### Pacific Fishery Management Council

Unlike the regulatory framework for salmon and marine fish, the Council does not regulate shellfish harvest (e.g., crab and shrimp) in the U.S.' exclusive economic zone from three to 200 miles off the Washington, Oregon, and California Coasts.<sup>13</sup> Instead, shellfish regulation for this offshore area falls to the three states. However, the Council can still seek to influence state fishery managers. For example, in the 2001-03 biennium, the Council urged all three states to adopt regulations requiring the use of excluder devices in the commercial harvest of pink shrimp in ocean waters. The purpose of the excluder devices is to reduce bycatch of rockfish, an element important to the Council's management plan for rebuilding groundfish populations. (The Washington Fish and Wildlife Commission did adopt such a regulation.)

### Tri-State Agreement and Memorandum of Understanding on Coastal Dungeness Crab

Dungeness crab increase in size by molting, shedding their old hard shell, and then digging themselves into the sand or mud until the new, larger shell hardens sufficiently to protect them. While the crab is in this stage before the new shell has hardened, it is more vulnerable to predation and to mortality from being handled. Crabs are handled during harvest as they must be checked for gender and size.

As part of a Tri-State Agreement and Memorandum of Understanding, the Department's Fish Management Division staff work in close cooperation, particularly with their Oregon counterparts, to operate a test crab fishery prior to the opening of the season to check for crab shell condition. Depending on shell condition, the agreement provides for additional testing procedures and a possible delay of the opening of the ocean harvest season by the states in an effort to reduce overall crab mortality. The coordinated season opening is important because crab fishers may be working off the coasts of any of the three states. Work on the Tri-State Agreement was facilitated by the Pacific States Marine Fisheries Commission.

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<sup>12</sup> 873 F. Supp. 1422.

<sup>13</sup> Congress has, in fact, passed a specific measure to give the three coastal states the interim authority to regulate Dungeness crab harvest in these U.S. waters.

## Reciprocal Agreement with Oregon on Spot Shrimp

As discussed more below, Washington is operating a test commercial fishery for spot shrimp (prawns). Oregon is also offering a spot shrimp fishery. Currently Washington has a reciprocal agreement with Oregon providing that Washington fishers will fish off the Washington coast and Oregon's, off the Oregon coast. Washington implements this provision by making it a condition of the fisher's emerging commercial fishery permit. This agreement simplifies Fish Management Division staff's monitoring of the spot shrimp test fishery.

## State Laws

In addition to their work with tribal co-managers and other Western states, Fish Management Division staff must conduct their activities in accordance with state laws and Fish and Wildlife Commission policies. Some laws and policies specifically related to shellfish management are outlined below. The Department mandate speaks to shellfish in general, while the remaining laws and policies are directed toward a specific species of shellfish.

### Department Mandate

RCW 77.04.012 directs the Fish and Wildlife Commission, director, and Department to "preserve, protect, perpetuate, and manage" the state's fish and wildlife, including shellfish. The Department must conserve shellfish in a manner that does not impair the resource. Consistent with this, the Department must try to maintain the economic well-being and stability of the fishing industry. The Department must promote orderly fisheries, and enhance and improve recreational and commercial fishing in the state.

### Shellfish License Limitation Programs

Chapter 77.70 RCW creates limited entry commercial fisheries for a number of shellfish species: Puget Sound Dungeness crab, coastal Dungeness crab, ocean pink shrimp, Puget Sound shrimp, sea urchin, and sea cucumber. Limitations on the number of commercial fishers is one important factor in determining the level of effort and resources that are necessary for Fish Management Division staff to monitor commercial shellfish harvests.

### Emerging Commercial Fisheries – Spot Shrimp

State law provides the director of the Department of Fish and Wildlife the authority to designate by rule an "emerging commercial fishery" (RCW 77.65.400). This designation is for a situation where there is commercial harvest of a newly classified species of food fish or shellfish, or the use of gear not previously used for commercial harvest of a species, or commercial harvest in an area where the fish or shellfish had not been harvested previously. If the director determines that there is a need to limit the number of fishers participating in the emerging commercial fishery, he may do so by issuing a limited number of "experimental fishery permits" (RCW 77.70.160).

The director has designated the ocean spot shrimp fishery as an emerging commercial fishery where there is a need to limit the number of fishers participating. Currently there are 14 permit holders participating in the fishery. The emerging commercial fishery legislation calls for the director to provide a report on the status of such fisheries after five years and to make a recommendation on the future regulatory structure for that fishery. It is likely that the Department will recommend a limited

entry fishing regime for ocean spot shrimp. The decision to enact this recommendation would be up to the Legislature.

### Coastal Crab Even-Flow Harvest Management

As part of 1994 legislation to limit entry to the coastal Dungeness crab fishery, the Legislature directed the Department to prepare a resource plan to achieve even-flow harvesting of crab and long-term stability of the crab resource. The Department was instructed to seek input from crab fishers and processors in developing the resource plan. At issue is the harvesting in recent years of the majority of coastal Dungeness crab in the first two months of a nine-month season. The idea behind adoption of an even-flow policy is to distribute the total non-tribal harvest more evenly over the entire season.

### Geoducks as Valuable Materials

Geoduck clams are co-managed by the treaty tribes and the state as are other shellfish resources; however, management on the state side is different for geoducks than the typical use of licenses, seasons, bag limits, and gear restrictions. State law (RCW 79.96.080 and elsewhere) directs the Department of Natural Resources to contract out for the sale of geoduck harvest rights as “valuable materials” from state-owned aquatic lands. DNR passes through a portion of the revenues it collects from geoduck contracts to the Department of Fish and Wildlife for geoduck population assessment work.

### State Oyster Reserves

Provisions of Chapter 77.60 RCW establish and provide management direction regarding state oyster reserves. The reserves are there in part to furnish shellfish to growers and processors and to stock public beaches with oysters. The intent is to have the reserves yield enough revenue to pay for their maintenance.

In 2001, the Legislature launched a pilot program to examine the feasibility of more intensive culturing of shellfish on currently non-productive state oyster reserves. Under this new program, revenues from the lease of oyster reserve lands or the sale of shellfish from these lands must be deposited into a new Oyster Reserve Land Account. Funds in the account may be used for the Department’s management expenses for the oyster reserve lands, for research to control aquatic nuisance species and burrowing shrimp, for the state general fund (a maximum of 10 percent of revenues), and for a grant program to improve on-site sewage systems. The failure of on-site sewage systems is a major factor in the decertification of shellfish beds as unsafe by the Department of Health. Fish Management Division staff work directly on the management of the state oyster reserves.

### Dungeness Crab Catch Record Cards for Recreational Fishers

In 1999, the Legislature called for recreational fishers of Dungeness crab to keep track of the number of crab they are harvesting just as anglers do for salmon, steelhead, sturgeon, and halibut. The requirement provides Fish Management Division staff with additional information on the extent of recreational harvest, an important factor in the co-management of crab and in tracking the allocation of the non-tribal crab share between commercial and recreational fishers.

### Department of Health Testing for Shellfish Toxins

State law assigns responsibility to the Department of Health (DOH) to ensure that the shellfish on beaches opened to public harvest are safe to eat. DOH checks for biotoxins such as domoic acid and paralytic shellfish poison (“red tide”). Fish Management Division staff provide the shellfish samples from beaches scheduled to open for public harvest so that the Department of Health can perform these biotoxin analyses.

In 2003, the Legislature increased the fee for personal use shellfish and seaweed licenses and for adult combination fishing/shellfishing licenses. The surcharge or fee increase is to be used to fund the Department of Health’s shellfish biotoxin testing and monitoring program. A portion of the proceeds are directed to the University of Washington to fund the Olympic Region Harmful Algal Bloom (ORHAB) project. Fish Management Division staff are participants in this study, which focuses on harmful algal blooms off the Washington coast – toxic blooms that may come on shore and close shellfish harvests. We track participation in the ORHAB project as a separate “Other Activity.”

The Department of Health also certifies shellfish beds as safe for harvest. This is an important element in the planning for intertidal clams and oysters and for geoduck.

### Permits for Shellfish Imports and Transfers

Fish Management Division staff implement state laws aimed at preventing the importation or transfer of shellfish diseases or pests (e.g., RCW 77.115.010). RCW 77.60.060 requires permits for transplanting or transporting shellfish or shellfish-related equipment into or out of areas that the director has designated “restricted shellfish areas.” RCW 77.60.080 also requires a permit to import oysters or oyster seed into Washington for the purpose of planting them in state waters. The permit can only be issued after an inspection finds them to be free of disease, pests, and any other substances that might put other oysters at risk. We track this permit exercise as a separate Fish Management Division “Other Activity.”

### Fish and Wildlife Commission Policies

Each year the Fish and Wildlife Commission establishes regulations for the harvest of the non-tribal share of various shellfish species, specifying requirements for commercial and recreational harvesters. This includes implementation of the requirement for Dungeness crab catch record cards and the use of excluder devices in the ocean pink shrimp fishery as requested by the Pacific Fishery Management Council. The Commission also delegates some of its shellfish season opening and closing authority to the agency director. In addition, the Commission has adopted policies or taken other actions related to certain shellfish species.

### Memorandum of Understanding on Geoducks

The Department of Fish and Wildlife and the Department of Natural Resources have entered into a memorandum of understanding to clarify their joint and respective roles and responsibilities in managing geoduck harvest. Goals for geoduck management set out in the memorandum include maintaining the fishery on a sustained yield basis, encouraging development of the fishery to provide a fair economic return to the state, cooperatively managing geoduck resources with the treaty tribes, and cooperating with the Department of Health to assure the sanitary safety of geoduck clams for human consumption. The Department of Fish and Wildlife and the Department of Natural Resources also

work together on a programmatic environmental impact statement for geoduck management and on obtaining permits from local Shorelines Hearings Boards.

As its primary role in the geoduck planning processes, Fish Management Division staff conduct geoduck surveys and post-harvest assessments to identify a total allowable geoduck harvest in six different management areas around Puget Sound. This information is then used in the negotiations with the tribes and in designating the parameters for the non-tribal harvest contracts.

### Even-Flow Harvest Policy for Coastal Dungeness Crab

Earlier efforts (1996) by the Department to implement the even-flow harvest policy directive from the Legislature were stymied by unresolved issues in the fishery. The Department reports that these issues have largely been resolved, and the Commission adopted a new policy guiding coastal crab management in 2001. A goal of the policy is to have no more than 50 percent of the non-tribal share of the crab harvest take place in the first two months of the season. Fish Management Division staff are responsible for monitoring this non-tribal commercial crab harvest.

### Allocation of Puget Sound Crab

Additionally, in 2000, the Fish and Wildlife Commission adopted general policies on the allocation of Dungeness crab in Puget Sound between commercial and recreational harvesters. The Commission policies designate some areas as places to provide both commercial and recreational crab harvest and some areas just for recreational crab harvest. Again, Fish Management Division staff are responsible for both the commercial and recreational harvest monitoring.

### Shrimp Allocation in Puget Sound

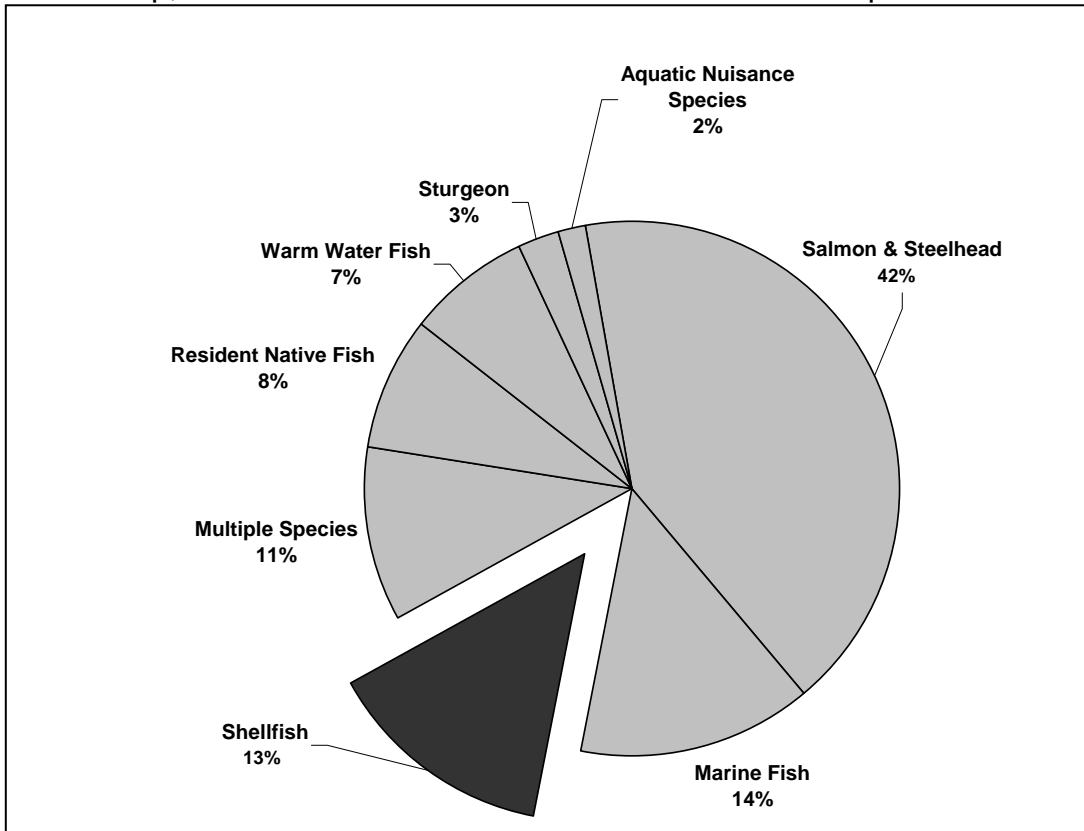
In February 2003, the Commission adopted specific harvest allocations for the non-tribal share of shrimp in Puget Sound. The need for adoption of an allocation policy was driven by the growing desires of recreational harvesters to take a greater share, particularly of spot shrimp. From a statewide perspective, the Commission allocated 59 percent of the spot shrimp share to recreational harvesters, 41 percent to commercial harvesters. Commercial fishers received an allocation of 80 percent of the share of pink shrimp and other species, with 20 percent of these shrimp species for the recreational harvesters. Specific allocations between the commercial and recreational harvesters vary by area. Fish Management Division staff monitor the recreational and the commercial shrimp harvests.

## PART II. FISH MANAGEMENT DIVISION EXPENDITURES AND ACTIVITIES FOR SHELLFISH

### 2001-03 Expenditures and Staffing Levels

In the 2001-03 biennium, the Fish Management Division spent approximately \$5.4 million on activities related to shellfish. As Figure C-2 below indicates, this represents 13 percent of the Fish Management Division biennial budget. Staffing averaged 40 FTEs for the period.

Figure C-2: 2001-03 Fish Management Division Expenditures by Species Group; Work on Shellfish Accounts for 13 Percent of Expenditures

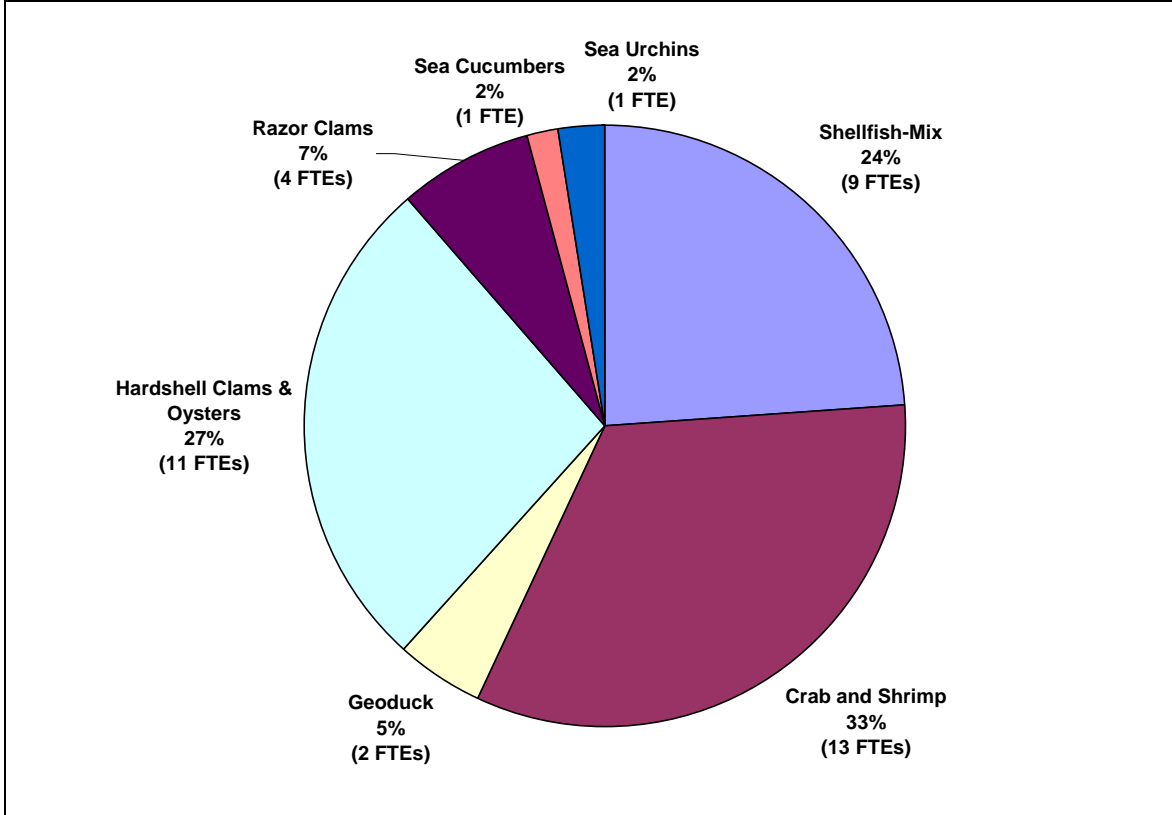


Source: JLARC Fish Management Division Database.

Figure C-3 on the following page, provides more detail on expenditures by species category within the shellfish species group. About one-third of shellfish expenditures are for managing the Dungeness crab and the various shrimp fisheries, both off the coast and in Puget Sound. Some 27 percent of expenditures are for managing intertidal clams and oysters. The next largest category is “Shellfish-Mix,” which includes expenditures for activities that are not specific to one shellfish species, for example, the Fish Management Division’s screening of shellfish imports to prevent the spread of disease. The smaller remaining percentages of expenditures are allocated to razor clams (7 percent), geoduck (5 percent), sea urchins (2 percent), and sea cucumbers (2 percent).



Figure C-3: 2001-03 Fish Management Division Expenditures for Shellfish, by Species Category



Source: JLARC Fish Management Division Database.

Some additional expenditures on shellfish appear in the “Multiple Species” category outlined in Appendix H. The Multiple Species category is for expenditures for activities covering more than one species group, e.g., a manager with responsibility for both shellfish and marine fish.

### Allocation of 2001-03 Expenditures and FTEs to Activities

Figure C-4 on the following page, shows how the Fish Management Division expenditures and FTEs were allocated to activities for the management of shellfish. Approximately 70 percent of expenditures were allocated to activities within the Fish Management Cycle. Thirty percent of expenditures were for activities on the “Other Activities” list.

Within the Management Cycle activities, 22 percent of expenditures are for field population data collection efforts, with an additional 7 percent of expenditures for data analysis. This reflects Fish Management Division work to assess the size of the shellfish populations and to determine the level that can be harvested while still sustaining the resource. These analyses then feed into the negotiations between the co-managers on the allocation of shellfish, with the Department’s Intergovernmental Resource Management group in the lead and Fish Management Division staff providing technical support. Ten percent of shellfish expenditures are for Fish Management Division participation in the larger shellfish planning umbrellas. Twelve percent of expenditures are then for the Fish Management Division to monitor the shellfish harvest, 6 percent for the commercial harvest, and 6 percent for the recreational harvest.

Volume II Fish Species Group Appendices

Figure C-4: Fish Management Division Activity Allocation For Shellfish 2001-03

Type of Activity	Activity	2001-03 Expenditures	% of Total Expenditures	Average Annual FTEs	% of Total FTEs
Management Cycle	Data Analysis	\$364,859	7%	3	7%
	Planning Umbrellas	\$543,608	10%	4	10%
	Non-Umbrella Planning	\$15,713	<1%	<1	<1%
	Rule Development	\$160,496	3%	1	3%
	Rule Adoption	\$85,174	2%	1	2%
	Monitor Commercial Harvest	\$306,911	6%	2	5%
	Monitor Recreational Harvest	\$295,802	6%	2	6%
	Monitor Other Fisheries	\$101,724	2%	1	2%
	Emergency Rules	\$226,376	4%	2	4%
	Estimate Non-Fishing Mortality	\$49,698	<1%	<1	1%
	Population Data Collection – Other Fish & Shellfish	\$1,193,051	22%	9	22%
	Supervise Programs, Budgets, and Personnel	\$423,853	8%	3	8%
<b>Management Cycle Total</b>		<b>\$3,767,265</b>	<b>70%</b>	<b>28</b>	<b>70%</b>
Other Activities	Public Outreach	\$55,844	1%	<1	1%
	Educate Commission	\$3,750	<1%	<1	<1%
	Educate Others	\$292,311	5%	2	5%
	Purchase Fish & Shellfish	\$83,869	2%	1	2%
	Produce Fish & Shellfish	\$123,164	2%	1	2%
	Sample for DOH, DOE	\$59,054	1%	1	1%
	ESA Permitting	\$41,002	1%	<1	1%
	Identify & Develop Public Access Sites	\$48,495	1%	1	1%
	Shellfish Pest Management	\$19,544	<1%	<1	1%
	Marine Protected Areas	\$15,000	<1%	<1	<1%
	Puget Sound/Georgia Basin Taskforce	\$7,500	<1%	<1	<1
	Assemble Geographic Information Systems Data	\$108,475	2%	1	2%
	Provide Info on Derelict Fishing Gear	\$7,500	<1%	<1	<1%
	Olympic Regional Harmful Algae Bloom Study	\$190,994	4%	1	4%
	Screen Shellfish Imports/Transfers	\$111,068	2%	1	2%
	Maintain Equipment	\$319,697	6%	2	6%
	Admin/Office Support	\$106,848	2%	1	2%
<b>Other Activities Total</b>		<b>\$1,594,115</b>	<b>30%</b>	<b>12</b>	<b>30%</b>
<b>Grand Total</b>		<b>\$5,361,380</b>	<b>100%</b>	<b>40</b>	<b>100%</b>

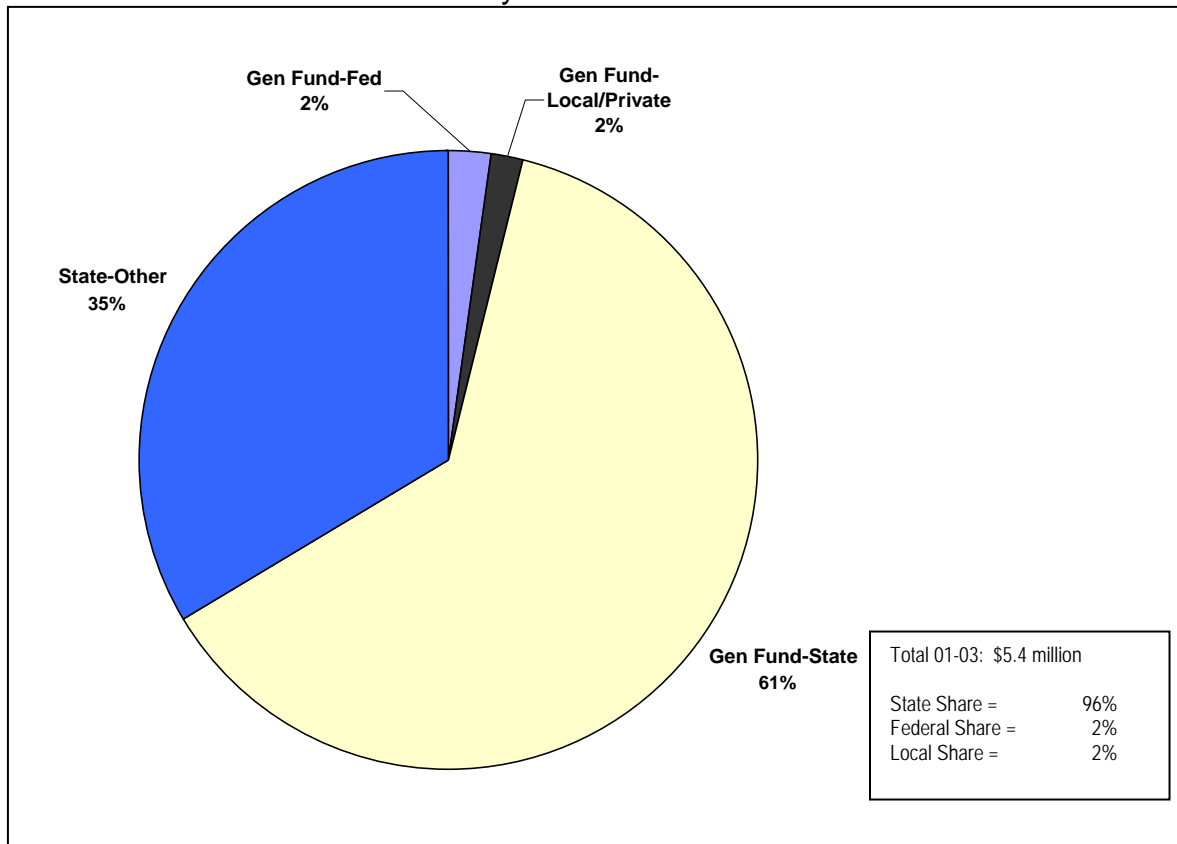
Source: JLARC Fish Management Division Database.

In terms of “Other Activities” for shellfish, small percentages of expenditures are spread over a relatively large number of other activities. The expenditures to “Educate Others” include efforts to provide readily available information to the public on shellfish openings and closures using websites and a telephone “Shellfish Hotline.” The “Other Activity” list is also picking up activities that are unique to the shellfish category: the planting of shellfish, work on shellfish pest management for control of burrowing shrimp, the screening of shellfish imports and transfers, and the Division’s work on the ORHAB project.

### Fund Sources for the Fish Management Division’s Shellfish Activities

As Figure C-5 below, indicates, the Fish Management Division’s work on shellfish for the 2001-03 biennium is funded almost entirely with state dollars (96 percent). Almost two-thirds of the funding is from General Fund-State (61 percent). The majority of the other state funding is from the Aquatic Lands Enhancement Account. Smaller amounts of state funding come from sales of shellfish from the Willapa Bay Oyster Reserve, the portion of the revenue from geoduck contracts passed to the Division from the Department of Natural Resources, the sale of spot shrimp from the Division’s test shrimp fisheries, a grant from the Interagency Committee for Outdoor Recreation to provide additional public access to a shellfish beach, and funds coming through the University of Washington for a joint research effort on oysters.

Figure C-5: 2001-03 Fish Management Division Expenditures for Shellfish, by Fund Source



Source: JLARC Fish Management Division Database.

The small percentage of local/private funds include the payment of commercial crabbers into the Coastal Crab Account and funding for control of burrowing shrimp via the Pacific Shellfish Institute. The 2001-03 expenditures also include growing some native Olympia oysters for a locally-funded restoration project in south Puget Sound (the Brinnon shellfish culturing facilities are now closed). The federal government has been funding the ORHAB project. This will switch over to state funding next year, using funds generated by the Legislature's increase in shellfish license fees.

# APPENDIX D – RESIDENT NATIVE FISH

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This appendix explores the activities of the Washington Department of Fish and Wildlife’s Fish Management Division with regard to resident native fish. Part I of this appendix provides background information on the management of resident native fish. Part II provides the results from JLARC’s Fish Management Division database for resident native fish activities and expenditures. This appendix is not intended as a comprehensive explanation of all resident native fish management; **its purpose is to provide a context for understanding the resident native fish activities of the Fish Management Division.**

## PART I. BACKGROUND AND CONTEXT

### The Fish

Resident native fish include bull trout, other trout, kokanee, and other game fish species. This category also includes freshwater crawfish (for which there is a small commercial fishery) and numerous species of non-game fish and mollusks (“priority species”).

When Fish Management Division staff discuss resident native fish, they are as likely to speak of *where* the fish are as compared to *what species* the fish are, referring largely to lowland lakes fish management, high or alpine lakes, and rivers and streams. There are two different philosophies at work in the management of these inland fish. On the one hand, Fish Management Division staff are collecting information to help sustain and rebuild some native resident fish populations, as witnessed by the work specific to bull trout. On the other hand, much of the work on lowland and alpine lakes is the artificial planting of trout, kokanee, and other fish for no purpose other than providing fish for anglers to catch. The anglers themselves are also of two minds, one set releasing the fish they catch after enjoying the fishing experience itself and another set who want to keep and eat their fish.

### The Larger Management Context

Fish Management Division activities for resident native fish take place within the context of other broader planning and management frameworks, such as the four identified below:

#### Tribal Co-Management

Federal court decisions, in particular *U.S. v. Washington*<sup>14</sup> and *U.S. v. Oregon*,<sup>15</sup> have clarified the fishing rights reserved to Northwest Indian tribes in the Stevens Treaties signed in the 1850s. Tribal co-management of fisheries is now well established in Washington and in Oregon. Fish Management Division staff report working with tribal co-managers on resident native fish topics such as Issaquah Creek kokanee and bull trout recovery.

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<sup>14</sup> 384 F. Supp. 312.

<sup>15</sup> 302 F. Supp. 899.

### The Endangered Species Act

Fish management in Washington is complicated by the listing of fish species as threatened or endangered under the federal Endangered Species Act (ESA). In addition to the listing of various salmon and steelhead stocks, the U.S. Fish and Wildlife Service has listed several bull trout populations as threatened species. Included are bull trout on the Washington coast, in Puget Sound, in the lower-, mid- and upper-Columbia River, and in the Snake River.

Compliance with the ESA has affected Fish Management Division staff in many ways. It has intensified field data collection and harvest monitoring for both listed and unlisted species. In proposing fish management regimes for both listed and unlisted species, Fish Management Division staff must have the data and the analysis to convince the U.S. Fish and Wildlife Service or NOAA-Fisheries<sup>16</sup> that a listed species will not be unduly harmed. The Fish Management Division has a unit in headquarters whose primary activity is securing and maintaining the necessary ESA permits for fish research and propagation, and so that people in Washington can go fishing. Fish Management Division biologists in the field feed data and reports into that recurring ESA permit process.

### Northwest Power Act/Northwest Power & Conservation Council

In 1980, Congress enacted the Pacific Northwest Electric Power and Conservation Planning Act. Pursuant to the legislation, the four states of Washington, Oregon, Idaho, and Montana created what is now the Northwest Power & Conservation Council (formerly known as the Northwest Power Planning Council). The Council plays an important role in regional electricity planning and management. The Council also has responsibility for preparing a program to mitigate the damage imposed to fish and wildlife species from the development and operation of the Columbia River hydropower system. While much of the Council's planning in this area has focused on salmon and steelhead, the program covers resident fish and wildlife as well. Implementation of the items in the Council's fish and wildlife plan is paid for by the Bonneville Power Administration, using a portion of the revenues generated from the operation of the hydropower system.

In 2000, the Council launched a new effort to redesign its fish and wildlife plan. The program is being assembled through the design of new plans for each subbasin of the Columbia River and its tributaries in all four Northwest states. Fish Management Division staff are participating at the local level in the development of these subbasin plans. In addition, the state fish and wildlife agencies and the Columbia Basin tribes formed the Columbia Basin Fish and Wildlife Authority shortly after the Council itself was created. This group reviews fish and wildlife project proposals before the proposal moves forward for Council review. Fish Management Division staff participate as part of this project review process. Division staff may also work on projects approved as part of the Council's fish and wildlife plan.

### Federal Hydropower Project Relicensing

Under the Federal Power Act, the Federal Energy Regulatory Commission (FERC) is responsible for licensing private, municipal, and state hydroelectric projects. When a license nears the end of

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<sup>16</sup> NOAA stands for the National Oceanic and Atmospheric Administration. NOAA-Fisheries was formally called the National Marine Fisheries Service or NMFS.

its term, the owner of the project goes through a relicensing process. As part of the licensing and relicensing review, the Commission can require the owner to modify plans or project operations. The Federal Power Act directs the Commission to consider a number of different factors as part of the licensing or relicensing review, including the adequate protection, mitigation, and enhancement of fish and wildlife.

State and federal fish and wildlife agencies participate in these licensing and relicensing processes to ensure that the Commission is cognizant of fish and wildlife impacts associated with a project, as well as steps for mitigation of negative impacts. Fish Management Division staff participate in this activity for certain projects. A FERC license for a project lasts for between 30 and 50 years, so the activity on a given project is infrequent; however, the activity may be a time-consuming one for staff during the years of the licensing or relicensing process. Mitigation work may generate ongoing activities for Fish Management Division staff.

## State Laws

State law gives the Fish and Wildlife Commission and Department a general mandate about managing fish and wildlife in the state. The Legislature has also adopted some measures related more specifically to resident native fish.

## Department Mandate

RCW 77.04.012 directs the Fish and Wildlife Commission, director, and Department to “preserve, protect, perpetuate, and manage” the state’s fish and wildlife, including game fish. The Department must conserve fish in a manner that does not impair the resource. Consistent with this, the Department must try to maintain the economic well-being and stability of the fishing industry. The Department must promote orderly fisheries, and enhance and improve recreational and commercial fishing in the state.

## Triploid Trout Program

In 1999, the Legislature authorized the Department of Fish and Wildlife to purchase sterile triploid trout to plant as catchable trout in water bodies around the state (Chapter 77.18 RCW). The purpose behind the measure is to provide recreational anglers with a new type of fishing opportunity at a time of declining opportunities to fish for salmon and steelhead. Fish Management Division staff determine the number and the location for these fish plants, in addition to purchasing the fish. The fish are sold by a private vendor.

The Legislature provided an initial appropriation of \$400,000 in 1999 for the purchase of triploid trout. According to RCW 77.18.070, the Fish and Wildlife Commission may authorize the purchase of triploid trout only if the cost of the purchase of the trout will be recovered by the estimated increase in revenue from license sales and federal funds directly attributable to the planting of the trout.

## Lake Rehabilitation

RCW 77.12.420 is subtitled “improvement of conditions for growth of game fish.” A provision in this statute allows for the eradication of undesirable fish, if authorized by the Fish and Wildlife Commission. This provision is referring to what is called “lake rehabilitation.” The substance rotenone is applied to a water body such as a lake, resulting in the death of all the fish.

The water body is then restocked with what the Department and anglers find to be more desirable fish. The Department's lake rehabilitation program was put on hold for a few years due to a court decision; however, the program is now back in use in Eastern Washington. Fish Management Division staff conduct the lake rehabilitations.

### Double Game Fish Production

In 1990, the Legislature directed the Department to determine the feasibility and cost of doubling statewide game fish production by the year 2000 (RCW 77.12.710). While much of the measure focuses on actual production of more fish, the bill also includes elements such as increasing the productivity of natural spawning game fish, methods for development of trophy game fish fisheries, and methods for obtaining access to waters not currently available to anglers. The legislation is certainly a promotion of enhancing game fish fishing opportunities in the state.

### Lake Whatcom Kokanee

The 2002 budget included an appropriation of \$200,000 from the State Wildlife Fund for Lake Whatcom kokanee. Currently, the Department uses Lake Whatcom as a disease-free nursery for kokanee, which allows the Department to supply eggs from this source to other watersheds in the state. Lake Whatcom will lose its disease-free status upon completion of a plan to restore fish passage for salmon around a barrier in a fork of the Nooksack River. The appropriation is for the Department to investigate the feasibility of establishing a viable kokanee brood program at one or more alternative locations and then to initiate actions to make that change.

### Fish and Wildlife Commission Policies

Pursuant to its general mandate, the Fish and Wildlife Commission establishes regulations for the recreational harvest of resident native fish. There is one small commercial fishery to manage in this category: freshwater crawfish.

Fish Management Division staff indicate that they are currently reviewing the Department's management plans for the inland fisheries. Revisions of management plans and strategies for managing these fish would then come before the Commission for review and approval. Two plans currently in place have an impact on Fish Management Division activities for resident native fish.

### Bull Trout and Dolly Varden Management Plan

In September 2000, the Fish and Wildlife Commission approved a management plan for bull trout and Dolly Varden, collectively referred to in the plan as native char. The goal for the plan is to restore and maintain the health and diversity of bull trout and Dolly Varden stocks and their habitats at self-sustaining levels that will allow recreational harvest within resource protection guidelines. Plan objectives include maintaining and restoring stock distribution, conservation of the genetic diversity of stocks, allowing recreational harvest only on stocks with surplus production, and maintaining and restoring necessary habitat. Under the plan, the Department will monitor recreational harvest with creel surveys, angler surveys, regular enforcement efforts, and potentially with an addition to the catch record card. The Department will also periodically conduct an inventory and assessment of native char habitat.



### Lake Rehabilitation

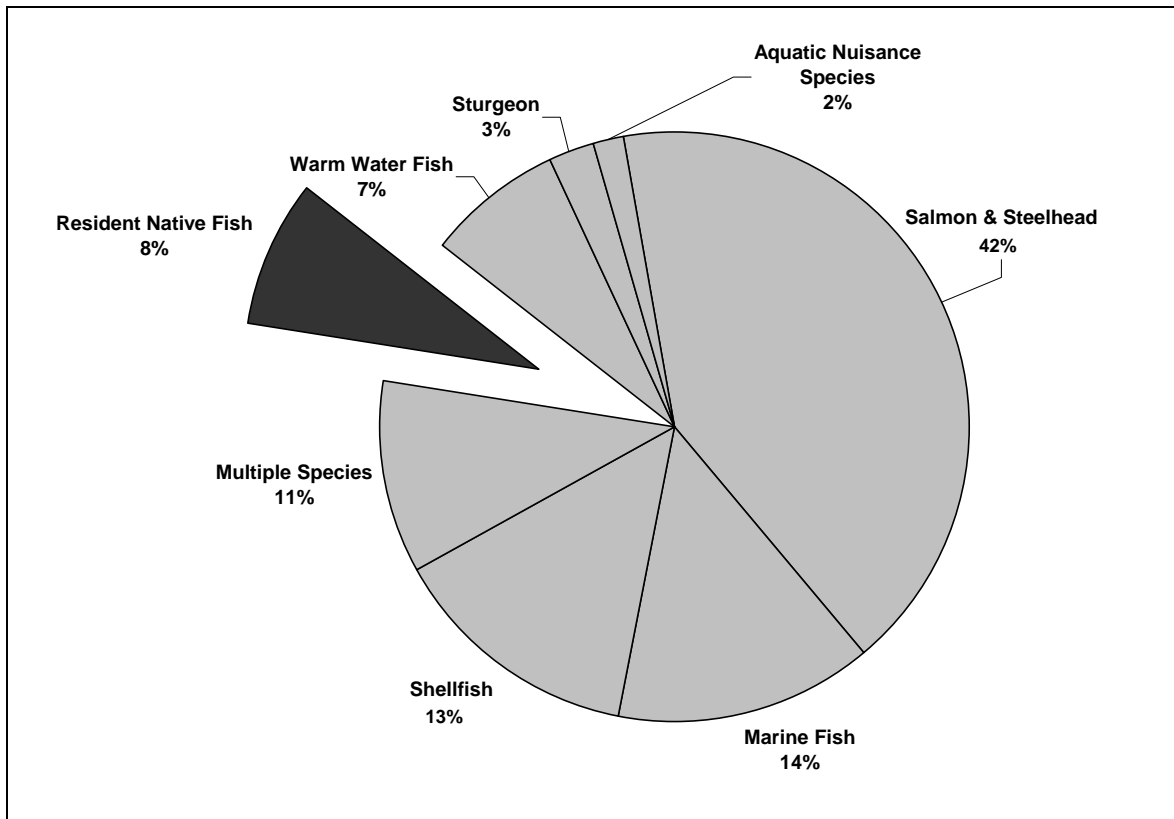
In April 2002, the Fish and Wildlife Commission adopted a “Revised Plan for the Use of Rotenone in Fish Management.” In February 2002, the Commission revised its policy on lake and stream rehabilitations. The current policy acknowledges that the control of undesirable fish populations using chemicals such as rotenone is a valuable and cost-effective management tool for providing quality fishing opportunities and protecting native species. The Commission adopted four specific management policies: (1) all lake and stream rehabilitations will follow state and federal laws; and all applicable environmental, health, and safety regulations will be followed; (2) waters will not be treated in ways that would cause significant negative impacts to fish or wildlife which are state or federally listed as threatened, endangered, sensitive, or candidate species; (3) the public will be part of the decision-making process; and (4) an appropriate assessment of existing fish populations and associated risks will be undertaken for natural bodies of water proposed for treatment if they have not been previously treated.

## PART II. FISH MANAGEMENT DIVISION EXPENDITURES AND ACTIVITIES FOR RESIDENT NATIVE FISH

### 2001-03 Expenditures and Staffing Levels

In the 2001-03 biennium, the Fish Management Division spent approximately \$3.1 million on activities related to resident native fish. As Figure D-1 below indicates, this represents about 8 percent of the Fish Management Division biennial budget. Staffing averaged 20 FTEs for the period.

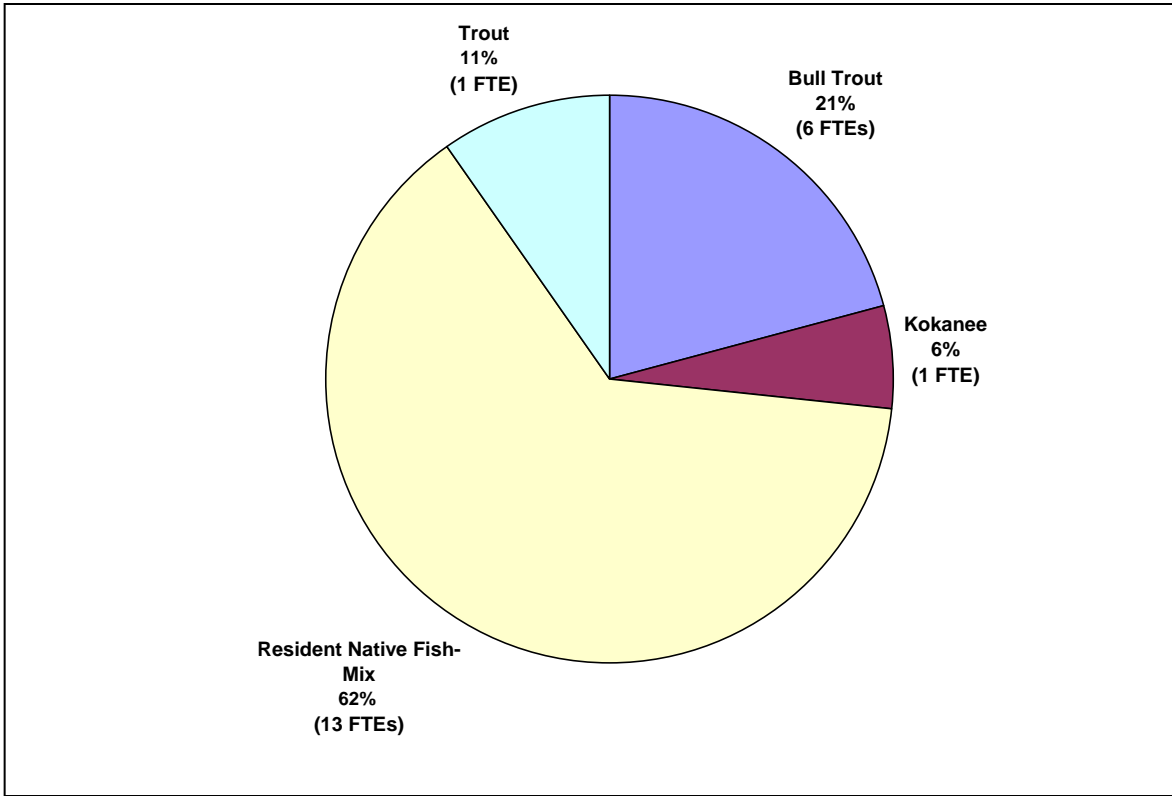
Figure D-1: 2001-03 Fish Management Division Expenditures by Species Group; Work On Resident Native Fish Accounts for 8 Percent of Expenditures



Source: JLARC Fish Management Division Database.

Figure D-2 on the following page provides more detail on expenditures by species category within the resident native fish species group. Almost two-thirds (62 percent) of expenditures are for the “Resident Native Fish-Mix” category. This category includes Division staff’s work that covers multiple resident species such as general lowland lakes and alpine lakes fishery management. Some 21 percent of expenditures can be traced specifically to work on bull trout. This is primarily federally-funded field data collection on bull trout populations. About 11 percent of expenditures is for work specific to other types of trout; the primary expenditure here is for the purchase of the triploid trout. Finally, some 6 percent of expenditures are for work specific to kokanee, particularly in Lake Whatcom and Issaquah Creek.

Figure D-2: 2001-03 Fish Management Division Expenditures for Resident Native Fish, by Species Category



Source: JLARC Fish Management Division Database.

Some additional expenditures for resident native fish appear in the “Multiple Species” category outlined in Appendix H. The Multiple Species category is for expenditures for activities covering more than one species group, for example, a headquarters manager whose responsibilities include resident native fish, warm water fish, and steelhead.

### Allocation of 2001-03 Expenditures and FTEs to Activities

Figure D-3 on the following page shows how the Fish Management Division expenditures and FTEs were allocated among activities for the management of resident native fish. Approximately 73 percent of expenditures were for activities that fall within the Fish Management Cycle. Twenty-seven percent of expenditures were for activities on the “Other Activities” list.

Volume II Fish Species Group Appendices

Figure D-3: Fish Management Division Activity Allocation For Resident Native Fish 2001-03

Type of Activity	Activity	2001-03 Expenditures	% of Total Expenditures	Average Annual FTEs	% of Total FTEs
Management Cycle	Data Analysis	\$480,153	15%	3	15%
	Planning Umbrellas	\$115,637	4%	1	4%
	Non-Umbrella Planning	\$131,928	4%	1	5%
	Rule Development	\$54,467	2%	<1	2%
	Rule Adoption	\$7,223	<1%	<1	<1%
	Monitor Commercial Harvest	\$6,058	<1%	<1	<1%
	Monitor Recreational Harvest	\$134,822	4%	1	5%
	Emergency Rules	\$20,677	1%	<1	1%
	Estimate Non-Fishing Mortality	\$7,963	<1%	<1	<1%
	Population Data Collection – Other Fish & Shellfish	1,198,688	38%	9	43%
	Supervise Programs, Budgets, and Personnel	\$132,367	4%	1	5%
<b>Management Cycle Total</b>		<b>\$2,289,982</b>	<b>73%</b>	<b>16</b>	<b>80%</b>
Other Activities	Youth Sport Fishing	\$55,333	2%	<1	2%
	Public Outreach	\$52,135	2%	<1	2%
	Educate Commission	\$7,223	<1%	<1	<1%
	Educate Others	\$75,840	2%	1	3%
	Purchase Fish & Shellfish	\$276,183	9%	<1	1%
	Produce Fish & Shellfish	\$90,361	3%	1	3%
	Sample for DOH, DOE	\$7,645	<1%	<1	<1%
	Lake Rehabilitation	\$132,970	4%	1	4%
	Identify and Develop Public Access Sites	\$12,159	<1%	<1	<1%
	Subbasin Planning	\$83,578	3%	1	3%
	FERC Relicensing	\$27,719	1%	<1	1%
	Maintain Equipment	\$11,307	<1%	<1	<1%
<b>Other Activities Total</b>		<b>\$832,454</b>	<b>27%</b>	<b>4</b>	<b>20%</b>
<b>Grand Total</b>		<b>\$3,122,436</b>	<b>100%</b>	<b>20</b>	<b>100%</b>

Source: JLARC Fish Management Division Database.

Within the Management Cycle activities, the greatest expenditures for the resident native fish species group are for population field data collection (38 percent) and data analysis (15 percent). Fish Management Division staff use this information to assess the abundance and distribution of trout, kokanee, and other resident fish around the state. In contrast to salmon and steelhead, marine fish, and shellfish, a much smaller percentage of expenditures is spent on monitoring the

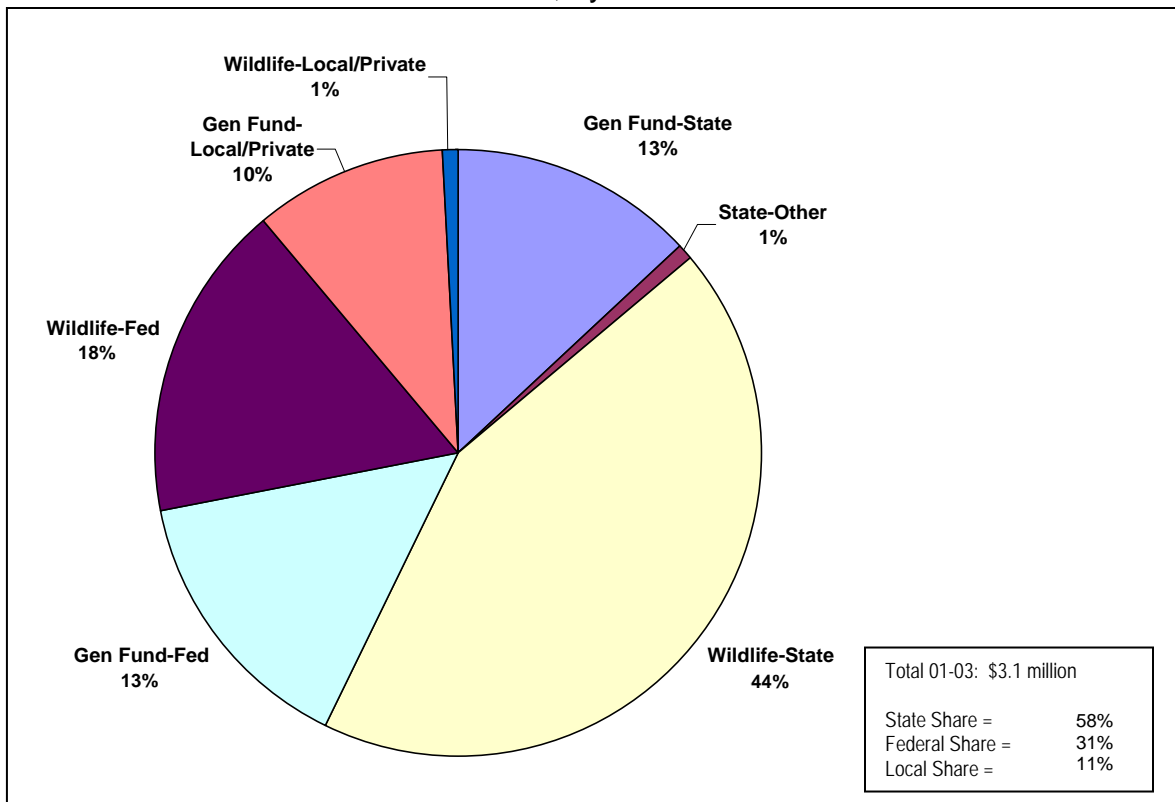
harvest of resident native fish (4 percent). Much of this monitoring comes at lowland lakes on the opening day of fishing.

In terms of the “Other Activities,” two activities dominate for resident native fish. The first of these “Other Activities” is the purchase of fish to plant in lakes around the state (9 percent of expenditures); this includes the purchase of the triploid trout. As part of this activity, Fish Management Division staff determine the number and location for the fish to be planted. The second major “Other Activity” expenditure is for lake rehabilitation (4 percent) in Eastern Washington.

### Fund Sources for the Fish Management Division’s Resident Native Fish Activities

Figure D-4 below illustrates the fund sources for the Fish Management Division’s resident native fish activities. As the figure indicates, 58 percent of expenditures for resident native fish activities use state dollars, with 44 percent from the State Wildlife Fund. Approximately one-third of the funding comes from federal dollars, including federal matching dollars in the first year of the biennium as well as federal funding for much of the population data collection for bull trout. Local government or private funds account for the remaining 11 percent of expenditures. Local or private fund sources include Seattle City Light, King County, the King County Conservation District, and Puget Sound Energy.

Figure D-4: 2001-03 Fish Management Division Expenditures for Resident Native Fish, by Fund Source



Source: JLARC Fish Management Division Database.



# APPENDIX E – WARM WATER FISH

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This appendix explores the activities of the Washington Department of Fish and Wildlife’s Fish Management Division with regard to warm water fish. Part I of this appendix provides background information on the management of warm water fish. Part II provides the results from JLARC’s Fish Management Division database for warm water fish activities and expenditures. This appendix is not intended as a comprehensive explanation of all warm water fish management; **its purpose is to provide a context for understanding the warm water fish activities of the Fish Management Division.**

## PART I. BACKGROUND AND CONTEXT

### The Fish

Warm water sport fish managed in Washington include tiger musky, walleye, smallmouth and largemouth bass, channel catfish, crappie, and ten other warm water species. There is also a small commercial fishery for carp.

### The Larger Management Context

The context for the management of warm water fish in Washington is much less complex in comparison to other fish species groups in the JLARC study, such as salmon and steelhead or marine fish. All of the warm water fish in Washington are introduced rather than native species. As such, there is not a long tradition of tribal fishing, nor is there a possibility of an Endangered Species Act (ESA) listing. Fish managers do have to be cognizant of ESA listings for other fish species when establishing regulations and enhancements for warm water fish; for example, designing bass regulations to target a certain size of bass that prey on salmon smolts. Otherwise, warm water fish management is largely the purview of Washington alone.

In the allocation exercise, Fish Management Division staff working on warm water fish did allocate small amounts of expenditures to the activities related to federal hydropower project relicensing and subbasin planning. The information below provides some context for understanding those two activities.

### Federal Hydropower Project Relicensing

Under the Federal Power Act, the Federal Energy Regulatory Commission (FERC) is responsible for licensing private, municipal, and state hydroelectric projects. When a license nears the end of its term, the owner of the project goes through a relicensing process. As part of the licensing and relicensing review, the Commission can require the owner to modify plans or project operations. The Federal Power Act directs the Commission to consider a number of different factors as part of the licensing or relicensing review, including adequate protection, mitigation, and enhancement of fish and wildlife.

State and federal fish and wildlife agencies participate in these licensing and relicensing processes to ensure that the Commission is cognizant of fish and wildlife impacts associated with a project, as well as steps for mitigation of negative impacts. Fish Management Division staff

participate in this activity for certain projects. A FERC license for a project lasts between 30 and 50 years, so the activity on a given project is infrequent; however, the activity may be a time-consuming one for staff during the years of the licensing or relicensing process. Mitigation work may generate ongoing activities for Fish Management Division staff.

### Northwest Power Act/Northwest Power and Conservation Council

In 1980, Congress enacted the Pacific Northwest Electric Power and Conservation Planning Act. Pursuant to the legislation, the four states of Washington, Oregon, Idaho, and Montana created what is now the Northwest Power and Conservation Council (formerly known commonly as the Northwest Power Planning Council). The Council plays an important role in regional electricity planning and management. The Council also has the responsibility of preparing a program to mitigate the damage imposed on fish and wildlife species from the development and the operation of the Columbia River hydropower system. While much of the Council's planning in this area has focused on salmon and steelhead, the program covers resident fish and wildlife as well. Implementation of the items in the Council's fish and wildlife plan is paid for by the Bonneville Power Administration, using a portion of the revenues generated from the operation of the hydropower system.

In 2000, the Council launched a new effort to redesign the fish and wildlife plan. The program is being assembled through the design of new plans for each subbasin of the Columbia River and its tributaries in all four Northwest states. Fish Management Division staff are participating at the local level in the development of these subbasin plans. Projects for warm water fish can be part of a strategy to mitigate for the loss of other fishing opportunities. Fish Management Division staff may work on projects approved as part of the Council's fish and wildlife plan.

### State Laws

State law gives the Fish and Wildlife Commission and Department a general mandate about managing fish and wildlife in the state. The Legislature has also enacted two measures related specifically to warm water fish.

#### Department Mandate

RCW 77.04.012 directs the Fish and Wildlife Commission, director, and Department to "preserve, protect, perpetuate, and manage" the state's fish and wildlife, including warm water game fish. The Department must conserve fish in a manner that does not impair the resource. Consistent with this, the Department must try to maintain the economic well-being and stability of the fishing industry. The Department must promote orderly fisheries, and enhance and improve recreational and commercial fishing in the state.

#### Warm Water Game Fish Enhancement Program

In 1996, the Legislature enacted a measure to create a special warm water fish enhancement program within the Department (Chapter 77.44 RCW). The purpose of the enhancement program is to increase the opportunities to fish for and catch warm water game fish. The legislation included a number of specific directions for the operation of the new program, such as designing warm water projects to have minimal adverse effects on cold water fish populations, use of fish culture programs and lake rehabilitation, habitat improvement, and working closely with the organized fishing clubs whose members primarily fish for warm water fish (e.g., bass



and walleye clubs). The Fish Management Division manages the warm water game fish program.

The 1996 legislation also created a separate Warm Water Game Fish Account. RCW 77.44.050 specifies how funds in this account may be spent:

Moneys in the account are subject to legislative appropriation and shall be used for the purpose of funding the warm water game fish enhancement program, including the development of warm water pond and lake habitat, culture of warm water game fish, improvement of warm water fish habitat, management of warm water fish populations, and other practical activities that will improve the fishing for warm water fish.

The Legislature was also clear that expenditures from this new account were not to serve as replacement funding for warm water fish projects already in operation at the time.

### Survey for the Allocation of Funds to the Warm Water Game Fish Account

The warm water fish enhancement program created by the 1996 legislation was originally funded by a special \$5 surcharge. Anglers who wished to fish for specified warm water fish species paid this surcharge in addition to purchasing a fishing license in order to go fishing.

In 1999, the Department brought a proposal to the Legislature to reorganize and simplify the array of departmental hunting and fishing licenses. The version of this proposal eventually adopted is codified in Chapter 77.32 RCW. The proposal did away with the special surcharge for warm water fishing. However, the Department still needed a mechanism to direct funding into the Warm Water Game Fish Account. To accomplish this, RCW 77.32.440 calls for an annual survey of licensed anglers to determine the proportion of these anglers who fished for certain warm water fish. A portion of revenues from the sale of fishing licenses is deposited into the Warm Water Game Fish Account each year based on this survey. Warm water funds under the control of the Fish Management Division pay for approximately one-third of this annual survey cost.

### Fish and Wildlife Commission Policies

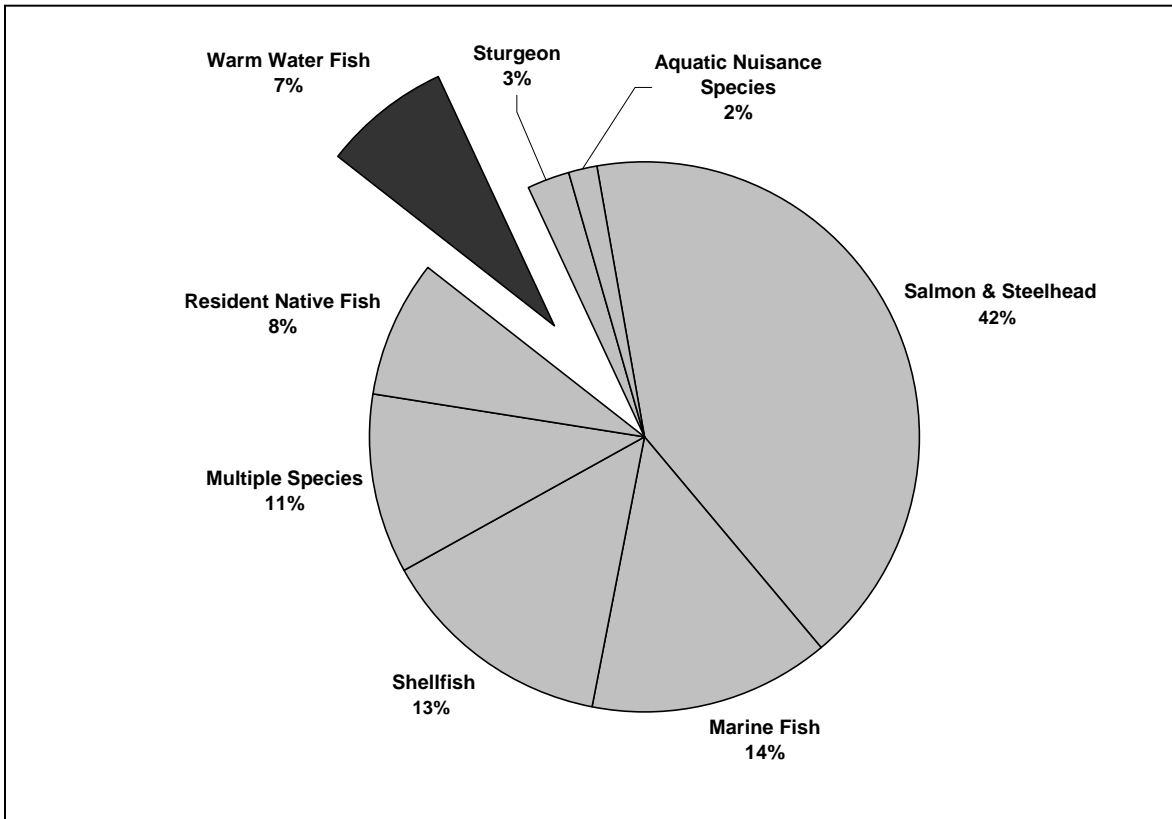
The Fish and Wildlife Commission adopts time, place, and manner regulations for warm water sport fishing. There is also a small commercial fishery for carp. There are no additional Commission policies specific to the management of warm water fish.

## PART II. FISH MANAGEMENT DIVISION EXPENDITURES AND ACTIVITIES FOR WARM WATER FISH

### 2001-03 Expenditures and Staffing Levels

In the 2001-03 biennium, the Fish Management Division spent approximately \$3 million on activities related to warm water fish.<sup>17</sup> As Figure E-1 below indicates, this represents about 7 percent of the Fish Management Division biennial budget. Staffing averaged 22 FTEs for the period.

Figure E-1: 2001-03 Fish Management Division Expenditures by Species Group; Work On Warm Water Fish Accounts for 7 Percent of Expenditures



Source: JLARC Fish Management Division Database.

Some additional expenditures for warm water fish appear in the “Multiple Species” category outlined in Appendix H. The Multiple Species category is for expenditures for activities covering more than one fish species group, for example, a headquarters manager whose responsibilities include warm water fish, resident native fish, and steelhead.

<sup>17</sup> Unlike the other fish species groups, the total warm water fish expenditure includes warm water fish hatchery operations. Other fish hatchery operations are in the Fish Program’s Hatchery Division rather than the Fish Management Division.

Allocation of 2001-03 Expenditures and FTEs to Activities

Figure E-2 below shows how the Fish Management Division expenditures and FTEs were allocated among activities for the management of warm water fish. Approximately 59 percent of expenditures were for activities that fall within the Fish Management Cycle. Forty-one percent of expenditures were for activities on the “Other Activities” list.

Figure E-2: Fish Management Division Activity Allocations For Warm Water Fish, 2001-03

Type of Activity	Activity	2001-03 Expenditures	% of Total Expenditures	Average Annual FTEs	% of Total FTEs
Management Cycle	Data Analysis	\$622,871	21%	5	24%
	Non-Umbrella Planning	\$152,531	5%	1	5%
	Rule Development	\$28,565	1%	<1	1%
	Rule Adoption	\$9,221	<1%	<1	<1%
	Monitor Commercial Harvest	\$25,937	1%	<1	1%
	Monitor Recreational Harvest	\$204,016	7%	2	8%
	Population Data Collection – Other Fish & Shellfish	\$614,171	21%	5	23%
	Supervise Programs, Budgets, and Personnel	\$87,851	3%	1	3%
<b>Management Cycle Total</b>		<b>\$1,745,163</b>	<b>59%</b>	<b>14</b>	<b>65%</b>
Other Activities	Youth Sport Fishing and Other Fishing Events	\$156,777	5%	1	4%
	Public Outreach	\$109,386	4%	1	4%
	Educate Others	\$111,936	4%	1	4%
	Purchase Fish & Shellfish	\$158,743	5%	1	5%
	Produce Fish & Shellfish	\$261,897	9%	1	6%
	Sample for DOH, DOE	\$50,234	2%	<1	2%
	Survey Anglers	\$16,564	1%	<1	<1%
	Identify & Develop Public Access Sites	\$162,163	5%	1	5%
	Subbasin Planning	\$1,470	<1%	<1	<1%
	FERC Relicensing	\$41,763	1%	<1	1%
	Maintain Equipment	\$104,391	4%	1	3%
	Admin/Office Support	\$44,144	1%	<1	1%
	<b>Other Activities Total</b>		<b>\$1,219,466</b>	<b>41%</b>	<b>8</b>
<b>Grand Total</b>		<b>\$2,964,629</b>	<b>100%</b>	<b>22</b>	<b>100%</b>

Source: JLARC Fish Management Division Database.

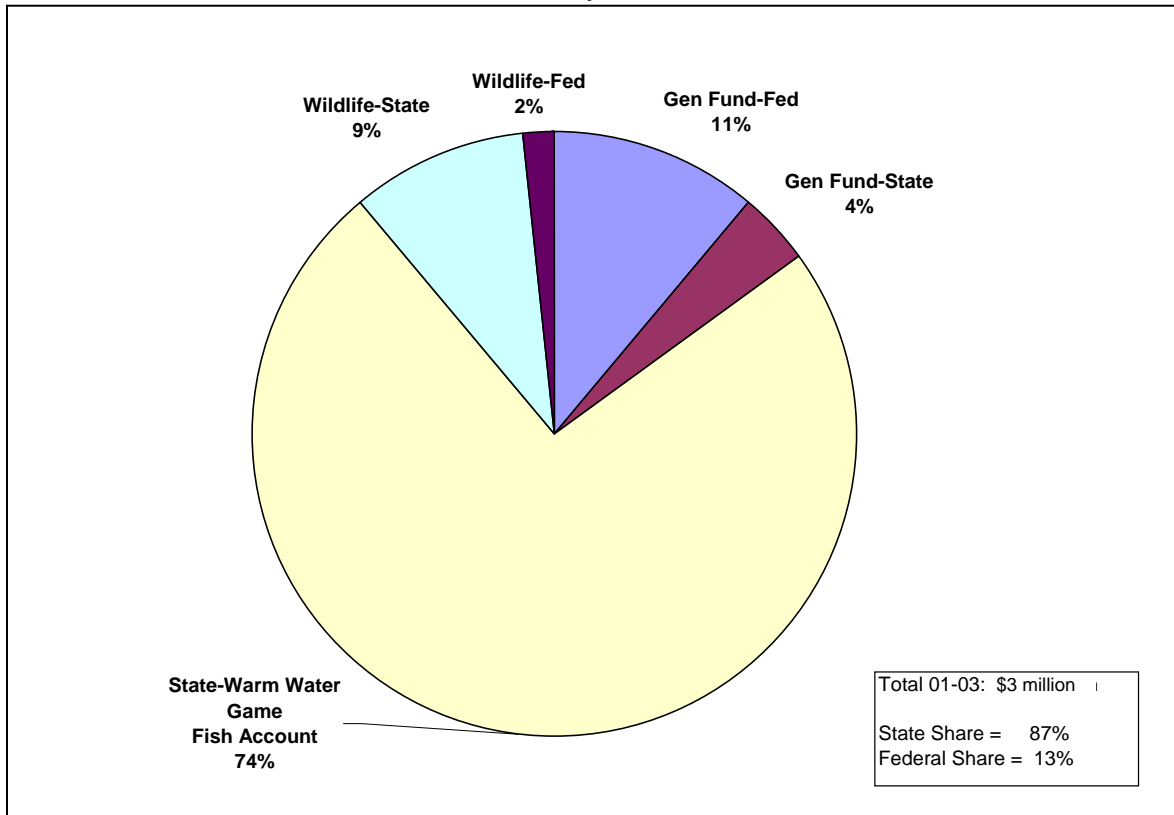
Within the Management Cycle activities, Division staff’s work on population field data collection and data analysis account for 42 percent of expenditures on warm water fish activities. Fish Management Division staff use a combination of electro-shocking and netting to collect population data for between 20 and 25 lakes per year. Division staff maintain a warm water fish database as well as a separate database for walleye. Another 7 percent of expenditures are for monitoring the recreational harvest of warm water fish.

In terms of the “Other Activities,” the highest expenditure (9 percent) is for the production of warm water fish at the Meseberg hatchery. Five percent of expenditures is for the additional purchase of tiger musky, crappie, and channel catfish. The next two highest “Other Activity” expenditures are for the identification and development of public access to warm water fishing sites (5 percent) and work at youth fishing or other special fishing events such as bass tournaments (5 percent).

### Fund Sources for the Fish Management Division’s Warm Water Fish Activities

Figure E-3 below illustrates the fund sources for the Fish Management Division’s warm water fish activities. Almost three-fourths of the funding is from the state’s dedicated Warm Water Game Fish Account. Additional smaller contributions from the State Wildlife Fund and General Fund-State bring the state total to 87 percent of warm water funding. Federal dollars account for the remaining 13 percent of expenditures.

Figure E-3: 2001-03 Fish Management Division Expenditures for Warm Water Fish, by Fund Source



Source: JLARC Fish Management Division Database.

# APPENDIX F – STURGEON

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This appendix explores the activities of the Washington Department of Fish and Wildlife’s Fish Management Division with regard to sturgeon. Part I of this appendix provides background information on the management of sturgeon. Part II provides the results from JLARC’s Fish Management Division database for sturgeon activities and expenditures. This appendix is not intended as a comprehensive explanation of all sturgeon management; **its purpose is to provide a context for understanding the sturgeon activities of the Fish Management Division.**

## PART I. BACKGROUND AND CONTEXT

### The Fish

Sturgeon are a large and ancient fish species. In Washington, they are most commonly found in the Columbia River, though sturgeon harvests occur in Willapa Bay and Grays Harbor as well. White sturgeon, which may live for over 100 years and achieve weights over 1,000 pounds, are the target of a commercial and a recreational fishery. The slightly smaller green sturgeon has been petitioned for listing under the Endangered Species Act (ESA) as a threatened species.

### The Larger Management Context

The work of the Fish Management Division on sturgeon is not done in isolation but rather within a broader planning and management framework. The two key components of this larger framework are discussed briefly below, as is a planning umbrella that may loom larger in the future.

### Tribal Co-Management

Federal court decisions, in particular *U.S. v. Washington*<sup>18</sup> and *U.S. v. Oregon*,<sup>19</sup> have clarified the fishing rights reserved to Northwest Indian tribes in the Stevens Treaties signed in the 1850s. Tribal co-management of fisheries is now well-established in Washington and Oregon. Tribal fisheries management in the *U.S. v. Oregon* case area is coordinated through the Columbia River Inter-Tribal Fish Commission.

For sturgeon, the Columbia River tribes manage tribal fisheries on the river in the area between Bonneville and McNary dams. The co-managers work together to reach agreement on the total number of sturgeon that can be harvested, the allocation of this number among the co-managers, the regulations needed to meet those targets, and responsibilities for harvest monitoring. There are commercial and subsistence tribal sturgeon fisheries in the three reservoirs between Bonneville and McNary dams, while Oregon and Washington offer a non-tribal sport fishery in the area.

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<sup>18</sup> 384 F. Supp. 312.

<sup>19</sup> 302 F. Supp. 899.

### Columbia River Compact

The states of Oregon and Washington have a long-standing compact for managing the commercial fisheries of the Columbia River and its tributaries, a compact approved by Congress in 1918. The two states share concurrent jurisdiction over the waters of the Columbia River.

For sturgeon fishing above Bonneville Dam, the two states participate in the processes implementing tribal co-management. For the area below Bonneville Dam, staff from the two state fish and wildlife agencies work together to reach agreement on management objectives for the lower Columbia River sturgeon fisheries, on a harvest allocation between the commercial and recreational fisheries, and on fishing regulations that will lead to the attainment of these management objectives. The Washington and Oregon Fish and Wildlife Commissions first adopted a three-year agreement on sturgeon management for 1997-99. Both Commissions renewed sturgeon management agreements for the Lower Columbia River again for 2000-02 and for 2003-05.

### The Endangered Species Act

The Endangered Species Act is not yet an active planning umbrella for the management of sturgeon. In January 2003, NOAA-Fisheries<sup>20</sup> decided not to list green sturgeon as a threatened or endangered species. However, the federal agency did retain the green sturgeon on its candidate species list, with the intent of reviewing its status again in five years. A population of white sturgeon in the nearby Kootenai River (Northern Idaho, Montana, and British Columbia) has been listed as an endangered species. The ESA may become a planning umbrella for sturgeon in the future.

### State Laws

The Legislature has given the Fish and Wildlife Commission the general mandate identified below. No state statutes deal specifically with the management of sturgeon.

### Department Mandate

RCW 77.04.012 directs the Fish and Wildlife Commission, director, and Department to “preserve, protect, perpetuate, and manage” the state’s fish and wildlife, including food fish and game fish. The Department must conserve fish in a manner that does not impair the resource. Consistent with this, the Department must try to maintain the economic well-being and stability of the fishing industry. The Department must promote orderly fisheries, and enhance and improve recreational and commercial fishing in the state.

### Fish and Wildlife Commission Policies

#### Lower Columbia River Sturgeon Management

In concert with the Oregon Fish and Wildlife Commission, the Washington Fish and Wildlife Commission has renewed a set of management policies and objectives for sturgeon in the lower Columbia River for 2003-05. The management policies include providing adequate protection

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<sup>20</sup> NOAA stands for the National Oceanic and Atmospheric Administration. NOAA-Fisheries was formally called the National Marine Fisheries Service or NMFS.

for the sturgeon broodstock population, managing for optimal sustainable yield, and maintaining viable and diverse recreational and commercial fishing opportunities. The joint management policy also retains an allocation of 80 percent of the harvestable number of sturgeon for sport fisheries; 20 percent for commercial fisheries.

The Commission's sturgeon management policy delegates authority to the agency director to negotiate with Oregon and adopt a 2003-05 management plan as well as accompanying sport fishing regulations. (The two states can adopt commercial fishery regulations using the Columbia River Compact.)

### North of Falcon/Willapa Bay

The sturgeon management policy discussed above also includes direction for management of sturgeon harvests outside of the lower Columbia River. These harvests are to be consistent with lower Columbia River sturgeon conservation and management needs. In the policy released to guide the North of Falcon process, the Commission indicates that the joint Washington/Oregon sturgeon policy is to guide pre-season planning of Columbia River and coastal sturgeon fisheries and related incidental sturgeon impacts. The same policy is incorporated into the sturgeon fishery objectives that are part of the Willapa Bay Fishery Management Framework.

### Sturgeon Catch Record Cards

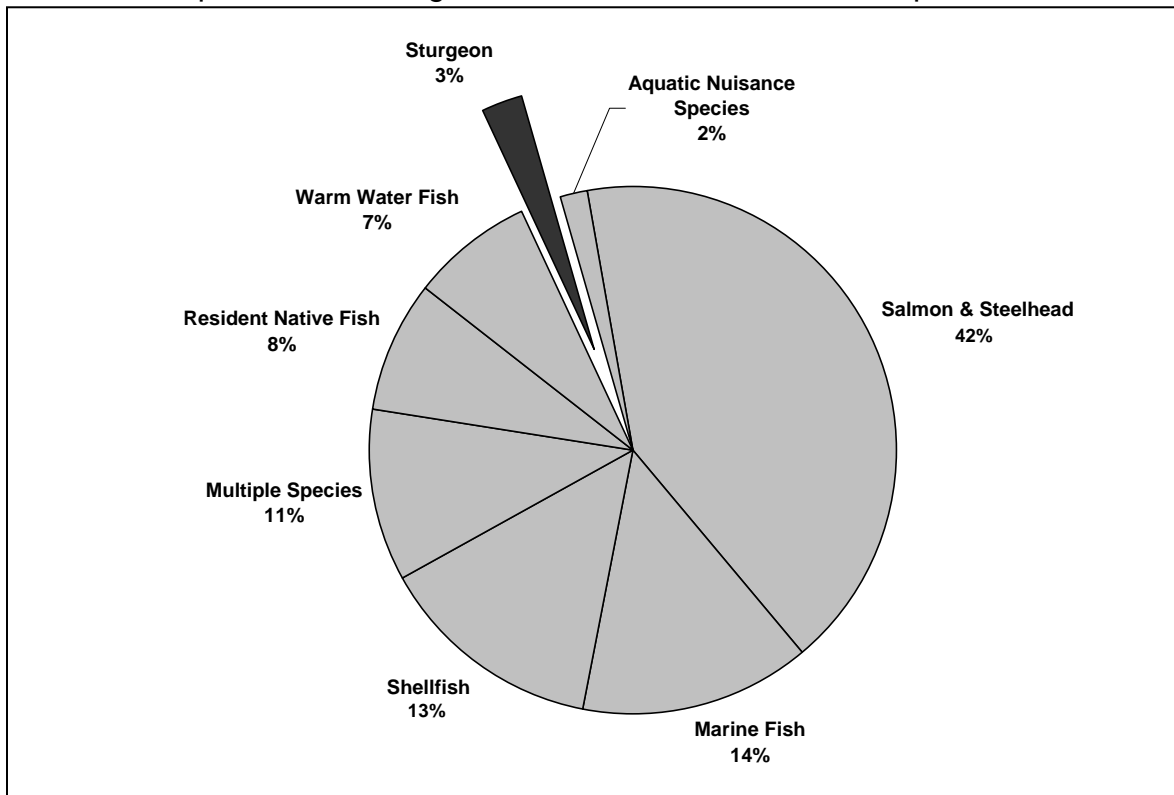
State law allows the Fish and Wildlife Commission to adopt rules requiring sport fishers to use and turn in catch record cards. This provides another source of information for keeping track of recreational harvest. The Commission has adopted the requirement for sport anglers to keep catch record cards for sturgeon, along with salmon, steelhead, halibut, and Dungeness crab.

## PART II. FISH MANAGEMENT DIVISION EXPENDITURES AND ACTIVITIES FOR STURGEON

### 2001-03 Expenditures and Staffing Levels

In the 2001-03 biennium, the Fish Management Division spent just over \$1 million on activities related specifically to sturgeon. As Figure F-1 below indicates, this represents 3 percent of the Fish Management Division biennial budget. Staffing averaged nine FTEs for the period.

Figure F-1: 2001-03 Fish Management Division Expenditures by Species Group; Work On Sturgeon Accounts for 3 Percent of Expenditures



Source: JLARC Fish Management Division Database.

In addition to the expenditures reflected in this appendix, Fish Management Division staff in Region 1 and Region 2 reported some work on sturgeon as part of their activities for Resident Native Fish. Staff in both regions predicted that activities related specifically to sturgeon will likely increase in the future to address issues relating to impounded sturgeon populations on the Columbia and Snake rivers.

### Allocation of 2001-03 Expenditures and FTEs to Activities

Figure F-2 on the following page shows how the Fish Management Division expenditures and FTEs were allocated among activities for the management of sturgeon. All expenditures for sturgeon are elements of the Fish Management Cycle; there are no expenditures on “Other Activities.”



## Volume II Fish Species Group Appendices

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Within the Management Cycle activities, more than half of expenditures (53 percent) are for population field data collection, data analysis, and participating in the larger planning umbrellas for sturgeon with the tribal co-managers and the state of Oregon. Nineteen percent of expenditures are for monitoring the recreational sturgeon harvest.

Figure F-2: Fish Management Division Activity Allocation For Sturgeon, 2001-03

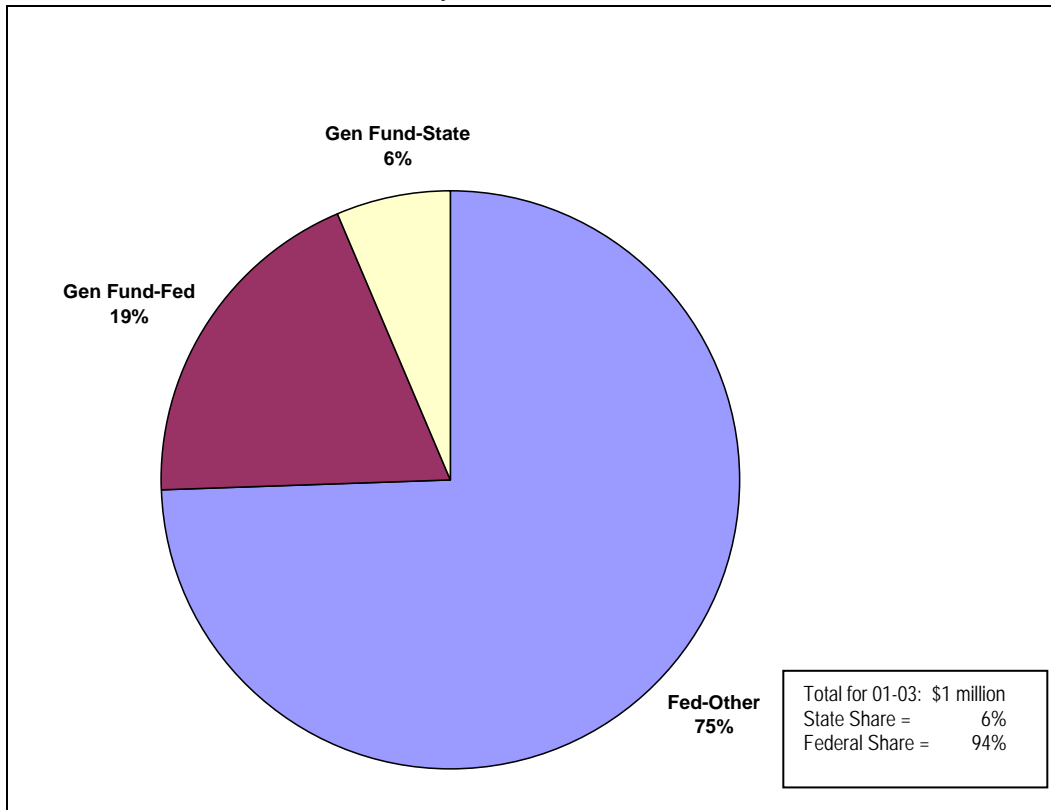
Type of Activity	Activity	2001-03 Expenditures	% of Total Expenditures	Average Annual FTEs	% of Total FTEs
Management Cycle	Data Analysis	\$180,710	17%	1	17%
	Planning Umbrellas	\$100,565	10%	1	10%
	Non-Umbrella Planning	\$5,265	1%	<1	<1%
	Rule Development	\$50,283	5%	<1	5%
	Rule Adoption	\$12,672	1%	<1	1%
	Monitor Recreational Harvest	\$201,131	19%	2	19%
	Emergency Rules	\$50,283	5%	<1	5%
	Population Data Collection – Other Fish & Shellfish	\$265,337	26%	2	26%
	Supervise Programs, Budgets, and Personnel	\$169,634	16%	1	17%
<b>Management Cycle Total</b>		<b>\$1,035,879</b>	<b>100%</b>	<b>9</b>	<b>100%</b>
<b>Grand Total</b>		<b>\$1,035,879</b>	<b>100%</b>	<b>9</b>	<b>100%</b>

Source: JLARC Fish Management Division Database.

### Fund Sources For The Fish Management Division’s Sturgeon Activities

Figure F-3 on the next page illustrates the fund sources for the Fish Management Division’s sturgeon activities. As the figure shows, sturgeon activities are almost entirely funded with federal dollars (94 percent). The sturgeon work in the three reservoirs between Bonneville and McNary dams is funded by the Bonneville Power Administration. Below Bonneville Dam, the Fish Management Division is using 25 percent General Fund-State dollars to match 75 percent federal dollars for Management Cycle Activities in the lower Columbia River and to study green sturgeon in Washington’s coastal estuaries. Additionally, the Army Corps of Engineers is funding an evaluation of the impacts to sturgeon from Columbia River dredging.

Figure F-3: 2001-03 Fish Management Division Expenditures on Sturgeon, by Fund Source



Source: JLARC Fish Management Division Database.

# APPENDIX G – AQUATIC NUISANCE SPECIES

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This appendix explores the activities of the Washington Department of Fish and Wildlife’s Fish Management Division with regard to aquatic nuisance species. Part I of this appendix provides background information on the management of these species. Part II provides the results from JLARC’s Fish Management Division database for aquatic nuisance species activities and expenditures. This appendix is not intended as a comprehensive explanation of all aquatic nuisance species management; **its purpose is to provide a context for understanding the aquatic nuisance species activities of the Fish Management Division.**

## PART I. BACKGROUND AND CONTEXT

### The “Fish” – Aquatic Nuisance Species

State legislation in 2002 defines an “invasive species” as a plant or non-native animal species that either (a) causes or may cause displacement of or threaten native species in their native communities; (b) threatens or may threaten natural resources or their use in the state; (c) causes or may cause economic damage to commercial or recreational activities that are dependent on state waters; or (d) threatens or harms human health (RCW 77.08.010). Washington has plant aquatic nuisance species, such as Spartina, and animal aquatic nuisance species, such as European green crab and mitten crab.

For the other fish species groups in this JLARC project, a consistent management objective is to attain a harvestable surplus of fish to support recreational or commercial fisheries. In contrast, for aquatic nuisance species, the management objective is to contain the spread of the species already here and to prevent the arrival of others.

### The Larger Management Context

Management efforts for dealing with Aquatic Nuisance Species (ANS) here in Washington are connected with efforts taking place on a larger scale. This section describes some of those efforts.

#### National Invasive Species Act

In 1990, Congress enacted a measure to deal with nonindigenous aquatic nuisance species. Congress reauthorized and amended this act in 1996 with the passage of the National Invasive Species Act. The legislation notes that the introduction and spread of aquatic nuisance species will continue unless preventive measures are taken nationwide.

This federal legislation contains a number of different provisions, many of them trying to address the introduction of ANS through ballast water discharge. The act encourages the formation of regional panels to help control the introduction of ANS and specifically directs a Western Regional Panel to identify priorities and make recommendations on programs for education, monitoring, prevention, and control of aquatic nuisance species in the region. The act also allows states, groups of states, and tribal governments to prepare invasive species management

plans. Review and approval of these management plans by the U.S. Fish and Wildlife Service can qualify the planners for technical, enforcement, or financial aid from the federal government.

A Western Regional Panel has formed to deal with aquatic nuisance species at a coordinated, regional level. The Panel includes representatives from 19 states, four Canadian provinces, tribal and federal government agencies, groups representing marine and freshwater interests, and special groups such as the Puget Sound/Georgia Basin International Task Force (described below). One of several goals for the Panel is the development of a coordinated emergency response strategy for federal, state, and local governments to stem invasions of aquatic nuisance species in the region. Fish Management Division staff participate in – and, in fact, chaired – the Western Regional Panel.

### Puget Sound/Georgia Basin International Task Force

In 1992, the Governor of Washington and the Premier of British Columbia created what is called the Environmental Cooperation Council to communicate and cooperate on a range of shared environmental issues. In 1993, the Council formed the Puget Sound/Georgia Basin International Task Force to focus specifically on the protection of shared inland marine waters. Task Force members on the U.S. side include representatives from state agencies (including the Department of Fish and Wildlife), federal agencies, and the Northwest Indian Fisheries Commission.

The Council also appointed a panel of scientists to make recommendations for the management of these shared marine waters. The Task Force then prioritized the recommendations from the science panel. One of the top four prioritized recommendations is to prevent the introduction of non-indigenous species.

As indicated earlier, a member from the Task Force sits on the Western Regional Panel. Fish Management Division staff report that the Task Force played a major role in the development of Washington's first ANS management plan in 1998. Washington and British Columbia continue to work together to address their common interest in keeping invasive species out of these shared waters.

### Other Efforts in the Region

The state's 2001 ANS Management Plan notes a number of other efforts underway in the region to deal with invasive species. These include efforts to prevent the introduction of aquatic nuisance species into the Columbia River system, a coalition of public and private interests working together on the Pacific Ballast Work Group, tribal efforts to deal with invasive shellfish, and an effort to pool university expertise on marine invasive species through the Washington and Oregon Sea-Grant Programs. The Western Governors' Association is also supporting the coordination of strategies to deal with invasive species.

### State Laws

Beginning in 1998, the Legislature has adopted a series of measures dealing with aquatic nuisance species. These proposals were brought to the Legislature by the Department and other interested parties. The bills are outlined chronologically below.

1998

The Legislature created a task force to develop a plan for controlling the introduction of zebra mussels and European green crab. The Department was assigned to chair the task force. The task force was tasked with identifying the primary pathways of introduction of these species and recommending ways to control entry along those pathways. The task force was also directed to develop recommendations for the Legislature on issues such as inspection procedures, and eradication and control techniques. The task force reported to the Legislature in December of that same year with the first state ANS management plan.

1999

The Legislature memorialized Congress for federal dollars to fund state aquatic nuisance species management plans. The operating budget in 1999 contained two ANS provisos for the Department of Fish and Wildlife. One proviso provided special funding for control of European green crab. The other supported the continued work of what was then called the Aquatic Nuisance Species Coordination Committee.

2000

When the 1998 task force reported to the Legislature, it identified four pathways for introduction of aquatic nuisance species. One of the four ways is through the discharge of ballast waters. In response, the Legislature enacted a measure to establish ballast water management and monitoring guidelines for vessels entering Washington waters.

A second bill in 2000 officially created the Aquatic Nuisance Species Committee in statute. The Committee is made up of representatives from Fish and Wildlife, Ecology, Agriculture, Health, Natural Resources, the Puget Sound Water Quality Action Team, the State Patrol, the State Noxious Weed Control Board, and the Washington Sea-Grant Program. The duties of the Committee include making recommendations to the Legislature on statutory provisions to classify and regulate aquatic nuisance species, participating in regional and national ANS efforts, and periodically revising the state ANS management plan. The Committee produced a revised management plan in October 2001.

2001

Legislation in 2001 added a new element to the ANS discussion: escaping Atlantic salmon. The bill directed the director of the Department of Fish and Wildlife to develop rules for the implementation, administration, and enforcement of marine fin fish aquaculture operations.

2002

In 2002, the Legislature made some modifications to the 2000 legislation on ballast water management and monitoring. The legislation also requires the Department to establish a ballast water work group to study ballast water technology, services needed by the industry and the state to protect marine waters, and costs associated with (and possible funding methods for) implementing the state's new ballast water program. The work group must report its findings to the Legislature by December 2003; the work group terminates in June 2004.

A second measure in 2002 made numerous changes to the statutory framework for aquatic nuisance species management. Provisions in the 2002 bill include:

- Statutory definitions for “invasive species,” “prohibited aquatic animal species,” “regulated aquatic animal species,” and “unregulated aquatic animal species.” The Fish and Wildlife Commission now has authority to classify nonnative aquatic species into one of the three new aquatic species categories;
- A requirement for the director of Fish and Wildlife to work with the Aquatic Nuisance Species Committee and its member agencies to draft a rapid response plan to deal with a situation where a prohibited aquatic animal species is found to be infesting a water body;
- Direction to the Department and to the State Patrol to jointly develop a plan to inspect watercraft entering the state in order to prevent the introduction of invasive aquatic species such as zebra mussels;
- Establishment of the new crimes of unlawful use of a prohibited aquatic animal species, unlawful release of a regulated aquatic animal species, and unlawful release of an unlisted aquatic animal species. These new crimes are gross misdemeanors. The bill also establishes a new crime of unlawful transport of aquatic plants, a misdemeanor; and
- Authority for the Fish and Wildlife Commission to designate state waters as “infested” if the director determines the waters contain a prohibited aquatic animal species. The Department is to work with the Aquatic Nuisance Species Committee and its member agencies to create educational materials to inform the public that a water body is infested and to alert the public to rules and practices designed to reduce the spread of the invasive species infesting those waters.

### Puget Sound Action Team

In addition to this set of ANS laws, the management of aquatic nuisance species is also an element of the Puget Sound work plan. In 1996, the Legislature revised what had been the Puget Sound Water Quality Authority to create the Puget Sound Water Quality Action Team. The Action Team consists of a chairperson, the directors of numerous state agencies including the Department of Fish and Wildlife, representatives of cities, counties, and federally recognized tribes, and ex officio representatives of three federal agencies. One of the tasks assigned to the Action Team is to prepare a Puget Sound work plan and budget. The items in the work plan are then considered in the deliberations over each of the representative agency’s budgets during the legislative session.

For the 2001-03 biennium, the Legislature funded the first seven action items in the Department of Fish and Wildlife portion of the Puget Sound work plan. Number 6 in this list is aquatic nuisance fauna control and ballast water legislation implementation. Fish Management Division staff are implementing this action item.

### Fish and Wildlife Commission

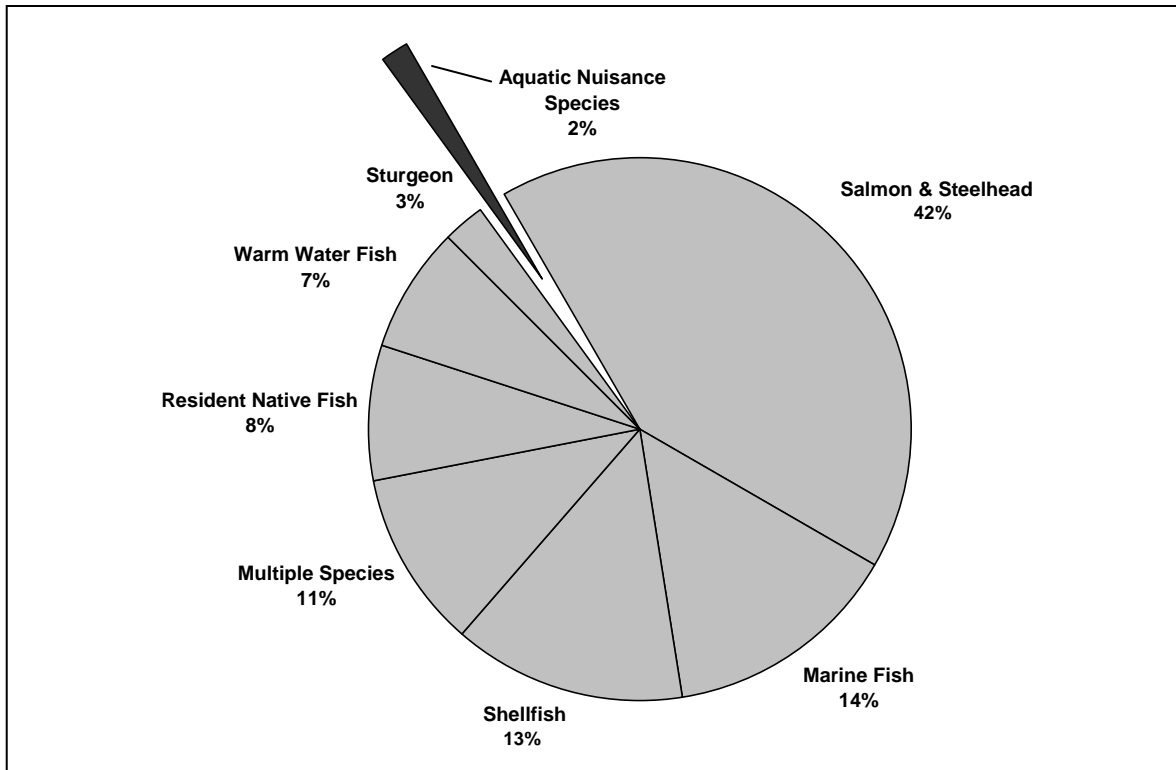
The Fish and Wildlife Commission has not adopted official policies regarding the management of aquatic nuisance species. The Commission has adopted several rules to implement the ANS bills. These include rules on ballast water, the classification and regulation of nonnative aquatic animal species, and identification of infested waters.

## PART II. FISH MANAGEMENT DIVISION EXPENDITURES AND ACTIVITIES FOR AQUATIC NUISANCE SPECIES

### 2001-03 Expenditures and Staffing Levels

In the 2001-03 biennium, the Fish Management Division spent approximately \$636,000 on activities related to aquatic nuisance species. As Figure G-1 below indicates, this represents about 2 percent of the Fish Management Division biennial budget. Staffing averaged five FTEs for the period.

Figure G-1: 2001-03 Fish Management Division Expenditures by Species Group; Work On Aquatic Nuisance Species Accounts for 2 Percent of Expenditures

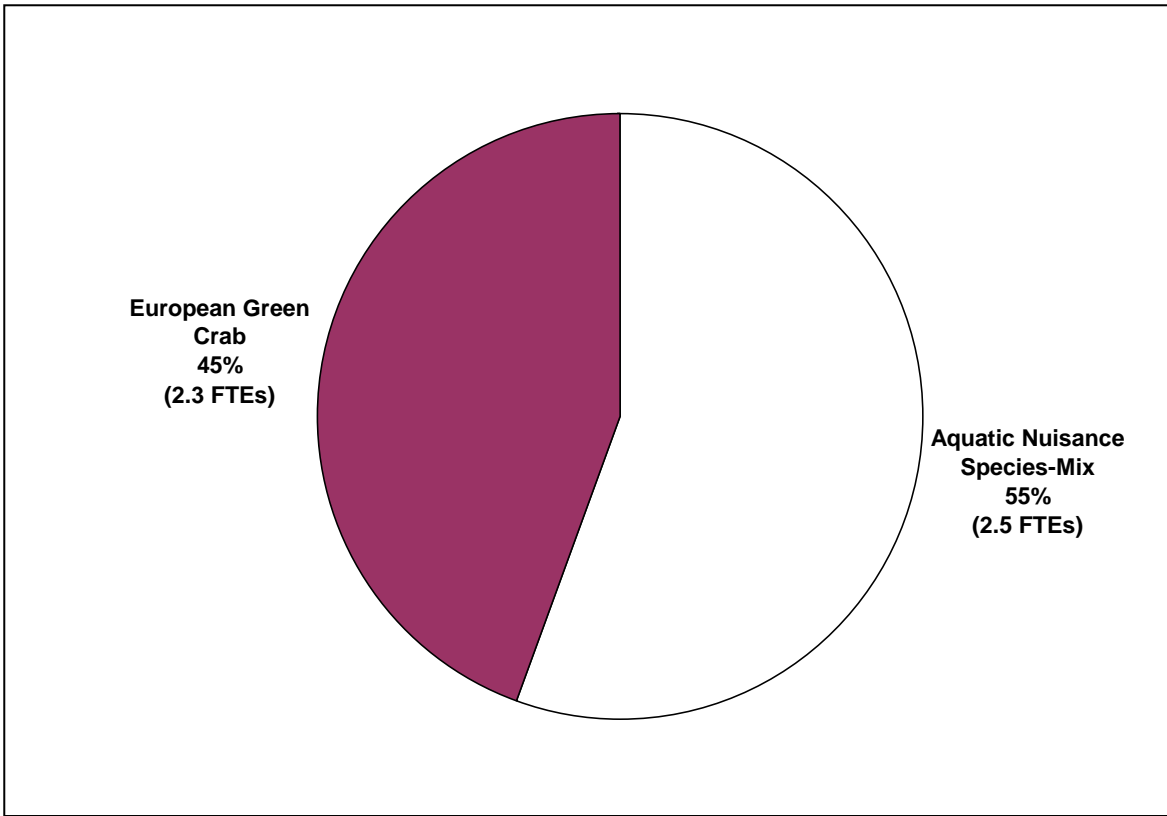


Source: JLARC Fish Management Division Database.

Figure G-2 on the following page provides more detail on expenditures by dividing the aquatic nuisance species group into two categories: those expenditures that could be identified as specifically related to European green crab, and those expenditures related to a mix of aquatic nuisance species, including additional work on green crab. The work specific to European green crab accounts for 45 percent of the biennial expenditures.

There are minor additional expenditures in the “Multiple Species” category outlined in Appendix H. These are for situations where a budget code includes expenditures related to aquatic nuisance species along with other fish species groups.

Figure G-2: 2001-03 Fish Management Division Expenditures for Aquatic Nuisance Species, by Species Category



Source: JLARC Fish Management Division Database.

### Allocation of 2001-03 Expenditures and FTEs to Activities

Figure G-3 on the following page shows how the Fish Management Division expenditures and FTEs were allocated among activities for the management of aquatic nuisance species. Approximately 74 percent of expenditures were for activities that fall within the Fish Management Cycle. Twenty-six percent of expenditures were for activities on the “Other Activities” list.

Within the Fish Management Cycle, three activities stand out in terms of expenditures: population field data collection (27 percent of expenditures), data analysis (20 percent), and participation in the larger planning umbrellas for ANS (18 percent). The population field data collection includes Fish Management Division staff working with numerous volunteers in Puget Sound and along the Washington coast to set and check traps for European green crab. The data analysis expenditures include analysis of the crab data, as well as the creation of and data input for a ballast water discharge database. Fish Management Division staff are involved extensively in the larger ANS planning umbrellas. Expenditures for this activity included work as part of the Western Regional Panel, work with Oregon and California on development of their ANS management plans, work to update Washington’s plan, work on the ballast water work group, and work on a national panel involved in the reauthorization of the federal ANS oversight legislation.



Figure G-3: Fish Management Division Activity Allocation For Aquatic Nuisance Species, 2001-03

Type of Activity	Activity	2001-03 Expenditures	% of Total Expenditures	Average Annual FTEs	% of Total FTEs
Management Cycle	Data Analysis	\$128,484	20%	1	22%
	Planning Umbrellas	\$111,344	18%	1	16%
	Rule Development	\$31,666	5%	<1	5%
	Estimate Non-Fishing Mortality	\$703	<1%	<1	<1%
	Population Data Collection – Other Fish & Shellfish	\$169,134	27%	1	28%
	Supervise Programs, Budgets, and Personnel	\$31,624	5%	<1	5%
<b>Management Cycle Total</b>		<b>\$472,954</b>	<b>74%</b>	<b>4</b>	<b>76%</b>
Other Activities	Public Outreach	\$111,803	18%	1	17%
	Educate Commission	\$17,538	3%	<1	3%
	Educate Others	\$24,538	4%	<1	3%
	Assemble GIS Data	\$118	<1%	<1	<1%
	Screen Shellfish Imports/Transfers	\$9,232	1%	<1	1%
<b>Other Activities Total</b>		<b>\$163,230</b>	<b>26%</b>	<b>1</b>	<b>24%</b>
<b>Grand Total</b>		<b>\$636,184</b>	<b>100%</b>	<b>5</b>	<b>100%</b>

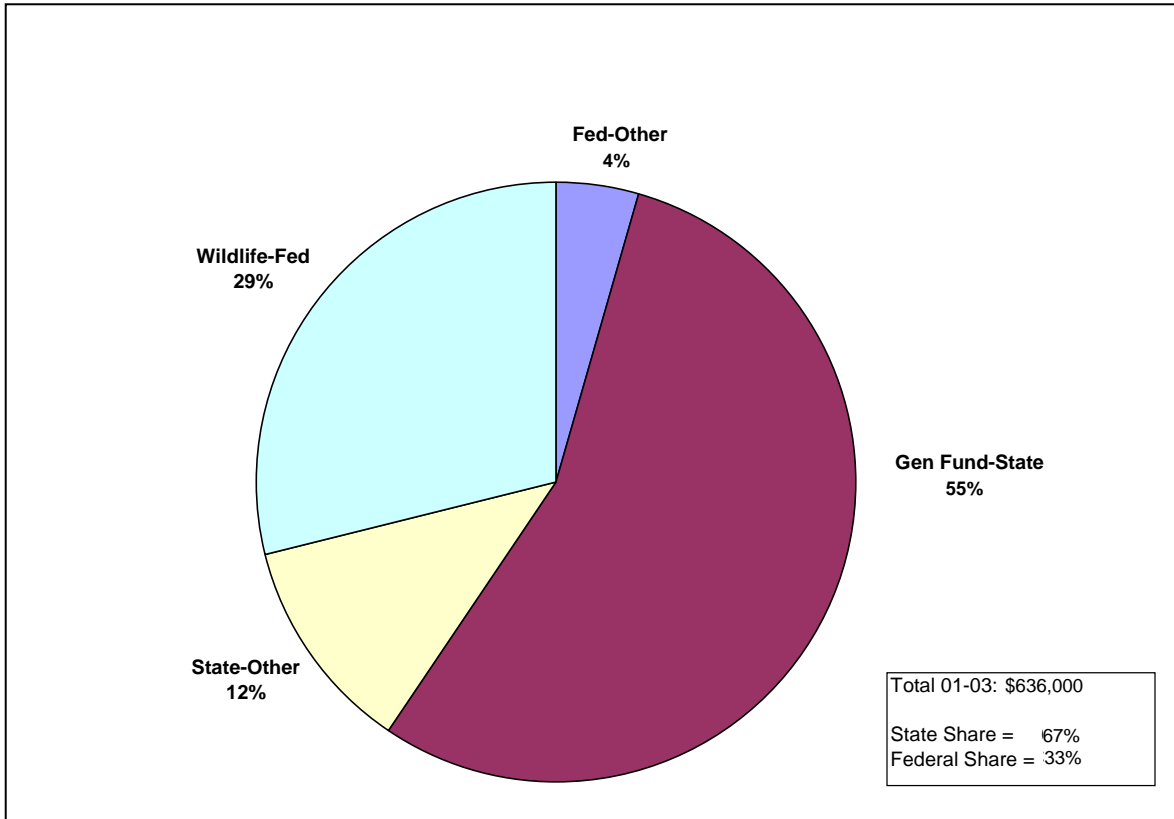
Source: JLARC Fish Management Division Database.

In terms of the “Other Activities,” the largest expenditure is for public outreach and education efforts (18 percent of expenditures). These efforts included workshops on ANS management planning and on the prevention of new invasive species, education of the State Patrol on how to inspect boats at weigh stations for zebra mussels, and an outreach effort specifically targeting the importation and sale of snakehead fish and mitten crab.

### Fund Sources for the Fish Management Division’s Aquatic Nuisance Species Activities

Figure G-4 on the next page illustrates the fund sources for the Fish Management Division’s aquatic nuisance species activities. Two-thirds of the funding for ANS activities comes from the state, with 55 percent from General-Fund State. Federal funds pay for the remaining one-third of expenditures.

Figure G-4: 2001-03 Fish Management Division Expenditures for Aquatic Nuisance Species, by Fund Source



Source: JLARC Fish Management Division Database.

# APPENDIX H – “MULTIPLE SPECIES” GROUP

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## PART I. BACKGROUND

This appendix provides additional information on the budget codes included in the fish species group “Multiple Species.” In our interviews with Fish Management Division staff, we attempted to identify the fish species group associated with the activities paid for by each budget code within the Fish Management Division’s chart of accounts. For the majority of the budget codes in the Fish Management Division, this was a fairly straightforward exercise. However, 27 of the more than 400 codes could not be attributed to a single species group. In this situation, we coded the species group as “Multiple Species.”

The budget codes in the Multiple Species group fall into three categories. First, this species group is picking up the Fish Management Division staff in headquarters and in the regions who supervise staff who work on different fish species. For example, in headquarters, there is a budget code for the person who has statewide responsibility for Fish Management Division activities addressing marine fish, shellfish, and aquatic nuisance species.

Second, the Multiple Species designation is picking up budget codes for individual projects or activities dealing with fish in more than one species group. This includes budget codes for harvest monitoring and sampling efforts in Puget Sound (salmon and marine fish) and for projects on the Lewis and Cowlitz rivers that involve a mix of different fish species.

A third category within the Multiple Species group is a set of four budget codes related to three of the “Other Activities” in the JLARC activity framework: youth sports fishing (includes both an operating and capital budget code), Endangered Species Act (ESA) permitting, and the recent major survey of angler preferences. These activities all involve more than one of the fish species groups. These three “Other Activities” are discussed briefly below.

### Youth Sport Fishing

The 2001 Operating Budget included a special appropriation to the Department of Fish and Wildlife for a youth fishing coordinator. The coordinator is to develop partnerships with local communities and to identify, develop, fund, and promote youth fishing events and opportunities. In the 2001-03 biennium, the youth fishing coordinator worked as part of the Fish Management Division. The appropriation has its own budget code, which is included in this Multiple Species grouping.

The operating budget language indicated that event coordination and promotion services should be contracted to a private consultant. The funding for the youth sport fishing program contracting actually came in a separate proviso in the 2001 Capital Budget. The budget code for that second youth sport fishing appropriation is also in this Multiple Species group.

### ESA Permits

The Multiple Species group includes the budget code for the unit in headquarters that works to secure and maintain Endangered Species Act permits for the Fish Management Division and the

Fish Science Division. This includes work on ESA Section 4(d), Section 6, Section 7, and Section 10 permits. The permits cover activities involving a mix of different fish species such as salmon, steelhead, bull trout, and other fisheries where there may be interaction with listed species.

In the course of our interviews, we learned that a biologist working in Region 2 on ESA permits is funded in part by contracts with the three mid-Columbia public utility districts. This funding is a component of a series of budget codes managed by the Hatcheries Division. Because those codes involved activities outside of the domain of the Fish Management Division (other than the ESA permitting activity), we did not include those codes in the analysis. This means that the total expenditure shown for the ESA permitting activity in the JLARC analysis is slightly less than the actual total expenditure for that activity.

### Angler Preference Surveys

Early in our initial conversations, Fish Management Division headquarters staff identified the activity of conducting angler preference surveys. During the interview process, three survey efforts were identified for the 2001-03 biennium. The first is the annual survey that determines the amount of fishing license revenue that is allocated to the Warm Water Game Fish Account. This survey is paid for in part with Warm Water Game Fish Account funds, and we are able to pick up this activity in the allocation of the warm water program budget codes.

A second survey effort was a special survey of steelhead anglers. This survey was paid for with funds from a headquarters budget code that is already included in this Multiple Species group. The expenditure on this second survey is accounted for in the activity allocation for that particular headquarters budget code.

A third survey effort in the 2001-03 period was a large-scale survey on angler preferences, the kind the Department conducts only every five to seven years. Fish Management Division staff worked on the design and the questions to be included in the survey and are keenly interested in using the survey results as part of fish management. The survey itself was contracted out, at a cost of approximately \$37,700.

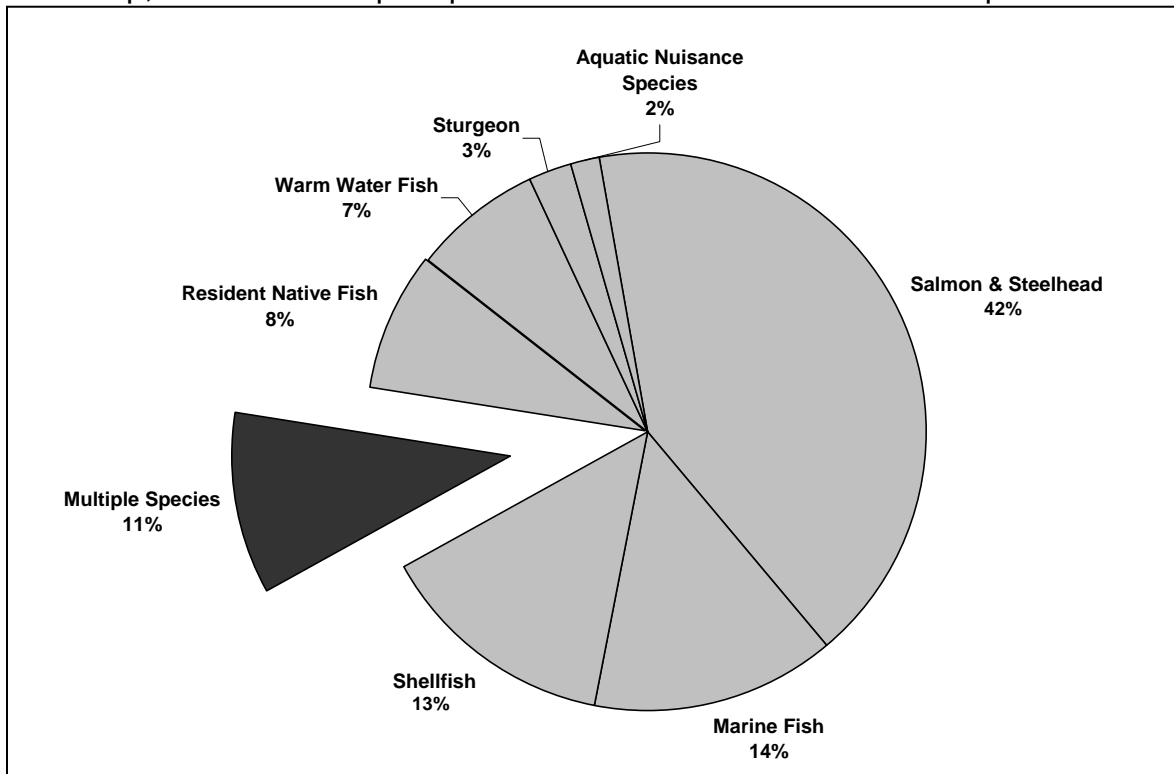
Because of the Fish Management Division's work on this survey, we determined that the expenditure should be included in the study. To do so, Fish Management Division staff identified the budget code used to fund the survey, and we have modified the title in the database to clearly express that we are including in our analysis only the portion of the funds used for the survey. The expenditures for the large-scale survey of angler preferences are also in this Multiple Species group.

## PART II. FISH MANAGEMENT DIVISION EXPENDITURES AND ACTIVITIES FOR THE “MULTIPLE SPECIES” GROUP

### 2001-03 Expenditures and Staffing Levels

In the 2001-03 biennium, the Fish Management Division spent approximately \$4.3 million on “Multiple Species” activities. As Figure H-1 below indicates, this represents about 11 percent of the Fish Management Division biennial budget. Staffing averaged 26 FTEs for the period.

Figure H-1: 2001-03 Fish Management Division Expenditures by Species Group; Work On "Multiple Species" Accounts for 11 Percent of Expenditures



Source: JLARC Fish Management Division Database.

### Allocation of 2001-03 Expenditures and FTEs to Activities

Figure H-2 on the following page shows how the Fish Management Division expenditures and FTEs were allocated among activities for the Multiple Species group. Approximately 62 percent of expenditures were for activities that fall within the Fish Management Cycle. Thirty-eight percent of expenditures were for activities on the “Other Activities” list.

Within the Fish Management Cycle, the highest expenditure is for the supervision of programs, budgets, and personnel (15 percent of expenditures). This higher percentage allocation to the supervision activity reflects the inclusion of the headquarters and regional staff with supervisory responsibilities for multiple species. The next highest allocations are for monitoring recreational harvest (9 percent) and data analysis (8 percent). In terms of the “Other Activities,” the largest expenditures are for two of the activities that are described in Part I above: the ESA permitting unit (13 percent of expenditures) and the youth sports fishing program (10 percent).

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Figure H-2: Fish Management Division Activity Allocation For the “Multiple Species” Group, 2001-03

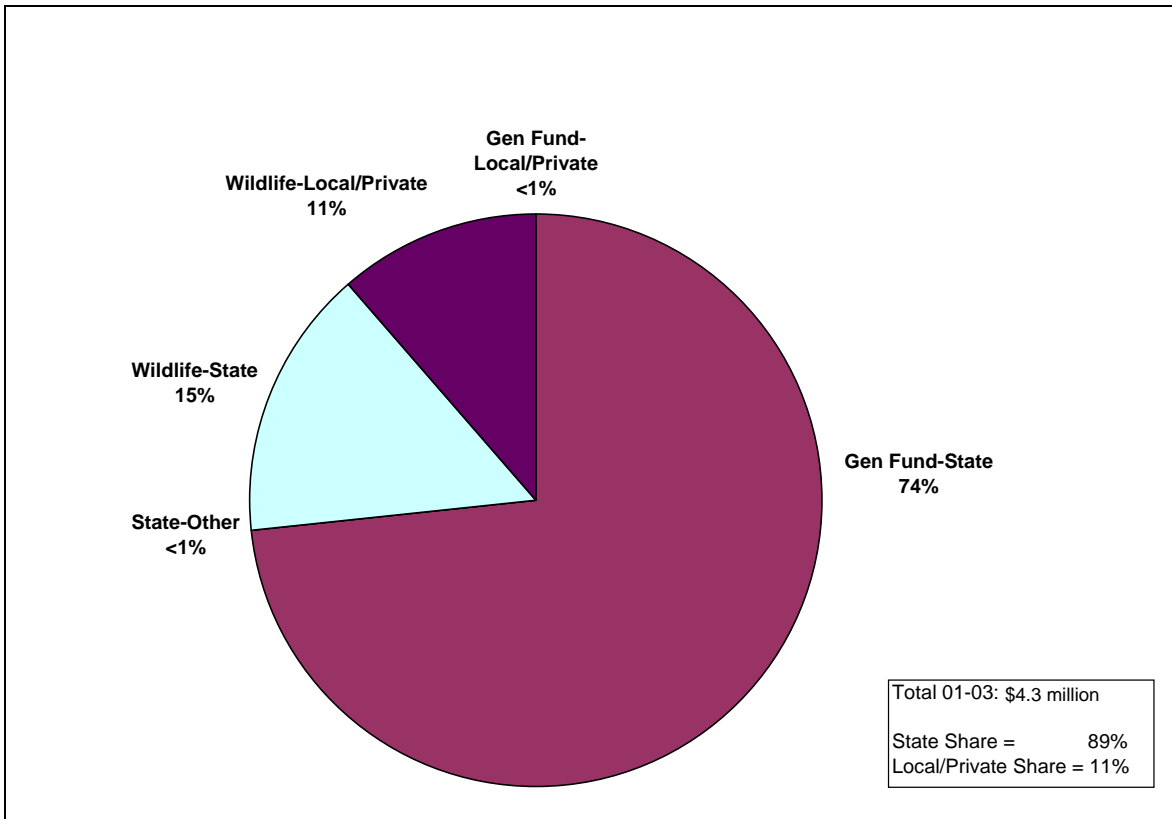
Type of Activity	Activity	2001-03 Expenditures	% of Total Expenditures	Average Annual FTEs	% of Total FTEs
Management Cycle	Data Analysis	\$324,073	8%	2	10%
	Planning Umbrellas	\$271,125	6%	2	7%
	Non-Umbrella Planning	\$79,987	2%	<1	2%
	Rule Development	\$145,137	3%	1	3%
	Rule Adoption	\$127,170	3%	1	2%
	Monitor Commercial Harvest	\$118,601	3%	1	4%
	Monitor Recreational Harvest	\$381,010	9%	3	13%
	Monitor Other Fisheries	\$19,218	<1%	<1	1%
	Emergency Rules	\$92,503	2%	1	2%
	Population Data Collection – Salmon & Steelhead	\$185,117	4%	1	4%
	Population Data Collection – Other Fish & Shellfish	\$235,639	6%	1	4%
	Supervise Programs, Budgets, and Personnel	\$641,306	15%	4	14%
	<b>Management Cycle Total</b>		<b>\$2,620,885</b>	<b>62%</b>	<b>17</b>
Other Activities	Youth Sport Fishing	\$425,305	10%	1	2%
	Public Outreach	\$17,106	<1%	<1	<1%
	Educate Commission	\$57,633	1%	<1	1%
	Educate Others	\$131,107	3%	1	3%
	Sample for DOH, DOE	\$14,668	<1%	<1	<1%
	Lake Rehabilitation	\$128,492	3%	1	2%
	Survey Anglers	\$50,702	1%	<1	<1%
	ESA Permitting	\$564,915	13%	4	17%
	Marine Protected Areas	\$38,435	1%	<1	1%
	Investigate Water Quality Problems	\$19,218	<1%	<1	1%
	Subbasin Planning	\$54,218	1%	<1	1%
	FERC Relicensing	\$106,364	3%	1	3%
	Maintain Equipment	\$14,490	<1%	<1	<1%
	Admin/Office Support	\$9,660	<1%	<1	<1%
<b>Other Activities Total</b>		<b>\$1,632,313</b>	<b>38%</b>	<b>9</b>	<b>34%</b>
<b>Grand Total</b>		<b>\$4,253,198</b>	<b>100%</b>	<b>26</b>	<b>100%</b>

Note: The Youth Sport Fishing expenditures include the 2001-03 Capital Budget appropriation of \$250,000.  
 Source: JLARC Fish Management Division Database.

### Fund Sources for the Fish Management Division’s “Multiple Species” Activities

Figure H-3 below illustrates the fund sources for the Fish Management Division’s Multiple Species activities. Multiple Species activities are paid for almost entirely by state dollars (89 percent), with 74 percent coming from General Fund-State. About 11 percent of total expenditures are paid for with local/private funds. This is funding from Tacoma City Light and PacifiCorp for projects on the Lewis and Cowlitz rivers. There is no federal funding for Multiple Species activities.

Figure H-3: 2001-03 Fish Management Division Expenditures for Multiple Species, by Fund Source



Source: JLARC Fish Management Division Database.







