Rept #1271
Rept #

Legislative Audit Division

State of Montana

Report to the Legislature

December 1998

Performance Audit

Fisheries Program

Department of Fish, Wildlife and Parks

This performance audit provides information about Fisheries Program operations and expenditures. Recommendations address:

- Additional controls over the private pond program.
- Policies and procedures for fish stocking.
- Procedures to ensure needed Environmental Assessments are written.
- Incorporating the number of work days needed per task into the future work plan development process.

Direct comments/inquiries to:
Legislative Audit Division
Room 135, State Capitol
PO Box 201705
Helena MT 59620-1705

98P-02

LEGISLATIVE AUDIT DIVISION

Scott A. Seacat, Legislative Auditor
John W. Northey, Legal Counsel
Tori Hunthausen, IT & Operations Manager

Deputy Legislative Auditors:
Jim Pellegrini, Performance Audit
James Gillett, Financial-Compliance Audit

December 1998

The Legislative Audit Committee
of the Montana State Legislature

This is our performance audit of the Fisheries Program administrated by the Department of Fish, Wildlife and Parks.

This report provides information about Fisheries Program operations and expenditures. Recommendations address additional controls over the private pond program, policies and procedures for fish stocking, and incorporating the number of work days per task into the future work plan development process. A written response from the department is included at the end of the report.

We appreciate the cooperation and assistance of department staff during this audit.

Respectfully submitted,

Scott A. Seacat
Legislative Auditor

Room 135, State Capitol Building, PO Box 201705 Helena MT 59620-1705
Phone (406) 444-3122 FAX (406) 444-9784 E-Mail lad@state.mt.us

Legislative Audit Division

Performance Audit

Fisheries Program

Department of Fish, Wildlife and Parks

The member of the audit staff involved in this audit was Mary Zednick.

Table of Contents

Table of Contents

Table of Contents

Table of Contents

Table of Contents

Table of Contents

List of Figures & Tables

List of Figures & Tables

List of Figures & Tables

FISH, WILDLIFE AND PARKS COMMISSION

Stan Meyer, Chairman (Great Falls)

Dave Simpson, Vice Chairman (Hardin)

Darlyne Dascher (Fort Peck)

Charles Decker (Libby)

Tim Mulligan (Whitehall)

Department of Fish, Wildlife and Parks

Pat Graham, Director

Arnold Olsen, Chief of Operations

Chris Smith, Chief of Staff

Doug Monger, Administrator, Parks Division

Larry Peterman, Administrator, Fisheries Division

Tim Gallagher, Assistant Administrator, Fisheries Division

Jim Satterfield , Chief, Fisheries Management Bureau

Glenn Phillips, Chief, Habitat Bureau

Gary Bertellotti, Chief, Hatcheries Bureau

Chris Hunter, Chief, Special Projects Bureau

Introduction

The Legislative Audit Committee requested a performance audit of the Fisheries Program, Department of Fish, Wildlife and Parks (FWP). Major interest centered around expenditures for the activities conducted by Fisheries Program staff in the seven regions, the hatcheries, and Helena. We established audit objectives based on questions presented to the Committee and numerous legislative requests and letters from the public on various aspects of the Fisheries Program. We also reviewed documentation and controls over aspects of specific programs, such as the Future Fisheries Improvement Program, fish stocking, and private ponds.

We reviewed Fisheries Program expenditures for fiscal years 1989-90 through 1996-97. This time period provided us with an adequate history of studies/projects and implementation status of study recommendations.

Fisheries Program Funding and Expenditures

The Fisheries Program is funded with general license revenues, federal special revenue, contracts and grants from state agencies, private companies, private individuals, sportsmen groups, universities, and gifts and donations. General License (GL) funds are derived from the sale of fishing licenses. The primary federal revenue source is the US Fish and Wildlife Service Dingle Johnson (DJ) grant. DJ money is generated from taxes on the sale of fishing equipment. Day-to-day operations of the program are funded from these two sources. Other special revenue sources fund the special studies/projects conducted by the department.

General operating expenditures for fiscal years 1994-95 through 1996-97 averaged $4.1 million, excluding state fish hatcheries. Expenditures are paid from the regions' fisheries budget and division general budget.

Fish Management

Fish management activities are centered around the objective of meeting public demand for fishing opportunities. Activities cover many aspects, from determining fish populations by electrofishing and gill netting to issuing permits for private ponds and ensuring healthy fish are stocked in Montana's waters.

Report Summary

Audit work showed:

- ***Fisheries biologists use fish population and spawning data as a basis for management decisions concerning specific waterbodies.***

- ***Harvest data is used extensively to manage fisheries. When combined with population data, harvest data provides the total picture of the fishery in specific waterbodies.***

- ***Proposed regulations in each region are based on population surveys, harvest data, and management plans. Regional staff propose changes to regulations based on the biology of the waterbody and input from other staff and the public.***

- ***Fisheries Management Plans provide a management direction to follow and require periodic checks to ensure the department is heading in the proper direction.***

- ***FWP introduces and moves fish from one waterbody to another under controlled circumstances.***

- ***Fish health in FWP's hatcheries is closely monitored.***

We found there are limited controls over the private pond program. The objectives of permitting private ponds are to monitor the fishery resource and ensure unwanted fish or diseases are not stocked into ponds where they can escape to state waters. Current controls do not ensure objectives are met. Biologists cannot inspect private ponds not open to public fishing to ensure the proper species of fish are stocked, structural integrity is still good, etc., without landowner permission. *We recommended the department implement additional controls over the program to ensure the objectives of the permitting process are met.*

During our review of the fish stocking program, we found there were few formal written policies and procedures for some administrative functions so we recommended the department formalize and communicate the policies and procedures. We also noted three procedural problems with Environmental Assessments so we recommended policies be documented.

Overall, we found regional and division staff are conducting fish management activities in a way that ensures there are fishing opportunities in Montana.

Habitat Protection and Improvement Programs

Biologists participate in two habitat protection programs (the Stream Protection Act and the Natural Streambed and Land Preservation Act) and two legislatively-mandated habitat improvement/restoration programs (the River Restoration Program and the Future Fisheries Improvement Program). Biologists are also involved with a number of other habitat restoration/improvement programs that do not rely on funding from the two legislatively-created programs. These range from redirecting a stream channel on a tributary to the Blackfoot River to putting structures in a pond for perch habitat.

Audit work showed:

- ***Fisheries biologists are actively involved in protecting habitat by reviewing applications for Natural Streambed and Land Preservation Act and Stream Protection Act permit projects.***
- ***Fisheries biologists are involved in the River Restoration and Future Fisheries Improvement Programs.***
- ***Future Fisheries Improvement Program projects are constructed as they were described in the applications.***
- ***Future Fisheries Improvement Program expenditures are not made without submission of appropriate documentation from regional staff.***
- ***Some project results are evaluated to determine if the project was successful and that by and large, department staff have consistently found projects have improved the fish populations in the project areas.***
- ***Fisheries biologists are also involved in habitat programs/projects which do not utilize Future Fisheries Improvement Program funds such as work on the Clark Fork River, the Blackfoot Restoration Project, dam mitigation projects, and projects with sportsmen and youth groups.***

- ***The percentage of funds for on-the-land projects increased from 0.07 percent in fiscal year 1989-90 (the first year of the River Restoration Program) to 5.7 percent in fiscal year 1996-97.***

During our review of Future Fisheries Improvement Program project files, we found an Environmental Assessment was not written for one project because of a change in the project from what was originally proposed. The department indicated an Environmental Assessment (EA) should have been written and now require biologists to notify the division of any changes in future projects to ensure required EAs are completed.

Overall, we found regional and division staff are involved in protecting, restoring, and improving habitat.

Water Reservations and Leasing

Water quantity is necessary to maintain adequate living space for fish, to provide spawning areas and places where young fish can grow, to protect food-producing areas, to maintain water quality, to help provide streamside vegetation, and in some cases, to protect species of special concern. The legislature enacted three laws to address water quantity for fisheries - Murphy Rights, water reservations, and water leasing. The department filed for Murphy Rights on 12 blue ribbon trout streams in 1969. The water law change in 1973 allowed FWP to apply for instream flows on the rivers/creeks in the state not covered by Murphy Rights. The 1989 Legislature established the water leasing program. Under this program, FWP has entered into 10 leases. The leases range in price from $1 each year to $12,750 per year for 10 years.

Audit work showed:

- ***FWP uses all three laws to ensure water is available for Montana's fisheries.***

Special Projects

The Fisheries Program includes a number of special studies/projects such as:

> Recovery programs for species of concern and threatened or endangered species - Arctic grayling, westslope cutthroat, pallid sturgeon, bull trout, paddlefish.

> Programs to mitigate the effects of federal and private dams on the fisheries in the area of the dams - Hungry Horse and Libby Dams.

> Introductions of new species for a food source - Mysis shrimp.

> Providing information to the Fisheries Program, and other FWP programs, concerning fisheries, recreation, and wildlife - Information Services Unit in Kalispell.

The vast majority of the projects are funded with money FWP receives from federal agencies, private companies, organizations and citizens, and other state agencies through grants, contracts, gifts, and donations. Expenditures for the various projects ranged from $5 million for dam mitigation for over 8 years to $151,000 for another project. If the department did not receive outside funding, the special projects would not be conducted.

Audit work showed:

➤ ***Current major projects are carried out under a plan usually written in cooperation with a number of agencies.***

➤ ***Recommendations contained in plans and reports are implemented. Not all the projects are successful (Mysis shrimp), and many of the projects are still ongoing so the final success is not know at the time of this report.***

➤ ***FWP fisheries biologists are involved in technical working groups associated with the projects pertaining to species of concern and threatened or endangered species.***

Whirling Disease

FWP, along with many other organizations, including the Whirling Disease Foundation and the National Partnership on the Management of Wild and Native Coldwater Fisheries, funds tests and research to determine ways to combat the disease and infection of fish. FWP funds some research on its own and also contributes to the research conducted by others. From fiscal year 1994-95 through 1996-97, FWP directed approximately $460,000 toward whirling disease.

To date, research has provided information on whirling disease and tubifex worm distribution in Montana, shown a temperature relationship between the disease and rate of infection, and resistance of species. Tests show rainbow and cutthroat trout are highly susceptible with brook and brown trout less so. Bull trout and Arctic grayling can be infected by the parasite but show a high resistance to severe infections.

FWP's research centers around four core questions developed by the Governor's Whirling Disease Task Force. A Whirling Disease Coordinator position was created in the department to oversee research efforts in Montana. Life history tests of the tubifex worm, the parasite, and wild trout will be taking place in 1999, with test results expected in the year 2000. If these tests are successful the department will investigate ways to modify the life histories of wild trout.

Audit work showed:

- ***The organizations, including FWP, which fund tests and research are cooperating with each other to ensure research is not duplicated by a number of different entities.***

State Hatchery System

The state of Montana owns eight fish hatcheries and operates a ninth owned by the Army Corps of Engineers. FWP's hatchery system stocks over 40 million fish a year in lakes, ponds, reservoirs, and some streams that cannot sustain wild populations of fish. General operating expenditures for hatcheries funded by GL and DJ funds averaged $1.3 million for the eight fiscal years reviewed (approximately $162,000 per hatchery). Average costs for the hatchery funded by the Army Corps of Engineers was $138,000 for the same time period. Hatchery costs are approximately 26 percent of the total GL and DJ funds expended by the Fisheries Program.

Capital expenditures for hatcheries for fiscal years 1989-90 through 1996-97 totaled approximately $3.5 million. This included major repairs to some hatcheries and renovations to others. Rebuilding the Washoe Park Trout Hatchery accounted for $2.3 million of the total capital expenditures.

Audit work showed:

- ***Overall, most biologists and fisheries managers were satisfied with the number, size, and species of fish provided by the hatcheries.***

Workload

FWP developed a vision plan to ". . . meet the challenges anticipated as it enters the 21st century." The plan outlines goals the department believes reflect areas of emphasis, what the public expects of the department, and what the department expects of itself. The goals include: "Creating a work environment where priorities are clear; the decision-making process is efficient and effective; and where employees feel a sense of accountability, value, and satisfaction in their achievements and their contributions to the agency mission."

Each goal also includes guiding principles for achieving the goals. One of the principles is to complete strategic and six-year plans for Fisheries, Wildlife, and Parks Programs to clarify public expectations, allocate resources and define a common direction for FWP and its partners. During the audit, the Fisheries Division submitted its strategic plan, "Fisheries Beyond 2000," for public review. After the document is finalized, the department plans to develop six-year plans for the program. After completion of the six-year plan, yearly workplans are to be developed for each biologist expending GL and DJ money.

One goal of the strategic planning process is to address concerns expressed by biologists relating to workload. Some staff voiced the opinion they are not working on what they think are the highest priority items because all things are considered a priority and there is not enough time to do every task adequately or completely. Many staff believe their workload is largely driven by the public and special interest groups.

The new process is intended to identify priorities, and workplans are to be used to ensure there is time and money needed to address those priorities. Workplans are to be budget-driven. Department management is hopeful this process will help determine staff priorities and thus reduce workload.

Besides tieing the plans to dollars (budget), the plans should also be developed based upon the number of work days it takes to complete the tasks. We recommended department management incorporate the number of work days per task into the future workplan development process.

Audit work showed:

- ***It appears FWP is moving to a more coordinated approach to managing the resources under its control. As currently planned, and when fully implemented, the strategic planning process should help the biologists prioritize their activities and allow them time to accomplish those activities.***

Fishing Access Sites

The state of Montana has over 275 active developed and undeveloped fishing access sites in the seven regions. State and federal statute provide a number of funding sources for fishing access site acquisition, operation, and maintenance. These include general license fees, Dingle Johnson, and the Federal Land and Water Conservation Fund. Acquisition funds are derived from fishing license sales. Acquisition costs averaged $181,000 for 38 sites from fiscal years 1989-90 through 1996-97. General operation and maintenance expenditures averaged $495,000 in the same time period. Capital expenditures through the Long Range Building Program for fishing access site development, improvements, and weed control averaged $401,000 in the eight fiscal years.

Summary

The mission of the Fisheries Program is to preserve, maintain, and enhance all aquatic species and their ecosystems to meet the public's demand for recreational opportunities and stewardship of aquatic wildlife. FWP staff address this mission by implementing policies and programs emphasizing management of wild fish populations and protecting and restoring their habitats; operating an efficient hatchery program to stock lakes and reservoirs where natural reproduction is limited or lacking; monitoring and regulating angler harvests to maintain balanced ecosystems; and providing and maintaining adequate public access to fisheries.

➤ ***Overall, we found the department has implemented programs to address its mission.***

Chapter I - Introduction

Introduction

The Legislative Audit Committee requested a performance audit of the Fisheries Program, Department of Fish, Wildlife and Parks (FWP). Major interest centered around expenditures for activities conducted by Fisheries Program staff in the seven regions, the hatcheries, and Helena. We established audit objectives based on questions presented to the Committee and numerous legislative requests and letters from the public on various aspects of the Fisheries Program. The report addresses the requests for information and audit findings.

Audit Objectives

The objectives of the audit were to collect background information on program activities and answer the following questions:

1. What are the components of the Fisheries Program and how much has been spent on operations and maintenance?

2. What are the components of habitat programs and how much has been spent on habitat, including Future Fisheries Improvement Program, River Restoration Program, and other habitat projects conducted by fisheries biologists?

3. What is the percentage of available dollars (state, federal, and private) dedicated to on-the-land improvement programs/projects versus studies, research, planning, capital improvements, and operations?

4. What are the components of the special projects/studies and how much has been spent on special projects/studies? What recommendations resulted from the studies and were those recommendations implemented?

5. What are the components of the program and how much has been spent on whirling disease? What is the projected cost/benefit analysis?

6. How much has been spent on fish hatchery improvements?

7. What steps has the department taken to implement joint resource priority planning to assure coordination of effort within the divisions of FWP?

8. How much has been spent on the operations, maintenance, and improvements of fishing access sites?

9. What are the projected licensing revenue and federal fund losses due to declines in fisheries resources from:

    a. Whirling disease,
    b. Mysis shrimp introduction, and
    c. Impacts on native species from non-native introductions (reductions in populations and concurrent expenses associated with studies and restoration efforts)?

We also reviewed documentation and controls over aspects of specific programs, such as the Future Fisheries Improvement Program, fish stocking, and private ponds.

Audit Scope and Methodologies

The audit was conducted in accordance with government standards for performance audits. We reviewed applicable state laws and administrative rules. We reviewed Fish, Wildlife and Parks Commission meeting minutes for fiscal years 1994-95 through 1996-97 to determine what decisions were made concerning the Fisheries Program. We also reviewed regional fisheries manager meeting minutes for calendar year 1997 to determine discussion topics and decisions resulting from those meetings.

We reviewed Fisheries Program expenditures for fiscal years 1989-90 through 1996-97. This time period provided us with an adequate history of studies/projects and implementation status of resulting recommendations. Expenditure information was obtained from the Statewide Budgeting and Accounting System (SBAS).

To obtain an understanding of the work conducted in the regions, we visited each region. At the region we interviewed the fisheries manager and the regional supervisor. We also interviewed management and special project biologists working in the region.

We reviewed Future Fisheries Improvement Program files to determine if applications were completed, the project was approved by the Future Fisheries Review Panel and the Fish, Wildlife and Parks Commission, appropriate environmental assessments (EAs) were written, expenditures were documented, and the project was reviewed prior to making the final payment. We also compared project descriptions in the

application to the completed project to determine if the final project matched the application.

We reviewed fish stocking update forms for 1996 and 1997 to determine if there was a new stocking and, if so, if an EA was written. For the 1993 through 1996 stockings, the number of fish planned for stocking was compared to what was actually stocked, by species, to determine if there were differences between the planned and the actual stocking. We then examined stocking update records to determine if the stocking was consistent with the department's plan and criteria and discussed our findings with staff to determine why there were differences.

Many of the special studies/projects conducted by the division result in reports. Minutes were recorded of most meetings concerning a study/project. We reviewed any available reports and meeting minutes to determine why the study/project originated, the results of the study/project, and if the recommendations resulting from the study/project were implemented.

Hatchery capital upgrades are paid from FWP's Capital Outlay Program and Department of Administration's (D of A), Architecture and Engineering Division. There are also expenditures for river restoration and future fisheries projects, and whirling disease in the Capital Outlay Program. For this reason, we reviewed expenditures for any fisheries programs in the Capital Outlay Program and D of A's Architecture and Engineering Division.

FWP's Capital Outlay Program also funds fishing access site (FAS) development. Site operations and maintenance are paid from FWP's Parks Division budget. Due to this overlap, we reviewed funding for FAS in the Capital Outlay Program and Parks Division for fiscal years 1989-90 through 1996-97.

We obtained the number of fishing licenses sold for license years 1990 through 1997. We compared the number of in-state and out-of-state licenses sold to determine if there were any changes in sales. We also

reviewed angler day information for license years 1982 to 1995 to determine if there were any noticeable changes.

The Fisheries Program also includes issuing permits for fishing contests, collector's permits, commercial permits, and pollution control staff work. We did not review these areas since they are some of the smaller program areas and were not specifically addressed in the questions presented us by the Committee.

Compliance

We reviewed compliance with state law and administrative rules during file reviews for specific activities. We found one instance of non-compliance with the Montana Environmental Policy Act. This is discussed in Chapter IV.

Data Limitations

One of the questions we were requested to answer concerned projected revenue impacts due to declines in fisheries resources from whirling disease and Mysis shrimp introduction. We could not determine the cause of any revenue losses because there is not enough data readily available. The following sections discuss the two areas of concern.

Whirling Disease

The Governor's Whirling Disease Task Force indicated it would be difficult if not impossible to determine projected fund losses to the state as a whole due to declines in fisheries resources from whirling disease. The task force presented a paper at the October 9, 1997, meeting essentially stating there is not enough data to determine anything in terms of economic declines. Since that meeting a consultant received grant money to review the economic impacts on the Madison and Missouri Rivers. The consultant is obtaining angler pressure and catch rate information and plans to construct regional economic models for the Madison and Missouri Rivers. Information will also be gathered concerning the socio-economic effects of whirling disease in Colorado. The consultant's report will be published after November 1998.

Mysis Shrimp

The department has done a number of studies on Mysis shrimp, but nothing related to projected revenue losses due to the introduction of Mysis shrimp. Although the kokanee fishery has declined in Flathead Lake, the lake trout fishery has increased. Examining only angler days on Flathead Lake would not take into consideration other components that could affect the economy such as overall tourism in the area, weather, and type of angler.

Issues for Further Study

While gathering information concerning fishing access sites we obtained schedules for maintenance; the type of maintenance to be conducted; and operation, maintenance, and capital improvement expenditures. We also obtained information concerning facilities at each site. We did not determine if the maintenance was actually conducted or the facilities existed. When reviewing expenditures, we noticed total expenditures fluctuated between years. We believe an audit of the Fishing Access Site Program would provide information concerning the upkeep and inventory status at the access sites, and how funds are allocated and expended. We would also complete a more in-depth review of the Fisheries Program role in acquiring, developing, and maintaining sites since some fisheries biologists indicated they spend quite a bit of time dealing with access site concerns.

During our review of FWP's Natural Streambed and Land Preservation Act permit activities we obtained information concerning reviewing projects to ensure permit conditions are followed. FWP staff indicated they do not have time to visit a project to ensure there are no violations of permit conditions. We believe an audit of the permit process would determine the potential effect of not monitoring projects or identifying any violations.

Management Memorandum

During the course of the audit we sent a management memorandum to the division. The issue identified can improve program documentation. The memo discussed documenting initial and final visits to a Future Fisheries Improvement Program project. Documentation of visits would indicate a contact person for the project and assure there was communication with the biologist indicating the project was finished prior to making final payment.

Chapter I - Introduction

Report Organization

This report is presented in ten chapters:

- Chapter I - Introduction and scope of work.
- Chapter II - General background information about the Fisheries Division and program.
- Chapter III - Fish management including monitoring, setting regulations, fish stocking, introductions of new species, fisheries management plans, and illegal introductions.
- Chapter IV - 124 and 310 permit work, and habitat improvement projects including the River Restoration Program, Future Fisheries Improvement Program, Blackfoot River Restoration Project, and habitat projects resulting from dam mitigation.
- Chapter V - Water reservations and leasing.
- Chapter VI - Special projects, such as Arctic grayling, westslope cutthroat, pallid sturgeon, bull trout, paddlefish, dam mitigation, and the benthic fish study.
- Chapter VII - Whirling disease.
- Chapter VIII - The state hatchery system.
- Chapter IX - Regional staff workload.
- Chapter X - Fishing access sites.

Expenditures for the various program activities are included with each activity.

Chapter II - Background

Introduction

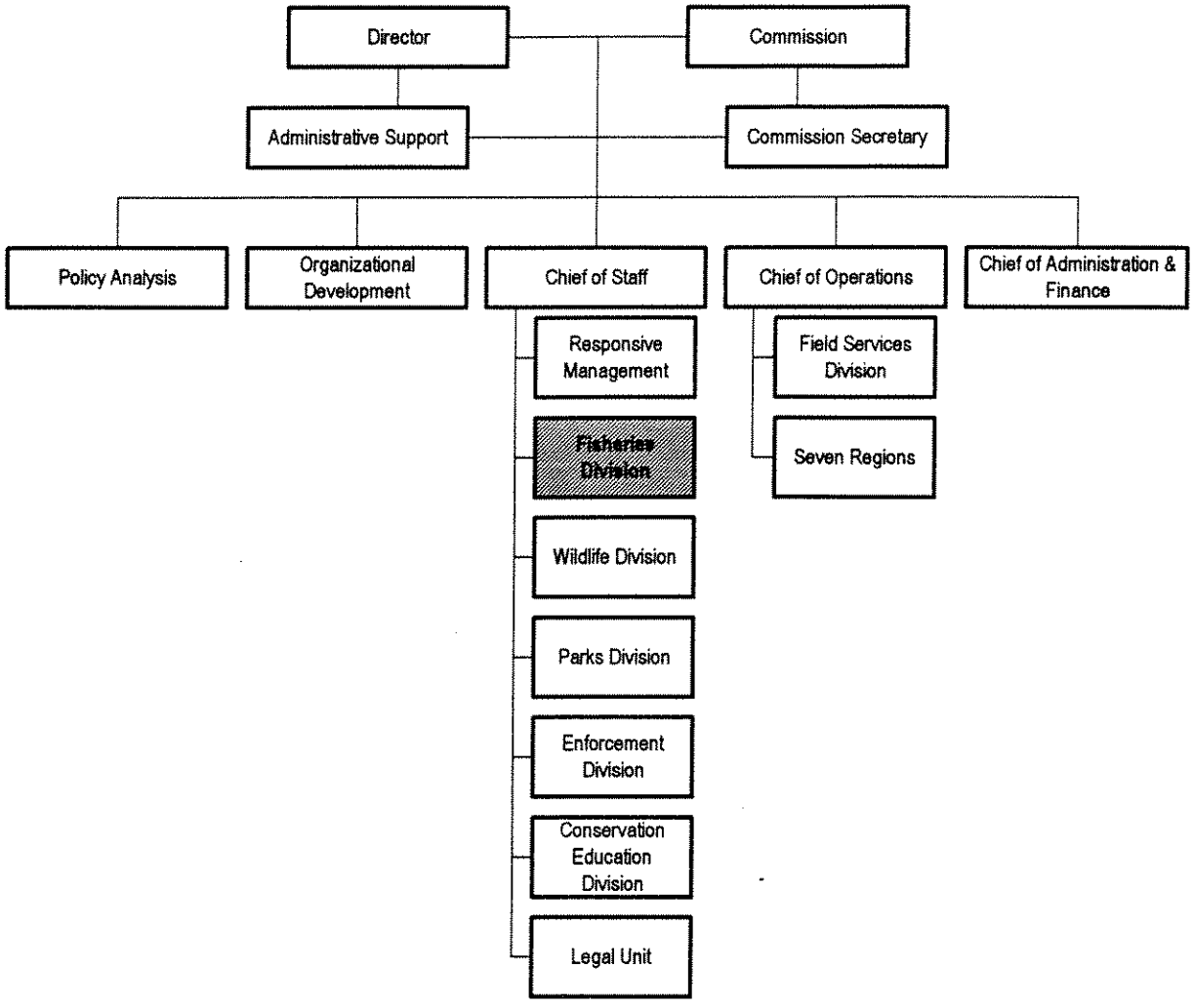
The mission of the Fisheries Program is to preserve, maintain, and enhance all aquatic species and their ecosystems to meet the public's demand for recreational opportunities and stewardship of aquatic wildlife. The Fisheries Program is administered by the Fisheries Division, Department of Fish, Wildlife and Parks (FWP). Seven FWP regions implement program policies.

Department Organization

A five-member Fish, Wildlife and Parks Commission sets policy for resource management, length of hunting/fishing seasons, and use of lands owned or controlled by the department. Commission members are appointed by the Governor and confirmed by the Senate.

Department headquarters is located in Helena and staff have direct interaction with the Fish, Wildlife and Parks Commission. Department management is responsible for setting direction regarding policy, planning, program development, guidelines, and budgets. Figure 1 shows the department's organizational structure.

Figure 1
Fish, Wildlife and Parks Organizational Chart
(As of June 1998)



Source: Department records.

Several divisions besides Fisheries contribute to the Fisheries Program. The angler education coordinator is located in the Conservation Education Division. The coordinator of the Fishing Access Site Program works in the Parks Division. Law enforcement is the responsibility of the Enforcement Division. Significant fishing opportunities are provided on many state Wildlife Management Areas managed by the Wildlife Division and at many state parks managed by the Parks Division.

Decentralized System

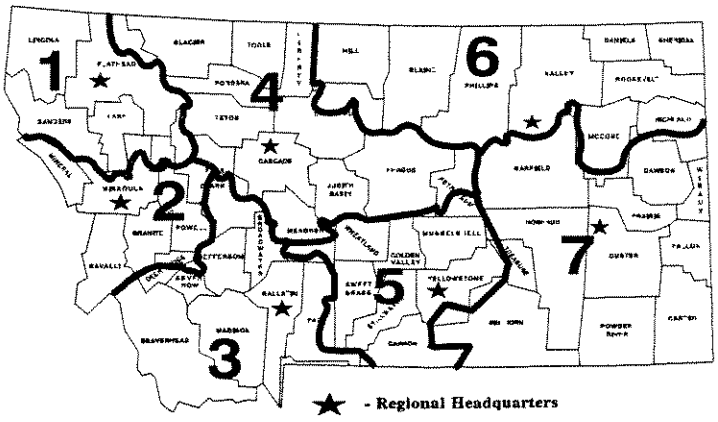
The department's organizational structure consists of a decentralized system. The department divided the state into seven geographic regions to provide for more direct management of the state's wildlife, fisheries and parks resources. Each region is staffed with a regional supervisor, a fisheries manager, a wildlife manager, and varying numbers of biologists, technicians, wardens and parks staff to implement and monitor most policy and management activities at the regional level. Fisheries managers supervise day-to-day activities for Fisheries Program activities and report to the regional supervisor.

The regional supervisor administers overall activities within the region. This includes providing recommendations on program development and department guidelines to FWP headquarters in Helena. Regional supervisors report to the department's chief of operations.

An exception to decentralization is the hatchery system. The hatcheries are supervised by the Helena headquarters, not the regional supervisors.

Figure 2 shows regional boundaries.

Figure 2
Department of Fish, Wildlife and Parks Regions



Source: Department records.

Fisheries Program Funding and Expenditures

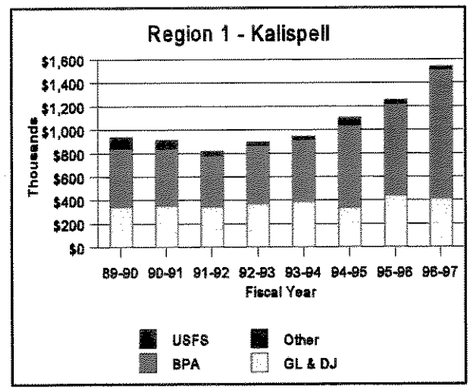
The Fisheries Program is funded with general license revenues, federal special revenue, contracts and grants from state agencies, private companies, private individuals, sportsmen groups, universities, and gifts and donations. General license (GL) funds are derived from the sale of fishing licenses. The primary federal revenue source is the US Fish and Wildlife Service Dingle Johnson (DJ) grant. DJ money is generated from taxes on the sale of fishing equipment. Day to day operations of the program are funded from GL and DJ monies.

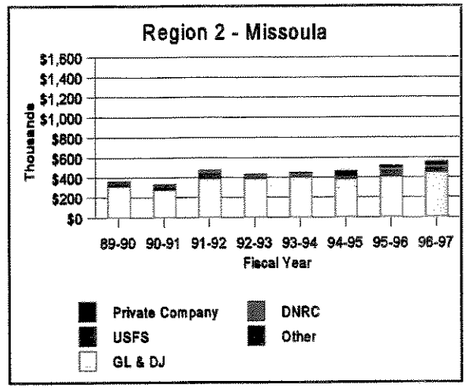
Other special revenue sources fund the special studies/projects conducted by the department. Projects include such things as studies of endangered species funded by the Army Corps of Engineers, Bureau of Reclamation and sportsmen groups, mitigation for Hungry Horse and Libby Dams funded by Bonneville Power Administration, mitigation for dams owned by private companies, and joint programs with other state agencies. Mitigation projects address the impacts dams had on fish, such as reducing habitat, and creating barriers for fish passage. Figure 3

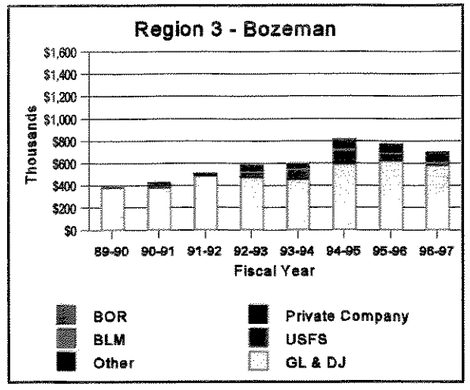
shows expenditures by funding sources for the regions, hatcheries and division for fiscal years 1989-90 through 1996-97.

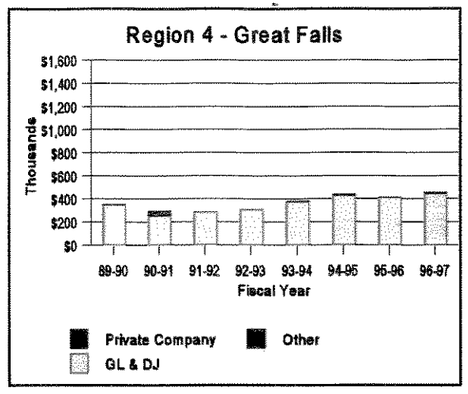
Canyon Ferry, Hauser, and Holter Reservoirs' expenditures for fiscal years 1990-91 through 1993-94 are included in the division. In fiscal year 1989-90 and after 1994, these expenditures are included with Regions 3 and 4.

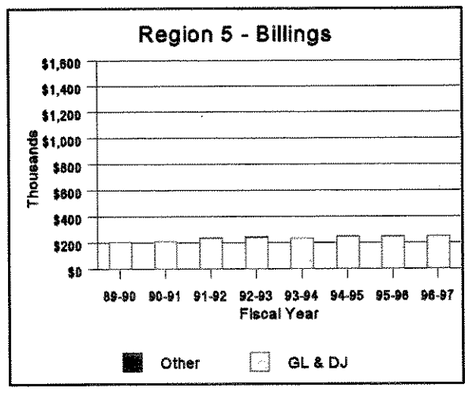
FIGURE 3
Fisheries Program Expenditures By Funding Source
(Fiscal Years 1989-90 through 1996-97)

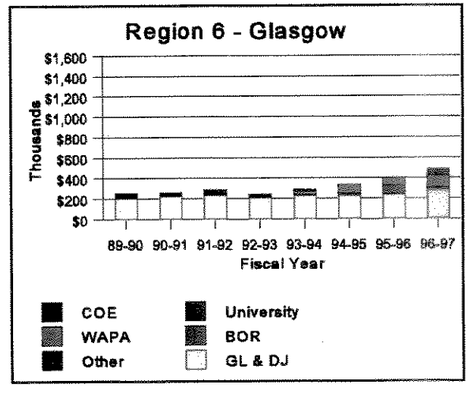


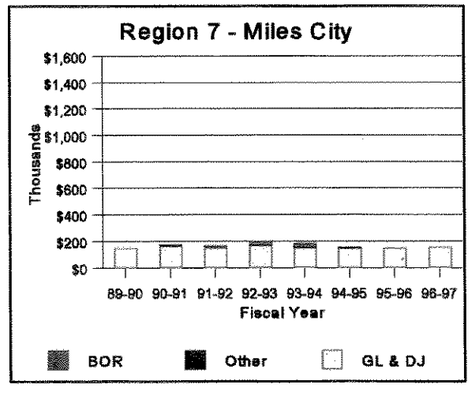


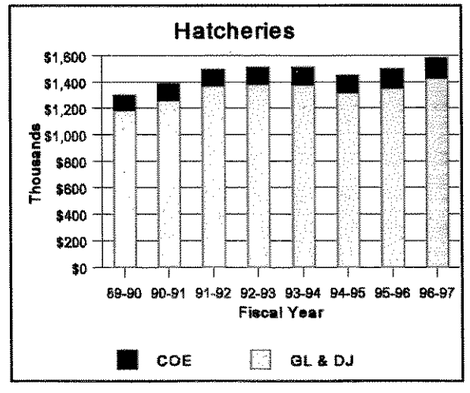


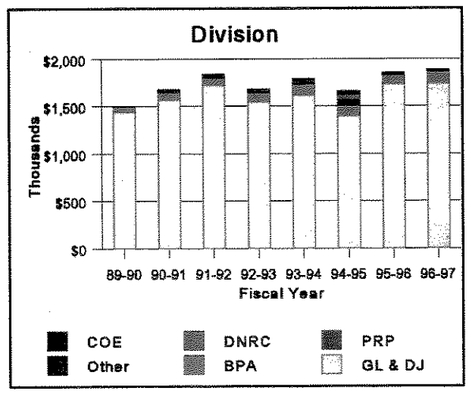


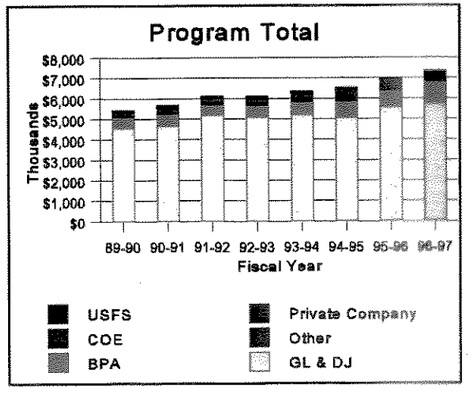












LEGEND OF FUNDING SOURCES

USFS	United States Forest Service
BPA	Bonneville Power Association
GL & DJ	General License & Dingle Johnson
PRP	Paddlefish Roe Program
BLM	Bureau of Land Management
COE	Army Corps of Engineers
WAPA	Western Area Power Administration
BOR	Bureau of Reclamation
DNRC	Montana Department of Natural Resources and Conservation

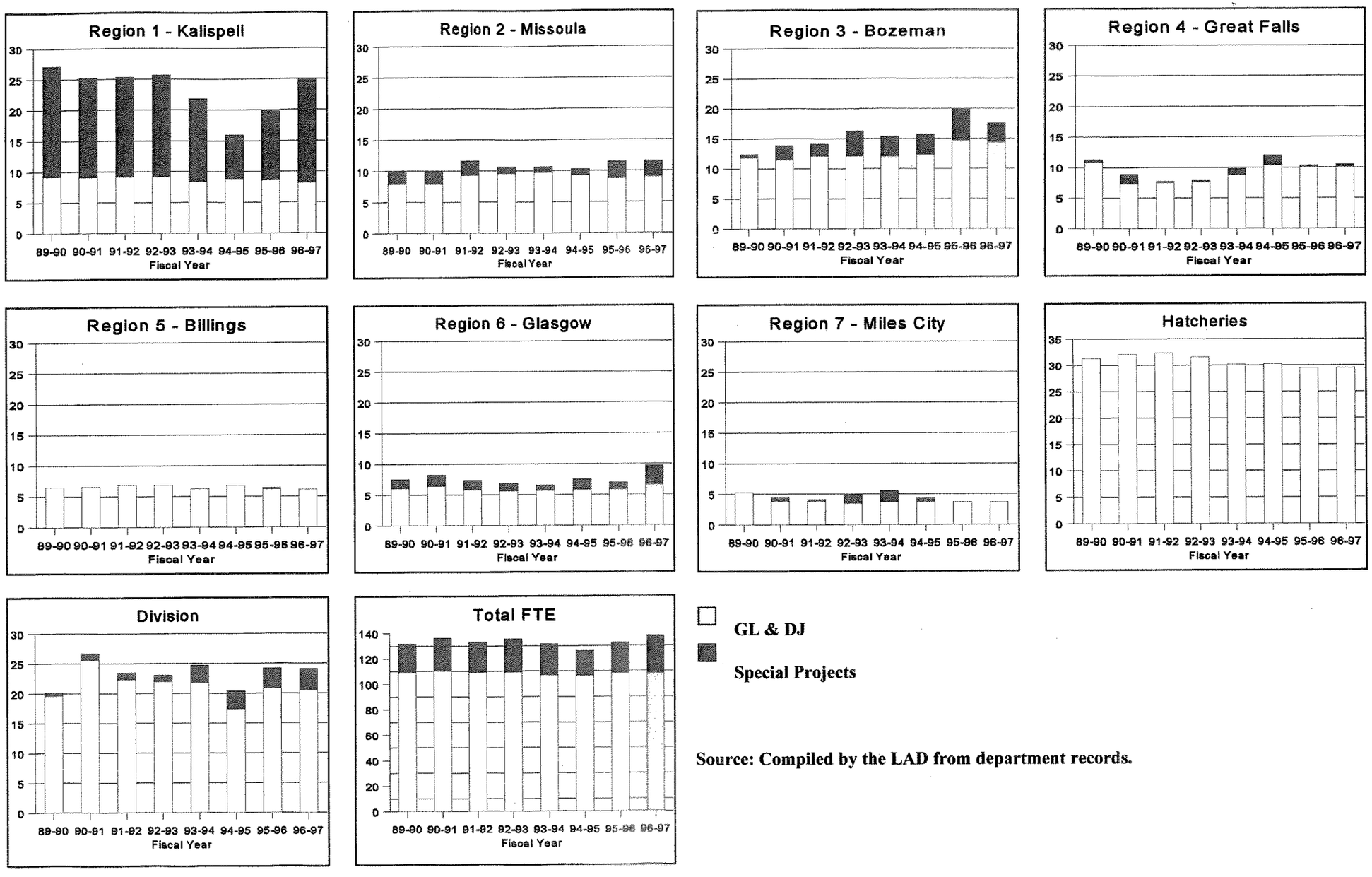
Source: Compiled by the LAD from SBAS records.

Fisheries Program Staffing

The Fisheries Program is staffed by personnel in Helena and the seven regions. Total FTE for the regions, division and hatcheries averaged 133 for fiscal years 1989-90 through 1996-97. The majority of the FTE are funded from GL and DJ monies. GL and DJ FTE consist of permanent staff, including fisheries managers and support staff, seasonal FTE, and personnel hired to conduct roving creel census and small seasonal projects.

Figure 4 shows the number of FTE in each region, the division, and hatcheries for fiscal years 1989-90 through 1996-97.

FIGURE 4
Fisheries Program FTE
(Fiscal Years 1989-90 through 1996-97)



Source: Compiled by the LAD from department records.

License Sales and Angler Days

We examined the number of Montana fishing licenses sold and angler days. We found a decrease in both number of licenses sold and angler days. The nation as a whole has seen a decrease in fishing. The following sections summarize our findings.

Number of Licenses Sold

We obtained fishing license revenue and license numbers sold for license years 1990 through 1997. Revenues remained about the same during the time period due to license fee increases in 1992 and 1994. Table 1 shows the total licenses sold for license years 1990 through 1997.

Table 1
Fishing Licenses Sold

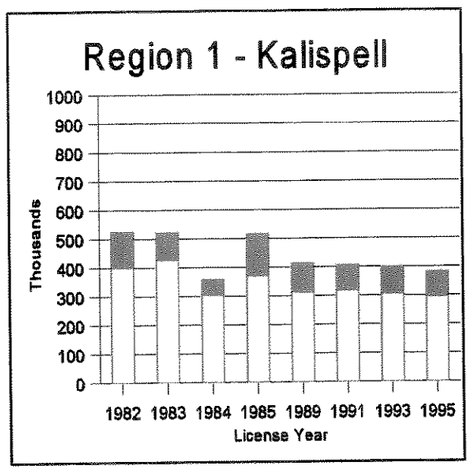
License Type	License Year							
	1990	1991	1992	1993	1994	1995	1996	1997
# Resident	150,698	148,703	150,507	154,379	160,662	156,896	149,497	147,892
# Non-Resident Season	23,184	25,042	29,343	33,237	29,933	28,501	26,839	26,895
# Non-Resident 2-day	146,486	155,507	141,141	154,132	180,172	174,187	171,360	173,051
Total	320,368	329,252	320,991	341,808	370,767	359,583	347,696	347,037

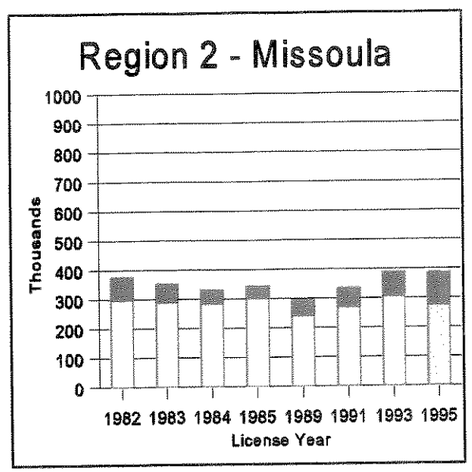
Source: Compiled by the LAD from department records.

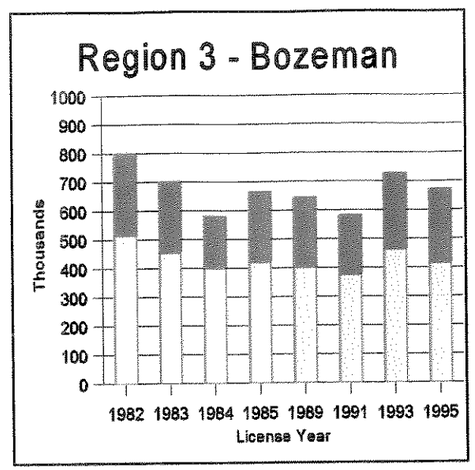
Number of Angler Days

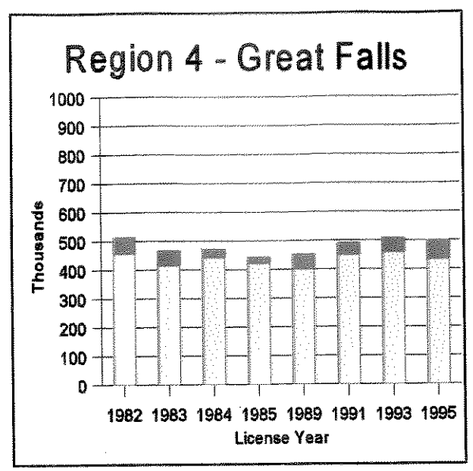
The Information Services Unit in Bozeman conducts a statewide mail survey about every two years. Residents and non-residents who purchased fishing licenses are sampled to determine the number of angler days. Survey results are published in reports available to the general public. We obtained reports for fishing license years 1982 through 1985, 1989, 1991, 1993, and 1995. The 1997 results were not available at the conclusion of our audit work. We compared the number of licenses sold to residents and non-residents by region and statewide. Regions 1 (Kalispell) and 3 (Bozeman) had the largest decrease in angler days in the time period. Region 2 (Missoula) showed a slight increase. As seen in Figure 5, statewide there was a slight decrease in angler days from 1982 to 1995.

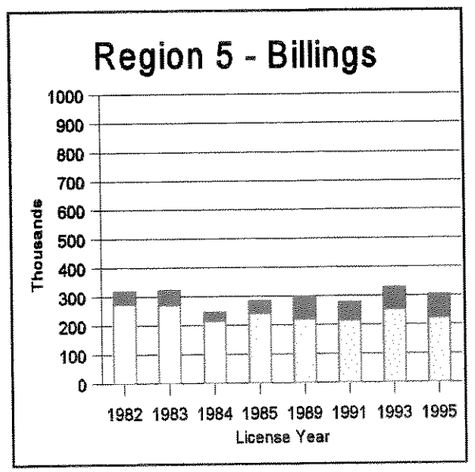
FIGURE 5
Angler Days
(License Years 1982 to 1995)

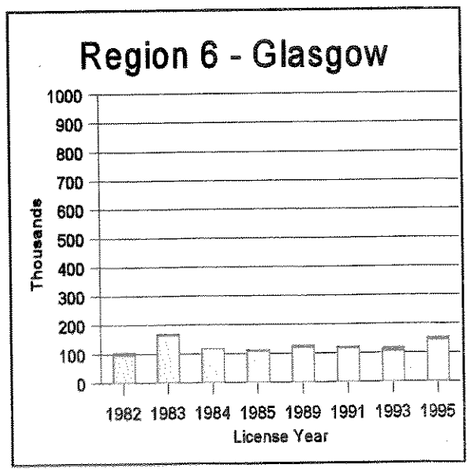


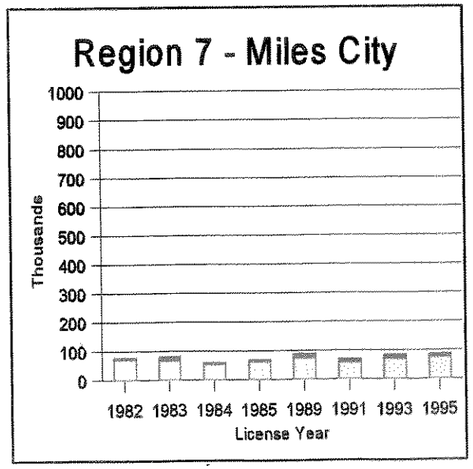


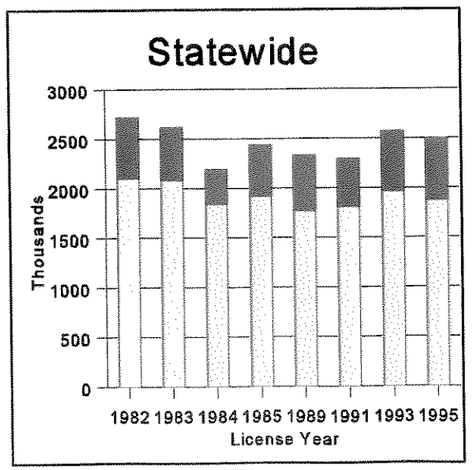












Resident

Non-resident

Source: Compiled by the LAD from department records.

Chapter III - Fish Management

Introduction

One of the objectives of this audit was to determine how much has been spent on operations and maintenance of the Fisheries Program and what activities are included in the operations. Fisheries Program general operations activities consist primarily of managing fish populations and protecting and restoring their habitats.

Fish management activities are centered around the objective of meeting public demand for fishing opportunities. Activities cover many aspects, from determining fish populations by electrofishing and gill netting to issuing permits for private ponds and ensuring healthy fish are stocked in Montana's waters. We reviewed activities related to:

- Gathering data to estimate fish populations and harvest rates;
- Establishing regulations;
- Writing and implementing fish management plans;
- Licensing private ponds;
- Introducing new fish species to a waterbody;
- Developing fish stocking plans; and
- Determining fish health.

The following sections discuss fish management expenditures and the various aspects of fish management.

Fish Management Expenditures

Fish management expenditures are paid from the regions' fisheries budgets and division general budget. General operations of the Fisheries Program are funded by general license and Dingle Johnson (federal grant) monies. Table 2 shows general operating expenditures (excluding hatcheries) for fiscal years 1994-95 through 1996-97.

Table 2
Fisheries Program General Operating Expenditures
(Fiscal Years 1994-95 through 1996-97)

Region	Fiscal Year		
	94-95	95-96	96-97
1	$ 334,398	$ 439,057	$ 415,064
2	$ 381,639	$ 406,246	$ 445,947
3	$ 585,416	$ 616,300	$ 575,056
4	$ 422,278	$ 409,241	$ 440,886
5	$ 248,447	$ 245,868	$ 251,493
6	$ 222,095	$ 235,310	$ 276,091
7	$ 143,244	$ 146,113	$ 154,296
Division	$ 1,396,614	$ 1,730,704	$ 1,736,349
Total	$ 3,734,131	$ 4,228,839	$ 4,295,182

Source: Compiled by the LAD from SBAS records.

Fish Population Estimate/Survey Data Used to Manage Waterbodies

Fisheries biologists collect fish population and spawning data for most of the major waterbodies in the state. Population and spawning data is crucial for managing fish in the waterbody and for public information. Audit work showed the data is used in almost all areas of the Fisheries Program. ***Biologists use fish population and spawning data as a basis for management decisions concerning specific waterbodies.***

Management uses the information to establish fishing regulations and to set stocking levels in lakes and ponds, to identify resources impacted by impending projects (habitat, mines, etc.), and to assess the population's health. The information is also used to help other agencies evaluate projects that might affect fish, such as mining operations, road construction, timber harvests, etc.

Biologists document the objectives of the estimate/survey work, the degree of attainment, and results of the current work compared to findings in previous years. Recommendations for future work and management are included.

The following sections describe estimate/survey work conducted by regional biologists.

Major Waterbodies Sampled

Fisheries biologists conduct population estimates and surveys by electrofishing, snorkeling, gill netting, trap netting, and seining (pulling a long net close to shore). Biologists sample most of Montana's major streams and lakes. Sampling may occur every year or every two or more years. Some waterbodies are sampled based on identified issues/concerns/problems with the water. Major rivers monitored include: the Madison, Missouri, Sun, Smith, Yellowstone, Boulder, Stillwater, Blackfoot, Clark Fork, Ruby, and Bighorn. Major lakes/reservoirs monitored include: Tiber, Flathead, Fort Peck, Hauser, Holter, and Canyon Ferry. Many tributary streams are also monitored for fish populations. Mountain lake monitoring is sporadic. Some regions try to survey lakes on a rotating basis such as visiting every lake every four to ten years. Other regions have done little mountain lake monitoring because of other priorities on the major rivers/lakes in the area. Regions 6 and 7 have many ponds open to the public for fishing. These ponds are monitored to determine the fish populations.

Table 3 shows the number of rivers, small streams, and lakes/reservoirs/ponds surveyed by region for fiscal years 1994-95 through 1996-97.

Table 3
Monitoring Activity
(Fiscal Years 1994-95 through 1996-97)

Area Monitored	Fiscal Year	Region						
		1	2	3	4	5	6	7
Rivers	94-95	9	3	12	8	7	3	2
	95-96	7	3	11	6	8	3	2
	96-97	8	7	15	8	11	3	2
Streams	94-95	53	15	73	13	29	4	0
	95-96	28	25	35	8	5	6	0
	96-97	14	43	45	19	10	5	0
Lakes/ Reservoirs/ Ponds	94-95	51	5	28	42	74	37	38
	95-96	40	7	14	32	59	37	51
	96-97	38	5	21	33	56	38	24

Source: Compiled by the LAD from department records.

Most Species Monitored

Population counts have historically concentrated on major game species such as trout, walleye, pike, and perch. Recently, emphasis has also been placed on native species so biologists are obtaining baseline data for trend information on such species as cutthroat trout and suckers. Biologists are also gathering genetic information of native species. (Appendix A contains a list of fish species native to Montana.)

Spawning and Survival Data

In addition to monitoring waterbodies for fish populations, biologists also monitor streams and lakes for spawning activity and fry survival and recruitment into the existing population. Table 4 shows the monitoring activity for spawning and fry survival by region for fiscal years 1994-95 through 1996-97.

Table 4
Spawning and Fry Recruitment Monitoring Activity
(Fiscal Years 1994-95 through 1996-97)

Activity Monitored	Fiscal Year	Region						
		1	2	3	4	5	6	7
Spawning	94-95	132	22	22	10	6	3	1
	95-96	80	22	26	10	5	3	2
	96-97	65	24	24	14	43	6	2
Fry Survival & Recruitment	94-95	24	3	22	2	0	0	1
	95-96	30	8	20	3	1	2	1
	96-97	27	11	29	4	2	3	1

Source: Compiled by the LAD from department records.

Region 1 had high spawning monitoring activities in fiscal year 1994-95 due to the potential listing of bull trout. Staff in the region surveyed the South Fork of the Flathead and its tributaries and other basins in the region for bull trout redds (fish nests). The survey work resulted in an agreement with the US Fish and Wildlife Service (USFWS) stating bull trout in the South Fork were considered recovered. In fiscal year 1996-97, Region 5 monitored the mountain lakes in the area, thus increasing the amount of recruitment and spawning activity from the previous years.

Harvest Data Also Used to Manage Waterbodies

We found harvest data is used extensively to manage fisheries. Harvest data is included in the reports biologists write. When combined with the population data, harvest data provides the total picture of the fishery in specific waterbodies. Population and harvest data provide biologists the information needed to make their recommendations for particular management methods/techniques.

Harvest data is obtained through a statewide mail survey conducted every two years and creel census (determining the number of fish caught

by anglers at specific waterbodies by interviewing anglers). The Information Services Unit in Bozeman conducts the statewide survey every other year. Regional biologists oversee creel census.

The following sections describe activities related to harvest data.

Statewide Survey

The statewide survey produces information concerning angling pressure on individual bodies of water. A sample of people with Montana fishing licenses receive questionnaires to determine where they fished, when, and the results. Survey results are published in a report available to the public. Biologists use the report to determine harvest pressure on the waterbodies in their respective management areas. Expenditures for the survey are included in Region 3.

Creel Census

Creel census are conducted around the state. Division staff determine which waters need to be surveyed based on management plans, special circumstances such as whirling disease or a species of concern, and past locations of creel census.

During a creel census a FWP employee or volunteer interviews anglers and counts the number of fish caught. FWP obtains harvest information with the counts, and angling pressure through the interviews. Information is used to help determine demand on the particular waterbody.

The following table shows the locations and year of creel census for calendar years 1991 through 1997.

Table 5
Creel Census Location and Year
(Calendar Years 1991 through 1997)

Location	Years Surveyed
Swan Lake	1995, 1996
Bitterroot River	1992, 1993
Rock Creek	1993, 1994, 1997
Blackfoot River	1994, 1995, 1996
Clark Fork River	1995
Willow Creek Reservoir	1993, 1994
Madison River	1996, 1997
Big Hole River	1996
Tiber Reservoir	1991, 1992
Missouri River	1993, 1994, 1995
Tiber Summer Creel	1994 to 1997
Frances Summer Creel	1994 to 1997
Bighorn Lake	1992, 1993
Bear Paw Mountains	1992
Fort Peck Paddlefish	1994 to 1997
Fresno Reservoir	1996, 1997
Fort Peck Reservoir	1997
Tongue River Reservoir	1993
Canyon Ferry Reservoir Summer and Winter Creel	1991 to 1997
Hauser Reservoir Summer and Winter Creel	1991 to 1997
Holter Reservoir Summer and Winter Creel	1991 to 1997

Source: Compiled by the LAD from department records.

Regulation Recommendations Based on Monitoring and Harvest Data

Fishing regulations are reviewed and modified every two years. ***Audit work verified that proposed regulations in each region are based on population surveys, harvest data, and management plans. Regional staff propose changes to regulations based on the biology of the waterbody and input from other staff and the public.***

Fisheries biologists and managers indicated many of their recommendations for changes in regulations are incorporated into tentative regulations submitted to the commission, and the commission makes few changes to proposed regulations. If the division makes changes, the majority of the changes and the reason for the changes are communicated to field staff. Overall, regional staff did not have concerns with the regulation setting process.

Input for Changes Sought from FWP Staff and Public

For the 1998-1999 regulations, fisheries managers obtained input for changes from regional staff, including fisheries biologists, game wardens, and administrative staff. The public was invited to comment on regulation issues and develop alternatives. Public meetings were held in the regions to discuss the region and statewide changes. After the public hearings, division staff met with all the fisheries managers and discussed the regulations.

Due to the impacts of whirling disease, the 1998-1999 regulations were changed to reduce the number of fish an angler could keep, and allow only catch and release in some waters.

Fisheries Management Plans Help FWP Manage Waterbodies

Although Fisheries Management Plans are time consuming for regional staff to develop, most agreed the plans are useful tools to help them manage waterbodies. ***Plans provide a management direction to follow and require periodic checks to ensure the department is heading in the proper direction.***

The following sections describe how plans are developed.

Commission Directed Department to Write Fisheries Management Plans

In 1988 the Fish, Wildlife and Parks Commission directed the department to initiate five-year management plans on the top fisheries in Montana. The department reviewed the major fisheries to establish priorities for the management planning process. Table 6 shows by region the waterbodies with Fisheries Management Plans and the dates of the plans.

Table 6
Fisheries Management Plans by Region
(As of June 1998)

Region	Waterbodies With Fisheries Management Plans	Plan Effective Dates
1	South Fork Flathead River Drainage	1991-1996
	Upper Flathead System (compiled with the Confederated Salish and Kootenai Tribes)	1989-1994
	Thompson Chain of Lakes	May 1997
2	Bitterroot River	Sept 1991 through Sept 1996
	Rock Creek	Sept 1989 through Sept 1994
3	Canyon Ferry Reservoir/Missouri River	Jan 1993 through Jan 1998
	Big Hole River	1989-1994
4	Hauser Reservoir	Sept 1989 through Sept 1994
	Missouri River (Holter Dam to Great Falls)	1990 through 1994
5	Upper Bighorn River	1987 through 1992
	Boulder River	1992 through 1996
	Stillwater River	1990 through 1994
	Fisheries of Mountain Lakes in the Crazy Mountains	1991
6	Fort Peck Reservoir	Jan 1992 through Jan 1997
7	Montana-North Dakota Paddlefish	1995 through 2004

Source: Compiled by the LAD from department records.

There is also the Warmwater Fisheries Management Plan (1997-2006) which contains specific management recommendations for approximately 120 waterbodies distributed across the state.

Plans Now Written for Ten-Year Time Period

As indicated in the previous chart all but one of the plans are out-of-date. Staff found five years was not enough time to determine if some goals of the plans were being met. Also, it takes about two years to write a plan and a five-year plan meant biologists were spending a large portion of their time writing plans. Although many of the plans currently in place are expired, fisheries managers and our audit work indicated the plans are not out-of-date in terms of management. The department is now writing Fisheries Management Plans for a ten-year period.

Plans Address Many Issues

Fisheries Management Plans address issues relating to regulations, access, instream flows, fish monitoring, habitat, and population data collection. Specific management concerns are presented along with alternatives and strategies to meet specific management goals. Plans usually establish goals and outcomes which require monitoring by regional biologists.

Public Involved When Writing Plans

Plans are created with public opinion and involvement. Scoping meetings are held at the beginning of the process to determine if there are any issues the public would like to address and to inform the public of how the waterbody was managed in the past. The latest plans developed included advisory committees. These groups provided FWP with an angler perspective throughout the process and assisted in distributing information to the public.

Controls Over the Private Pond Program Could be Strengthened

The objectives of permitting private ponds are to monitor the fishery resource and ensure unwanted fish or diseases are not stocked into ponds where they can escape to state waterbodies. Current controls do not ensure objectives are met. Biologists cannot inspect private ponds not open to public fishing to ensure the proper species of fish are stocked, structural integrity is still good, etc. without landowner permission. Without an inspection, the risk of unwanted fish or disease escaping to state waterbodies is higher. Although the department is aware controls are limited, FWP management does not plan to seek

legislation in 1999 since legislation to give the department more control was tabled in 1997.

The following sections describe the private pond program and specific concerns.

Pond Owners Required to Permit Pond

By statute, private pond permits cannot be issued for natural ponds or man-made ponds which include portions of natural streams or ponds (e.g. instream ponds). Section 87-4-603(2), MCA, states a private pond "...includes only bodies of water created by artificial means or diversion of water that do not exceed over 500 acres of surface area."

There are over 4,500 permitted private ponds in Montana and an unknown number of ponds that do not require permits or require permits but the landowner did not obtain one. In addition, in 1997 FWP had licensed 17 commercial fish ponds and commercial hatcheries. Private pond permits increase each year since once a permit is issued, there is no expiration date. Commercial pond numbers fluctuate each year because license holders do not always renew their annual licenses.

Table 7 shows the number of private ponds permitted from 1990 through 1997 by region and the total issued since April 1953.

Table 7
New and Total Private Pond Permits
(As of May 1998)

Region	Permits Issued by Year								Total Permits 1953-1997
	90	91	92	93	94	95	96	97	
1	17	17	12	14	16	15	13	19	490
2	48	17	36	23	16	39	No info	46	*448
3	18	17	21	22	42	15	29	33	495
4	25	12	31	74	63	59	47	42	2,034
5	25	17	12	21	22	14	16	22	**532
6	7	2	15	23	28	9	12	22	686
7	4	5	7	16	17	14	16	10	124
Total	144	87	134	193	204	165	133	194	4,809

* Does not include 1996 information since that year was not available
** Does not include old permits since they were destroyed.

Source: Compiled by the LAD from department records.

Once a permit is issued to an individual for a private pond, the permit holder may stock the pond with the authorized fish species from any legal source. This usually means fish from a commercial hatchery in Montana. Occasionally fish are obtained from an out-of-state source. No fish are supposed to be imported into Montana unless authorized by an import permit issued by FWP.

Additional Controls Needed for Private Ponds

We examined the objectives of the private pond program and the controls in place to meet these objectives. We found there are few controls after initial permitting to help meet the objectives of the program. Under the current conditions, there is little assurance unwanted fish are not stocked or diseased fish are not introduced into ponds. Once a private pond is permitted, there are virtually no controls to ensure the species actually placed in the water is the species listed on the permit, screens are still in place, etc. There are no required periodic

inspections of ponds not open to the public for fishing to determine what has been stocked, if there were any modifications to the pond or if the pond still exists. Staff indicated some of the permits are over 40 years old and they are not sure if the site still contains water or fish.

Also, if a pond is not permitted for fish and should be, biologists have no control over what kind of fish are put in the pond. For example, a landowner in the Flathead area had a pond that was not permitted. FWP staff heard the landowner was placing grass carp in the pond but could not enter onto the land to confirm this without the owner's permission. Biologists were finally able to inspect the pond without the landowner's permission when the owner forged a fish import application. Grass carp were found in the pond. According to biologists, if the carp had entered the Flathead drainage, which they could have in a flood event or by someone moving the fish, the vegetation in over 1,000 miles of streams and lakes could have been impacted and the water quality could have been affected.

Initial Permitting

Initial permitting steps provide some controls if the landowner follows state laws. After a pond is dug and filled with water, the pond owner is required to send a completed application to the appropriate regional office. Enforcement personnel or a fisheries biologist inspects the pond and examines the screens for the inlet and outlet. The fisheries manager receives the inspection report. The manager reviews the report, maps, and application, and discusses the pond with the biologist. This discussion typically centers around the species of fish the landowner can stock. The biologist or fisheries manager writes an Environmental Assessment (EA) for a new pond. An EA assesses the impact of the pond on such factors as the biological, physical, and social environment in the vicinity of the pond. The EA process includes a period of time during which the public can comment on the impacts of the pond.

The EA is sent to Helena for review. Helena staff consider the potential offsite impacts of the pond. They also ensure fish proposed for stocking are compatible with the drainage in case any fish escape by natural or human means. Normally, fish approved for stocking are limited to those

species presently occurring in the drainage. In some cases there may be additional restrictions to protect native or sportfish species.

The EA is released for public comment after the Helena review. The application can be approved after the comment period. The permit is issued by the region.

Import Controls Limited to Initial Stocking

There is limited control over private ponds not open to the public through the import permit process. If the owner buys fish from an out-of-state source, the owner is supposed to obtain an import permit. Prior to issuing the permit the department's Fish Health Specialist ensures the fish species to be imported is the species authorized for the pond. If the species is not authorized, a permit is not issued and the pond owner cannot import those fish. If the pond owner and the out-of-state source are not aware of the permit requirements, or choose not to follow them, any fish could be placed in the pond.

Lack Authority for Monitoring

Ponds open to public fishing are visited by biologists to monitor populations and help landowners with any problems. Private ponds not open to the public cannot be inspected unless the biologist has landowner permission.

In order to fully meet the objectives of the private pond program, and reduce the risk of unwanted fish or disease in the state's waters, the department needs to implement additional controls over the private pond program. Implementing an effective inspection process requires legislative changes and would result in increased staff or contract work. If an inspection process is implemented, the department will need to make staffing and priority decisions for implementation.

Recommendation #1
We recommend the Fisheries Division implement additional controls over the private pond program to ensure objectives of the permitting process are met.

FWP Fish Introductions and Movement are Controlled

Fish stocking is an integral part of fish management to provide fishing opportunities. FWP place fish in many ponds, reservoirs, and lakes. FWP stocks fish in few streams. Fish stocking consists of introducing a new species to a waterbody, transferring fish from one waterbody to another, or planting fish grown in a state hatchery.

We found FWP introduces and moves fish from one waterbody to another under controlled circumstances. In the last seven years, the only introduction of a new fish species to a major waterbody was cisco to Tiber Reservoir.

Most FWP fish transfers between ponds is controlled via an internal committee that reviews and approves the transfers. The committee does not need to review transfers of non-salmonids from waters that do not contain salmonids to waters that do contain salmonids within a region. Necessary documentation must be submitted to FWP's Fish Health Specialist for review and to document the transfer.

Stocking hatchery fish is determined via a five-year planting plan. The plan is reviewed by Helena and regional staff yearly to ensure the numbers planned for stocking can be sustained by the waterbody and are compatible species with other fish in the water. If there are any changes to the plans, updates are completed. Although we had concerns with the lack of formal policies and procedures for some administrative functions related to stocking hatchery fish, a process is in place and functioning.

Stocking a new species to a waterbody, such as planting bass in a pond that did not have bass previously, is controlled via the EA process. An EA is written and submitted for public comment. Although we found some procedural problems with EAs, such as the division not receiving a copy of the final EA and fish stocked prior to the end of the comment period, the number of EAs with problems were few in comparison to the total number written.

Based upon the information gathered, we found introductions of new species to waterbodies by FWP personnel are controlled. The next three sections discuss the various authorized methods of stocking fish.

Introducing New Fish Species

In the last seven years there has been one introduction of a new fish species to a major public waterbody. FWP introduced cisco (lake herring) to Tiber Reservoir in 1997. Cisco were introduced as a food source for walleye and northern pike in the reservoir. Yellow perch are an important prey item for walleye and northern pike and perch numbers were declining.

In 1992 FWP funded a study to determine the biological effects of the potential introduction. As a result of the report and other factors occurring in the lake at the time, such as spottail shiners appearing to provide adequate forage for walleye, the department decided to defer introduction of cisco until it was better justified. Population monitoring showed a decline in the Tiber fishery so in 1996 FWP wrote an EA for the introduction. The first cisco were introduced in 1997. A second introduction occurred in 1998.

Transfers to Other Waterbodies

Regional biologists can transfer fish from one waterbody to another waterbody already containing that fish species. Before the transfer can occur the biologist must provide required information about the collection site and the stocking site. The documentation also notes if salmonids are in the collection and/or stocking sites.

The information is sent to the state Fish Health Specialist for review. He reviews the data from a fish health perspective and determines if any disease testing needs to be conducted before the transfer can be completed. The request then goes to the department's Fish Health Committee, which includes the division administrator and Fisheries Management Bureau chief. The committee approves or denies the request. If a transfer is within a region, there are no salmonids involved, and the transfer has occurred in the past so an EA is not needed, the region can approve the transfer. The Fish Health Specialist receives notice of the transfer so he is aware, but he does not need to take the request to the Fish Health Committee.

The formal process has been in place since April 1996. There have been 60 transfer requests from April 1996 through October 1998. Eleven requests were denied. Fifteen transfers had regional approval. Most transfers involved warmwater fish (non-salmonids).

Stocking Hatchery Fish

Fisheries staff develop a five-year plan to determine what waterbodies hatcheries will stock and with what species of fish. Not all waterbodies are stocked each year. For example, many mountain lakes are stocked every four years. All waterbodies are considered in the five-year stocking plan.

The number of each species to stock in specific waterbodies is determined by fisheries managers and biologists each year. Regional staff review the plan and record any necessary changes based on fish monitoring, catch rates, regulation changes, etc. Helena staff review the plans to ensure there is not a species problem, such as planting northern pike in a trout water. If Helena staff know there will be a shortage of a fish species they will reallocate the numbers requested. Major changes are to be discussed with the fisheries managers.

Plans Can be Changed During the Year

During the year, regional staff can request a change to the current stocking plan. Documentation is required when regional staff want more fish for a waterbody, want to stock a new pond open to the public for fishing, want to change species or strains of trout in a waterbody, etc.

The biologist completes a request form and the fisheries manager is to sign it before the form is sent to Helena. At the division level, the hatchery and fisheries management bureau chiefs are to review and sign the form, along with the division administrator. A copy of the form is sent to the appropriate hatchery so staff can update their records.

Numbers Planned and Stocked Vary

The number of fish allocated in the plan and actually stocked can vary greatly depending on the number of eggs available, the number that actually hatch, and fry that survive until it is time to plant. Table 8 shows the number of fish that were planned for planting and the number that were actually stocked for calendar years 1994 through 1997.

Table 8
Comparison of Number of Fish Planned to Fish Planted by Species
(Calendar Years 1994 through 1997)

Species	1994		1995		1996		1997	
	Planned	Planted	Planned	Planted	Planned	Planted	Planned	Planted
Rainbow	4,468,749	4,842,213	3,644,670	3,558,652	3,370,575	3,428,627	4,290,853	3,793,580
Lake	150,000	0						
Brook	12,502	38,450	11,502	0	11,002	0	9,501	0
Brown	150,000	123,748	215,000	5,000	65,000	60,459	76,000	64,113
Kokanee	2,395,000	1,767,431	2,305,000	2,637,174	2,155,000	3,067,667	2,285,000	3,644,470
Arctic Grayling	129,504	188,048	145,004	131,262	128,004	3,700	147,004	243,511
Westslope Cutthroat	750,501	730,506	635,501	733,223	598,202	607,181	643,852	706,587
Yellowstone Cutthroat	345,780	272,248	600,110	477,022	336,415	274,129	572,783	209,856
Largemouth Bass	329,750	304,126	317,150	165,075	269,250	9,865	171,000	125,855
Pike	633,500	725	305,500	200,000	508,500	540,017	104,000	200
Smallmouth Bass	105,000	79,555	136,000	37,984	75,000	94,475	146,000	63,000
Walleye	37,639,000	35,141,824	37,189,000	29,792,318	38,810,000	36,642,822	37,599,000	59,686,170
Chinook	250,000	109,000	250,000	17,500	250,000	40,647	250,000	118,200
Catfish	18,800	28,240	26,800	0	30,800	5,400	32,200	0
Spottail Shiner					0	2,000	0	2,100
Perch	0	5,000			0	2,300	0	4,900
PikeXMusky	500	710	1,700	0	1,400	0	11,000	8,500
White Crappie	30,000	45,216	70,000	0				
RainbowX Cutthroat	20,000	0	20,000	0	20,000	0	20,000	0
Black Bullhead							0	20
Black Crappie							0	600
Cisco							0	6,440,000
Total	47,428,586	43,677,040	45,872,937	37,755,210	46,629,148	44,779,289	46,358,193	75,111,662*

* The difference is due to the cisco planted in Tiber Reservoir and an excess of 22 million walleye planted in Fort Peck.

Source: Compiled by the LAD from department records.

We reviewed updates submitted to the department for species showing more fish planted than planned for 1993 through 1996. We found there were no updates for a number of the plantings. Division staff provided a number of explanations for the differences. These included:

1. An informal policy allowing hatchery managers to modify the number of fish, within the same species, up or down from the plan by 10 percent.

2. Phone calls to fisheries managers to determine if they want some unallocated fish to go into a waterbody where that fish was planted that year, e.g., 50,000 more walleye into Fort Peck, which gets 20 to 30 million a year. Calls are based upon where the species is normally planted. The decision to take the fish is based upon whether the waterbody can accommodate more fish.

3. Completed update forms were not submitted for all species changes, size changes, and strains of rainbows if going from a wild to domestic strain. Updates are also completed for any number of changes the bureau chief thinks the division administrator would be interested in.

4. Miscoding hatcheries on the planting records. For example, using a hatchery code instead of showing the fish were taken from one waterbody and planted into another waterbody that already has that species in it.

5. Stocking by the US Fish and Wildlife Service (USFWS). These stockings are not on FWP's planning document, since that document is just for fish grown by FWP hatcheries. The stockings are included on the planting record so FWP personnel know what fish are planted in all Montana waterbodies. The hatchery code on the planting record designates it as a USFWS plant.

6. Accepting verbal okays for stocking from either the hatchery bureau chief or the fisheries manager so all the necessary signatures are not on the form and in Helena.

Planting decisions are based upon forage availability, habitat, species already in the waterbody and in the surrounding waterbodies, etc. Formal policies communicated to personnel concerning fish stocking and the associated documentation allows the department to monitor the process to ensure plans are followed and effective. Policies and

documenting decisions will help the department support their actions concerning fish stocking. The policies need to be communicated to regional staff so biologists and hatchery staff know what they are to do, when they are to do it, and why they are required to do it.

We believe the division needs formal policies concerning planting decisions such as:

- The tolerable variance allowed by hatchery managers to increase the number of fish stocked in a waterbody.
- When a stocking update form is needed.
- Documenting decisions by regional and hatchery staff concerning stocking unallocated fish.

We communicated our recommendation to the department. Management agreed with the recommendation and indicated they began developing policies concerning the issues.

Recommendation #2
We recommend Fisheries Division establish and communicate written policies concerning:

A. The tolerable variance allowed by hatchery managers to increase the fish stocked in a waterbody.

B. When a stocking update form is needed.

C. Documenting decisions by regional and hatchery staff concerning stocking unallocated fish.

EAs Required for Some Stockings

If a species of fish is going to be planted in a waterbody which has never had that species before, FWP staff need to complete an EA. The EA requires the biologist to consider such things as whether the species is already in the drainage, if the species could be removed after it is introduced, prudent alternatives to the action, and impacts to other forms of aquatic life by the introduction. A comment period is provided for public input on the introduction. A copy of the EA is to be sent to Helena, where the administrative assistant logs it in and assigns it a number. The assistant then enters the basic EA information onto the State Electronic Bulletin Board.

We reviewed planting update forms for 1996 and 1997 to determine if EAs were needed and submitted to Helena. We also compared the date of the end of the comment period to when the stocking took place.

Twenty-five updates in the two years reviewed required EAs. In some cases the EAs maintained in the division were drafts and a final copy was not present. No one in the division tracks EAs to ensure the division receives a final copy of each draft EA. When the administrative assistant logs the EAs a notation could be made if the EA is a draft. The log could then be periodically reviewed and compared to the EAs in the files to ensure a final copy was received.

We also could not locate two EAs in the division's files but received copies of them from the region. In some cases the EAs did not go through the regional fisheries manager, but were submitted to the division directly from the field biologist. If all the EAs had to go through the fisheries manager, the manager could then be responsible for submitting copies to Helena.

Of the twenty-five updates, 18 waterbodies were actually stocked. Of the 18, three stockings took place before the comment period was over. We contacted hatchery managers and found they were not aware of a comment period or when it ended for EAs. One suggested a box on the update form stating when the comment period ended so the managers would be aware of the date they could plant the fish. Another option is for the individual completing the update to write in the date of the end of the comment period in the comments section of the form. The department is supposed to review any submitted comments after the comment period ends. By not waiting for the comment period to end before stocking the fish, the department may not consider all implications of the stocking.

We also found the comment periods varied between EAs, some periods were 15 days, some 20 days, and others one month. There was no explanation on the EAs as to why a specific time length for the comment period was chosen. We are not aware of any specific department policies discussing comment periods for EAs. Such policy would help ensure consistency throughout the program. The policy would have to

be somewhat flexible to take into account emergency stockings, such as when the fish need to be planted because the hatchery needs to free up the space or the fish are out-growing the hatchery.

We communicated our recommendation to the department. Management agreed with the recommendation and indicated they began developing policies concerning the issues.

Recommendation #3
We recommend Fisheries Division:

A. Track EAs to ensure final copies are received in Helena.

B. Require all EAs to go through the regional fisheries manager to ensure EAs are sent to the division.

C. Determine a consistent length of time for a comment period on the EAs.

D. Do not plant fish until the end of the comment period so comments can be received and reviewed.

Unauthorized Introductions of Fish

One problem facing FWP in terms of managing fish is unauthorized introductions of fish into a waterbody. Section 87-5-701, MCA, provides for the control of transplanting fish in the state. The law was enacted to protect wildlife (which includes fish, mollusks, and crustaceans) and plant species of Montana from known and unknown threats to native species. All transplants must be approved by the Fish, Wildlife and Parks Commission and must be conducted in a manner to assure the transplanted population can be controlled if harm arises from unforeseen effects. Section 12.7.601(4), ARM, states "Introduction of fish not indigenous to a particular drainage may be made only after careful study to ensure these fish will be beneficial to that area."

Unauthorized fish introductions can spread disease and parasites, cause genetic hybridization, impact or displace sportfish and native fish populations, and create water quality problems. Entire fish communities, and threatened and endangered species in particular, can be irreparably damaged by unauthorized introductions of fish.

Unauthorized introductions can also increase fish management costs or cause lost fishing opportunities, many times permanently.

Fish like carp, yellow perch, suckers, shiners, sunfish, and even certain game fish like northern pike can severely affect a sport fishery. For example yellow perch illegally introduced into Lake Mary Ronan reduced the kokanee fishery. Northern pike were illegally introduced into Salmon Lake at the expense of the bull trout. Northern pike were illegally introduced in Lone Pine Reservoir in northwestern Montana in 1953. Since then, pike have spread or have been illegally transplanted into 54 additional bodies of water in the Flathead, Kootenai, Clark Fork, Bitterroot, and Clearwater drainages.

FWP created a database to document the presence of unauthorized fish species in Montana waters. The database is based on reliable reports from agency and university personnel and anglers. Unauthorized introductions may occur from illegal movement of fish, bait bucket transfers, and unwanted movement from legal sources such as private ponds and other states. The database documents only those introductions that persisted long enough to be detected at least once but does not document the probable large number of introductions that failed quickly or have not yet been detected. Table 9 shows the number of unauthorized introductions and the number of waters affected, by region. The information includes unauthorized introductions dating back to the 1920s and 1930s.

Table 9
Unauthorized Fish Introductions by Region
(As of March 1998)

	Region							
	1	2	3	4	5	6	7	Statewide
# Waters	115	19	10	12	9	25	14	204
# Unauthorized Introductions	204	27	15	19	14	34	22	335

Source: Department records.

As part of the Hungry Horse Dam off-site mitigation, Region 1 staff have rehabilitated a number of lakes which suffered from unauthorized introductions. These include Lion Lake which was poisoned with rotenone (a fish toxicant) in 1992 and restocked with cutthroat trout. Bootjack and Rogers Lakes were also treated with rotenone to eliminate illegal introductions of pumpkinseed sunfish and perch. Native fish and rainbow trout were restocked in the lakes.

Unauthorized Introductions Occur

There is a state law in place addressing unauthorized introductions of fish in waterbodies. To enforce the law, the person or persons introducing the fish have to be identified and proven guilty. Usually there is no way to identify the person or persons committing the act.

One way to help prevent unauthorized introductions from occurring is education. Some regions have published brochures, but there has been no department coordinated education effort. In the Warmwater Management Plan the department committed to forming an angler task force trained to observe and report illegal introductions. The department also indicated it will increase education efforts to publicize the risks of illegal introductions. Fisheries management stated they will be writing a plan in late 1998 to implement an education program.

Fish Health Monitored

FWP's fish health inspection program includes testing private and state hatcheries for specific salmonid pathogens, issuing fish import permits, and testing other fish as needed. ***Fish health in FWP's hatcheries and eggs from the wild going into the hatcheries is closely monitored.*** FWP staff try to control diseases from coming into the state through the import permit process. This process is effective as long as pond owners and out-of-state sources follow the law. FWP staff have no control over people who do not obtain a permit.

Fish Hatchery Inspections

Fish hatcheries are inspected annually for eight salmonid pathogens. The department tests for:

- Myxobolus cerebralis (salmonids whirling disease)
- Infectious hematopoietic necrosis virus (IHNV)
- Infectious pancreatic necrosis virus (IPNV)
- Viral hemorrhagic septicemia virus (VHSV)
- Oncorhynchus masou virus (OMV)

- Renibacteruim salmoninarum (bacterial kidney disease)
- Aeromonas salmonicida (furunculosis)
- Yersinia ruckeri (type I, common or Hagerman enteric redmouth disease)

The samples are sent to the USFWS Bozeman Fish Health Center for testing.

Fish Import Permits Required

Legislation enacted in 1989 requires FWP to issue an import permit to anyone bringing fish or eggs into Montana. As a result of the permit requirement, FWP staff obtain current health reports: 1) from any facility which rears salmonids, or 2) if staff know of a specific disease problem at the source facility or in the drainage from which the fish originated. Staff usually also call the source's state fish health inspector for current health status.

Non-salmonid fish transfers are handled somewhat differently than salmonid transfers because disease testing protocols have not been established for many non-salmonid pathogens. However, if salmonids are present at a hatchery from which non-salmonids are transferred, the salmonids must be disease-tested prior to the transfer. FWP staff will call state health inspectors and the source hatchery to obtain any necessary information about a specific facility with non-salmonids. Upon receiving eggs from any hatchery or wild egg source, FWP hatcheries disinfect the eggs in an iodine solution.

Prior to 1989 there was limited control over the fish or eggs coming into the state. If FWP staff knew of an import they would contact the source and obtain a health history. This occurred for state fish hatchery imports but was sporadic for federal, commercial and private imports.

Summary

Management activities range from obtaining population information to ensuring healthy fish are planted in Montana's waters. Audit work showed:

- ***Fisheries biologists use fish population and spawning data as a basis for management decisions concerning specific waterbodies.*** Audit work showed the data is used in almost all

areas of the Fisheries Program. Major waterbodies are sampled and most species of fish are monitored.

- ***Harvest data is used extensively to manage fisheries. When combined with population data, harvest data provides the total picture of the fishery in specific waterbodies.*** Harvest data is obtained through a statewide mail survey conducted every two years and creel census. Population and harvest data is included in reports biologists write pertaining to their findings during survey work.

- ***Proposed regulations in each region are based on population surveys, harvest data, and management plans. Regional staff propose changes to regulations based on the biology of the waterbody and input from other staff and the public.*** For the 1998-1999 regulation changes, input was sought from all FWP employees and the public.

- ***Fisheries Management Plans provide a management direction to follow and require periodic checks to ensure the department is heading in the proper direction.*** Plans are now written for ten years and address issues relating to regulations, access, instream flows, fish monitoring, habitat, and population data collection. The public is involved when writing the plans.

- ***FWP introduces and moves fish from one waterbody to another under controlled circumstances.*** In the last seven years the only introduction of a new fish species to a major public waterbody was cisco to Tiber Reservoir. Extensive studies were conducted prior to the introduction. Most fish transfers between ponds conducted by the department are controlled via an internal committee that reviews and approves the transfers. Transfers of non-salmonids within a region do not have to be reviewed by the committee. Stocking hatchery fish is determined by a five-year plan.

- ***Fish health in FWP's hatcheries is closely monitored.*** FWP's fish health inspection program includes testing private and state hatcheries for specific salmonid pathogens, issuing fish import permits, and testing other fish as needed.

We found there are limited controls over the private pond program. The objectives of permitting private ponds are to monitor the fishery resource and ensure unwanted fish or diseases are not stocked into ponds where they can escape to state waterbodies. Current controls do

not ensure objectives are met. Biologists cannot inspect private ponds not open to public fishing to ensure the proper species of fish are stocked, structural integrity is still good, etc., without landowner permission. We recommended the department implement additional controls over the program to ensure the objectives of the permitting process works.

During our review of the fish stocking program, we found there were few formal written policies and procedures for some administrative functions, so we recommended the department formalize and communicate the policies and procedures. We also noted three procedural problems with EAs and recommended establishing policies in these areas.

Overall, we found regional and division staff are conducting fish management activities in a way that ensures there are fishing opportunities in Montana.

Chapter IV - Habitat Protection and Improvement Programs

Introduction

The other major general operation activity of the Fisheries Program is protecting and restoring fish habitat. An objective of the audit was to determine how much has been spent on habitat and what activities are included in habitat improvement. This chapter addresses fish habitat programs.

Audit work showed fisheries biologists are actively involved in protecting and restoring habitat. Biologists participate in two habitat protection programs and two legislatively mandated habitat improvement/restoration programs. Biologists are also involved with a number of other habitat restoration/improvement programs that do not rely on funding from one of the two legislative programs. These range from redirecting a stream channel on a tributary of the Blackfoot River to placing structures in a pond for perch habitat.

The following sections discuss the habitat protection and restoration/improvement programs.

Projects Reviewed to Ensure Fisheries Habitat Protected

The state of Montana has two laws protecting streams and streambeds. The Stream Protection Act (Title 87, chapter 5, part 5, MCA) requires an agency of state government, county, municipality, or other subdivision of the state to obtain a "124 permit" prior to conducting any work in a stream or along its banks. The Natural Streambed and Land Preservation Act (Title 75, chapter 7, part 1, MCA) requires any individual, corporation, firm partnership, association, or other legal entity not covered under section 87-5-502, MCA, to obtain a "310 permit" prior to work in a stream or along its banks. Regional fisheries personnel are involved in issuing both types of permits.

Fishery biologists review applications and visit 124 and 310 permit projects to recommend permit requirements to ensure the fishery will not be adversely affected. Audit work showed biologist involvement with the permits varies by regions due to the number of streams and rivers in each region. Many biologists indicated the permit process provides beneficial contacts with landowners and Conservation District

supervisors. An issue pertaining to permit workload was identified when interviewing biologists. This issue is discussed in Chapter IX.

The following sections describe the two permits and biologists' involvement.

124 Permit Issuance

FWP entered into a Memorandum of Understanding (MOU) with the Department of Transportation (MDT) in 1994 pertaining to compliance with the Stream Protection Act, and issuing 124 permits related to MDT highway projects. Per the MOU, the MDT Project Manager is to monitor the project to ensure compliance with the MOU and the 124 permit, and is responsible for notifying FWP of any permit violations or correct any acts or omissions by the contractor.

From fiscal year 1992-93 through 1996-97, almost 400 Stream Protection Act permits were issued to MDT. To lessen the workload on regional staff, FWP contracts with a firm to review the plans and applications submitted by MDT for the entire state. Contractor costs average $37,000 per year.

Fisheries Managers Issue 124 Permits to Other Government Entities

Fisheries managers issue 124 permits to applicants other than MDT. From fiscal year 1989-90 through 1996-97, the US Forest Service and Ranger Stations/Districts accounted for more than half of the over 1900 permits issued by fisheries managers. Except for an increase in Regions 1 and 2 in fiscal years 1996 and 1997, the number of 124 permits issued is relatively constant. Table 10 shows the 124 permits issued to agencies other than MDT for eight fiscal years.

Table 10
Miscellaneous 124 Permits Issued
(Fiscal Years 1989-90 through 1996-97)

Fiscal Year	Region									
	1	2	3	4	5	6	7	Division	Unknown*	Total
89-90	91	44	19	42	6	0	3	3	12	220
90-91	84	42	33	18	23	1	3	4	2	210
91-92	110	49	36	45	3	3	5	6	2	259
92-93	85	47	29	26	6	3	1	1	3	201
93-94	94	39	38	27	9	5	3	0	5	220
94-95	72	44	25	21	7	7	7	1	2	186
95-96	127	62	35	39	9	5	0	2	4	283
96-97	129	99	45	23	12	5	5	1	1	320
Total	792	426	260	241	75	29	27	18	31	1899

*Region could not be determined.

Source: Compiled by the LAD from department records.

A MOU with the US Forest Service indicates national forest staff in Montana are to submit their 124 permit applications for proposed projects to the respective region by March 15 of each year. The FWP fisheries manager is to review the forms and identify those projects in which FWP would like further involvement. If the FWP employee is not comfortable with a desk review of a project, a field visit is arranged.

Work on 124 permits by fisheries managers and biologists is charged to the region's general fisheries budget.

310 Permit Issuance Process

Before starting a physical alteration or modification of a stream, written notice must be sent to the supervisors of the Conservation District in which the project is located. This applies to projects on any natural perennial-flowing stream or portion thereof, including its channels, unless the Conservation District designates the stream as not having significant aquatic or riparian attributes in need of protection or preservation. A district may consider a stream to flow perennially if it dries up periodically due to man-made causes, or extreme drought. FWP has five working days after receipt of the notice to inform the

district supervisors whether the department wants an on-site inspection of the project.

Some 310 Work Contracted

The department hires independent contractors to conduct some visits. Each region is responsible for obtaining a contractor. Contracts are for about $5,000 per region.

Monitoring 310 Permits

Regional staff were asked if anyone monitors the 310 permit criteria against the work actually done at the site. Most indicated they do little or no monitoring due to time constraints. If staff are in the area they might review a project. If they identify a violation, staff will notify the Conservation District which is responsible for issuing and enforcing the permit. In some cases the Conservation District supervisors ask the biologist to conduct a final inspection with them. FWP staff indicated neighbors will report suspicious activity to the Conservation District supervisors who might then ask the biologist to make an inspection.

Mandated Habitat Programs

The legislature created two fisheries habitat improvement programs. The first was in 1989 when the River Restoration Program (RRP) was enacted. The second was in 1995 when the Future Fisheries Improvement Program (FFIP) was created. From the time of inception of the first legislatively mandated habitat improvement program in 1989 through June 1997, FWP staff have been involved in 135 projects. Involvement may only consist of gathering pre-project fishery data and issuing 124 and 310 permits, but we found biologists are aware of the projects in their management areas and look for new ones. ***A review of the files compared to constructed projects show projects are constructed as they were described in the application. The file review also showed FFIP expenditures are not made without submission of appropriate documentation from regional staff.*** Projects involving FFIP have cost-share partners so in many cases the amount of FFIP money expended compared to the total cost of the project is minimal.

Since many of the RRP projects were not monitored until FFIP was created, the results of those projects are not known. Biologists indicated in a few years it should be known if the projects provide the environmental factors necessary for long-term successful reproduction,

rearing of juveniles, cover, food, and growth of fish. To date, reports show there is improvement in some areas. Project results are compiled in reports for the legislature and are available to the general public.

The following sections describe the River Restoration and Future Fisheries Improvement Programs.

River Restoration Program

The 1989 Legislature created the River Restoration Program funded by in and out-of-state anglers. Fifty cents of each resident fishing license, one dollar of each nonresident fishing license, and 50 cents of each combination sports license was used to fund the program. The 1993 Legislature authorized FWP to budget $200,000 of federal aid dollars toward RRP projects. General license revenues for the program for fiscal years 1989-90 through 1994-95 totaled $692,058. Expenditures during the same time period were $331,858. In 1995, $290,000 of RRP funds were transferred to the Future Fisheries Improvement Program.

Objectives of the projects were to conserve and enhance fish and wildlife habitat. Potential projects included:

- Fish habitat improvement;
- Barrier removal or other improvements to provide fish passage;
- Stream channel rehabilitation and stabilization;
- Clean up of debris and trash in river corridors;
- Bank stabilization (vegetative, sloping, rip-rap); and
- Stabilization or modification of irrigation diversions presently in use, including innovative techniques not presently used in Montana.

Participants eligible for program funding included individuals, private organizations, Conservation Districts, cities, counties, state agencies, Indian nations, and federal agencies.

Projects could be funded up to 100 percent of their cost. Installation of permanent irrigation diversions were limited to 50 percent of the total cost. The project applicant's share could consist of "in-kind" services, other funding sources, or both.

Project Summary

Since 1989, 94 entities applied for RRP funding. Table 11 details the status of the 94 applicants and the RRP dollar amounts involved. Approximately $1.7 million was provided to approved projects from other sources, such as federal agencies, private individuals, conservation districts, and public groups.

Table 11
Status of RRP Applications
(As of May 1998)

Status	# Projects	RRP Dollars		
		Applied For	Approved	Expended
Approved and completed by 7-97	56	$ 614,848	$ 598,713	$ 568,057
Not Approved	21	$ 413,716	NA	NA
Withdrawn	8	$ 116,079	NA	NA
Funded from another source	4	$ 71,442	NA	NA
Application not complete	1	NA	NA	NA
Not complete by 7-97	4	$ 236,526	$ 236,526	$ 14,247
Total	94	$ 1,452,611	$ 835,239	$ 582,304

NA - Not applicable

Source: Compiled by the LAD from department records

All the funds expended were for on-the-land projects; none of the money was expended for FWP staff salaries.

Table 12 lists the various types of restoration activities funded and the number of approved and completed RRP projects for each activity.

Table 12
Type and Number of RRP Projects Approved and Completed
(As of May 1998)

Type of Project	Number
Riparian fences	19
Channel restoration	9
Improve fish habitat	8
Bank stabilization	8
Prevent irrigation ditch losses of fish	6
Fish passage barrier removal	5
Improve stream flow	1
Total	56

Source: Compiled by the LAD from department records.

The 1995 Legislature replaced the River Restoration Program for ten years with the Future Fisheries Improvement Program.

Future Fisheries Improvement Program

The Future Fisheries Improvement Program was created in 1995 and terminates in 2005. The purpose of the program is to restore essential habitats for the growth and propagation of wild fish populations in lakes, rivers, and streams through voluntary means.

Program Funding

The FFIP projects were initially funded from money redirected from other programs:

1) $290,000 of RRP funds;

2) $1.5 million appropriated for the Bluewater State Fish Hatchery Project; and

3) $510,000 initially appropriated for the Tongue River restoration project. The money from the Tongue River project must be used for habitat in the Tongue River Drainage.

The legislature also redirected funds from whirling disease appropriations.

The program receives funding from general license fees - 50 cents from resident fishing licenses, one dollar from nonresident fishing licenses, and 50 cents from combination sports licenses. The general license revenue was added to the River Restoration Program's fund balance from fiscal year 1994-95. Fund balance for the FFIP program was $193,502 at the end of fiscal year 1996-97.

Program Expenditures

Table 13 shows expenditures for FFIP projects for the two fiscal years and the funding sources.

Table 13
FFIP Project Expenditures
(Fiscal Years 1995-96 and 1996-97)

Type	95-96	96-97
GL	$ 79,625	$ 396,327
RR	$ 57,230	$ 1,500
Total	$ 136,855	$ 397,827

GL - General License
RR - River Restoration Account

Source: Compiled by the LAD from SBAS records.

In 1995, the legislature approved $100,000 of State Special Revenue each fiscal year to implement the FFIP legislation and hire two FTE. Three people comprise the two FTE allocated to the program. One full-time position is located in Helena. This person reviews applications and projects if biologists do not review the projects, writes EAs for some projects, and generally oversees the program. Half of the other FTE monitors completed projects, helps regions gather pre-project fishery data, and generally assists regional staff with FFIP projects in their area. The other half FTE develops habitat projects on the Clark Fork River. Money from a private company is used to pay for project costs. The State Special Revenue monies approved to implement the FFIP

legislation pays the person's salary. This person was hired in late 1996. The bureau chief's administrative time spent on FFIP is not charged to the FFIP operating budget.

Program administration expenditures are funded by general license fees. Expenditures for program administration were $46,481 in fiscal 1995-96, and $95,170 in fiscal 1996-97. Expenditures include a contract with college students to help the person monitoring completed projects. Regional biologists charge the time they spend on FFIP projects to their regular operating budgets; they do not charge their time spent on habitat projects to FFIP.

Types of Projects Funded

In addition to restoring habitat, projects must eliminate or significantly reduce the original cause of habitat degradation. For example, if a stream is damaged by a specific land management practice, restoring the channel does little without changing the management practice.

To be eligible for funding, potential projects must accomplish one or more of the following:

- Improve or maintain fish passage;
- Restore or protect naturally functioning stream channels or banks;
- Restore or protect naturally functioning riparian areas;
- Prevent loss of fish into diversions;
- Restore or protect essential habitats for spawning;
- Enhance streamflow in a dewatered reach to improve fisheries;
- Restore or protect genetically pure native fish populations;
- Improve fishing in a lake or reservoir; and/or
- Other projects that restore or protect habitat for wild fish populations.

Preference is given to projects that restore habitat for native fish. The landowner on whose property the project is completed must also agree to the project.

Application Review Process

FWP staff, landowners, private organizations, Conservation Districts and other state or federal agencies can initiate projects. Habitat Protection Bureau staff make general recommendations to the Future Fisheries Review Panel concerning the value of the project to habitat. The review panel evaluates eligible projects based on the following criteria:

- Public benefits to wild fisheries;
- Long-term effectiveness;
- Benefits to native fish species;
- Expected benefits relative to cost;
- In-kind services or cost-sharing; and
- Importance of the lake or stream.

The review panel submits its recommendations for approval or disapproval and grant amounts to the Fish, Wildlife and Parks Commission. The commission approves or denies the projects and grant amounts at public hearings conducted as part of their regularly scheduled commission meetings. To date, there has been enough money to fund all the projects. If projects exceed funds, procedures for determining which projects will receive funding are outlined in state law and Administrative Rules.

EAs Written

An EA must be completed depending on the type of project. Administrative Rules were approved in 1994 allowing the department to construct specific projects without preparing an EA. Excluded projects include:

- Construction of riparian fences to protect stream banks;
- Minor improvements in fish habitat by placement of habitat improvement structures;
- Clean up of trash or debris in the river corridor;
- Vegetative bank stabilization projects;
- Spawning channel development to provide additional habitat for reproduction; and
- Maintenance or repair of existing RRP and FFIP projects.

In most cases, Habitat Protection Bureau staff will complete the EAs for the sponsors. In these cases, bureau staff have more expertise in the area of writing and soliciting comments for EAs. Bureau staff do not

complete EAs if the federal government is the applicant or the project is in the upper Blackfoot, in which case Region 2 (Missoula) staff is the applicant.

Bills Submitted for Payment

During and after project construction, the sponsor submits bills for either reimbursement or for the department to pay. Prior to paying the final bill department staff will review the project to determine if specifications were met.

FFIP Project Summary

As of December 1996, 48 FFIP projects were funded. Cost of the projects was $2,592,754 with $830,176 coming from the program and $1,782,222 in matching funds. Thirty-eight projects were complete, one was canceled when the landowners changed their minds, two were scheduled for completion in the Fall 1998, and seven projects are scheduled for completion in 1999. Reasons for delays in project completion include:

- Change in leadership in a conservation organization that is the project applicant;
- Delays in receiving matching dollars or in-kind contributions promised in the project proposal;
- Delays caused by landowners having trouble fitting the project into their schedule;
- Unanticipated complications related to construction; and,
- Delays related to scheduling with contractors.

Table 14 shows the status of the 48 projects and the FFIP dollar amount approved.

Table 14
Status of FFIP Projects Approved as of December 1996
(As of September 1998)

Status	# Projects	FFIP $ Approved	Proposed Matching Funds
Completed Projects	38	$ 698,128	$ 1,442,164
To be completed in 1998	2	$ 67,500	$ 282,116
To be completed in 1999	7	$ 34,548	$ 38,742
Canceled	1	$ 30,000	$ 19,200
Total	48	$ 830,176	$ 1,782,222

Source: Compiled by the LAD from department records.

Table 15 lists the various types of restoration/improvement activities for the 38 approved and completed FFIP projects.

Table 15
Type and Number of FFIP Projects Approved and Completed
(As of September 1998)

Type of Project	Number
Riparian fences	11
Creek restoration	8
Bank stablization	5
Prevent irrigation ditch losses of fish	3
Improve stream flow	3
Spawning enhancement	3
Channel restoration	3
Fish passage barrier removal	1
Fish habitat	1
Total	38

Source: Compiled by the LAD from department records.

Twenty-seven projects were submitted to the commission for approval in January 1997, with 18 more submitted in September 1997. Twenty-six of the 27 projects in January were approved, committing $432,537 of FFIP funds. Two projects in September were deferred until a later time. The remaining 16 projects, plus the project deferred in January, were approved at a cost of $141,077.

Some Project Results are Evaluated to Determine Success

A project evaluation program was established to determine if FFIP projects are improving fish populations. One half of the FTE allocated to the program evaluates completed RRP and FFIP projects to determine if the projects resulted in improved fish passage, protects spawning habitat, etc.

Program staff developed basic minimum monitoring requirements for specific types of projects such as stream flow enhancement, spawning enhancement, grade stabilization, etc. Requirements followed on each project depend on the type of project constructed.

Thirty-six of the 74 FFIP projects approved by the commission from February 1996 through February 1997 are being evaluated in 1998. The results of 13 RRP projects are also being evaluated in 1998. Not all projects can be evaluated due to time constraints so specific ones of each type are targeted for evaluation, or minimal monitoring is conducted.

Regional biologists and the project evaluator are the primary monitors. In some regions, staff from the Indian reservation or the US Forest Service evaluate projects. All personnel are to follow the guidelines established for monitoring project results. Findings are submitted to the FWP project evaluator at the end of each two year period. Findings are included in the report submitted to the legislature prior to each session. Table 16 shows the total RRP and FFIP projects by region, and the number evaluated.

Table 16
Projects Evaluated by Region
(Calendar Year 1998)

Region	Total Projects		Projects Evaluated	
	RRP	FFIP	RRP	FFIP
1	3	4	1	2
2	32	28	6	18
3	16	22	7	10
4	7	14	0	2
5	3	0	0	0
6	0	6	0	4
7	0	0	0	0
Total	61	74	14	36

Source: Compiled by the LAD from department records.

Regional staff are evaluating 33 projects for results. The project evaluator monitors another 14 projects. Staff from other agencies are evaluating three projects.

Department staff indicated that by and large they have consistently found the projects have improved the fish populations in the project areas. Projects with the most dramatic positive impact on fish populations have been in small streams with fish habitat that was in poor shape.

Procedures Needed to Ensure EAs Written

During our audit we visited three FFIP projects. When we compared the three projects visited to project file information, we found the projects on the ground were as described in the application. We also reviewed files for another 13 projects to determine if state law and rule, and FWP policies were followed. While reviewing the files we noted a project application for planting bald cypress along a lake shore for perch habitat did not have an EA written. Bald cypress is not a plant native to Montana. FWP imported the plants from Tennessee.

The Montana Environmental Policy Act (MEPA) requires consideration of environmental and human impacts of an agency's proposed action and assurance the public is informed of, and participates in the decision-making process. The department did not meet MEPA requirements when it did not write an EA for planting bald cypress.

In talking to division staff, when the project application was submitted for review by the Future Fisheries Review Panel the applicant was not sure what plants would be used. The need for an EA is determined when an application is submitted. The type of project and materials used determines the need for an EA. In this case, the project was deemed as not needing an EA when the application was submitted.

The project was approved for funding and a study was completed to determine the best plants for the intended use. The applicant decided bald cypress would meet the requirements. Plants were purchased and planted without further consideration of the need for an EA. There are no policies requiring division or regional staff to revisit an application to determine if an EA is needed when the project is changed or modified.

We informed the department of our finding and they agreed an EA should have been written. Helena staff now require all fisheries biologists who successfully obtain funding for Future Fisheries projects to notify program staff of any changes in the project from what was originally proposed so the need for an EA can be evaluated.

Recommendation #4
We recommend Fisheries Division implement procedures to identify the need for Environmental Assessments and ensure they are written when needed.

Other Habitat Programs

Fisheries biologists are also involved in habitat programs/projects which do not utilize FFIP funds. These programs include projects on the Clark Fork River, the Blackfoot River Restoration Project, dam mitigation projects, and projects with sportsmen and youth groups. The following sections describe the types of projects and funding sources of these habitat programs.

Clark Fork River Habitat Projects

FWP received approximately $250,000 for mitigation on the Clark Fork River. To utilize the funds to the fullest extent, the department funded one-half of the FFIP FTEs to develop habitat projects from Milltown Dam up the main stem of the Clark Fork, including the Rock Creek drainage, the Little Blackfoot drainage, and all the tributaries.

Design and/or construction for ten projects was completed as of May 1998. Estimated project costs ranged from $1,700 for riparian vegetation to $223,000 for stream relocation and channel stabilization. Five more projects are under construction in 1998. Table 17 shows expenditures from the mitigation account for fiscal years 1992-93 through 1996-97.

Table 17
Mitigation Fund Expenditures for Habitat Projects on the Clark Fork River
(Fiscal Years 1992-93 through 1996-97)

92-93	93-94	94-95	95-96	96-97
$2,042	$10,104	$54,328	$17,352	$33,994

Source: Compiled by the LAD from SBAS records.

The mitigation money is used for cost-sharing and funding projects, not staff salaries. Expenditures include aerial photographs of stretches of

the river, the request for proposal process, reimbursing contractors, and purchasing materials. None of the projects utilized FFIP funds.

Blackfoot River Restoration Project

One of the major habitat projects funded from GL and DJ money is work conducted on the Blackfoot River. Declining stocks of rainbow and brown trout, which comprise the majority of the fishery in the Blackfoot River, along with very low numbers of bull and westslope cutthroat trout living in the river, prompted an assessment of fish populations and their habitats in 1988 and 1989. The assessments identified significant degradation in 17 of 19 principle tributaries. From 1990 to 1996, similar assessments were completed for 33 additional tributaries to the Blackfoot. Impaired fisheries existed in 26 of these streams, mainly from degradation of habitat on private lands.

A cooperative effort restoring fisheries and riparian zones in the Blackfoot drainage started in 1990. Cooperators include private landowners, non-profit groups, and federal and state agencies. FWP reprioritized the time of two fisheries biologists to develop restoration projects. Private organizations supported this effort by raising funds, administering projects, contacting landowners and resolving conflicts. Recruitment of other agencies and private cooperators resulted in 36 completed restoration projects on 29 streams, influencing over 200 stream miles. Twenty of the 36 projects received FFIP funding.

Most of the restoration effort has occurred in tributaries to the middle reaches of the Blackfoot River. Restoration activities included water leasing, riparian fencing, changing livestock management, developing sites for off-stream watering, reconstructing stream channels, adding woody debris to streams, modifying irrigation systems, removing barriers to fish migration, and planting riparian vegetation. Table 18 shows the number of streams affected by the various restoration activities.

Table 18
Streams in the Blackfoot Drainage with Restoration Activities
(As of June 1998)

Type of Restoration	# of Streams
Fish passage barrier removal	26
Prevent irrigation ditch losses of fish	13
Critical spawning habitat protection	5
Channel restoration	16
Improve fish habitat	21
Improve riparian vegetation	18
Improve stream flow	11
Improve wetland	10
Improve range-riparian habitat	21
Improve livestock-irrigation system	23
Remove streamside feedlot	11

Source: Compiled by the LAD from department records.

Project monitoring reports indicate increased spawning opportunities and densities of juvenile trout. The abundances of native westslope cutthroat and bull trout are increasing in some restored streams. Monitoring of river populations also show increased numbers of adult trout in the middle reach of the Blackfoot River.

The vast majority of the funding for the projects comes from sources other than FFIP. The sources include federal and state agencies, Conservation Districts, private landowners, corporations, and public groups. FWP biologists' time spent on the projects is paid via GL and DJ funds from the region's general fisheries budget. Table 19 shows FWP's expenditures for the Blackfoot River Restoration Project by funding source.

Table 19
Blackfoot River Habitat Project Expenditures
(Fiscal Years 1990-91 through 1996-97)

Fund Type	Fiscal Years						
	90-91	91-92	92-93	93-94	94-95	95-96	96-97
GL		$ 5,239	$ 3,783	$ 6,987	$ 9,076	$ 7,674	$ 4,478
DJ		$ 15,716	$ 11,348	$ 20,961	$ 27,227	$ 12,971	$ 9,091
DNRC				$ 10,115	$ 55,843	$ 39,852	$ 31,153
Other	$ 7,161	$ 298	$ 1,000	$ 4,599	$ 2,874		$ 19,210
Total	$ 7,161	$ 21,253	$ 16,131	$ 42,662	$ 95,020	$ 60,497	$ 63,932

DNRC - Montana Department of Natural Resources and Conservation

Source: Compiled by the LAD from SBAS records.

Habitat Projects Resulting from Mitigation Funding

Biologists in a number of regions are involved in habitat projects resulting from mitigation for dams built on Montana's rivers. The largest projects occur in Region 1 resulting from mitigation for Libby and Hungry Horse Dams. As a result of the availability of mitigation funds for habitat projects, there are few FFIP projects in the area.

Hungry Horse Dam Mitigation

The mitigation plan for Hungry Horse Dam includes a discussion of fisheries habitat enhancement and stabilization and fish passage improvements. In 1992 potential habitat and fish passage projects were identified. Projects benefitting native fishes are given the highest priority. The two primary native fish in the area are bull trout and westslope cutthroat.

Four projects in the area involved improving habitat on four different creeks. Seven fish passage projects in the Hungry Horse Dam area have increased habitat available for spawning and rearing by 16 percent. The projects consisted of removing culvert barriers on seven creeks. Staff in Region 1 evaluate the success of the projects.

Revegetation tests are also being conducted to identify native plants that can survive and become established in the Hungry Horse Reservoir drawdown zone. Grass seed plants were also established to revegetate

mud flats near the upper end of the reservoir. Both projects will be evaluated for success.

A number of other projects are also under consideration for habitat and passage improvement. Projects include removing culverts, repairing sediment sources, and riparian fencing.

Regional FWP staff time is paid from Bonneville Power Administration (BPA) funds. The exact amount dedicated specifically to habitat can not be readily calculated because funds are not accounted for by project.

Broadwater Power Project Mitigation

Three fisheries projects were implemented in 1991 to mitigate for expected brown trout losses due to the Broadwater Power Project. Mitigation for fish losses included: enhancement of spawning habitat; installation of a siphon to eliminate a seasonal fish passage barrier and to establish spawning runs; and four years of brown trout egg collection and hatchery rearing of brown trout fry. Although brown trout were the targeted species, project monitoring has shown little, if any improvement after the projects. In contrast, the rainbow redd (fish nest or spawning ground) counts and number of rainbow trout entering the treated areas have increased significantly.

The FWP biologist's time spent on this project was charged to the general operating budget.

Miscellaneous Habitat Projects

Most field biologists are involved with miscellaneous habitat projects sponsored by local sportsmen groups, civic organizations, youth groups, etc. These projects consist of increasing spawning habitat by putting structures in lakes, consolidating short channels of a stream to make it deeper for fish passage, etc. Activity in this area depends entirely on the activity of the various groups in the area. Staff time spent on these projects is charged to their general operating budgets.

Funds Dedicated to "On-The-Land" Habitat Improvement Programs

One of the audit objectives was to determine the percentage of available dollars dedicated to "on-the-land" improvement programs versus studies, research, planning, hatchery improvements, and operations. There are three habitat programs which have funds dedicated to on-the-land improvements - the River Restoration Program, the Future Fisheries Improvement Program, and money for habitat on the Clark Fork River. The expenditures from those projects were compared to expenditures for operations, studies/research and capital improvements. ***The percentage of funds for on the land projects increased from 0.07 percent in fiscal year 1989-90 (the first year of the RRP) to 5.7 percent in fiscal year 1996-97.*** Table 20 shows the dollar amounts and percentage of funds for the various areas.

Table 20
Percentage of Fisheries-Related Expenditures Dedicated to On-The-Land Projects
(Fiscal Years 1989-90 through 1996-97)

Fiscal Year		Operations	Studies/ Research	Hatchery Improvements	On-the-Land Projects	Total
89-90	Amount	$4,666,227	$784,758	$291,370	$3,942	$5,746,297
	Percent	81.20%	13.66%	5.07%	0.07%	
90-91	Amount	$4,796,463	$894,066	$361,411	$5,623	$6,057,563
	Percent	79.18%	14.76%	5.97%	0.09%	
91-92	Amount	$5,315,095	$814,049	$1,498,907	$51,122	$7,679,173
	Percent	69.21%	10.60%	19.52%	0.67%	
92-93	Amount	$5,204,813	$924,802	$277,666	$48,680	$6,455,961
	Percent	80.62%	14.32%	4.30%	0.76%	
93-94	Amount	$5,343,566	$1,026,752	$578,243	$97,736	$7,046,297
	Percent	75.84%	14.57%	8.20%	1.39%	
94-95	Amount	$5,184,325	$1,439,518	$123,440	$191,229	$6,938,512
	Percent	74.72%	20.74%	1.78%	2.76%	
95-96	Amount	$5,729,269	$1,362,469	$223,506	$346,175	$7,661,419
	Percent	74.78%	17.78%	2.92%	4.52%	
96-97	Amount	$5,874,600	$1,704,462	$187,240	$469,689	$8,235,991
	Percent	71.33%	20.70%	2.27%	5.70%	

Source: Compiled by the LAD from SBAS records.

The dollar amounts and percentages do not reflect money spent on habitat projects not specifically dedicated to on-the-land projects as described in the above sections. For example, BPA mitigation money has been expended for habitat projects, but there is not a specific amount dedicated to on-the-land projects. The BPA money spent for habitat is included in studies/research and not on-the-land projects.

Summary

Biologists participate in two habitat protection programs (the Stream Protection Act and the Natural Streambed and Land Preservation Act) and two legislatively mandated habitat improvement/restoration programs (the River Restoration Program and the Future Fisheries Improvement Program). Biologists are also involved with a number of other habitat restoration/improvement programs that do not rely on funding from the two legislative programs. These range from redirecting a stream channel on a tributary to the Blackfoot River to putting structures in a pond for perch habitat. Audit work showed:

- ***Fisheries biologists are actively involved in protecting habitat.*** The biologists review applications for 310 and 124 permit projects to recommend permit requirements to ensure the fishery will not be adversely affected.

- ***Fisheries biologists are involved in the River Restoration and Future Fisheries Improvement Programs.*** Biologists are aware of the River Restoration and Future Fisheries Improvement Programs projects in their areas and look for new ones when conducting work in the field.

- ***FFIP projects are constructed as they were described in the application.***

- ***FFIP expenditures are not made without submission of appropriate documentation from regional staff.***

- ***Some project results are evaluated to determine if the project was successful.*** Department staff indicated that by and large, they have consistently found the projects have improved the fish populations in the project areas.

- ***Fisheries biologists are also involved in habitat programs/projects which do not utilize FFIP funds.*** These programs include projects on the Clark Fork River, the Blackfoot River Restoration Project, dam mitigation projects, and projects with sportsmen and youth groups.

- ***The percentage of funds for on the land projects increased from 0.07 percent in fiscal year 1989-90 (the first year of the RRP) to 5.7 percent in fiscal year 1996-97.***

During our review of FFIP project files, we found an EA was not written for one project. The department indicated an EA should have been written. Biologists are required to notify the division of any changes to projects from what was originally proposed so the need for EAs can be addressed.

Overall, we found regional and division staff are involved in protecting and restoring/improving habitat.

Chapter V - Water Reservations and Leasing

Introduction

When addressing our audit objective to determine expenditures and activities related to habitat, we also examined water quantity. Stream fish habitat can be thought of in three components: 1) physical habitat; 2) quantity of water required to fill the physical habitat, and 3) quality of that water. The Department of Environmental Quality regulates the third component. Instream flows provide the water quantity component of stream fish habitat. Instream flows are necessary to maintain adequate living space for fish, to provide spawning areas and places where young fish can grow, to protect food-producing areas, to maintain water quality, to help provide streamside vegetation, and in some cases, to protect species of special concern.

FWP Uses Murphy Rights, Water Reservations, and Leasing to Ensure Water Quantity

The legislature enacted three laws to address water quantity for fisheries - Murphy Rights, Water Reservations, and water leasing. ***FWP utilizes all three laws to ensure water is available for Montana's fisheries.*** The water leasing program ends June 30, 1999. The legislature will have to determine whether the law should be extended. Preliminary findings show the leases benefitted the fisheries. The following sections describe department activities under the three laws and include a recommendation for inter-department communication.

Murphy Rights

In 1969 the legislature enacted a statute allowing FWP to appropriate water on 12 blue ribbon trout streams. These are called Murphy Rights. The 12 streams include the Blackfoot River, Rock Creek by Missoula, the Missouri River below Holter Dam, the Madison, Gallatin, Yellowstone, Smith, Big Spring Creek by Lewistown, the North, South, and Middle Forks of the Flathead, and the main Flathead. The priority rights for the Murphy Rights is January 1971. The amount of water claimed by FWP depends on the time of year and largely follows the streamflow hydrograph. FWP filed their Murphy water rights to comply with the Montana Water Use Act created in 1973. The department is in the adjudication process for these rights.

Water Reservations

Water reservations came into being with the water law change in 1973. Under this statute public entities can apply to the Department of Natural Resources and Conservation (DNRC) for future or existing water rights for beneficial use. This law allowed FWP to apply for instream flows on the rivers/creeks in the state not covered under Murphy Rights. Prior to this law, Montana had no statute allowing instream flows to be systematically secured for fish and wildlife. The 1973 act specifically defined fish and wildlife as a beneficial use of water and it authorized appropriation of water for in stream purposes under the concept of water reservations.

Water reservations cannot affect the existing water rights of any water user. Only water users who obtain permits to appropriate water after the reservations are established can be affected by those reservations. Reservations do not create any new water; they only maintain the status quo of stream flow. If a stream has a low flow problem because of current water use, the reservation process does not improve the condition. However, it can keep dewatering from getting worse if new diversionary uses are granted.

In the 1970s the department obtained reservations on the Yellowstone Basin. The 1985 Legislature allowed FWP to proceed with reservations on the Missouri Basin. FWP divided the area into the upper and lower Missouri Basins to make the project more manageable. In 1992 FWP was granted reservations on about 250 streams for instream flow in the upper Missouri Basin. The lower basin was completed by 1994 and FWP was granted reservations on 18 more streams. The department currently has about 350 instream flow rights. Regional biologists provided needed information and presented the department's case at the hearings.

Water may be reallocated every five years if other qualified applicants can demonstrate a better use for the water. Water reservations must be reviewed at least every 10 years to determine if the objectives are being met. The Yellowstone Basin reservations were reviewed in 1988. Nothing changed as a result of the review. Based upon guidelines established by DNRC, the review due in 1998 will explain why FWP still needs the reserved water.

Monitoring Water Flows

One staff person monitors water flows under the reservations. He accesses the Internet to determine the readings from a number of United States Geological Survey (USGS) water gauges at various sites in the rivers. If the water level reaches a certain point, he can notify "junior" water users the department might ask them to stop using water. If the situation warrants, the junior users may have to actually stop using water.

Clark Fork Basin Water Management Plan

Legislation passed in 1991 created the Upper Clark Fork River Basin Steering Committee and directed the committee to write a comprehensive water management plan by the end of 1994. The legislature also closed a basin except for the Big Blackfoot and Rock Creek watersheds until June 30, 1995, to the issuance of most new water use permits. The period of closure was set to provide the Steering Committee time to develop a basin water management plan and for the legislature to act on the plan's recommendations before the closure would end.

The 1995 Legislature implemented recommendations outlined in the Water Management Plan created by the Upper Clark Fork River Basin Steering Committee. Recommendations implemented included an instream flow pilot study on the Clark Fork Basin, maintain a steering committee, continue the restriction of water use permits on the Clark Fork River Basin, and report the results of the instream flow pilot study by December 31, 2004.

Water Reservation Expenditures

Section 85-2-316(3), MCA, requires applicants for water reservations to pay for DNRC's cost of giving notice of hearings, holding the hearing, and conducting investigations. Applicants also have to pay a reasonable proportion of DNRC's cost of preparing an environmental impact statement (EIS). Applicants do not have to pay for DNRC's personnel salaries.

FWP expenses from fiscal year 1989-90 through 1993-94 for water reservations totaled over $370,000. Most of the expenses were for reservations on the lower Missouri River Basin. Expenditures included contracted services for an EIS and FWP staff time. Table 21 shows

water reservation expenditures by funding source for the four years ending 1993-94.

Table 21
Expenditures for Water Reservations
(Fiscal Years 1989-90 through 1993-94)

Fund Type	Fiscal Year					Description
	89-90	90-91	91-92	92-93	93-94	
GL	$ 8,047	$ 4,403				Missouri River Reservations
DJ	$ 24,140	$ 13,209				
GL	$ 15,000	$ 15,013	$ 20,657	$ 16,500	$ 9,063	Missouri River Reservation EIS
DJ	$ 65,000	$ 45,038	$ 61,970	$ 49,500	$ 27,188	
Total	$ 112,187	$ 77,663	$ 82,627	$ 66,000	$ 36,251	

Source: Compiled by the LAD from SBAS records.

Water Leasing

In 1989 the legislature established the water leasing program. The purpose of the leasing law is to study the feasibility of leasing existing water rights to enhance instream flows for fisheries. Amendments to the original bill in both the 1991 and 1993 Legislative Sessions extended the study to June 30, 1999.

Before a lease agreement is made, FWP must assess the impacts of potential leases on other water right holders on the stream and then seek approval for a lease from DNRC through the existing water right change process. An EA is written for each lease and distributed for public review and comment.

FWP can only lease from a willing party. Leases cannot result in the confiscation of water rights and a lease may not be approved until any objections to the lease are resolved through the change process.

The maximum amount of water that may be leased is the amount historically diverted by the lessor at his point of diversion. However, only the amount historically consumed, or a lesser amount as determined by DNRC, may be protected below the point of diversion.

A lease may be issued for a maximum period of 10 years but may be renewed one time for an additional 10 years. Leases resulting from a water conservation or storage project, such as converting from flood irrigation to sprinkler irrigation, can be issued the first time for not more than 20 years. There is no provision for renewing a 20-year lease. All leases entered into prior to June 30, 1999, remain valid until the expiration of the lease.

Table 22 shows the leases FWP entered into as of November 1997.

Table 22
Water Lease Terms and Cost
(As of November 1997)

Source	Lessor	Lease Term/Exp.	Cost
Mill Creek	Water and Sewer District	10 years August 1, 2003	$12,750 per year*
Mill Creek	Individual	10 years April 1, 2003	$7,500 per year
Mill Creek	Individual	10 years May 1, 2006	$4,200 per year
Blanchard Creek	Individual	5 years June 20, 1999	Up to $2,000 per year
Tin Cup Creek	Six individuals	5 years November 4, 2000	$6,260 per year
Cedar Creek	US Forest Service	10 years September 20, 2005	$1.00 per year
Hells Canyon Creek	Three individuals	20 years April 1, 2016	$25,000 - one-time payment
Chamberlain Creek	Individual	10 years April 1, 2007	$1.00 per year
Pearson Creek	Individual	10 years April 1, 2007	$1.00 per year
Cottonwood Creek	FWP	9 years June 30, 2005**	None

*Lessor pays for water commissioner and the installation of measuring devices on all on-farm turnouts from the pipeline.
**FWP converted its own water rights to instream flow under section 85-2-439, MCA.

Source: Compiled by the LAD from department records.

Over 100 potential leasing opportunities have been explored through the years which did not result in a lease. The primary reasons for not leasing the water include:

- The flow offered for leasing was too small to make a difference;
- The water right had a poor priority date;
- The water right was in the wrong location on the stream;
- The validity of the water right was in question;
- The stream did not have a dewatering problem; and
- The fishery benefit did not justify a lease.

Flow Monitoring

Water commissioners administer water rights on two streams with four of the nine leases. Both of these streams have many other water users besides FWP. The remaining five leases are on streams with few or no other water users. Monitoring is done by FWP and there have been no major problems with lease implementation.

Biological Monitoring

Biological monitoring is being done on all leases to determine their effectiveness in improving fisheries. Monitoring intensity varies and is currently done by FWP fisheries biologists and graduate students when available. Local biologists collect data when they can, charging their time to their general operating budget. Monitoring results are submitted to Helena where they are included in an annual report submitted to the Montana Environmental Quality Council, DNRC, and Fish, Wildlife and Parks Commission.

Monitoring results for most of the leases are not conclusive at this time as to the benefit for instream flows since five of the nine leases were entered into in 1996 or 1997. One of the earlier leases has shown an increase in the diversity of species in the stream, and an increase in the number of trout over four inches. The three other earlier leases showed an increase in cutthroat fry migrating to the mainstream river from 1996 to 1997.

Coordination With Other Programs

Four of the nine leasing projects involved converting flood irrigation systems to gravity pipeline and sprinkler systems. The cost of conversion was borne by the landowner and/or the department. Some FFIP projects also involved conversion from flood to sprinkler irrigation.

DNRC administers the Renewable Resource Grant and Loan Program (RRG&L) which also funds irrigation systems. Private individuals are eligible for grants and loans for water-related projects through the program. Many of the private loans are for converting from flood irrigation to pivot or sprinkler irrigation.

The purpose of FWP's leasing program is to increase the quantity of water in streams used by fish for spawning, rearing, and developing. The purpose of the FFIP is to improve fish habitat, which includes increasing the amount of water retained in a stream. The purpose of the RRG&L Program is to conserve renewable resources, one of which is water. By conserving water through more efficient irrigation, the quantity of water remaining in the stream increases.

We found most fisheries biologists were not aware of the RRB&L Program at DNRC. If biologists are aware of the program, landowners could be informed of a potential source of funding for the irrigation conversion. This could lead to a more effective use of three funding sources. Also, if the landowner has another source of funding, possibly the amount requested for the water lease could be reduced. If a stream with a potential fishery is dewatered by water conversions, the RRB&L Program could be another funding source for conversion projects.

In response to our recommendation to communicate with the field biologists and DNRC, department management indicated the addresses of all the fisheries biologists were sent to DNRC with the request the biologists receive information about the program. We also believe FWP should inform DNRC of proposed water leasing projects and applicable habitat projects to determine if the RRB&L Program could be a funding source.

Recommendation #5

We recommend the Fisheries Division formally communicate with:

A. The field biologists about the Renewable Resource Grant and Loan Program administered by the Department of Natural Resources and Conservation; and,

B. The Department of Natural Resources and Conservation concerning proposed water lease projects and applicable habitat projects to determine if the RRG&L Program could be a funding source.

Expenditures for Water Leasing Program

Expenditures for water leasing include the amounts paid for the leases and staff costs to review potential leases. In fiscal year 1992-93 a private organization contributed to a water lease. Table 23 shows by funding source expenditures for the leasing program from fiscal year 1989-90 through 1996-97.

Table 23
Water Leasing Program Expenditures
(Fiscal Years 1989-90 through 1996-97)

Fund Type	Fiscal Year							
	89-90	90-91	91-92	92-93	93-94	94-95	95-96	96-97
GL	$ 10,000	$ 42,051	$ 566	$ 22,534	$ 13,956	$ 39,530	$ 42,221	
DJ		$ 15,303	$ 1,719	$ 5,625	$ 5,510	$ 2,860		$ 35,418
CG				$ 7,277				
Total	$ 10,000	$ 57,354	$ 2,285	$ 35,436	$ 19,466	$ 42,390	$ 42,221	$ 35,418

CG - Conservation Group

Source: Compiled by the LAD from SBAS records.

Expenditures for the Instream Flow Programs

Besides the specific expenditures for water reservations and water leases, the department has incurred other expenses for instream flows. Instream flow coordination includes two staff. Water measuring devises were required by the legislature in 1991. DNRC was to install devices in chronically dewatered watercourses. FWP contributed some money. The USGS project is a 50/50 fund match to operate stream gauges and thermograph stations on important fishing streams. The objective is to project water rights and monitor long term effects of flows and

temperatures on fish populations. The Painted Rocks Water Purchase expenditures purchases water from the reservoir to maintain instream flows. Table 24 shows the miscellaneous instream flow expenditures.

Table 24
Instream Flow Expenditures
(Fiscal Years 1989-90 through 1996-97)

Fund Type	Fiscal Year								Description
	89-90	90-91	91-92	92-93	93-94	94-95	95-96	96-97	
GL	$ 83,646	$ 78,740	$ 82,937	$ 96,774	$ 87,367	$ 95,247	$ 91,081	$ 91,473	Instream Flow Coordination
GL			$ 5,997	$ 1,000					Water Measuring Devices
GL	$ 43,075	$ 40,825	$ 39,875	$ 47,725	$ 72,275	$ 59,950	$ 60,415	$ 65,175	USGS Projects
GL	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	Painted Rocks Water Purchase
PC					$ 5,000	$ 5,000	$ 5,000		
Total	$ 146,721	$ 139,565	$ 148,809	$ 165,499	$ 179,642	$ 175,197	$ 171,496	$ 171,648	

PC - Private Company

Source: Compiled by the LAD from SBAS records.

Summary

Water quantity is one of three components of fish habitat. Since 1969, when the department filed for Murphy Rights on 12 blue ribbon trout streams, FWP has utilized two more laws allowing it to increase the quantity of waters in streams. The water law change in 1973 allowed FWP to apply for instream flows on the rivers/creeks in the state not covered by Murphy Rights. The 1989 Legislature established the water leasing program. Under this program, FWP has entered into ten leases. The leases range in price from $1 each year to $12,750 per year for 10 years.

Chapter VI - Special Projects

Introduction

An audit objective was to determine what special projects/studies have been conducted since fiscal year 1990, the results of the projects/studies, if any recommendations of the projects/studies were implemented, and how successful the projects/studies have been.

The vast majority of special projects/studies (hereinafter referred to as projects) are funded with money the department receives from federal agencies (other than the DJ grant), private companies, organizations and citizens, other state agencies, grants, contracts, gifts, and/or donations. If the department did not receive this money the special projects would not be conducted. Many of the projects relating to species of concern or endangered species are also funded by general license (GL) and Dingle Johnson (DJ) money.

Current Major Projects Carried Out Under Written Plans

All of the current major projects are carried out under a plan usually written in cooperation with a number of agencies. ***In reviewing the plans and annual reports we found recommendations are implemented. Not all the projects are successful (Mysis shrimp), and many of the projects are still on-going so the final success is not known at the time of this report.***

Expenditures for the various projects ranged from $5 million over 8 years to $151,000 over 7 years. The following table shows the total expenditures for the majority of special projects conducted by the Fisheries Program from fiscal year 1989-90 through 1996-97.

Table 25
Total Expenditures by Special Project
(Fiscal Years 1989-90 through 1996-97)

Project	Time Period	Expenditures
Grayling	91-92 through 96-97	$ 469,641
Westslope Cutthroat	90-91 through 96-97	$ 151,463
Pallid Sturgeon	89-90 through 96-97	$ 1,302,582
Bull Trout	92-93 through 96-97	$ 275,746
Paddlefish	89-90 through 96-97	$ 744,945
Hungry Horse & Libby Dam Mitigation	89-90 through 96-97	$ 5,046,590
Kalispell Information Services Unit	89-90 through 96-97	$ 983,443
Miscellaneous Projects	89-90 through 96-97	$ 893,063

Source: Compiled by the LAD from SBAS records.

The following sections provide a brief discussion and time periods of events associated with special projects the Fisheries Program has been involved in since fiscal 1989-90. Since many projects last more than two years we gathered information from 1990 to 1997 to develop a history of the projects. A more complete description of the projects and their expenditures are contained in Appendix B.

Arctic Grayling Recovery Program

FWP initiated the Arctic grayling recovery program due to a decline in the number of grayling in Montana and the potential for listing as an endangered species. A Memorandum of Understanding (MOU) was signed by FWP and the USFWS stating grayling would not be listed if Montana started a recovery program. Individuals from a number of agencies, including FWP, developed an Arctic grayling recovery plan. To date, a stock watering project in the Wisdom area was completed, and the Ruby River was planted with grayling. Other plants were made prior to signing the recovery plan. Biologists indicated it appears these

stockings did not work. A person is on contract to monitor the plantings, specifically in the Ruby River. Regional staff reported as of October 1998, results of that planting appeared to be highly successful, but the true success will not be known until after the upcoming winter and spring runoff. Data also suggests fish from the 1997 plant have survived.

Table 26 shows the events that have occurred in the Arctic grayling recovery program.

Table 26
Arctic Grayling Recovery Program Events

1982	Montana Arctic grayling designated as a category 2 candidate for listing under the Endangered Species Act.
1987	Montana Fluvial Arctic Grayling Workgroup established.
1989	Big Hole River ranchers adopted a policy under which flows are not fluctuated greatly during spawning.
June 1991	MOU created between FWP, BLM, USFWS, USFS, sportsmen groups, and National Park Service concerning grayling restoration. (Renewed in June 1996)
1991	FWP hired a biologist specifically for the grayling recovery program.
1992 & 93	Fish planted in Gallatin and East Gallatin Rivers.
1992	Big Hole River stocked with 214 yearling from the Big Hole reserve stock.
1993 & 94	Cougar Creek stocked.
1994	Cherry Creek stocked with Madison River grayling.
1994	Stock water tanks installed for area ranchers to maintain adequate flows in Big Hole River.
November 1995	Montana Fluvial Arctic Grayling Restoration Plan approved by Workgroup.
February 1996	USFWS and FWP entered into a Memorandum of Agreement for the Implementation of the Fluvial Arctic Grayling Restoration Plan.
September 1997	Ruby River stocked with 30,000 fish reared that year.

Source: Compiled by the LAD from department records.

Work has also been conducted on Arctic grayling in the Madison River/Ennis Reservoir. The fish population was studied to determine if it was fluvial (living in a stream or river). The Big Hole was thought to be the sole remaining location in the contiguous United States with a population of fluvial grayling. Biologists determined the Madison River/Ennis Reservoir population is not fluvial.

Conclusion: Recovery Plan Followed

The MOU and recovery plan require FWP to have a minimum of five Montana Arctic grayling reintroductions in progress by 2000, serve as lead agency for oversight on implementation of the restoration plan, and continue proactive efforts to maintain instream flows in the Big Hole River Basin. Grayling were stocked in 1997 and 1998 and appear to be surviving, the department dedicated FTE to the restoration effort, and reports show stock water wells have helped instream flows.

Westslope Cutthroat Recovery Project

FWP considers westslope cutthroat a species of concern since the numbers and range inhabited are dwindling. Regional biologists gather information on population locations and numbers when conducting their monitoring work. When possible they also gather samples for genetics testing. A number of relocation projects have been completed since fiscal year 1990-91. In fiscal year 1994-95 FWP started funding personnel to inventory westslope cutthroat. A conservation agreement and management plan was drafted in June 1998. Table 27 shows the events that have taken place in the westslope cutthroat recovery project.

Table 27
Westslope Cutthroat Trout Recovery Project Events

1994	FWP started funding operations for westslope cutthroat inventory in conjunction with the USFS.
1994	Interagency fisheries professionals met to review status and on-going work on westslope cutthroat.
March 1995	Upper Missouri River Westslope Cutthroat Technical Committee formed.
September 1996	Governor hosted a workshop and the Westslope Cutthroat Trout Steering Committee was formed to advise FWP concerning the future of the species.
June 1998	Draft of a Conservation Agreement and Management Plan for Westslope Cutthroat Trout in Montana distributed to members of the Steering Committee for review.

Source: Compiled by the LAD from department records.

Conclusion: FWP Working Toward Agreement to Preclude Listing of Westslope Cutthroat

Westslope cutthroat trout are a species of concern in Montana. Data shows they are found in 20 percent of their original range and genetic purity has decreased substantially. We found FWP, in cooperation with other agencies, is following a planned approach to increase the number of genetically pure westslope cutthroat in their original range. FWP, and other agencies, are also cooperating in writing an agreement with the USFWS to hopefully preclude westslope cutthroat from being placed on the endangered species list. Biologists gather more data every year to understand the distribution, habitat, and habits of the species. This information is intended to be used to determine ways to increase the number of fish in their original range.

Pallid Sturgeon Recovery Project

In response to sightings of pallid sturgeon in the Fort Peck tailrace and potential listing of this candidate endangered species, the Army Corps of Engineers began funding research downstream of Fort Peck Dam in April 1989. Pallid sturgeon were listed as endangered in 1990.

In 1990 the Bureau of Reclamation (BOR) started funding studies on the lower Yellowstone River in response to the proposed rehabilitation and increased elevation of the Tongue River Dam spillway.

Table 28 shows the events that have taken place in the pallid sturgeon recovery project.

Table 28
Pallid Sturgeon Recovery Program Events

April 1989	Army Corps of Engineers begins funding pallid sturgeon research downstream of Fort Peck Dam.
1990	Pallid sturgeon listed as endangered.
November 1990	Pallid Sturgeon Recovery Committee convened to discuss needed research.
November 1993	Final Pallid Sturgeon Recovery Plan signed.
September 1993	Montana-North Dakota Pallid Sturgeon Recovery Workgroup met to discuss their role in the recovery of pallid sturgeon.
December 1993	Pallid Sturgeon Recovery Workgroup identified 31 research needs.
February 1994	Prioritized research needs list developed. The list is used to determine funding from the various federal sources.
Yearly since 1993	Recovery team meets to discuss what was done the previous season and what is planned for the upcoming season.
November 1997	The Upper Basin Workgroup Stocking Team developed a plan for stocking pallid sturgeon in recovery priority management areas in Montana and North Dakota.

Source: Compiled by the LAD from department records.

Conclusion: FWP Active in Pallid Sturgeon Recovery

Reports show Montana has been actively involved in the recovery of pallid sturgeon in the Missouri and Yellowstone Rivers since the 1980s. In response to the listing FWP has been a member of the Pallid Sturgeon Recovery Workgroups and conducted studies in accordance with agreed upon research priorities. Annual reports are produced describing what was accomplished during the year and includes recommendations for future work in the Yellowstone and Missouri Rivers.

Bull Trout Study

Bull trout are native to the upper Columbia River Basin in northwest Montana. Bull trout are considered a species of special concern by FWP and the Montana Chapter of the American Fisheries Society, and were listed as threatened under the Endangered Species Act by the USFWS in June 1998.

As a result of the listing, FWP had to modify their strategy for restoring bull trout. The department would like to use the restoration plan prepared by the Bull Trout Restoration Team as Montana's portion of the federal recovery plan. If it is accepted, the steps in the plan can be implemented. The USFWS has up to 30 months from the time of listing to distribute a final bull trout restoration plan that encompasses bull trout populations in Montana, Idaho, Oregon, and Washington.

Table 29 shows the events conducted in relation to bull trout in Montana.

Table 29
Events Relating to Bull Trout

Since the 1970s	Region biologists gather data on bull trout population estimates and redd counts.
December 1993	The governor convened a roundtable discussion concerning the need for creating and implementing a bull trout restoration plan in Montana. A Restoration Team was created at the meeting.
1994	The Restoration Team appointed a Scientific Group to provide the technical expertise necessary for the restoration planning effort.
1995	FWP hired bull trout coordinator to staff the Restoration Team.
1995, 1996	Scientific Group developed status reports for each of the restoration/conservation areas developed for bull trout populations.
1996	Scientific Group wrote reports: describing the role of stocking in bull trout recovery; concerning the assessment of methods for removal or suppression of introduced fish to aid in bull trout recovery.
1998	Scientific Group wrote a report describing the relationship between land management activities and habitat requirements of bull trout.
June 1998	Bull trout listed as threatened by USFWS.
July 1998	Draft bull trout restoration plan distributed to Restoration Team for review.
November 1998	Draft bull trout restoration plan distributed to the public for review.

Source: Compiled by the LAD from department records.

Conclusion: Bull Trout Recovery Efforts Coordinated

Regional staff indicated the department has been monitoring bull trout for over 30 years. In the 1990s a restoration team was established to coordinate recovery efforts. In 1998 bull trout were listed as threatened. The Restoration Team drafted a recovery plan which the department would like to use as Montana's recovery plan under the listing. Biologists' findings concerning bull trout are being used for recovery efforts, and the reports generated in the study of bull trout are used. None of the recommendations from the recovery plan have been used at the time of this audit so it is not known if they will work.

Paddlefish Study

In response to dwindling stocks and deteriorating habitat nationwide, Montana and North Dakota developed a paddlefish management plan in 1995 to address the fish population living in the two states. The Montana - North Dakota Paddlefish Management Plan was written as a cooperative venture between the North Dakota Game and Fish Department, Montana FWP, and the University of Idaho. The goals of the paddlefish plan include providing for an orderly and sustainable recreational harvest, providing a basis for cooperative interstate management, facilitating data collection for stock assessments, conducting relevant research, protecting and improving habitat quality in the rivers and reservoirs, defining the role of artificial propagation, and increasing public awareness. The plan covers the Yellowstone-Sakakawea stock (inhabiting Lake Sakakawea, the Missouri River from Lake Sakakawea to Fort Peck Dam, the "Dredge Cuts" below Fort Peck, and the Yellowstone River) and the Upper Fort Peck stock (spawning in the Missouri River above Fort Peck Dam and rearing in Fort Peck reservoir).

Conclusion: Paddlefish Project Helps Ensure a Stable Population

The paddlefish stocks in Montana and North Dakota constitute some of the last, self-sustaining wild stocks which may provide a sizeable annual harvest. Montana and North Dakota biologists believe studying spawning success, harvest data, and habitat needs help ensure the continued success and stability of these populations. Montana is conducting its paddlefish work under a plan developed in cooperation with North Dakota. Biologists meet yearly to discuss the progress of the research and the stability of the common population.

Hungry Horse and Libby Dams Mitigation

One of the biggest projects, in terms of expenditures and staff, is mitigation resulting from construction of Hungry Horse and Libby Dams. The Bonneville Power Administration (BPA) bears the financial responsibility for program measures.

Chapter VI - Special Projects

Hungry Horse Dam Mitigation

Since the start of the Hungry Horse Dam Mitigation Program in 1987, a fisheries mitigation plan and mitigation implementation plan for Hungry Horse Dam have been written. As discussed in Chapter IV a number of habitat projects have also been completed. A multi-level outlet system was installed and staff indicated water temperatures in the rivers are closer to natural conditions now. Table 30 lists the events FWP staff have been involved in for Hungry Horse Dam mitigation.

Table 30
Hungry Horse Dam Mitigation Events

March 1991	Fisheries mitigation plan written and approved for Hungry Horse Dam.
1991 & 92	Studied slash piles installed to enhance benthic insect production.
1991 & 92	Established test plots of four native willow species to determine which species could be established in a fluctuating reservoir environment.
1991-96	Four habitat enhancement projects completed.
1992-95	Three lakes rehabilitated.
March 1993	Mitigation implementation plan approved.
1994-97	Seven culvert improvements completed.
1995	Sediment source surveys completed in six drainages.
August 1996	Multi-level outlet system installed.

Source: Compiled by the LAD from department records.

Libby Dam Mitigation

In 1990, FWP initiated a study to quantify the fish passing through Libby Dam with the water (entrainment). Completion of this investigation in 1996 showed an estimated 1.15 to 4.5 million kokanee salmon were entrained annually. Bull trout and burbot were also found to be entrained. FWP issued a Fisheries Mitigation and Implementation Plan for Losses Attributable to the Construction and Operation of Libby Dam in November 1997. Besides the entrainment study, FWP conducted studies of fish populations and habitats to provide the necessary data in the report.

Conclusion: Mitigation and Implementation Plan Components Being Completed

As a result of the two Hungry Horse plans a number of changes have been made in the Flathead River system. A multi-level outlet system was installed and staff indicated water temperatures in the rivers are closer to natural conditions now. A number of fish passage barriers were removed which opened up 16 percent more of the habitat for fish. Habitat improvement projects have addressed sediment control, limited spawning areas, and returned water to dewatered portions of streams. In late 1997, a decision was made to stop kokanee planting after four years, thus reducing the planting period by one year. Fish population surveys showed the plants were not increasing the kokanee population in Flathead Lake. Population surveys and creel census also showed rehabilitation projects were successful in removing illegally introduced fish species and creating popular fisheries.

Regional staff indicated all the projects are being monitored and evaluated to determine their success.

Benthic Fish Study

The benthic (or bottom-dwelling) fish study is a multi-year, basin wide research effort to help resource managers evaluate how potential changes in system operating procedures may affect Missouri River fishes. Benthic fish were targeted because they include most species listed as "at risk" of extinction by resource agencies (e.g. pallid sturgeon, blue sucker, sicklefin chub). Project sponsors believe information on the status of benthic fish populations and their habitat along the entire Missouri River will be useful for river managers because factors associated with healthy populations of fish in one area of the river may provide the best model for conservation in other areas.

The overall goal of the study is to provide resource agencies with fundamental biology and habitat use information for important bottom living fishes collected in a comparable manner for the entire Missouri and lower Yellowstone Rivers. The Army Corps of Engineers is funding the work in the Missouri and the BOR is funding the work in the lower Yellowstone. The study started in 1996 and is scheduled to end in 2001. A report is due in 2001.

In fiscal years 1995-96 and 1996-97, the Army Corps of Engineers funded $69,327. The amount expended by the BOR is unknown since the money is included in the pallid sturgeon recovery program.

Conclusion: Data Will Help in Water Management Decisions

Information gathered in this study is to be used by federal agencies in a computer model to aid the agencies in water management. According to staff, any information gathered on either river concerning pallid sturgeon will be included in the pallid sturgeon study. FWP staff also indicated they will be able to use the information in their management of aquatic species and their habitats.

Mysis Shrimp

Mysis (Opossum) shrimp are small, 1 to 2 centimeter-long, cold-water crustaceans. They are native to a limited number of large, deep lakes in North America and coastal Sweden. In 1949, the shrimp were introduced experimentally into Kootenay Lake, British Columbia, with the intention of enhancing rainbow trout. However, data showed they were largely responsible for a dramatic increase in the growth rate and size of kokanee salmon. After this initial introduction, Mysis shrimp were stocked into more than 100 lakes in the northwestern United States and Canada, primarily to stimulate production of kokanee.

FWP introduced Mysis shrimp in 12 northwestern Montana lakes during 1968, 1975, and 1976 in an attempt to supplement food organisms for trout and salmon. Ashley, Bull, Crystal, Dickey, Holland, Little Bitterroot, McGregor, Middle Thompson, Spar, Swan, Tally, and Whitefish Lakes received the shrimp. Mysis populations in Flathead Lake resulted from downstream drift from Swan, Whitefish, or Ashley Lakes.

FWP initiated a monitoring program in June 1983 to provide information on Mysis populations in lakes where introductions were successful. Six lakes have been monitored - Ashley, Little Bitterroot, Flathead, McGregor, Swan and Whitefish Lakes. Biologists found the Mysis shrimp population increased while the kokanee population decreased. Further research in Montana and other states found that Mysis shrimp go to the lake bottom during daylight hours. Kokanee feed during the day near the top or middle of the water column. So while kokanee are feeding during the daylight hours they do not have

access to the Mysis. During the night Mysis migrate to the top of the lake to eat zooplankton, the usual food for kokanee. Meanwhile, lake trout and lake whitefish mostly feed near the bottom of the lake and thus have access to the Mysis during daylight hours. The end result is an increased number of lake trout in Flathead Lake and a very limited kokanee fishery.

Further research in Kootenay Lake showed the increase in kokanee growth shortly after introduction of Mysis was due to unusual hydrologic conditions. Upwelling currents carried the shrimp from the central region of the lake into a shallow bay, where they lacked a deep water daytime refuge.

To compensate for the decline in the kokanee population in Flathead Lake, FWP, the Confederated Salish and Kootenai Tribes, and the USFWS initiated a five-year stocking program. The USFWS hatchery at Creston produced the vast majority of the kokanee planted in Flathead Lake. The program ended in 1998 after only four years since the reintroductions were not successful, primarily due to heavy predation by lake trout.

Three criteria were established to measure program success: 1) survival of 30 percent of stocked kokanee one year after stocking; 2) survival of 10 percent of the planted kokanee to adults; and 3) annual harvest of 5 percent of stocked kokanee by anglers. Population monitoring data showed the program fell short of meeting the criteria. For example, in 1994, it was estimated lake trout ate about one-third of the 800,000 stocked kokanee within the first eight weeks.

Conclusion: FWP Writing a Management Plan for Flathead Lake

The big question facing the department now is how to manage the lake. Biologists believe lake trout may eventually eliminate the bull trout and perhaps the cutthroat trout from the lake. Bull trout are now listed as a threatened species. The department is in the process of writing a management plan for Flathead Lake in cooperation with the Confederated Salish and Kootenai Tribes. The plan will eventually be the vehicle used for lake management.

Information Services Unit - Kalispell

Six staff located in Kalispell maintain and summarize statewide fisheries, recreation, and wildlife data, chiefly in the Montana Rivers Information System (MRIS). This system was initiated by the Northwest Power Planning Council in 1985 to assess and rate the significance of river related natural resource values in Montana, Idaho, Washington and Oregon. Montana's portion included the assessment of resident fisheries and wildlife values and recreational, natural, and cultural features in and along Montana's rivers and streams. Bonneville Power Administration funds the project to maintain a current database. GL and DJ funds also pay for some expenditures.

The Kalispell Unit was in the process of updating the stream rating system in late 1997 since the rating was 10 years old and some of the reaches changed classes. Questionnaire information submitted by regional biologists was input to MRIS. The new rating system is planned for completion in late 1998.

Every one or two years, two part-time temporary employees gather fish distribution, population, and habitat information from state and federal biologists and input the information in MRIS. The information includes all rivers and streams sampled.

Species of special concern information is entered into MRIS and, with the use of the Geographic Information System (GIS), maps showing population locations are generated. The information is sent to regional biologists to verify the information in the database. This is done on an annual basis for bull trout.

Information from MRIS is used by state agencies including FWP, Department of Transportation, and the Department of Environmental Quality. Federal officials used the information when designating what streams in Montana should be classified as Wild and Scenic.

Miscellaneous Projects

Expenditures for the Fisheries Program also include projects that last a few weeks, months or a year. These projects are funded from a variety of sources including GL, DJ, private companies, sportsmen groups, or other state and federal agencies. Project expenditures for fiscal years 1994-95 though 1996-97 averaged $118,500. Outside sources funded over half the expenditures during that time period.

Projects include FWP monitoring fish populations in waterbodies on some state owned lands for the Department of Natural Resources and Conservation. Private companies provided funds to collect fish and send them to a lab for genetics testing. Federal agencies provided funds to buy fish traps. A private company paid for a joint recreation and creel survey on two rivers for three years as part of dam mitigation.

Summary

The Fisheries Program includes a number of special studies/projects. The projects include recovery programs for species of concern and endangered species, programs to mitigate the effects of federal and private dams on the fisheries in the area of the dams, introductions of new species for a food source, and providing information to the Fisheries Program, and other FWP programs, concerning fisheries, recreation, and wildlife.

The vast majority of the projects are funded with money FWP receives from federal agencies, private companies, organizations and citizens, and other state agencies through grants, contracts, gifts, and/or donations. Expenditures for the various projects ranged from $5 million for one project in existence over eight years to $151,000 for another project that started seven years ago. If the department did not receive this money the special projects would not be conducted.

When reviewing the special projects, we found current projects are carried out under a plan usually written in cooperation with a number of agencies. In reviewing the plans and annual reports, we found recommendations are implemented. Many of the projects are still ongoing so the final success is not known at the time of this report. We also found FWP fisheries biologists are involved in technical working groups associated with the projects pertaining to the species of concern or endangered species. Other members of the working groups usually

include biologists from federal agencies, private companies, university units, and in some cases, other states.

Chapter VII - Whirling Disease

Introduction

Whirling disease was first discovered in Montana in the Madison River in December 1994. Since that time numerous rivers and streams tested positive for the disease.

Research Coordinated and Results Contributing to Understanding of the Disease

As a result of the spread of whirling disease, many organizations, including FWP, fund tests and research to determine ways to combat the spread of the disease and infection of fish. ***The organizations are cooperating with each other to ensure research is not duplicated by a number of different entities.*** FWP funds some research on its own, and also contributes to the research conducted by others. From fiscal year 1994-95 through 1996-97, FWP directed approximately $460,000 toward whirling disease.

To date, research has shown a temperature relationship between the disease and rate of infection, resistance of species, and whirling disease and worm distribution. The table in Appendix C shows the research projects funded by Montana organizations from 1996 through 1998.

This chapter provides a brief history of the disease and discusses the research conducted by various parties including FWP.

Whirling Disease Life History

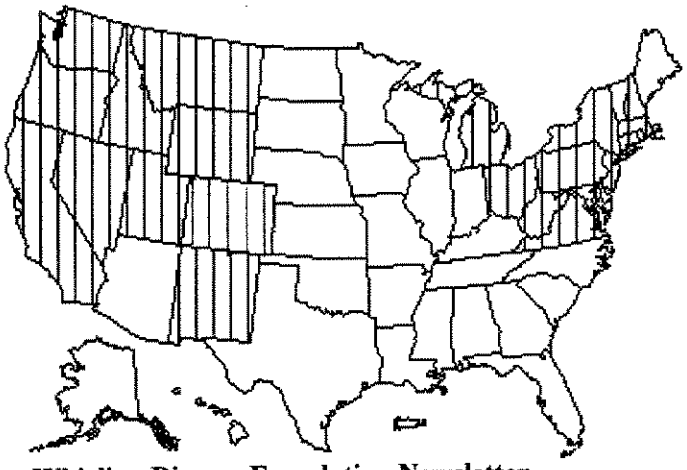
Whirling disease is caused by a microscopic, water-borne, protozoan parasite that attacks the cartilage of young trout. The parasite has a complex, two-host life cycle involving trout and bottom-dwelling tubifex worms (*Tubifex tubifex*), which are found in streams, rivers, and lakes throughout Montana.

Whirling disease spores (*Myxobolus cerebralis*) are released into the water when infected fish die and decompose, or are consumed and excreted by predators or scavengers. Spores may survive in the river bottom sediment, even dry mud, for up to 30 years. The tubifex worms ingest the *M. cerebralis* spores. The worms convert the spores into *Triactinomyxon* (TAMs), the form of the disease that infects the trout. TAMs are released from the worm into the water. This form lives only four to seven days if it cannot find a host. Healthy fish are infected by contact with waterborne spores or by eating infected tubifex worms. Infected fish show "black tail" and develop whirling behavior at about 1

to 1½ months. In three to four months *M. cerebralis* spores appear within the fish. Surviving adult fish may be deformed or simply act as carriers of the disease. While the parasite may not directly kill a trout, an infected fish's erratic tail chasing makes it extremely vulnerable to predation. The whirling also causes fish to be unable to feed normally, which can eventually result in starvation and death.

Whirling disease was accidentally introduced to the United States in the mid-1950s when infected, processed, and frozen trout from Europe arrived in Pennsylvania for the fish-market trade. The disease has subsequently been detected in 22 states as shown in Figure 6.

Figure 6
States With Whirling Disease
(As of December 1997)



Source: Whirling Disease Foundation Newsletter.

Governor's Whirling Disease Task Force

In May 1995, Montana's governor created the first Whirling Disease Task Force. The Governor's Executive Order asked the Task Force to develop an action plan to address the whirling disease problem. The Task Force first developed a guiding philosophy which stated "All actions to address whirling disease should be consistent with protecting, preserving, and restoring self-sustaining populations of wild, native and nonnative salmonids." The Task Force agreed hatchery stocking of

streams is not an acceptable remedy for whirling disease-depleted rivers. FWP has followed this philosophy to date. The Task Force also agreed that immediate action is required to combat whirling disease. Montana's wild and native trout may over time develop mechanisms to combat whirling disease, but the Task Force decided the value of Montana's natural heritage was too great to adopt a "wait and see" attitude.

The Task Force developed 22 recommendations organized around three focal points:

1. Scientific research needs;
2. Fisheries management policy; and
3. Communication and education.

The recommendations are discussed in the Task Force's final report issued in June 1996.

The Task Force developed four core research questions:

- What is the scope of the whirling disease problem in Montana? Determine where the disease is found in Montana's waters and at those sites determine the severity of infection.
- Which Montana species are susceptible to the disease and how will populations be impacted? Determine the degree of susceptibility of native and nonnative species in the wild and laboratory setting.
- Are some strains naturally resistant? Determine if some species/strains are biologically resistant because of genetics or immunology. Determine if some species/strains are behaviorally resistant because of timing of spawning, typical age of fish at time of exposure, etc.
- Are there solutions to whirling disease which focus on the intermediate host (*Tubifex tubifex*) rather than on trout? Determine the distribution of *T. tubifex*, its biologic requirements/habitat, and its life cycle.

The Task Force also recommended construction of a Wild Trout Research Facility. This facility was constructed at MSU-Bozeman. It is an aquatic research laboratory designed and operated to maintain and contain experimental fish exposed to *M. cerebralis* and other pathogens and parasites compatible with the containment system. The facility is self-contained with its own water supply and a method for handling water and biological waste materials which contain the whirling disease parasite. The facility started operations in September 1997. The facility is operated and managed in partnership by MSU, USFWS, and FWP.

Second Task Force Created in 1997

A second task force was created February 7, 1997. This task force is concentrating on promoting public education about whirling disease by helping to establish educational and information programs, and evaluating and developing recommendations to address the socio-economic impacts of whirling disease. This task force expires January 1, 1999, by which time it is to issue a final report.

Research Conducted by FWP

FWP created a Whirling Disease Coordinator position to oversee research efforts in Montana. In 1996 the department also entered into a two month $5,000 contract with a scientist at the University of California - Davis to review FWP's whirling disease related projects. The contractor provided advice on the adequacy of project designs and the relevance of the projects in meeting short and long-term needs. The contractor also provided advice on other whirling disease related issues, such as management priorities, interpretation of testing results and project findings, and evaluation of research efforts in other states and countries and how they may be applied to address Montana's problem.

In conjunction with the Governor's Task Force on Whirling Disease and information from the contractor, the department developed four possible solutions on which to focus state funded whirling disease research. The four possible solutions are:

1. Find highly resistant salmonid species.
2. Manipulation of alternative host densities - Tubifex worms.

3. Mismatch life histories of the parasite and wild trout. This includes separation in time, separation in space, and separation in time and space.

4. Combination of 1 through 3.

Based on these solutions, four major research projects were initiated. In conjunction with the research projects, the department established a field laboratory and station on Willow Creek and at Pony, Montana.

Willow Creek has had a self-sustaining population of wild rainbows for over 20 years, with baseline population data for about the same number of years. When research in Montana was started, the department obtained a 30-year lease for the Willow Creek area for $30,446. A Pony resident provides FWP with facilities to raise the fish which were in live cages in the streams and lakes around the state. Water is from a well and drains onto nearby fields so as not to contaminate any waterbodies in the area.

The following sections discuss the major research projects funded by FWP.

A Statewide Fish and Oligiocheate Survey of Montana's Waters

FWP is conducting statewide surveys to determine the distribution of both *M. cerebralis* and *T. tubifex* in most of the prominent cold water streams and rivers. When completed, the initial surveys will provide information on: 1) the present distribution of the parasite in Montana's coldwater fisheries, 2) the degree or intensity of the *M. cerebralis* infections, and 3) the present distribution of the alternate host *T. tubifex*. The information will serve as baseline data points for future surveys to determine if the disease is spreading geographically and if the alternate host's geographic range is expanding, remaining static, or decreasing. The survey work was started in 1996.

Chapter VII - Whirling Disease

Fish Surveys

The fish survey information is gathered by regional staff and a crew under contract with the department. When doing routine monitoring of fish populations, FWP biologists collect (catch) specimens to be tested for whirling disease. If regional staff cannot sample a waterbody due to time constraints, the contract crew obtains the samples. Results are input to a department maintained whirling disease database.

The statewide survey also consists of placing live cages in specific waterbodies to determine if the disease is present and the intensity of the infection. For these tests, 60 fish are placed in a live cage in the section of water to be tested. The fish are in the live cage for 10 days then transferred to the aquariums at Pony for another 90 days. The fish are then sent to a laboratory for testing.

Live cages provide better information concerning the infection in an area than catching individual specimens. False positives can occur when catching fish during the monitoring effort. A fish could happen to come into the section/water being tested from somewhere else that is positive. The fish would show a positive for that section/water when in actuality the water is not positive, just the fish was. If fish in a live cage are positive, the disease is in the water. Also, since it takes at least 80 days for a fish to test positive for the infection, a fish could be infected when it is caught but would test negative so the water would be labeled negative. These scenarios resulted in a number of the biologists asking for live cages to be placed in specific streams in 1998. Thus, the 1998 survey was modified.

The 1998 survey consists of approximately 25 percent statewide catches, 25 percent statewide placing live cages in positive sites, and the remaining 50 percent consists of crews working on the Missouri River/Little Prickly Pear Project on the Missouri and assisting Region 2 staff with work on Rock Creek.

Missouri/Little Prickly Pear Project

The Missouri River/Little Prickly Pear project is in the second year. The basic objective is to determine if there are rainbow trout life histories in this system which would allow adequate recruitment of young rainbow trout into the Holter-Cascade reach of the Missouri River in the face of a significant infection of whirling disease. The study consists of four parts.

- Part I - A study utilizing Region 4 fisheries personnel and a graduate student from the Cooperative Fishery Unit, MSU, to determine the number of spawners and timing of spawning in three major tributaries to the Missouri River.
- Part II - Through the Biology Department, MSU, there will be an attempt to determine the relationship of whirling disease infections in wild trout and the density of tubifex worms.
- Part III - Using live cages in Little Prickly Pear Creek, Sheep Creek, Missouri River, and Dearborn River, relative infection rates of young-of-the-year rainbow trout will be determined.
- Part IV - The region will continue to monitor two long-term fish population estimation sections in the area of the Missouri River between Holter Dam and Cascade. The information will be used to monitor any rainbow trout population changes that might occur with the increasing whirling disease infection rate in this system.

The project is funded through the Whirling Disease Coordinator, Region 4, and the National Partnership on the Management of Wild and Native Coldwater Fisheries.

Rock Creek Project

The primary objective of the Rock Creek study is to obtain background data on infection rates and spatial distribution of the whirling disease infection to be used in a proposed study for 1999. The study will involve eight to ten live cages placed in five tributaries of Rock Creek plus five live cages beginning at the Hogback Population Study Section.

Chapter VII - Whirling Disease

Worm Surveys

The oligiochaete survey provided information concerning which streams may not be vulnerable to whirling disease due to the low density of *T. tubifex*. The department contracted with the Department of Biology, MSU, for staff to analyze the distribution and relative abundance of *T. tubifex*. FWP staff determined the drainages to be studied. The work was completed between July 1995 and July 1996, and a report was given to FWP showing the relative abundance of the worms.

Fish Susceptibility to Whirling Disease

Fish susceptibility work is being done by FWP at the Willow Creek Field Station. The department also contracted with a professor at University of California - Davis for one year to test susceptibility. Tests show bull trout and Arctic grayling can be infected by the parasite but show a high resistance to severe infections. All the strains of rainbow tested (Eagle Lake, DeSmet, Deschutes, Steelhead) and Yellowstone and westslope cutthroat trout have been found to be highly susceptible to acute whirling disease infections during the first month of their life after hatching. Brown trout were not susceptible at that time period. Coho salmon and kokanee are very susceptible to the disease, with brook trout less so. Susceptibility of mountain whitefish is still fairly unknown. They do carry the spores but appear to be resistant.

Life History Research

This study will examine the life histories of the tubifex worm, the parasite (*M. cerebralis*) and wild trout, and determine if any differences can be used to minimize the impacts on the wild trout population. The goal would be to allow wild trout to either spawn in tubifex free environments or at an early date so vulnerable young trout can avoid exposure to large doses of the infective TAM. One of the first things studied was the emergence of the TAM stage. It was found that TAM emergence is related to water temperature. Studies also show fish can be imprinted at a temperature which triggers spawning. The department plans to imprint fish at different temperatures at a hatchery, raise them to one year of age, and plant them in Willow Creek in 1999. Results in the year 2000 will show if the project is successful.

Madison River Project

Another project dealing with life histories will occur on the Madison River. This study will involve examining the spawning and early life history of fry to determine if it is feasible to sufficiently separate existing rainbow and cutthroat trout strains in time and space to reduce whirling disease infections to a level where wild populations can return to their pre-whirling disease levels. Goals of the study are to identify existing wild rainbow and cutthroat life history characteristics (time and location of spawning, early rearing areas, and movement of young fish) to determine if they utilize a tributary steam.

National Partnership on the Management of Wild and Native Coldwater Fisheries - Whirling Disease Initiative

The National Partnership on the Management of Wild and Native Coldwater Fisheries (NP) was created in October 1996. NP is a research/management consortium emphasizing fish health, fishery productivity, fisheries ecology, and adaptive fishery management. Participants in the partnership have an interest and expertise in wild and coldwater fisheries. NP functions through a board of representatives consisting of members of the:

- American Fisheries Society
- National Trout Unlimited
- US Fish and Wildlife Service
- US Forest Service
- International Association of Fish and Wildlife Agencies
- Native American Fish and Wildlife Society
- National Park Service/Yellowstone National Park
- Bureau of Land Management

The purpose of NP is to coordinate, prioritize, and support research and management activities designed to maintain and enhance the nation's wild and native coldwater fisheries. Administration, management, and the operational infrastructure of NP is housed at MSU-Bozeman. The Water Center, a private entity located at MSU, serves as the prime contractor and custodian of funds.

MSU-Bozeman and the USFWS entered into a Memorandum of Understanding (MOU) to establish a Whirling Disease Initiative for NP. The Whirling Disease Initiative recognized past research and management efforts had been centered on effects and control in a hatchery or aquaculture setting. Potential for impacts on wild, self-

sustaining fisheries, especially rainbow and cutthroat trout fisheries, had not been studied, and management of wild, self-sustaining populations had not been explored. Adequate funding and coordination to study wild populations had not been possible until establishment of NP. The goal of the Whirling Disease Initiative is to conduct research that develops rapid response management solutions which maintain viable, self-sustaining wild trout fisheries. The MOU provided the avenue for funding the research. The USFWS is appropriated money by the United States Congress which is awarded to NP based upon a federal grant application.

The MOU created a Whirling Disease Steering Committee consisting of representatives from:

- The National Whirling Disease Foundation;
- The Montana Department of Fish, Wildlife and Parks;
- Two state fisheries representatives from the east (New York) and west (Colorado) infected regions;
- Environmental health; and
- The US Fish and Wildlife Service.

The Whirling Disease Steering Committee establishes research priorities consistent with scientific consensus. Priorities for funding by NP reflects consideration of research already being conducted by other researchers nationally, to avoid unnecessary duplication. The Steering Committee issues requests for proposals based on identified priorities; selects and approves projects for funding based on scientific peer review; and summarizes and makes available research results, including raw data, to all partners and cooperators on a timely basis, while respecting appropriate publication priorities.

Fiscal year 1997-98 was the first year of awards. Twelve grants totaling approximately $360,000 with a match from grantees of over $400,000 were awarded. Funding for the 1998-99 grant cycle totals over $574,000 with matching funds of over $419,000 to 19 grantees.

Whirling Disease Foundation

The Whirling Disease Foundation was founded in May 1995. Its mission is to raise funds to support, on a national scale, scientific research that aims to restore naturally-reproducing trout populations in waters afflicted with the whirling disease parasite. The Foundation carries out its mission by generating private funds to support peer-reviewed laboratory and field research that could hasten the viability of self-sustaining trout populations in whirling disease infected waters. In addition, the Foundation:

- Helps coordinate multi-institutional research plans;
- Organizes scientific meetings devoted to research progress and new initiatives; and
- Collaboratively develops educational materials about whirling disease for educators and the public at large.

The Foundation also maintains an Internet website providing updates on research, literature, and activities.

Since its inception, the Foundation has conducted three whirling disease symposiums. In 1996, the symposium was held in Montana, resulting in the first national research plan. At the 1997 symposium, held in Utah, almost 120 scientists heard 35 informative papers and updated the national research plan. The 1998 symposium was held in Colorado with over 40 papers presented. The department's Fish Health Specialist and Whirling Disease Coordinator have attended all the symposiums to date. In addition to sponsoring research projects, the Foundation provided money to research related activities.

Fish Cooperative Unit

Public Law 95-616 (92 Stat. 3110) allows the USFWS to enter into agreements with colleges and universities and state fish and wildlife departments relating to Cooperative Fish and Wildlife Research Units. The purpose of the agreement is to develop adequate, coordinated, cooperative research and training programs for fish and wildlife resources. Montana's Cooperative Fishery Research Unit is located at MSU-Bozeman. FWP provides a base of $28,500 to the Unit. It also contracts with the Unit for research projects.

The Unit has completed a number of projects related to whirling disease for FWP. One was the study of the Effects of Whirling Disease on

Recruitment of Brown Trout in the Ruby River and Poindexter Slough. The study was completed in 1996. Another includes conducting the statewide fish survey described above. In conjunction with the statewide survey, Unit staff investigated young-of-the-year recruitment in the Gallatin River, Missouri River, and Little Prickly Pear Creek. Pre-whirling disease young-of-the-year abundance data will provide a baseline for assessing post-whirling disease losses. Young-of-the-year data is lacking in many areas because regional biologists typically monitor adult fish.

FWP Expenditures for Whirling Disease

From fiscal year 1994-95 through 1996-97, FWP directed approximately $460,000 toward whirling disease. The money funded research, research facilities, and FTE. Fund sources include general license fees, an emergency grant from the governor's office, Bureau of Land Management, and redirected capital appropriations.

Summary

Whirling disease was first discovered in Montana in December 1994. Since that time, numerous rivers and streams tested positive for the disease. FWP, along with many other organizations, including the Whirling Disease Foundation and the National Partnership on the Management of Wild and Native Coldwater Fisheries, funded tests and research to determine ways to combat the disease and infection of fish. FWP funds some research on its own and also contributes to the research conducted by others. From fiscal year 1994-95 through 1996-97, FWP directed approximately $460,000 toward whirling disease.

To date, research has provided information on whirling disease and worm distribution in Montana, shown a temperature relationship between the disease and rate of infection, and resistance of species. Tests show rainbow and cutthroat trout are highly susceptible with brook and brown trout less so. Bull trout and Arctic grayling can be infected by the parasite but show a high resistance to severe infections.

FWP's research centers around four core questions developed by the Governor's Whirling Disease Task Force. A Whirling Disease Coordinator position was created in the department to oversee research efforts in Montana. Life history tests of the tubifex worm, the parasite,

and wild trout are scheduled to take place in 1999, with results in the year 2000. If these tests are successful, the department will investigate ways to modify the life histories of wild trout.

Chapter VIII - State Hatchery System

Introduction

The state of Montana owns eight hatcheries and operates a ninth owned by the Army Corp of Engineers (Murray Springs Hatchery, Eureka). This audit did not review the efficiency of the hatcheries' operations. FWP contracted with a firm in 1996 to review the hatchery system. The report evaluated the overall effectiveness of FWP's hatchery program, including facility utilization, brood stock management and genetics programs, as well as the fish health program. It also identified additional needs for hatchery fish as requested by fisheries managers and potential sources and cost of fish available from private industry.

During our review we talked to regional staff about the number, species, and size of fish stocked. ***Overall we found most biologists and fish managers were satisfied with the number, size, and species provided by the hatcheries.*** Comments received concerning lack of numbers primarily centered around the few largemouth bass available in 1996. The largemouth bass that year did not reproduce in the Miles City Hatchery as expected.

Fish Hatchery Expenditures

FWP's hatchery system stocks over 40 million fish a year in lakes, pond, reservoirs, and some streams that cannot sustain wild fish populations. General operation and maintenance expenditures for the eight fish hatcheries funded by GL and DJ funds averaged $1.3 million for the eight fiscal years reviewed (approximately $162,000 per hatchery). Average FWP expenditures for the hatchery funded by the Army Corps of Engineers was $138,000 for the same time period. These expenditures do not include utility expenses for pumping the water or other operation and maintenance expenses provided by the Corps. Hatchery costs are approximately 26 percent of the total GL and DJ funds expended by the Fisheries Program.

Capital expenditures for hatcheries for fiscal years 1989-90 through 1996-97 totaled approximately $3.5 million. This included major repairs to some hatcheries and renovations to others. Rebuilding the Washoe Park Trout Hatchery accounted for $2.3 million of total capital expenditures.

Chapter VIII - State Hatchery System

The following sections provide a brief explanation of the hatcheries and their production. Appendix D contains general operation and capital expenditures for each hatchery for fiscal years 1989-90 through 1996-97.

Washoe Park Trout Hatchery - Anaconda

Located within the city of Anaconda adjacent to Washoe Park, this hatchery began operations in 1908. Large numbers of eggs collected from Harrison Reservoir are processed through this hatchery. Eyed eggs are shipped to other hatcheries for hatching, rearing and stocking.

The hatchery is dedicated as a brood stock station, and is responsible for the management of a wild-based, genetically diverse, westslope cutthroat trout brood stock. In addition, eggs taken from DeSmet strain rainbow trout at Willow Creek, a tributary to Harrison Reservoir, are incubated to the eyed stage and then shipped to production hatcheries for rearing and stocking.

Operation expenditures for fiscal years 1989-90 through 1996-97 averaged $133,600 per year. Capital expenditures during the same time period were over $2 million, with most of the money paying for a new hatchery building and equipment.

Jocko River Trout Hatchery - Arlee

Jocko Hatchery is located 1/4 mile north of Arlee and has been a brood stock station for the Arlee strain of rainbow trout since the early 1950s. The hatchery is dedicated as a brood stock station, and no other species of trout are reared there.

The hatchery produces over six million eggs annually. Eggs are shipped to most rainbow trout hatcheries throughout the state, where they are raised for stocking into lakes and reservoirs. In addition, the USFWS maintains the Arlee strain as brood stock, and ships eggs to their hatcheries throughout the country. When available, excess eggs are sold to private growers within the state of Montana.

Additionally, fingerling and catchable trout have been raised and distributed each year. Retired brood stock are also planted each year.

Giant Springs Trout Hatchery - Great Falls

Giant Springs Hatchery is located adjacent to Heritage Park near Great Falls. The water supply is from one of the large springs arising in the area. Up to 1 million fingerlings and catchable trout have been raised and distributed per year. Currently, Erwin, Arlee, DeSmet, Eagle Lake, and Arlee x Eagle Lake strains of rainbow trout are raised, along with kokanee salmon.

Operation expenses averaged $149,000 for fiscal years 1989-90 through 1996-97. Giant Springs Hatchery had capital expenditures of $51,278 for fiscal years 1994-95 through 1996-97. The majority of the expenditures were to protect the water source from whirling disease.

Big Springs Trout Hatchery - Lewistown

Big Springs Hatchery is located seven miles east of Lewistown and is the largest coldwater production hatchery in the state's inventory. It produces over 2.5 million fish of a variety of strains of rainbow, cutthroat, brown trout and kokanee salmon. The hatchery is two separate units. One is located at the head of Big Spring Creek (upper unit) and is the location of the hatchery building and eight outside raceways.

The second (lower unit) is located 3/4 mile west and its water supply is the overflow from a covered spring which is Lewistown's water supply. A majority of production rearing of the Big Springs Hatchery occurs at the lower unit.

Operation expenses averaged $275,800 for fiscal years 1989-90 through 1996-97. The Big Springs Hatchery had capital expenditures of $162,800 from fiscal year 1989-90 through 1991-92 to construct a hatchery addition and complete structural and roofing repairs to the existing hatchery building.

Flathead Lake Salmon Hatchery - Somers

The hatchery is located on the northwest shore of Flathead Lake and was at the center of the kokanee recovery efforts for Flathead Lake. This hatchery collects eggs from wild spawning kokanee populations, incubates them to the eyed stage, and distributes some eggs to other stations for hatching and rearing. Flathead Lake hatchery has the capability to handle over eight million salmon eggs. Available egg

Operation expenses averaged $137,000 during fiscal years 1990-91 through 1996-97. Jocko River had capital expenditures of $267,662 in the same time period.

Yellowstone River Trout Hatchery - Big Timber

The Yellowstone River Hatchery is located adjacent to the town of Big Timber. It is responsible for the management of the McBride strain Yellowstone cutthroat trout brood stock. Approximately 1.5 million eggs are produced annually. The hatchery is dedicated as a brood stock station, and no other species of trout are reared there. Production of cutthroat fingerlings for planting in lakes is also an important part of the hatchery program. Fish are used successfully in a variety of habitats from high mountain lakes to low lying lakes and reservoirs. The brood stock is wild-based, with periodic crossing of sperm and eggs from wild fish in McBride Lake, Yellowstone National Park. Each year tissues from 50 fish are analyzed by electrophoresis to insure that genetic purity and diversity is maintained.

Operation expenses averaged $91,500 for fiscal years 1989-90 through 1996-97. The only capital expenditures for the Yellowstone River Hatchery were for razing an old building in fiscal year 1992-93. At that time the department expended $2,076.

Bluewater Springs Trout Hatchery - Bridger

Bluewater Springs Hatchery is located seven miles east of Bridger. Fish from this station are generally stocked in south, central, and eastern Montana. Up to 1.5 million fingerlings and catchable trout have been raised and distributed per year. Currently, Arlee, Eagle Lake, and Erwin strains of rainbow trout are raised, along with Yellowstone cutthroat trout and grayling.

Operation expenses averaged $152,000 for fiscal years 1989-90 through 1996-97. For fiscal years 1994-95 through 1996-97, the department spent $120,514 for hatchery improvements.

Operation expenses paid to FWP by the Army Corps of Engineers averaged $138,000 for fiscal years 1989-90 through 1996-97. The Corps pays all of the station's utility expenses for pumping water and all capital improvements for the Murray Springs Hatchery. These are in addition to the above figures.

supplies have supported the annual stocking of two to four million kokanee into Flathead Lake over four years.

Over one million fingerling salmon and grayling have been raised and distributed per year. In addition, about 2.4 million eyed kokanee eggs are shipped to the Creston National Fish Hatchery and other FWP hatcheries for their salmon programs.

Cost of operations from fiscal year 1989-90 to 1996-97 averaged $70,000. Flathead Lake Hatchery had capital expenditures for fiscal years 1994-95 through 1996-97 totaling $109,106.

Miles City Hatchery - Miles City

Miles City Hatchery is located between I-94 and the city of Miles City and is the only warmwater hatchery in the state. Its production includes walleye, northern pike, largemouth and smallmouth bass, catfish, crappie, and tiger muskie. In 1997, over 41 million fry and fingerlings were stocked from Miles City to support fishery management of warmwater species.

Operation expenses averaged $257,000 for fiscal years 1989-90 through 1996-97. Capital expenditures for the same period were $400,339.

Murray Springs Hatchery - Eureka

Murray Springs Hatchery is located seven miles northwest of Eureka and is owned and funded by the Army Corps of Engineers, and operated by FWP. It was built as a mitigation hatchery to offset the loss of fish habitat when Lake Koocanusa was impounded. Up to 1.2 million fingerling and catchable trout have been raised and distributed per year. The hatchery is primarily responsible for raising westslope cutthroat trout for Lake Koocanusa, but Arlee, Kamloops, and Eagle Lake strains of rainbow trout are also produced. Some westslope cutthroat are over-wintered in a two-year program to produce larger-sized fish for planting. Most fish production is utilized in and around Lake Koocanusa.

Chapter IX - Workload

Introduction

During this audit we reviewed the strategic planning process the department is implementing in terms of the fishery resource.

Based upon our audit work, it appears FWP is moving to a more coordinated approach to managing the resources under its control. The programmatic approach between Fisheries Division and the other divisions should provide a resource-based workload planning and priority-setting process. As currently planned and when fully implemented, the strategic planning process should help the biologists prioritize their activities and allow them time to accomplish those activities.

The following sections discuss our findings.

FWP Goals Include Determining Work Priorities

The Department of Fish, Wildlife and Parks developed a vision plan to ". . . meet the challenges anticipated as it enters the 21st century." The vision plan outlines four goals the department believes reflect areas of emphasis, what the public expects of the department, and what the department expects of itself. The goals include:

1. Creating a work environment where priorities are clear; the decision-making process is efficient and effective; and where employees feel a sense of accountability, value, and satisfaction in their achievements and their contributions to the agency mission.

2. Providing quality opportunities for public appreciation and enjoyment of fish, wildlife, and parks resources.

3. Maintaining and enhancing the health of Montana's natural environment and the vitality of our fish, wildlife, culture, and historic resources through the 21st century.

4. Emphasizing education, communication, and responsible behavior to afford citizens the opportunity to better understand and participate in the decision-making processes that sustain our natural, recreational, and cultural resources for future generations.

Each goal also includes guiding principles for achieving the goals. One of the principles for the first objective is to complete strategic and six-year plans for fish, wildlife, and parks programs to clarify public expectations, allocate resources, and define a common direction for FWP and its partners.

Strategic Plans Being Developed

During this audit the Wildlife, Parks and Fisheries Divisions submitted strategic plans for public review. Wildlife Division created a programmatic Environmental Impact Statement (EIS), Parks Division wrote "2020 Vision for Montana State Parks" and Fisheries Division developed "Fisheries Beyond 2000". The common purpose of the documents is to develop, review, and define goals for managing the resources under the department's direction.

After the documents are finalized, the department plans to develop six-year plans for each program. It is anticipated the six-year plan can be used when applying for federal aid grant dollars. After completion of the six-year plan, yearly workplans are to be developed for each biologist expending GL and DJ money. Department management is hopeful this process will help determine staff priorities and thus reduce workload by no longer having staff work on low priority duties.

Biologists Believe Workload is Increasing

The issue raised most often by the biologists during the audit was that there is too much work to do in a year. They attributed part of the problem to additional workload associated with increased numbers of 310 permits, meetings with the general public and special interest groups, and letters which need to be written to answer questions the department director or the governor receives. The following sections discuss 310 permit workload and other duties performed by fisheries biologists not discussed in previous chapters.

310 Permit Workload

When asked about the workload created by 310 permit reviews, many biologists indicated the number of 310 permits they need to deal with, including the field visit, is almost overwhelming. The visit might not take long, an hour or so, but the drive to and from the site could take the rest of the day. Because of the statutory time constraints and setting up the visit with other people, not all visits can be conducted during one trip. Biologists try to coordinate as many visits as possible so they are

not returning to the same area two or more times in the space of a couple of days.

310 Permit Workload Varies by Geographic Area

When asked if more 310 permit work could be contracted out to reduce the biologist's workload, answers varied by the location in the state. There are not many perennial streams in eastern Montana, so there are not a lot of 310 permits issued compared to other areas of the state. Staff in that area indicated the workload was not necessarily excessive and 310 permits did not take a large amount of time.

Central Montana has more perennial streams so there are a greater number of permits than in the eastern regions. Some staff in this area indicated 310 permits take quite a bit of time but they are hesitant to have a contractor conduct too many site inspections. The reasoning primarily centered around landowner and Conservation District supervisor relationships. By doing visits themselves, biologists are able to meet the landowners in their respective management areas and answer questions and educate landowners about the area's fishery and/or the department. Biologists also might have ideas for the project that will be cheaper for the landowner in the long run and still accomplish the purpose of the project. Another advantage is identifying potential habitat projects they can discuss with the landowner. Visits also allow biologists to interact with Conservation District supervisors on a regular basis.

Staff in western Montana would like to contract out most 310 permit inspections so they can conduct their other work. Because of the number of perennial streams and the rapid development along the rivers and streams, there is a large workload associated with issuing 310 permits. Not all the projects permitted need to be reviewed so site visits do not have to be done, but a large number do require site visits. Staff also indicated projects are getting more complex because people are hiring private consultants to help with project design. The more complex a project is, the longer it takes to review.

Table 31 shows the number of 310 permits in which fish biologists were involved from fiscal year 1994-95 through 1996-97.

Table 31
310 Permits Issued by Region
(Fiscal Years 1994-95 through 1996-97)

Fiscal Year	Region						
	1	2	3	4	5	6	7
94-95	300	314	380	161	119	40	8
95-96	274	314	420	215	169	20	12
96-97	266	393	462	214	220	20	16

Source: Compiled by the LAD from department records.

Additional Work Duties

Besides the work duties discussed above and in the previous chapters the biologists also review other agency projects, such as timber sales for fishery issues, provide environmental reviews under the Montana Environmental Policy Act (MEPA), advise private parties and landowners on a number of issues, and provide aquatic education. This activity includes presentations and demonstrations for school children, presentations at club meetings, kids fishing days, releases for media, workshops/symposia, sampling with volunteers, and other unique educational opportunities. Table 32 shows the type and number of other work duties conducted in each region for fiscal years 1994-95 through 1996-97.

Table 32
Other Job Duties of Fisheries Biologists
(Fiscal Years 1994-95 through 1996-97)

Duties	Fiscal Year	Region						
		1	2	3	4	5	6	7
Review other agency projects (NEPA, MEPA, timber sales, etc.)	94-95	155	110	35	25	60	22	4
	95-96	182	110	60	15	76	20	4
	96-97	61	113	85	15	58	15	2
Provide MEPA reviews for FWP projects	94-95	27	11	40	55	31	5	9
	95-96	17	11	58	54	20	19	5
	96-97	24	20	15	43	24	26	14
Advice to private parties and landowners, habitat, aquaculture, private ponds	94-95	155	50	70	150	180	35	16
	95-96	135	50	86	77	150	30	20
	96-97	115	58	45	90	190	30	17
Aquatic education	94-95	134	66	144	51	41	36	1
	95-96	118	40	107	66	42	25	3
	96-97	71	162	150	102	35	51	7

Source: Compiled by the LAD from department records.

Because of the many activities the biologists are currently required to work on, some staff are not finding time to write their annual monitoring reports. Although the vast majority of biologists believe the reports are necessary they find they do not have the time in the winter when they used to write them because of additional meetings and increased workload in other areas. Biologists also believe the biological work is slipping because there are so many meetings with special interest groups.

Staff Unsure if They are Working on Priority Tasks

Some staff voiced the opinion they are not working on what they think should be the highest priority items because all things are considered a priority and there is not the time to do every task adequately or completely. Many staff believe their workload is largely driven by the public and special interest groups. Some biologists indicated they shield themselves from the public for a limited time each year so they can complete their monitoring work - the work that drives most of the management decisions concerning a waterbody.

The department has historically written workplans for staff based upon the federal aid grant requiring annual workplans for projects receiving DJ money. The majority of the Fisheries Program workplans reviewed were very general concerning work to be accomplished. Although most fisheries managers obtain input from the biologist when writing the plans, very few managers meet with the biologists during the year to review the workplan to determine what is being accomplished and what is not. The workplans are essentially only written to meet a federal requirement and are not used as a management tool to help biologists prioritize work.

Strategic Planning Process is Supposed to Address Concerns

One goal of the strategic planning process is to address concerns expressed by biologists relating to workload. The process is supposed to identify priorities, and workplans are to ensure there is time and money needed to address those priorities. Workplans are to be budget driven. If the specific task is not part of the strategic/six-year plan, there will not be any money for the task. To ensure the regions and Helena agree on priorities, Helena management staff indicated the new workplans will be written cooperatively with Helena and regional staff.

Besides tieing the plans to dollars (budget), the plans should also be developed based upon the number of work days it takes to complete the tasks. This would help put limits on the work that can be actually accomplished and forces everyone to prioritize the tasks where they want time spent. For example, the budget might fund 10 tasks but when work days are determined for each task, there might not be the time to complete everything without hiring or contracting additional staff or deleting something of lower priority. Determining the number of work days is a useful tool for defining/developing work expectations. Most

biologists in the field have been with the department a number of years so they have a good idea of how long it takes them to conduct their monitoring, write the report with the results, review an average number of projects for 310 and 124 permits each year, etc.

There are currently no plans for ongoing monitoring of workplans by regional or Helena management staff. To ensure the workplans are prioritizing the workload in the manner envisioned, the plans should be revisited during the year by Helena and the regions. A mid-year review would provide a formal method to ensure the necessary work is being accomplished and everyone is on track, and determine if modifications are needed. If any changes are needed to the workplan because tasks are taking longer (such as an increased number of 124 or 310 projects) Helena and the region should work through the changes together.

Recommendation #6
We recommend department management:

A. Incorporate the number of work days per task into the future workplan development process.

B. Revisit the workplans during the year to ensure they are being followed.

Conclusion: Fisheries Involving Enforcement in Strategic Planning

In the game warden activities audit (95P-04), we recommended the department implement a resource-based enforcement workload planning and priority-setting process. The Fisheries Division involved enforcement staff in development of its strategic plan. Enforcement is a component in each department program as part of the strategic planning process. During the fishing regulation setting process, game wardens and captains in each region and Law Enforcement Division personnel in Helena, were asked for input and were involved in meetings.

Enforcement is going to a resource based management plan. As part of that they developed a draft workplan they intend to use in at least one warden district in each region. The plan is by warden district and program, so there will be individual workplans for fish, wildlife and parks. For each program, the draft plan lists the district resources (such as bull trout, westslope cutthroat, rainbow, etc), any enforcement issues

with each resource (for example, the fact bull trout are listed as a threatened species), enforcement priorities for each resource, special activities influencing the district resources, recommendations to develop or protect resources or requests for special resources, and methods of protection. If priorities for resources from different programs overlap, such as during big game hunting season in areas where the fishing season is open and there are bull trout, regional supervisors and program managers will need to discuss the situation and reach a compromise.

Chapter X - Fishing Access Sites

Introduction

One of the Fisheries Program's activities includes providing and maintaining adequate public access to fisheries. To address this activity and our audit objective, we reviewed operations, maintenance and capital improvement expenditures for fishing access sites. We also reviewed fisheries staff activities related to site acquisition.

The state of Montana owns 275 active fishing access sites in the seven regions. Developed sites have facilities such as tables, latrines, fire grills, wells, interpretive signs, disabled access, and concrete or gravel boat ramps. Not all developed sites have every type of facility. Undeveloped sites do not have tables, latrines, boat ramps, etc. Table 33 shows the number of active fishing access sites in each region.

Table 33
Fishing Access Sites by Region
(As of May 1998)

Region	Number of Active Sites
1	28
2	50
3	83
4	40
5	38
6	13
7	23
Total	275

Source: Compiled by the LAD from department records.

Chapter X - Fishing Access Sites

The Parks Division is responsible for maintenance at the majority of the fishing access sites. Three of the 275 active sites are maintained by the city in which the site is located and one is maintained by a federal agency.

Site Acquisition

Site acquisition is initiated by regional staff. Fisheries managers and biologists identify the needs and/or opportunities for sites. They might contact the landowner(s) to determine if the person(s) is interested in selling or leasing the land. In some cases, landowners will contact the department offering to sell or lease their land for use as a fishing access site.

The fisheries manager completes a fishing access acquisition evaluation form. The form asks for information regarding justification of the proposed site, how the site fits into the fisheries and recreational management plan and objectives for the specific waterbody, estimated cost, type and amount of development needed, type and amount of maintenance, and existing access. The fisheries manager, parks manager and supervisor sign the form before sending it to Helena.

Helena staff, including the fishing access site coordinator, land section staff, and Fisheries Division staff, review the form. If they decide the site should be pursued, the fishing access coordinator and land section staff visit the site and talk to the landowner. If department staff agree to purchase or lease the site, land section staff survey and appraise the land. Negotiations are started with the landowner on a purchase/lease price. If a price is agreed upon, the area is developed and Parks Division assumes responsibility for operation and maintenance of the site.

Acquisition funds are derived from fishing license sales. Since the 1950s, the department has spent over $7.8 million for fishing access sites. The following table shows acquisition expenditures and the number of sites acquired for fiscal years 1989-90 through 1996-97.

Table 34
Fishing Access Acquisition Expenditures and Number of Sites Acquired
(Fiscal Years 1989-90 through 1996-97)

	Fiscal Year							
	89-90	90-91	91-92	92-93	93-94	94-95	95-96	96-97
Expenditures	$ 211,569	$ 20,165	$ 260,681	$ 341,265	$ 124,431	$ 239,944	$ 210,557	$ 40,785
# of Sites	7	1	5	3	4	4	6	8

Source: Compiled by the LAD from SBAS and department records.

Regional fisheries personnel remain involved with the sites after development. They help settle landowner disputes, and also become involved in projects pertaining to the waterbody where the access site is located. For example, if a stream is eroding the bank, regional fisheries staff review the area with FWP's Design and Construction (D&C) staff from Helena. Staff agree on what is needed to stop the erosion - root wads, rip rap, willow shoot, etc. D&C staff write the project scope and regional fish staff write the necessary EA. Helena D&C staff are then responsible for the project. They let the bids for the work, hire contractors, conduct site inspections during the project, and conduct a final inspection. If needed, Helena staff hires a consultant to design the project and oversee construction.

FAS Expenditures

State and federal statutes provide a number of sources for fishing access site acquisition, operation and maintenance funds. These include GL fees, DJ, and the Federal Land and Water Conservation Fund.

Table 35 shows total expenditures for general operations and maintenance for each region for fiscal years 1989-90 through 1996-97. Region 6 shows few operations and maintenance expenditures since there are no Parks Division staff assigned to that region. Parks staff in Regions 4 and 7 maintain and operate fishing access sites in Region 6. Appendix E shows expenditures by funding source for each of the regions for the same time period.

Table 35
Operations and Maintenance (O & M) Expenditures by Region for Fishing Access Sites
(Fiscal Years 1989-90 through 1996-97)

	Region							
	1	2	3	4	5	6	7	Total
O & M	$ 446,778	$ 503,345	$ 895,818	$ 529,284	$ 749,137	$ 2,239	$ 502,499	$ 3,629,098
Weed Control	$ 16,331	$ 51,515	$ 42,322	$ 43,046	$ 36,179		$ 4,673	$ 194,065
Vandalism			$ 649					$ 652
Fishing Access EPP		$ 22,469	$ 24,320	$ 11,628				$ 58,418
Miscellaneous		$ 10,996		$ 66,163*				$ 77,159
Total	$ 463,109	$ 588,325	$ 963,109	$ 650,121	$ 785,316	$ 2,239	$ 507,172	$ 3,959,392

*Missouri River road expenditures.

Source: Compiled by the LAD from SBAS records.

Table 36 shows capital expenditure totals for each region for fiscal years 1989-90 through 1996-97. Appendix E contains capital expenditures through the Long Range Building Program for fishing access site development and improvements for each site by region.

Table 36
Capital Expenditures by Region for Fishing Access Sites
(Fiscal Years 1989-90 through 1996-97)

	Region							Total
	1	2	3	4	5	6	7	
Expenditures	$ 318,488	$ 421,413	$ 722,717	$ 399,981	$ 534,690	$ 219,227	$ 389,223	$ 3,005,739
Weed control	$ 16,124	$ 44,385	$ 55,972	$ 44,832	$ 27,215	$ 0	$ 16,197	$ 204,725
# of Sites	9	19	20	19	20	5	12	104

Source: Compiled by the LAD from SBAS records.

There have also been capital expenditures designated for general items, such as bank stabilization, maintenance, weed control, and latrines. The money was expended at a number of sites in various regions. The following table shows the miscellaneous expenditures for fiscal years 1992-93 through 1996-97.

Table 37
Miscellaneous Fishing Access Site Expenditures
(Fiscal Years 1992-93 through 1996-97)

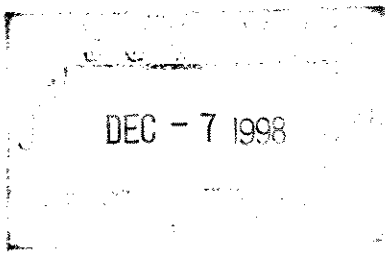
Description	Fiscal Year				
	92-93	93-94	94-95	95-96	96-97
Bank Stabilization	$ 18,412				
Miscellaneous Maintenance				$ 11,545	
Statewide Latrines				$ 24,109	$ 139,830
Statewide Surveys				$ 146,677	$ 13,748
Weed Control & Maintenance			$ 18,332	$ 10,399	$ 700
Total	$ 18,412	$ 0	$ 18,332	$ 192,730	$ 154,278

Source: Compiled by the LAD from SBAS records.

Department Response

Montana Fish, Wildlife & Parks

P. O. Box 200701
Helena, MT 59620-0701
(406) 444-3186
FAX:406-444-4952
Ref:PG0841.98
December 3, 1998



Mr. Scott Seacat
Legislative Auditor
P.O. Box 201705
Helena, MT 59620-1705

Dear Mr. Seacat:

This letter is in response to the Performance Audit conducted by your office on the Department of Fish, Wildlife & Parks Fisheries Program. A lot of time and effort was put into this assessment by both your staff and our personnel. The audit report is a very well done and an accurate account of how we are operating the fisheries programs. I want to compliment the audit staff.

Attached are the Department's specific comments on the Draft FWP Fisheries Program Performance Audit's Recommendations. In our meeting last month we submitted a marked up version of the Audit with both editorial and substantive comments. The attached response addresses the six (6) Recommendations found in the Audit and the Department's commitment to improve our performance on them.

I thought the Audit reflected very positively on our fisheries program while identifying opportunities to improve our operations. I appreciate this opportunity to comment, and we will address the recommendations and suggestions contained in the audit to improve our fisheries program.

Sincerely,

Pat Graham

Patrick J. Graham
Director

Enc.

c: Jim Pelligrini
Mary Zednick
Larry Peterman

Montana Fish, Wildlife & Parks

Fisheries Program Performance Audit Department Comments

Recommendation #1 :

The audit recommends the Fisheries Division implement additional controls over the private pond program to ensure objectives of the permitting process are met.

Department Response:

The department recognized this problem and organized a committee between 1996 and 1997 to develop procedures to improve this process. FWP introduced legislation in 1997 based on the committee's recommendations to improve our management of private ponds. House Bill 109 would have provided for a $100 license fee to offset the inspection costs and impose a ten year permit lifespan. The bill would have improved FWP's ability to periodically inspect licensed ponds. Unfortunately, HB109 was tabled in committee because of overriding concern about implementing new fees and eroding private property rights.

While we concur with the audit's recommendations, we see little opportunity to improve the program beyond the internal administrative procedures FWP has already implemented. We do not have the resources or the legislative authority to conduct post-license inspections, particularly since we presently receive over 200 private pond license applications per year. FWP does not plan to introduce private pond legislation during the 1999 legislative session, but will provide background information and support if this becomes a legislative issue.

Recommendation #2 :

The audit recommends the Fisheries Division establish and communicate written policies concerning:

A. The tolerable variance allowed by hatchery managers to increase the fish stocked in a waterbody.
B. When stocking update form is needed.
C. Documenting decisions by regional and hatchery staff concerning stocking unallocated fish.

Department Response:

Fish stocking is an important part of FWP's overall fisheries program. We agree that more formal policies on these issues would be desirable. We propose to develop one policy which will address under what circumstances a stocking update is required, requirements for documenting regional/hatchery bureau decisions for stocking unallocated fish and specifying the discretion of

hatchery managers in altering stocking numbers.

Stocking updates are needed anytime there is a projected change in number, species, timing, or measurable change is done when compared to the 5 year stocking plan. Unallocated fish will only be planted after a plant program update is submitted to and approved by the Fisheries Division Administrator, Fisheries Manager, and Hatchery Bureau Chief.

These guidelines have been submitted to all hatchery and fish managers for review. We now have an interim policy in effect (copy attached) and will be revisiting this policy as we rewrite the hatchery allocation system procedures manual.

Recommendation #3 :

The audit recommends the Fisheries Division:

1. **Track EA's to ensure final copies are received in Helena.**
2. **Require all EA's to go through the regional fish manager to ensure EA's are sent to the division.**
3. **Determine a consistent length of time for a comment period on the EA's.**
4. **Do not plant fish until the end of the comment period so comments can be received and reviewed.**

Department Response:

MEPA provides that public comment and associated comment duration requirements for EA's are at the discretion of the agency (MEPA Handbook, Page 79). It has been FWP's practice to provide for public review of our EA's. It is also important to note that none of the stockings referred to in the audit occurred without an EA. The different public comment periods have been a reflection of the varying interest in the proposed stockings. Fairly routine stockings with virtually no potential impact received shorter public comment periods than the more controversial, higher impact stockings.

However, we do agree with the audit's recommendations. Therefore, the fisheries division, with input from regional and hatchery staff, will develop a policy to do the following; identify the regional fisheries managers as being accountable for all EA's in their respective regions; standardize, to the extent possible, public comment periods on a statewide basis; and refine a Helena-based tracking system to allow hatchery managers to know when public comment periods have ended.

The division adopted an interim policy on July 1, 1998 that states that "No hatchery fish will be stocked, when an EA is required, until the public comment period is over, comments have been reviewed and the final decision to stock has been approved. The Final EA must also be on file in the Helena office prior to any fish stocking."

The Final Policy will be drafted by January, 1999 and adopted by February, 1999.

Recommendation #4 :

The audit recommends the Fisheries Division implement procedures to identify the need for Environmental Assessments and ensure they are written as needed.

Department Response:

This recommendation arose as a result of a Future Fisheries project that was changed a year after funding was granted. The original project qualified for a categorical exclusion under MEPA. Changes in the project warranted the need for an EA.

We agree that FWP needs to have a process in place that prevents a similar occurance in the future. On July 23, 1998 all Regional Fisheries Managers and Area Fisheries Biologist's were asked to notify Future Fisheries Program Staff of any project changes so that we can evaluate whether the changes warrant additional MEPA review.

Recommendation #5 :

The audit recommends the Fisheries Division formally communicate with:

A. The field biologists about the Renewable Resource Grant and Loan Program administered by the Department of Natural Resources and Conservation; and

B. The Department of Natural Resources and Conservation concerning proposed water lease projects and applicable habitat projects to determine if the RRG&L Program could be a funding source.

Department Response:

In early July, 1998, Michael Downey, manager of the Renewable Resources Grants and Loans Program for DNRC was furnished with addresses of all of the FWP Regional Fisheries Managers; he will also be receiving a list of all area fisheries biologists. Mr. Downey has agreed to include the Managers and area biologists on his permanent mailing list to receive the application instruction booklet for the Renewable Resource Grant Program.

Mr. Downey indicated that the funding limit for water leases on private lands is only $5,000. However, up to $100,000 could be available for stream restoration projects if the project clearly benefits the public as a whole. The division will maintain communication with DNRC on this program and participate in it when deemed appropriate.

Recommendation #6 :

The audit recommends the department management:

A. Incorporate the number of work days per task into the future workplan development process.

B. Revisit the workplans during the year to ensure they are being followed.

Department Response:

The department is developing a new comprehensive management system that includes new strategic plans, operations plans, and revised procedure for work plans. Preparation of new work plans will include determining resources ($, FTE, etc.) required to perform various tasks. The new comprehensive management system will also emphasize more careful tracking throughout the year of annual workplans. The department plans to have this new management system in place by June, 1999, and we think this system will address recommendation #6.

Montana Fish, Wildlife & Parks

HATCHERY STOCKING POLICY

The following is a policy for the hatchery Managers, designed to clarify the stocking of fish that may be unallocated and the procedures to follow when unallocated fish are available.

1. The number of fish loaded for stocking "using standard hatchery practices" will be as close to the number requested as possible.

2. If there is a shortage based on uncontrollable circumstances a suitable substitute may be used to make up for any discrepancies. However the total number will not exceed that requested.

3. If there are more fish than requested due to changes, higher than expected survival, etc and it would be useful to use those fish in the same body of water and benefit the fisheries based on experience and knowledge, a Plant Program Update will be used to add to the original request. Those fish will not be planted until the Plant Program Update is approved and the hatchery manager is informed of the approval.

Montana Fish, Wildlife & Parks

FISHERIES DIVISION
1420 EAST 6TH AVENUE
P. O. BOX 200701
HELENA, MT 59620

Interim Policy On EA and Fish Stocking

To assure consistency and to meet procedural protocol, MFWP will follow this interim policy. With regards to stocking fish from the MFWP hatchery system, into waters that require an EA be written, the following guidelines and procedures will be met:

1. Any proposed introduction of fish that requires an EA, stocking of fish will be done only after the EA has been finalized and a copy of the final decision document is on file in the Helena Fisheries Division Office.

2. A copy of a final decision on the EA will come from the Regional Fish Manager with a copy to be sent to the Hatchery Bureau Chief, accompanied by a Planting Program Update form.

3. No MFWP Hatchery will stock fish where an EA is required, until the EA final decision document and an approved Plant Program Update form are on file with the Hatchery Bureau Chief.

4. No Hatchery will stock fish under these conditions, until an approved Plant Program Update form is received by the hatchery or verbal approval is given to the hatchery. Verbal approval will not be given until a Plant Program Update is approved and a copy of the finalized EA is on file.

5. A copy of the EA and the Final Decision document will be kept with the approved Plant Program Update form in the Helena Fisheries Office, with the Regional Fisheries Manager, and at the hatchery that will be stocking the fish.

Appendices

Appendix A

Fish Native to Montana

E	*White Sturgeon
E	*Pallid Sturgeon
	*Shovelnose Sturgeon
C	*Paddlefish
C	Shortnose Gar
	Goldeye
	Lake Chub
	Western Silvery Minnow
	Brassy Minnow
	Plains Minnow
C	Sturgeon Chub
C	Sicklefin Chub
C	Pearl Dace
	Peamouth
	Emerald Shiner
	Sand Shiner
	Northern Redbelly Dace
C	Northern Redbelly Dace x Finescale Dace (hybrid)
	Fathead Minnow
	Flathead Chub
	Northern Squawfish
	Longnose Dace
	Redside Shiner
	Creek Chub
	River Carpsucker
	Longnose Sucker
	White Sucker
	Largescale Sucker
	Mountain Sucker
C	Blue Sucker
	Smallmouth Buffalo
	Bigmouth Buffalo
	Shorthead Redhorse
	*Channel Catfish
	Stonecat
	*Northern Pike
P	*Lake Whitefish
C	*Yellowstone Cutthroat Trout
C	*Westslope Cutthroat Trout
C	*Redband Trout
P	*Kokanee
	*Pygmy Whitefish
	*Mountain Whitefish
E	*Bull Trout
	*Lake Trout
	*Arctic Grayling
C	*Arctic Grayling (fluvial)
C	Trout-perch
	*Burbot
	Brook Stickleback
	Mottled Sculpin
	Slimy Sculpin
C	Shorthead Sculpin
	Torrent Sculpin
C	Spoonhead Sculpin
	Iowa Darter
	*Sauger
	Freshwater Drum

C - A fish of special concern.
E - Listed as endangered under the federal Endangered Species Act. Retains status as state fish of special concern.
P - Possibly Native.
* - Designated a game fish in Montana statutes.

Appendix B

Special Project Descriptions and Expenditures

ARCTIC GRAYLING RECOVERY PROGRAM

In 1982, the Montana grayling was designated as a category 2 candidate for listing under the Endangered Species Act. In response to a petition to list the grayling as endangered, the US Fish and Wildlife Service (USFWS) determined that listing the Montana grayling under the Act was warranted but precluded by higher priority listing actions in 1994. Currently, the Montana grayling is a candidate species under the Act. The Montana grayling is considered a species of special concern by the state of Montana. The Montana grayling is the only fluvial (river dwelling) population of Arctic grayling in the upper Missouri River basin.

Historically, the fluvial population of the Arctic grayling was widely but irregularly distributed and locally abundant in the Missouri River drainage above the Great Falls in Montana and northwest Wyoming. Presently, the only self-sustaining remnant of the indigenous fluvial Arctic grayling population exists in the Big Hole River, estimated to represent 5 percent or less of the historic range. The grayling faces threat primarily from a decrease in available habitat as a result of dewatering of streams, habitat degradation, drought, and potential competition or predation by non-native fish.

Memorandum of Agreement Created

In 1991 and again in 1996, FWP, Bureau of Land Management (BLM), USFWS, US Forest Service, Montana Council of Trout Unlimited, Montana Chapter of the American Fisheries Society, and the National Park Service entered into a Memorandum of Understanding (MOU) concerning fluvial arctic grayling restoration. The purpose of the MOU is to: 1) establish commitment and cooperation for a five year project between state and federal agencies and the private sector to direct fluvial grayling restoration efforts, 2) facilitate effective and efficient development of fiscal proposals and use of appropriated or secured funds for the restoration project, and 3) promote and coordinate the cooperative restoration program. As long as Montana abides by the MOU and actively attempts to restore Arctic grayling, the USFWS will not list the fluvial Arctic grayling as a threatened or endangered species.

The restoration program is designed to identify factors that are limiting fluvial Arctic grayling and then initiate measures that remove or minimize the factors limiting grayling survival. Project personnel continue to conduct population assessments and investigate distribution and movements in an attempt to better estimate population levels and understand life history strategies.

In the MOU FWP agrees to : 1) hire project personnel, purchase appropriate equipment and administer the Montana Fluvial Arctic Grayling Restoration Project, and 2) provide 50 percent of the cost of the salary and benefits of the project biologist, the salary and benefits of the two field assistants and operations and equipment.

The MOU also describes the composition of two subcommittees. The Restoration Technical Committee is responsible for preparing and carrying out the annual workplan that details the work to be accomplished each year. The Restoration Financial Committee is responsible for raising funds and managing the funds contributed to the project.

Restoration Plan Developed

In 1987 the Montana Fluvial Arctic Grayling Workgroup was established to provide guidance on Montana grayling restoration, research and management. Members of the group include FWP, BLM, Yellowstone

National Park, a private company, US Forest Service, Montana Chapter of the American Fisheries Society, US Fish and Wildlife Service Ecological Services, Montana Natural Heritage Program, US Fish and Wildlife Service Fisheries, and two professors from University of Montana. The Workgroup developed and approved the Montana Fluvial Arctic Grayling Restoration Plan in November 1995. The Restoration Plan delineates a restoration goal and necessary actions to achieve that goal. The group also developed a workplan to guide restoration efforts for five years, starting in 1996.

The restoration goal for Montana grayling is:

> The presence, by the year 2020, of at least five stable, viable populations distributed among at least three of the major river drainages within the historic range of Montana grayling in the Missouri River system upstream from Great Falls, including those upper Missouri River basin waters within Yellowstone National Park. A population will be considered stable and viable in a stream when monitoring confirms that, for at least 10 years, successful stock recruitment exceeds mortality of reproductive adults to successfully compensate for random factors and perpetuate the species within suitable habitats.

In 1996 FWP and the USFWS entered into a Memorandum of Agreement for the Implementation of the Fluvial Arctic Grayling Restoration Plan. The agreement establishes a short-term goal of a minimum of five Montana grayling reintroductions in progress (grayling released into a stream) by the year 2000 within the historic range. Each reintroduction will have a completed reintroduction plan and will follow procedures delineated in the restoration plan. Each reintroduction plan will be approved by the Workgroup. Measurable goals and objectives outlined in each reintroduction plan will be used as criteria to determine whether the reintroduction has been successful. These reintroductions will be in addition to the Big Hole River grayling population. If the short-term goal is not achieved by December 2002, the USFWS will initiate a formal status review of the fluvial Arctic grayling population in the upper Missouri River basin.

The agreement also establishes parameters for the Big Hole River grayling fishery. Based on an annual fall census of one stretch of river, the estimated density of age 1 and older Montana grayling in the Big Hole River must equal or exceed 30 grayling per mile. Based on annual surveys, the proportion of age 1 and 2 grayling in the Big Hole River must constitute between 50 and 80 percent of the total population sampled in combined sections of the Big Hole River. If the population falls below the parameters for two consecutive years, FWP must conduct, in cooperation with the Workgroup, an assessment of the limiting factors and initiate corrective actions. The USFWS will initiate a formal status review of fluvial Arctic grayling populations in the upper Missouri River basin if the Big Hole River parameters are not met for three consecutive years.

Under the agreement, FWP agrees to serve as the lead agency for oversight on implementation of the Montana Fluvial Arctic Grayling Restoration Plan. The department also agreed to continue proactive efforts to maintain minimum instream flows that sustain Montana grayling in the Big Hole River basin. The USFWS agreed to develop a genetically sound brood stock, and maintain and spawn the brood stock to produce fish for use in restoration and recovery efforts. The brood stock is maintained at the USFWS Fish Technology Center, Bozeman.

Cooperative Water Management

In 1989, the upper Big Hole River ranchers adopted a policy under which flows are not fluctuated dramatically for irrigation during the critical Montana grayling spawning period near the end of April. In cold

or normal springs, irrigation withdrawal is not a factor. In warm or dry springs, irrigation withdrawal commences before or after a certain period between runoff peaks. This effort is coordinated by the ranchers.

In response to impending drought conditions during the 1992 summer, the ranchers acted upon a FWP request to coordinate and minimize withdrawals after the first week of July to ensure sufficient flow to maintain critical Montana grayling habitat in the Wisdom area. The effort was led and coordinated by the local landowners in cooperation with FWP.

Drought conditions in 1994 necessitated intensive efforts to maintain minimum stream flows in the Big Hole. As flows at Wisdom approached 20 cfs, water users were contacted and asked to conserve water by minimizing withdrawals. Assistance was offered in adjusting headgates and funding a water commissioner. Attempts to preserve instream flow were made by providing alternatives to watering stock through ditches. A total of 10 stock tanks were acquired and distributed. An abandoned well was developed to pump water to two of the tanks. The remaining tanks were filled using a 1,000 gallon tank truck. The volume of water required via this alternative means was approximately 0.5 percent of that required by ditch delivery.

In fiscal year 1994-95 the Governor's Office gave FWP a grant of $7,143 to defray the costs of installing the stock water tanks. Twelve stock water tanks were developed which will be used to augment instream flows by closing stockwater diversions at critical times. The Future Fishery Improvement Program funded $17,347 to help drill wells and install power meters and electrical service to the wells. Other partners in the project include Montana Bureau of Mines and Geology, USFWS Partners for Wildlife Program, Bring Back the Natives Program, the Beaverhead Conservation District, the MT Department of Natural Resources and Conservation (DNRC), the Natural Resources and Conservation Service, and private landowners. In 1998 FWP will investigate the efficiency of the stockwater wells at maintaining instream flows.

A group of area citizens and individuals from private organizations also wrote a drought plan specifying what actions will be taken during critical flows. The plan contains suggestions water users (ranchers, recreationalists, Butte water users) should follow when flows and temperatures reach certain levels. The stockwater wells will be used in conjunction with the plan.

Brood Stock Development

In order to preserve the genetic integrity of Montana grayling, a Big Hole brood stock is being developed at the USFWS Technology Center, Bozeman. Brood stock development is guided by a plan developed by the University of Montana Wild Trout and Salmon Genetics Lab. The plan ensures the genetic variation within the Big Hole River grayling population is replicated in the brood stock.

The plan calls for brood stock derived from gametes taken from spawning Big Hole grayling. Reserve stocks are at the Fish Technology Center and the 1988 year class was planted in one of the Axolotl Lakes in the Gravelly Range. To prevent domestication of the brood, wild genes will be infused at least every ten years. The Fish Technology Center has not been able to produce an usable stock so the brood in Axolotl Lakes is used to collect eggs. The eggs are then hatched in FWP's hatcheries and planted as planned. Plantings have consisted of:

Gallatin and East Gallatin Rivers - Approximately 5,400 yearlings in the Gallatin in 1992, 10,000 yearlings in 1993, and 10,000 to 12,000 in the East Gallatin in 1993.
Big Hole River - 214 yearlings from the Big Hole reserve stock in 1992.
Cougar Creek - 800 in 1993 and again in 1994.

Cherry Creek - Madison River grayling planted in 1994.
Ruby River - 30,028 young of the year in 1997.

The waters have been monitored since the plantings. Biologists found stockings on the East Gallatin, Cougar Creek and Cherry Creek did not appear to work. FWP entered into a contract with MSU to monitor the fish planted in the Ruby River. The purpose of the contract is to provide FWP with: an evaluation of survival, growth, and dispersal rates of the grayling planted in the upper Ruby River; an assessment of habitat related factors affecting establishment of a sustaining population of fluvial grayling; and a characterization of interactions between grayling and resident fish species and identify effects of interactions.

Madison River/Ennis Reservoir Grayling Study

FWP and a private company entered into an agreement in 1990 to study the Madison River/Ennis Reservoir arctic grayling population. The parties wanted to determine if the population was fluvial, and address the potential affects listing the species could have on reservoir operations, river flows, and other fisheries and recreation issues, while working to maintain and increase the grayling population. Grayling were spawning in the one and a half miles just above the reservoir thus raising the question as to whether the population was fluvial. The population was monitored from 1990 through 1997 to determine the nature of the population. In 1997 it was determined the population is not fluvial and will not be subject to the Arctic Grayling Recovery Plan.

Arctic Grayling Recovery Program Expenditures

Table B-1 shows expenditures for the Arctic grayling recovery program from fiscal year 1991-92 through 1996-97. The expenditures do not include the work on the Madison River/ Ennis Reservoir since those expenditures are included with other work conducted by the biologist. The Madison/Ennis project was funded by a private company.

Table B-1
Arctic Grayling Recovery Program Expenditures
(Fiscal Years 1991-92 through 1996-97)

Fund Type	Fiscal Year						Description
	91-92	92-93	93-94	94-95	95-96	96-97	
GL	$ 22,521	$ 24,499	$ 14,418	$ 17,173	$ 13,766	$ 14,554	Big Hole River Grayling Study
DJ	$ 27,612	$ 26,622	$ 26,658	$ 26,635	$ 27,948	$ 29,548	
Sportsman Group	$ 5,968	$ 9,583	$ 10,961	$ 26,359	$ 7,209	$ 23,980	
BLM, USFS, FWS		$ 19,669	$ 25,051	$ 36,823	$ 24,026	$ 915	
GOG*				$ 7,143			Big Hole River Water Tanks
Total	$ 56,101	$ 80,373	$ 77,088	$ 114,133	$ 72,949	$ 68,997	

*GOG - Governor's Office Grant

Source: Compiled by the LAD from SBAS records.

WESTSLOPE CUTTHROAT RECOVERY PROJECT

Westslope cutthroat trout are the most widely distributed native trout in the inland Pacific northwest, occurring in Montana, Idaho, and Canada. In Montana, native westslope cutthroat trout occur in the upper Missouri and Columbia River basins. The westslope subspecies is one of two cutthroat trout subspecies native to Montana - the other being the Yellowstone cutthroat trout. These two subspecies represent highly differentiated subspecies. Prior to the 1960's, Yellowstone and westslope cutthroat trout were considered by most fisheries personnel to be the same subspecies, with local adaptations and color patterns.

Westslope were placed on the USFWS's Red Book of threatened and endangered species from 1966-72, but were dropped from that list with passage of the Endangered Species Act in 1973 due to uncertainty about their classification. They were considered a Category 2 Candidate species by the USFWS until the deletion of that category in February 1996. Westslope cutthroat have been listed as a Class A State Species of Special Concern by FWP and the Montana Chapter of the American Fisheries Society since 1972. Class A designation indicates limited numbers and/or limited habitats both in Montana and elsewhere in North America; elimination from Montana would be a significant loss to the gene pool of the species or subspecies.

Recent surveys of Montana's streams show westslope cutthroats occur in only 14 percent of their historic range. Only 20 percent of the remaining populations in Montana are known to be genetically pure, and an additional 13 percent are suspected to be pure.

Causes of decline include hybridization and competition with introduced species, degraded water quality, degradation of habitat from road building, grazing, mining, and urban development, and fragmentation of habitat due to barriers created by dams, culverts, and dewatering. Federal lands are estimated to support over 75 percent of the remaining westslope cutthroat in Montana.

Based on the decline of, and continued threats to westslope cutthroat throughout its entire range, the USFWS was petitioned to list westslope cutthroat trout as threatened under the Endangered Species Act in May 1997. Factors cited in the petition to support listing included detrimental land management activities and presence of introduced non-native species that compete with, prey on, or hybridize with westslope. The petitioners cited a lack of adequate protective and restorative programs, and a continued jeopardy to populations due to ongoing and proposed activities and programs as justification to list the subspecies.

Missouri River Westslope Cutthroat Trout Technical Committee Formed

In late 1994 an interagency group of fisheries professionals met to review the status and on-going work on the westslope cutthroat trout within the upper Missouri River basin. The group concluded a conservation/restoration strategy needed to be adopted if this subspecies was to persist in the basin. FWP wanted technical and agency input from biologists outside FWP. As a consequence, the Upper Missouri River Westslope Cutthroat Trout Technical Committee was formed in early 1995. The committee is made up of fishery scientists, managers, and geneticists from FWP, the US Forest Service, BLM, USFWS, and the University of Montana. The charge of the committee is to make recommendations, based on the best scientific information available, to FWP and land managers for conserving and restoring westslope cutthroat trout within the upper Missouri River basin.

The Technical Committee helped assemble and summarize known status and distribution data, developed a scientifically-based management goal, developed genetic conservation guidelines, developed sampling protocols, implemented a public information program, and developed angling recommendations.

Westslope Cutthroat Trout Steering Committee Formed

In 1996 the governor hosted a workshop to discuss the historic and current status of westslope cutthroat, as well as the future of the fish in Montana. A Westslope Cutthroat Trout Steering Committee was formed to advise FWP concerning the future of the species. Open to any interested parties, regular attendance at the meetings includes representatives from American Wildlands, the Blackfeet Tribe, the Montana DNRC, Montana Farm Bureau, a private company, a national association, a sportsmans group, Montana Wildlife Foundation, Natural Resources and Conservation Service, private landowners, BLM, USFWS, and the US Forest Service.

As of June 1998, the committee's major accomplishment was a draft of a Conservation Agreement and Management Plan for Westslope Cutthroat Trout in Montana. If signed by the USFWS, the agreement would preclude listing of Montana's westslope cutthroat trout as threatened or endangered under the Endangered Species Act. Under the agreement, FWP has to meet the four management objectives described in the agreement and overall population indicators must show stable or positive trends.

Restoration Efforts On-going

Management, conservation and restoration efforts for westslope cutthroat have been undertaken in Montana in recent years. Efforts have focused on stopping declines in numbers and distribution, protecting and expanding existing populations, and gaining a better understanding of the biology, habitat requirements, and behavior of the species. Actions undertaken by the department and regional biologists include:

- Imposing restrictive fishing regulations.
- Extensive survey and inventory efforts.
- Genetics testing of populations to determine uniqueness and purity.
- Development of brood stock and genetic conservation guidelines.
- Protection of important populations.
- Restoration and enhancement of habitat and populations.
- Education efforts.

Westslope Cutthroat Recovery Project Expenditures

Funding for most of the regional biologists' work on cutthroats is from GL and DJ funds. Expenditures are charged to the region fisheries budget. Table B-2 shows expenditures for westslope cutthroat trout work, including specific inventory work, genetics testing, and relocation projects.

Table B-2
Expenditures for Westslope Cutthroat Projects
(Fiscal Years 1990-91 through 1996-97)

Fund Type	Fiscal Year							Description
	90-91	91-92	92-93	93-94	94-95	95-96	96-97	
GL				$ 5,137	$ 3,436	$ 2,345	$ 1,628	Cutthroat Trout Inventory
DJ					$ 5,290	$ 4,761	$ 3,305	
USFS	$ 67			$ 32,891	$ 37,100	$ 40,131	$ 11,831	Forest Service Cutthroat Streams
USFS					$ 1,741			Custer Cutthroat Genetics
BLM	$ 510			$ 2		$ 1,288		Muskrat Creek Relocation
Total	$ 577	$ 0	$ 0	$ 38,030	$ 47,567	$ 48,525	$ 16,764	

Source: Compiled by the LAD from SBAS records.

PALLID STURGEON RECOVERY PROJECT

In response to sightings of pallid sturgeon in the Fort Peck tailrace and potential listing of this candidate as an endangered species, the Army Corps of Engineers (COE) began funding research downstream of Fort Peck in April 1989. Pallid sturgeon were listed as endangered in 1990. In November 1990 a Pallid Sturgeon Recovery Committee was convened to discuss what research would be conducted on pallids. Members of the committee included staff from FWP, USFWS from Billings, North Dakota Fish and Game, and a private company. A final Pallid Sturgeon Recovery Plan was signed November 8, 1993.

Workgroup Established

In September 1993 the Montana - North Dakota Pallid Sturgeon Recovery Workgroup met to discuss their role in the recovery of pallid sturgeon. It was decided the group would serve as an advisory group to the Fish and Wildlife Service (including the Pallid Sturgeon Recovery Team) and other affected entities with management responsibility on research needs for pallid sturgeon recovery. Group responsibilities include oversight of management and implementation of pallid recovery in North Dakota and Montana. The ultimate goal is the recovery and de-listing of pallid sturgeon in recovery areas in Montana and North Dakota. Members of the workgroup include staff from FWP, USFWS, Bureau of Reclamation (BOR), Western Area Power Administration, Montana DNRC, MT Coop Fish Resource Unit, a private company, the COE, and the North Dakota Game and Fish Department.

Research Needs Developed and Prioritized

The group met in December 1993 to develop priority research needs, determine feasibility, and develop study plans. The group identified 31 research needs. The list was then sent to sturgeon researchers for the needs to be prioritized based on rated criteria. A prioritized research need list was developed February 1994. Since 1993, the recovery team has met yearly to discuss what was done the previous season and what is planned for the upcoming season.

Stocking Plan Developed

One recovery goal is to stock pallid sturgeon in the Missouri and lower Yellowstone Rivers. Pallids were taken from the wild in 1995 and transported to the Miles City State Hatchery for spawning. The fish absorbed their eggs so none were spawned. The fish were returned to the rivers.

In November 1997, the Upper Basin Workgroup Stocking Team developed a plan for stocking pallid sturgeon in recovery priority management areas in Montana and North Dakota. Since pallids were successfully raised in Garrison National Fish Hatchery, there are plans to plant some in the upper Missouri and the lower Missouri and lower Yellowstone in 1998. They will have radio transmitters in them for tracking.

Pallid Sturgeon Recovery Program Expenditures

Funding sources for pallid sturgeon recovery are primarily the BOR and the COE. Table B-3 shows expenditures for the project from fiscal year 1989-90 through 1996-97.

Table B-3
Expenditures for the Pallid Sturgeon Recovery Project
(Fiscal years 1989-90 through 1996-97)

Fund Type	Fiscal Year							
	89-90	90-91	91-92	92-93	93-94	94-95	95-96	96-97
GL		$ 19,745	$ 24,972	$ 29,091	$ 25,182	$ 26,705	$ 22,191	$ 21,970
DJ		$ 34,838	$ 36,374	$ 52,895	$ 48,022	$ 59,560	$ 53,426	$ 53,138
Private Company				$ 1,904	$ 6,164	$ 17,563	$ 5,631	$ 8,674
USFWS			$ 545		$ 8,930			
COE	$ 52,968	$ 38,359	$ 48,022	$ 36,319	$ 17,897			
BOR*		$ 12,189	$ 20,543	$ 28,598	$ 63,806	$ 33,060	$ 86,646	$ 30,433
WAPA						$ 86,943	$ 73,329	$ 115,950
TOTAL	$ 52,968	$ 105,131	$ 130,456	$ 148,807	$ 170,001	$ 223,831	$ 241,223	$ 230,165

*Some expenditures from this source are expended for the Yellowstone River Benthic Fish Study.

Source: Compiled by the LAD from SBAS records.

BULL TROUT STUDY

Bull trout are native to the upper Columbia River basin in northwest Montana. Due to numerous factors, including disruptive land management practices, expansion of introduced fish, non-sustainable harvest, and loss of connected habitat, bull trout have declined, and are now widely considered an imperiled species. Bull trout are considered a Species of Special Concern by FWP and the Montana Chapter of the American Fisheries Society, and have been listed as threatened under the Endangered Species Act by the USFWS.

Montana Bull Trout Restoration Team Appointed

In 1993 the governor convened a group of people to a facilitated round table discussion concerning the need for creating and implementing a bull trout restoration plan in Montana. An interdisciplinary Montana Bull Trout Restoration Team was appointed as a result of the discussion. The team was composed of individuals representing the USFWS, FWP, US Forest Service, Confederated Salish and Kootenai Tribes, a private

company, Montana DNRC, Montana Chapter of the American Fisheries Society, Bonneville Power Administration, and the National Wildlife Federation. The team was chartered by the governor to develop a process to "recover" bull trout independent of (but possibly complementary to) the Endangered Species Act listing process. In addition, the charter for this group deemed it essential that bull trout conservation efforts employ a public participation process that would work closely with various public segments impacted by, and interested in, bull trout restoration. FWP agreed to provide staff for the team. A bull trout coordinator position was designated in fiscal year 1995-96.

Scientific Group Established

The Restoration Team appointed a scientific group to provide the technical expertise necessary for the restoration planning effort. Members of the group were from universities, natural resource management agencies and private industry. The members were not chosen to serve as representing any organization or particular constituency.

Early in the planning process, the scientific group recommended bull trout ranges in Montana be divided into 11 separate restoration/conservation areas in four major drainages. The areas were based on patterns of distribution and fragmentation. The scientific group then wrote status reports for each of the area. The reports describe distribution, risks and a restoration goal. Rock Creek was later classified as a separate area, but its status is described in the Upper Clark Fork area status report. The following table shows the restoration/conservation areas for bull trout.

Table B-4
Restoration/Conservation Areas for Bull Trout
(June 1998)

Clark Fork Basin
- Clark Fork River drainage
  - Lower Clark Fork River (downstream from Thompson Falls Dam)
  - Middle Clark Fork River (Thompson Falls Dam to Milltown Dam)
  - Upper Clark Fork River (upstream from Milltown Dam)
  - Rock Creek (tributary to upper Clark Fork River)
  - Bitterroot River
  - Blackfoot River
- Flathead River drainage upstream from Kerr Dam
  - Flathead River (North and Middle Fork Flathead River, Flathead Lake)
  - South Fork Flathead River (upstream from Hungry Horse Dam)
- Swan River drainage
  - Swan River (upstream from Big Fork Dam)

Kootenai River Basin
- Kootenai River drainage
  - Lower Kootenai River (downstream from Kootenai Falls)
  - Middle Kootenai River (between Kootenai Falls and Libby Dam)
  - Upper Kootenai River (upstream from Libby Dam)

Source: Department records.

In addition to providing the Restoration Team with status reports for bull trout restoration/conservation, the Scientific Group prepared three technical reports. The reports discuss the role of stocking in bull trout recovery, assessment of methods of removal or suppression of introduced fish to aid in bull trout recovery, and the relationship between land management activities and habitat requirements of bull trout.

Local Watershed Groups Established

The Restoration Team decided on a watershed group approach to implement restoration efforts and improve bull trout populations. Each group would address problems affecting bull trout specific to their watershed. Watershed or working groups are to develop local conservation strategies, as well as implement monitoring and other activities associated with restoring bull trout.

Bull Trout Listed as Threatened

Bull trout were listed as a threatened species in June 1998 by the USFWS. As a result of the listing, FWP staff had to modify their strategy for restoring bull trout. The department now hopes to use the plan prepared by the Restoration Team as Montana's portion of the federal recovery plan. If it is accepted, the steps in the plan can be implemented. The USFWS has up to 30 months from the time of listing to distribute a final bull trout restoration plan encompassing bull trout populations in Montana, Idaho, Oregon, and Washington.

Now that bull trout are listed as a threatened species, any agency (state, federal, county, city), private corporation, organization, or citizen, must obtain authorization from the USFWS before they can conduct an activity that might result in a "take' of a bull trout. A "take" essentially constitutes killing a fish. Activities covered under the "take" requirement include:

> "destruction or alteration of bull trout habitat by dredging, channelization, diversion, in-stream vehicle operation, or rock removal, or other activities that result in the destruction or significant degradation of cover, channel stability, substrate composition, temperature, and migratory corridors used by the species for foraging cover, migration, and spawning; taking a bull trout without a permit, except in accordance with applicable state fish and wildlife conservation laws and regulations."

As a result of the listing, to do any habitat projects in waters with bull trout, FWP needs prior authorization from the USFWS. The department also needs authorization to conduct the regular fish monitoring surveys via electrofishing, gill netting, radio telemetry, snorkeling, redd counts, etc. The department submitted a document to FWS listing the normal monitoring activities with accompanying narrative which, if approved, will provide a "blanket" authorization for those activities. Department staff indicated it took about 30 man days to create the 100 page document.

Area Biologists Gather Data

Many regional biologists gather data on bull trout as part of their monitoring duties. The information is entered into MRIS and also sent to the bull trout coordinator in Helena. The coordinator is compiling the information to determine where biologists are monitoring redds and comparing that to the restoration plan's proposal for redd counts. The coordinator is identifying areas where the department is lacking data.

In cooperation with a private company and private organization, FWP has conducted radio telemetry studies on bull trout in the Blackfoot River drainage.

Bull Trout Project Expenditures

Most regional staff expenditures for bull trout monitoring are charged to general work centers for the region. Most specific studies, such as a radio telemetry study on the Blackfoot River are funded by private or federal sources. The bull trout coordinator expenditures are funded from general license dollars. Table B-5 shows expenditures for the bull trout project from fiscal year 1992-93 to 1996-97.

Table B-5
Expenditures for Bull Trout Projects
(Fiscal Years 1992-93 through 1996-97)

Source	Fiscal Year				
	92-93	93-94	94-95	95-96	96-97
Private Company	$ 3,103	$ 18,191	$ 11,100	$ 11,405	$ 3,008
USFS	$ 14,942	$ 11,906	$ 21,891	$ 16,130	$ 19,904
Sportsmen Group					$ 14,116
GL				$ 42,872	$ 52,103
DJ				$ 23,124	$ 11,951
Total	$ 18,045	$ 30,097	$ 32,991	$ 93,531	$ 101,082

Source: Compiled by the LAD from SBAS records.

PADDLEFISH STUDY

The paddlefish, native to the Mississippi, Missouri, and several Gulf coast drainages, is one of North America's largest and most distinctive freshwater fishes. The species is long-lived, highly migratory, and a source of commercial and trophy fishing, high-quality food, and expensive caviar.

In response to dwindling stocks and deteriorating habitat nationwide, Montana and North Dakota developed a paddlefish management plan in 1995 to address the fish population living in both states. The Montana - North Dakota Paddlefish Management Plan was written as a cooperative venture between the North Dakota Game and Fish Department, Montana FWP, and the University of Idaho. The goals of the paddlefish plan include providing for an orderly and sustainable recreational harvest, providing a basis for cooperative interstate management, facilitating data collection for stock assessments, conducting relevant research, protecting and improving habitat quality in the rivers and reservoirs, defining the role of artificial propagation, and increasing public awareness. The plan covers the Yellowstone-Sakakawea stock (inhabiting Lake Sakakawea, the Missouri River from Lake Sakakawea to Fort Peck Dam, the "Dredge Cuts" below Fort Peck, and the Yellowstone River) and the Upper Fort Peck stock (spawning in the Missouri River above Fort Peck Dam and rearing in Fort Peck reservoir).

Staff from Montana and North Dakota meet yearly to determine what activities occurred in the past year and what each state plans to do in the upcoming year in terms of research, regulations, management, etc.

Activities involved with paddlefish include:

- A creel census on the Fort Peck paddlefish population to gather baseline data on total harvest, harvest rates, recruitment, age, etc.

- Tagging fish in the population residing above Fort Peck to determine harvest rates, migration patterns, and frequency of spawning.
- A visual survey of young-of-the-year at the headwaters of the Fort Peck Reservoir to determine and verify minimum flows necessary for successful reproduction.
- Studies to locate paddlefish spawning sites and evaluate spawning success in the lower Yellowstone River.
- Studies by a University of Idaho professor to determine age and sex ratios of the paddlefish population near Glendive.

Paddlefish Project Expenditures

The project is funded primarily from GL and DJ funds. Proceeds of the sale of paddlefish egg caviar help fund studies on the lower Yellowstone River. The paddlefish must be harvested on the Yellowstone River by Glendive. Table B-6 shows expenditures for fiscal years 1989-90 through 1996-97. Expenditures in Region 6 (Glasgow) for paddlefish work are not included since the work is charged to a general fisheries budget for warmwater ecosystems.

Table B-6
Paddlefish Project Expenditures
(Fiscal Years 1989-90 through 1996-97)

Fund Type	Fiscal Year							
	89-90	90-91	91-92	92-93	93-94	94-95	95-96	96-97
GL	$ 17,998	$ 22,589	$ 24,352	$ 31,108	$ 26,339	$ 27,289	$ 25,487	$ 46,578
DJ	$ 25,402	$ 33,282	$ 35,776	$ 45,701	$ 51,367	$ 47,353	$ 48,283	$ 41,779
BLM		$ 10,574	$ 6,371					
PRP*			$ 31,499	$ 36,500	$ 41,656	$ 39,663	$ 13,999	$ 14,000
Total	$ 43,400	$ 66,445	$ 97,998	$ 113,309	$ 119,362	$ 114,305	$ 87,769	$ 102,357

*PRP - Paddlefish roe proceeds.

Source: Compiled by the LAD from SBAS records.

HUNGRY HORSE AND LIBBY DAM MITIGATION

In 1980, Congress passed the Northwest Power Planning and Conservation Act (the Act) which was designed to balance power needs, hydropower development, and natural resources in the Columbia River Basin. The Act called for the formation of the Northwest Power Planning Council (the Council), which was mandated to develop the Columbia Basin Fish and Wildlife Program. The program was aimed at balancing past and future hydropower development in Washington, Oregon, Idaho and western Montana through protection, mitigation and enhancement of fish returning from the sea for breeding (anadromous) and resident fish and wildlife. The Act also stated that the Bonneville Power Administration (BPA) would bear the financial responsibility for the program measures. Montana received funding for mitigation for Hungry Horse Dam and Libby Dam.

Hungry Horse Dam Mitigation

Hungry Horse Dam was completed in 1952, and the reservoir reached full pool in July 1954. Hungry Horse is operated by the BOR. The primary benefits of the project are flood control and power production at downstream projects.

Fisheries Mitigation Plan Written

Under the direction of the Fish and Wildlife Program, FWP and the Confederated Salish and Kootenai Tribes presented the Council with a Fisheries Mitigation Plan for Losses Attributable to the Construction and Operation of Hungry Horse Dam in March 1991. The document presents fisheries losses, mitigation alternatives, and recommendations to protect, mitigate, and enhance resident fish and aquatic habitat affected by the construction and operation of Hungry Horse Dam. Mitigation measures were described as non-operational, not requiring changes in dam operation, and operational, requiring dam operation changes. Non-operational mitigation measures included:

- Aquatic Habitat Improvement and Stabilization - Adding fish cover, removing silt, fencing stream banks, adding spawning gravel and other means to improve stream, reservoir, or lake habitat.

- Fish Passage Improvements - Replacing unpassable culverts with new culverts, open-bottomed arch culverts or bridges to restore fish passage. Remove or modify natural barriers in streams to allow fish passage and make additional spawning and rearing areas available. Priority sites were identified.

- Hatchery Fish Production and Fish Planting - Hatchery kokanee planting in Flathead Lake to replace losses of kokanee due to operations of the dam. Bull trout and westslope cutthroat trout would be used for imprint planting to establish new runs in specific stream areas or direct plants in lake environments to increase the fishery and pioneer general spawning runs.

- Offsite Mitigation - Mitigation techniques, including the above, conducted in areas outside the interconnected Flathead Lake and River system.

Operational mitigation measures included:

- Downstream Temperature Improvement Using Selective Withdrawal - Replace the single outlet system with a multi-level system. The single outlet releases cold water year-long, influencing the thermal regime in the Flathead River and the aquatic environment. Installation of a multi-level outlet system allows dam managers to withdraw warmer water from different depths of the reservoir during May to October. Thus the temperature regime is returned to natural conditions.

- Drawdown Limits and Timing of Reservoir Refill - Limiting drawdown and adjusting timing of refill and drafting. Deep drawdowns, late refill, and early draftings reduce fish food production, fish growth, and increase predation of fish.

Examples of monitoring activities were also included in the plan.

The Council approved the loss statements and mitigation actions for resident fish affected by Hungry Horse Dam in November 1991. The department and tribes were then directed to develop an implementation plan for fiscal year 1992. The plan was to be limited to actions that address baseline data collection, fish passage over man-caused barriers, initiation of kokanee supplementation, offsite mitigation, and onsite habitat

improvements. FWP and the tribes were also directed to develop a long-term implementation plan limited to non-operational mitigation measures.

Mitigation Implementation Plan Approved in 1993

The implementation plan provides a goal statement, methods of implementation, monitoring and evaluation methods, and decision points for each of the non-operational measures. The habitat improvement area also discusses imprint planting for bull trout and westslope cutthroat. The hatchery fish production and supplementation discusses the kokanee test and criteria for determining success of kokanee reintroduction.

The long-term implementation plan was approved by the Council in March 1993. The plan describes changes from the mitigation plan due to amendments in the 1987 Fish and Wildlife Program. Also, additional information showed some items in the mitigation plan could not be achieved. For example, a chronic shortage of kokanee eggs prevented attainment of the goal of releasing 10 million kokanee fry for a kokanee test. It was also found the recovery of native species would require additional work prior to planting bull trout and westslope cutthroat. Biologists would need to develop recovery plans, assess population genetics, and investigate rearing techniques. The initial stages of habitat enhancement, fish passage, and offsite mitigation would have to proceed more slowly because agreements with public and private landowners needed to be reached.

Results of the Mitigation and Implementation Plans

As a result of the two plans, a number of changes have been made in the Flathead River system. A multi-level outlet system was installed and biologists indicated water temperatures in the river are closer to natural conditions now. A number of fish passage barriers were removed and opened up 16 percent more of the habitat for fish. Habitat improvement projects have addressed sediment control, limited spawning areas, and returned water to dewatered portions of streams. In late 1997 a decision was made to stop kokanee planting after four years, thus reducing the planting period by one year. Fish population surveys showed the plants were not increasing the kokanee population in Flathead Lake. Population surveys and creel census also showed offsite rehabilitation projects were successful in removing illegally introduced fish species and creating popular fisheries at those locations.

Regional biologists indicated all the projects are being monitored and evaluated to determine their success.

Libby Dam Mitigation

Libby Dam was completed in 1972 and filled for the first time in 1974 on the Kootenai River, near Libby, Montana. The dam was built for hydroelectric power production, flood control, and recreation. Libby Reservoir inundated streams providing habitat for spawning, juvenile rearing, and migratory passage for a number of native species.

In 1982, FWP began to assess and model the biological and physical effects of dam operation. One goal was to develop an operational plan to benefit fish and wildlife in the Kootenai System. The other goal was to assemble a set of "non-operation" mitigation actions. In 1990, a study was initiated to quantify the fish passing through Libby Dam with the water (entrainment). The completion of this investigation in 1996 showed an estimated 1.15 to 4.5 million kokanee salmon were entrained annually. Bull trout and burbot were also found to be entrained.

Based on the information gathered in the prior studies, FWP issued a draft report of the Fisheries Mitigation and Implementation Plan for Losses Attributable to the Construction and Operation of Libby Dam in November 1997. Information gathered during the Hungry Horse mitigation planning was also used to

develop the draft plan for Libby Dam. A combination of non-operational mitigation, operational mitigation, and evaluation/monitoring was recommended. Non-operational actions include: 1) aquatic habitat improvement; 2) fish passage improvements; 3) offsite mitigation using the same techniques; and 4) conservation culture and hatchery products. Species benefitting from the mitigation include bull trout, burbot, westslope cutthroat, and interior redband rainbow.

Mitigation Expenditures

Montana receives funding from BPA for mitigation for Hungry Horse Dam and Libby Dam. Table B-7 shows expenditures for Hungry Horse and Libby Dams mitigation for fiscal years 1989-90 through 1996-97.

Table B-7
Hungry Horse and Libby Dam Mitigation Expenditures
(Fiscal Years 1989-90 through 1996-97)

Fund Type	Fiscal Year								Description
	89-90	90-91	91-92	92-93	93-94	94-95	95-96	96-97	
BPA	$ 4,684								Kerr-Hungry Horse Dams
BPA	$ 273,241	$ 208,670	$ 213,820	$ 276,363	$ 305,548	$ 351,355	$ 389,584	$ 645,499	Hungry Horse Mitigation
BOR							$ 5,306	$ 6,361	
BPA	$ 216,777	$ 279,697	$ 222,951	$ 222,504	$ 222,125	$ 354,547	$ 392,918	$ 454,640	Libby Dam Mitigation
Total	$ 494,702	$ 488,367	$ 436,771	$ 498,867	$ 527,673	$ 705,902	$ 787,808	$ 1,106,500	

Source: Compiled by the LAD from SBAS records.

INFORMATION SERVICES UNIT, KALISPELL

Six staff located in Kalispell maintain and summarize statewide fisheries, recreation, and wildlife data, chiefly in the Montana Rivers Information System (MRIS). This system was initiated by the Northwest Power Planning Council in 1985 to assess and rate the significance of river related natural resource values in Montana, Idaho, Washington and Oregon. Montana's portion included the assessment of resident fisheries and wildlife values and recreational, natural and cultural features in and along Montana's rivers and streams. FWP coordinated the study and conducted the fish, wildlife and recreational assessments. DNRC led the natural resources assessment and the University of Montana's anthropology department headed up the cultural assessment. Following the assessment, each resource value was rated for each stream reach. Ratings ranged from Class I to V with Class I as unique or outstanding resources and Class V as unknown value.

Maps Created for Big Game Distribution, State Parks and Fishing Access Site Location

The Kalispell Unit generates overlay maps using the Geographic Information System (GIS) for big game distribution. The layers represent overall distribution and winter ranges for antelope, big horn sheep, elk, moose, mountain goat, mule deer, and white-tailed deer throughout the state. Base maps consist of a shaded relief model with hydrography, highways, cities, and species hunting districts. All the layers used for creating the base maps were provided by the Natural Resource Information System (NRIS) at the Montana State Library in Helena. Each regional office receives a set of the maps.

The State Parks Atlas consists of a set of maps and tabular information for each state park. There is a vicinity map, an individual site map, and a report containing facilities information and other pertinent information for each park. The vicinity maps center each state park within a five mile radius and include the township, range, section, public land ownership, highways, cities, streams, and lakes. The site maps delineate the park's boundaries by acquisition type and display the acreage. All the regional offices have these maps also.

Maps of active fishing access sites are sent to every region. The maps are by region and show land ownership, hydrography, and location of every fishing access site and the name. Roads and towns are also included on the maps.

Staff Submit Requests for Information

FWP staff can request natural resource data by submitting a request form. Information requested is map size, number of copies, and what background features are wanted, such as highways, land ownership, railroads, cities, land use/land cover, FWP regions or hunting districts. The geographic layers - towns, roads, streams, ownership, etc. - are obtained from NRIS. The specific agency information is laid over the geographic layers. For example, a map showing location of noxious weeds in a state park has ownership, roads, towns, and hydrography layers from NRIS and the location of the weeds was added from the FWP database. The cost of equipment use and materials is charged to the requestor's project number.

Kalispell Unit Expenditures

Expenditures in the Kalispell Unit are funded by BPA and GL and DJ funds. Fisheries Division started funding the unit in fiscal year 1991-92 when BPA funding was decreasing and work for the Fisheries Division was increasing. The GL and DJ money is used for operations and the $15,000 contract with the Montana State Library for NRIS support. The following table shows expenditures for the Kalispell Information Unit for fiscal years 1989-90 through 1996-97 by funding source.

Table B-8
Kalispell Information Unit Expenditures
(Fiscal Years 1989-90 through 1996-97)

Fund Type	Fiscal Year							
	89-90	90-91	91-92	92-93	93-94	94-95	95-96	96-97
GL			$ 7,495	$ 19,943	$ 9,674	$ 9,054	$ 26,414	$ 12,556
DJ			$ 11,010	$ 20,560	$ 17,913	$ 16,740	$ 22,958	$ 25,377
BPA	$56,685	$83,087	$ 76,996	$ 96,034	$ 115,664	$ 109,656	$ 98,785	$ 130,648
ESRI				$ 16,194				
Total	$56,685	$83,087	$ 95,501	$ 152,731	$ 143,251	$ 135,450	$ 148,157	$ 168,581

MRIS - Montana Resource Information System
ESRI - Environmental Systems Research Institute, Washington State Energy Office

Source: Compiled by the LAD from SBAS records.

Appendix C

Table C-1

Summary of Whirling Disease Research Supported by FWP, National Partnership, and Whirling Disease Foundation

Study	Year Started	Lead Organization	Other Partners	Funding Source	Grant Amount/Match	Purpose of Research
Statewide Survey of Worm Densities and Distribution	1996	FWP	None	FWP	Worm - $35,443	Testing waters for distribution and densities of tubifex worms - work completed in 1997.
Statewide Survey of MT Priority Coldwater Streams	1995	FWP	MT Cooperative Fishery Research Unit, MSU	FWP	$40,000	Testing priorty coldwater streams for WD distribution - work completed in 1997.
Fish Susceptibility to WD	1996	UC Davis	None	FWP	$33,000	Test species and strain of wild rainbow or cutthroat trout for resistance.
Life History Research	1997	FWP	None	FWP	$18,000	Determine life history differences of worm host and fish - on going.
Dynamics of WD on the Cache La Poudre River	1997	Colorado Cooperative Fish and Wildlife Research Unit, CSU	Colorado Division of Wildlife	NP	$34,487/$20,000	Assess relationship between level of infection of worm population to trout in river.
An Evaluation of Immune Responses to WD Among Trout Above and Below a Potential Point Source of WD Infectivity in the CO River	1997	Colorado Division of Wildlife	None	NP	$30,000/$81,928	Explore immunities of brown and rainbow trout after a light exposure to WD.
Partnerships to Provide Integrated and Expanded Data from Promising Lab and Field Techniques to Enhance Understanding Factors Affecting the Epidemiology of WD	1997	Fish and Wildlife Resources Dept., U of Idaho	Dworshak Fish Health Center, ID, ID Fish and Game	NP	$15,000/$64,386	Implementation and enhancement of techniques using DNA probes to analyze sections of salmonid fry exposed to WD.

Study	Year Started	Lead Organization	Other Partners	Funding Source	Grant Amount/Match	Purpose of Research
Development of a Method for Field Collecting the Triactinamyxon Stage of *M. cerebralis* Using Paired Rotating-drum Filtration	1997	Bozeman Fish Technology Center, USFWS	Biology Department, MSU, School of Veterinary Medicine, UC Davis	NP	$22,932/$16,244	Experiment to find effective method on collecting TAMs.
Parameters That Determine Development and Production of *M. cerebralis* in *T. tubifex*	1997	Division of Biological Science, UofM	None	NP	$41,716/$23,943	Seek quantitative data on the interactions of the WD parasite and the host worm T. tubifex.
Tubificid Ecology and *M. cerebralis* Infections in the Madison River Drainage	1997	Biology Department, MSU	MT FWP	NP	$19,078/$18,860	Investigate association of salmonid disease susceptibility with the distribution, abundance, and life histories of worms in the Madison drainage.
Effects of Age, Dose, and Environmental Stress on Development of WD on Rainbow Trout	1997	Bozeman Fish Technology Center, USFWS	MT Cooperative Fishery Research Unit, Department of Biology, MSU	NP	$45,372/$36,166	Test the susceptibility of rainbow trout at different ages and with different doses of the parasite.
Relation of Life History Type to WD Susceptibility in Missouri River Rainbow Trout	1997	Biology Department, MSU	MT Cooperative Fishery Research Unit, Biology Dept. MSU, FWP	NP	$39,786,$61,844	Study trout life histories by holding and monitoring fish in live cages, and evaluating how their histories contribute to the Missouri River recruitment.
Development of New Cultured Cell Line from Salmonids	1997	Electron Microscope Facility, MSU	None	NP	$20,000/$22,902	Study cellular and molecular aspects of the WD parasite.
Ecological Associations of *T. tubifex* in Enzootic Waters in North-eastern Oregon and Effects of Gas Supersaturation	1997	Oregon State University	Oregon State University	NP	$40,000/$68,548	Examine the ecological aspects of WD on anadromous fish, correlating them with the presence of the disease and the life histories of the resident salmonid populations.

Study	Year Started	Lead Organization	Other Partners	Funding Source	Grant Amount/Match	Purpose of Research
Occurrence and Distribution of Aquatic Oilgochaete Worms as Related to WD	1997	Aquatic Resources Center, Tennessee	ID Fish and Game, Co Division of Wildlife, UT Dept. of Natural Resources	NP	$9,028/$12,000	Information regarding the occurrence, distribution and abundance of T. tubifex worm host of the WD parasite - particularly information regarding the ecology of infected and non-infected streams.
Field and Laboratory Evaluation for WD Using a Novel Polymerase Chain Reaction Diagnostic Assay and Assessing Risk of WD Becoming Established in WI	1997	University of Wisconsin	Upper MS Science Center, USGS, LaCrosse Fish Health Center, USFWS	NP	$25,000	The project will evaluate the specificity and sensitivity of a polymerase chain reaction (PCR) assay to detect WD.
Effects of WD on Recruitment of Brown Trout in the Ruby River and Poindexter Slough, MT	1996	Cooperative Fishery Research Unit, MSU	None	FWP	$57,448	This study determined if the declines in brown trout in the Ruby River and Poindexter Slough were the result of WD.
Determination of the Sensitivity and Specificity of a PCR Assay for *M. cerabralis*	1998	WA Animal Disease Diagnostic Laboratory, WSU	Dept. of Veterinary Microbiology & Pathology, WSU	NP	$24,104/$17,246	Examine the validity and sensitivity of the probe, assess its predictive value, and help differentiate other species of the parasite.
Economic Consequences of WD in Montana Stream Fisheries	1998	Department of Economics, UofM	Department of Mathematics, UofM, Colorado State University	NP	$62,000/$22,668	This research will identify the economic consequences of WD in stream fisheries. The first stage will examine how anglers respond to changes in fish populations. The second stage will examine the relationship between angler use and local economics.
Efficacy of Fumagillin to Prevent Experimentally Induced WD in Rainbow Trout	1998	Bozeman Fish Technology Center, USFWS	MSU	NP	$30,000	Evaluate the efficacy of fumagillin as a drug that may reduce spore numbers and change spore morphology such that trout in hatchery settings will be sufficiently WD free.

Study	Year Started	Lead Organization	Other Partners	Funding Source	Grant Amount/Match	Purpose of Research
Parameters That Determine Development and Production of *M. cerebralis* in *T. tubifex*	1998	Division of Biological Sciences, U of M	None	NP	$47,366/$23,372	This research will continue studies on the interactions of the WD parasite with its aquatic worm host.
Production of *M. cerebralis Triactinomyxons*: Potential Alternative Hosts and Effects of Tubificid Assemblage Structure	1998	Biology Department, MSU	None	NP	$28,956/$10,000	This study will undertake lab experiments to investigate whether more than one kind of tubificid worm hosts the parasite, and how the assemblage structure affects production of the phase of the parasite that leaves the worm.
Effects of Age, Dose, and Environmental Stress on Development of WD in Rainbow Trout	1998	Bozeman Fish Technology Center, USFWS	MT Cooperative Fishery Research Unit, MSU	NP	$12,196 ($28,000 rollover)/$31,766	This research continues previous studies to compare disease susceptibility at different ages and with varying parasite doses, as well as the effect of stress on the development of the disease.
Laboratory Investigations of Mountain Whitefish *Prosopium Williamsoni* Suspectibility to *M. cerebralis*	1998	Bozeman Fish Technology Center, USFWS	MT Cooperative Fishery Research Unit, MSU	NP	$26,870/$23,700	This study will undertake comparative testing of the susceptibility of mountain whitefish and rainbow trout.
Identify and Characterize the Adhesion Molecules Involved in Infection, Migration, and Propagation of *M. cerebralis* in Salmonid Hosts	1998	MSU	Private corporation, Bozeman Fish Health Center	NP	$35,000/$39,492	This experiment will use an in vitro cultivation system to study the mechanisms involved in parasite attachment to trout.

Study	Year Started	Lead Organization	Other Partners	Funding Source	Grant Amount/Match	Purpose of Research
Distribution and Seasonal Occurrence of *M. cerebralis* in the Lostine River, OR	1998	Department of Microbiology, OSU	OSU	NP	$33,037/$34,541	This study will examine the geographic and seasonal distribution of the WD parasite in the Lostine River, OR, the severity of infection at the times fish would be most exposed, and possible correlations with environmental factors and salmonid life histories.
Dynamics of WD on the Cache Le Poundre River	1998	CO Cooperative Fish & Wildlife Research Unit	CO Division of Wildlife	NP	$33,348/$22,000	Determine the effects of headwater impoundments and hatcheries on distribution, abundance, and rates of infection on the worm host of the WD parasite.
Tubificid Ecology and *M. cerebralis* in the Madison River Drainage: Year Two	1998	Biology Department, MSU	FWP	NP	$28,324/$22,439	The study continues the research to draw quantitative connections regarding the disease severity in salmonids with the ecology and distribution of the tubificid worms, as well as environmental conditions, in the Madison drainage.
Maintaining Wild Trout in WD Infected Rivers: Mitigating Trout Declines by Enhancing Habitat and Life History Types of Survivors in the Upper Madison River	1998	Biology Department, MSU	FWP	NP	$10,000	This study will attempt to identify the survivor characteristics of trout in the Madison, identify when and where they spawn, and improve management strategies for enhancing their habitat as a way to maintain self-sustaining populations in infected waters.
Relation of Life History Type to WD Susceptibility in Missouri River Rainbow Trout	1998	Biology Department, MSU	MT Cooperative Fishery Research Unit, FWP	NP	$60,304/$118,866	This study continues to examine how rainbow trout life history (such as the time and location of spawning and rearing) may influence suspectibility of infection. It will also determine the distribution of the worm host, the severity of infection in the Missouri system, and assess how these variables impact the river trout fishery.

Study	Year Started	Lead Organization	Other Partners	Funding Source	Grant Amount/Match	Purpose of Research
Relationship of *M. cerebralis*-Infected Tubifex to Infection Rates and Severity of WD in Trout: An Integrated Study of Rock Creek, MT	1998	Division of Biological Sciences, UofM	FWP, Biology Dept, MSU, Western Fisheries Research Center, WA	NP	$27,013/$6,945	Assess the relationship of WD-infected Tubifex worms to infection rates and severity of WD in trout at selected sites along the entire length of Rock Creek. It will also examine the genetic variations of the Tubifex worms to shed light on their varying susceptibility and assess the water quality parameters.
An Assessment of Possible Resistance to WD among Rainbow Trout and Snake River Cutthroat Trout after Exposure to *M. cerebralis* Infection in the Upper Colorado River in Middle Park, CO	1998	Colorado Division of Wildlife	None	NP	$53,000/$30,000	New tests will compare the susceptibility of two groups each of wild rainbow and cutthroat trout offspring to varying levels of exposure. Parents from one group of progeny are survivors of exposure. The other group is from parents hatched prior to establishment of the parasite.
Laboratory Assessment of Possible Selection for Resistance to WD Among Progeny of Colorado River Rainbow Trout	1998	MT Cooperative Fishery Research Unit, MSU	None	NP	$22,000/$16,270	The lab counterpart of the above study. The tests will be under controlled conditions over a range of parasite dosages.
Aquatic Oligocheate Workshop	1998	Aquatic Resources Center, TN	None	NP	$10,072	A workshop to identify the external and internal characteristics of oligocheate worms.
Standard Field and Laboratory Protocols for Oligocheate Analysis (in cooperation with the Fish Health Database)	1998	Aquatic Resources Center, TN	None	NP	$10,292	In conjunction with the Fish Health database project, the Center will establish fields considered pertinent to researchers working with WD.

Study	Year Started	Lead Organization	Other Partners	Funding Source	Grant Amount/Match	Purpose of Research
Fish Health Database	1998	Biology Department, MSU	None	NP	$20,000	Initially funded in 1997, this database is obtaining and analyzing fish health data from locations across the country. The 1998 support will emphasize the integration of additional fields into the database to accommodate environmental variables that may correlate with fish health.
Parasite Filtration Study	1996 1997	Colorado Division of Wildlife	Unknown	WD Foundation	$12,000 in 1996 $450 in 1997	Develop a methodology to filter, strain and quantify the WD spores in riverine water samples.
PCR	1996	UC - Davis	Unknown	WD Foundation	$10,000	Develop a PCR method of detecting whirling disease in fish
Manipulation of Worm Host	1996	UofM	Unknown	WD Foundation	$4,500	Research plans on experimental manipulation of the worm host and a cooperative research program for MT.
Survey of the Tubifex Worm in Argentina	1997	Fundacion Chalhuaco, Argentina	Unknown	WD Foundation	$9,000	Survey of the Tubifex worm in several Argentinean river basins, and support for administration of WD-related projects.

Appendix D

State Hatchery System Expenditures

The following tables show the general operating and capital expenditures associated with each hatchery for fiscal years 1989-90 through 1996-97. During fiscal years 1989-90 through 1992-93 personnel and all operations and maintenance costs were appropriated together. Starting in fiscal year 1993-94 some operations and maintenance costs for residences and hatcheries were appropriated separately. The separate appropriation is to pay for such things as new stoves in the residences, repair a window in a hatchery, etc. Funding sources for all personnel and operations and maintenance expenditures were from general license (GL) fees and federal Dingle Johnson (DJ) grant funds. Capital expenditures were funded through general obligation bonds (GOB), GL fees, and federal DJ grant funds.

Table D-1
Washoe Park Trout Hatchery
Operating Expenditures
(Fiscal Years 1989-90 through 1996-97)

Fund Type	Fiscal Year								Description
	89-90	90-91	91-92	92-93	93-94	94-95	95-96	96-97	
GL	$ 46,414	$ 47,018	$ 49,639	$ 56,150	$ 59,499	$ 54,199	$ 49,339	$ 42,649	Operations
DJ	$ 65,507	$ 69,276	$ 72,926	$ 82,467	$ 86,261	$ 78,551	$ 100,173	$ 86,590	
GL					$ 2,579		$ 1,305	$ 2,713	O&M
DJ					$ 7,738		$ 2,650	$ 5,507	
Total	$ 111,921	$ 116,294	$ 122,565	$ 138,617	$ 156,077	$ 132,750	$ 153,467	$ 137,459	

Capital Expenditures

Fund Type	Fiscal Year								Description
	89-90	90-91	91-92	92-93	93-94	94-95	95-96	96-97	
85 GOB	$ 2,500	$ 310							Hatchery Repairs
87 GOB	$ 16,238	$ 83,765	$1,176,512	$ 725					Water Intake
87 GOB		$ 30,951	$ 34,908	$ 235,850	$ 567,559	$ 3,300			Building/Site Work
GL				$ 3,248					Sod & Cover
DJ				$ 9,743					
GL						$21,544			Repair Water Main
GL								$ 4,673	Comfort Station
DJ								$ 14,020	
GL								$ 51	Site Improvement
DJ								$ 154	
GL					$ 2,545	$ 5,865	$ 18,725	$ 1,573	Hatchery
DJ					$ 7,515	$17,594	$ 56,176	$ 4,719	
Total	$ 18,738	$ 115,026	$1,211,420	$ 249,566	$ 577,619	$48,303	$ 74,901	$ 25,190	

Source: Compiled by the LAD from SBAS records.

Table D-2
Jocko River Trout Hatchery
Operating Expenditures
(Fiscal Years 1989-90 through 1996-97)

Fund Type	Fiscal Year								Description
	89-90	90-91	91-92	92-93	93-94	94-95	95-96	96-97	
GL	$ 52,234	$ 51,951	$ 51,084	$ 55,540	$ 54,886	$ 55,157	$ 48,518	$ 49,071	Operations
DJ	$ 73,722	$ 76,545	$ 75,048	$ 81,596	$ 79,573	$ 79,966	$ 98,505	$ 99,628	
GL					$ 1,602	$ 242	$ 1,630	$ 911	O&M
DJ					$ 4,807	$ 725	$ 3,310	$ 1,849	
Total	$ 125,956	$ 128,496	$ 126,132	$ 137,136	$ 140,868	$ 136,090	$ 151,963	$ 151,459	

Capital Expenditures

Fund Type	Fiscal Year							Description
	90-91	91-92	92-93	93-94	94-95	95-96	96-97	
GOB	$ 33,401	$ 192,005	$ 4,594					Water Supply
GL		$ 1,555	$ 5,358	$ 57				Repair Electrical
DJ		$ 4,666	$ 16,073	$ 172				
GL					$ 1,947	$ 433	$ 66	Renovate Hatchery
DJ					$ 5,841	$ 1,299	$ 197	
Total	$ 33,401	$ 198,226	$ 26,025	$ 229	$ 7,788	$ 1,732	$ 263	

Source: Compiled by the LAD from SBAS records.

Table D-3
Yellowstone River Trout Hatchery
Operating Expenditures
(Fiscal Years 1989-90 through 1996-97)

Fund Type	Fiscal Year								Description
	89-90	90-91	91-92	92-93	93-94	94-95	95-96	96-97	
GL	$ 33,503	$ 34,817	$ 35,957	$ 37,510	$ 37,280	$ 37,319	$ 32,281	$ 30,897	Operations
DJ	$ 47,285	$ 51,300	$ 52,825	$ 55,108	$ 54,048	$ 54,104	$ 65,539	$ 62,730	
GL					$ 962	$ 73	$ 1,321	$ 699	O&M
DJ					$ 2,885	$ 218	$ 2,681	$ 1,420	
Total	$ 80,788	$ 86,117	$ 88,782	$ 92,618	$ 95,175	$ 91,714	$ 101,822	$ 95,746	

Source: Compiled by the LAD from SBAS records.

The only capital expenditures for the Yellowstone River Hatchery were for razing an old building in fiscal year 1992-93. At that time the department expended $2,076.

Table D-4
Bluewater Springs Trout Hatchery
Operating Expenditures
(Fiscal Years 1989-90 through 1996-97)

Fund Type	Fiscal Year								Description
	89-90	90-91	91-92	92-93	93-94	94-95	95-96	96-97	
GL	$ 59,355	$ 65,116	$ 62,834	$ 61,352	$ 58,667	$ 64,677	$ 47,444	$ 51,282	Operations
DJ	$ 78,371	$ 95,942	$ 92,311	$ 90,135	$ 85,054	$ 93,767	$ 96,326	$ 104,118	
GL					$ 1,248		$ 1,368	$ 824	O&M
DJ					$ 3,745		$ 2,778	$ 1,674	
Total	$ 137,726	$ 161,058	$ 155,145	$ 151,487	$148,714	$ 158,444	$ 147,916	$ 157,898	

Capital Expenditures
(Fiscal Years 1994-95 through 1996-97)

Fund Type	Fiscal Year			Description
	94-95	95-96	96-97	
GL	$ 1,000	$ 24,080	$ 5,049	Hatchery Improvements
DJ	$ 3,000	$ 72,239	$ 15,146	
Total	$ 4,000	$ 96,319	$ 20,195	

Source: Compiled by the LAD from SBAS records.

Table D-5
Giant Springs Trout Hatchery
Operating Expenditures
(Fiscal Years 1989-90 through 1996-97)

Fund Type	Fiscal Year								Description
	89-90	90-91	91-92	92-93	93-94	94-95	95-96	96-97	
GL	$ 55,139	$ 55,541	$ 59,384	$ 56,777	$ 60,343	$ 62,498	$ 47,103	$ 55,827	Operations
DJ	$ 77,822	$ 81,834	$ 87,243	$ 83,404	$ 87,484	$ 90,608	$ 95,632	$ 113,345	
GL					$ 2,290		$ 3,293	$ 1,642	O&M
DJ					$ 6,870		$ 6,686	$ 3,334	
Total	$ 132,961	$ 137,375	$ 146,627	$ 140,181	$ 156,987	$ 153,106	$ 152,714	$ 174,148	

Capital Expenditures
(Fiscal Years 1994-95 through 1996-97)

Fund Type	Fiscal Year			Description
	94-95	95-96	96-97	
GL	$ 4	$ 3,212		Hatchery Improvements
DJ	$ 13	$ 9,635		
GL			$ 7,898	Residence Work
GL			$ 12,865	Water Supply
DJ			$ 17,650	
Total	$ 17	$ 12,847	$ 38,413	

Source: Compiled by the LAD from SBAS records.

Table D-6
Big Springs Trout Hatchery
Operating Expenditures
(Fiscal Years 1989-90 through 1996-97)

Fund Type	Fiscal Year								Description
	89-90	90-91	91-92	92-93	93-94	94-95	95-96	96-97	
GL	$ 103,299	$ 105,753	$ 106,048	$ 116,662	$ 116,107	$ 117,093	$ 92,124	$ 96,140	Operations
DJ	$ 145,796	$ 155,818	$ 155,798	$ 171,119	$ 168,330	$ 165,228	$ 187,040	$ 193,163	
GL					$ 750		$ 1,980	$ 660	O&M
DJ					$ 2,250		$ 4,020	$ 1,340	
Total	$ 249,095	$ 261,571	$ 261,846	$ 287,781	$ 287,437	$ 282,321	$ 285,164	$ 291,303	

Capital Expenditures

Fund Type	Fiscal Year								Description
	89-90	90-91	91-92	92-93	93-94	94-95	95-96	96-97	
GOB		$ 1,086							Upgrade Hatchery
GOB	$ 3,528	$ 122,411	$ 36,861						Hatchery Addition
GL						$ 208	$ 65	$ 2,382	Drainfield Repairs
DJ						$ 625	$ 195	$ 7,145	
Total	$ 3,528	$ 123,497	$ 36,861	$ 0	$ 0	$ 833	$ 260	$ 9,527	

Source: Compiled by the LAD from SBAS records.

Table D-7
Flathead Lake Salmon Hatchery
Operating Expenditures
(Fiscal Years 1989-90 through 1996-97)

Fund Type	Fiscal Year								Description
	89-90	90-91	91-92	92-93	93-94	94-95	95-96	96-97	
GL	$ 25,180	$ 28,055	$ 32,130	$ 33,425	$ 35,586	$ 34,136	$ 13,226	$ 28,023	Operations
DJ	$ 35,539	$ 41,337	$ 47,202	$ 49,106	$ 28,592	$ 49,490	$ 26,854	$ 56,894	
GL					$ 1,954	$ 150	$ 2,920	$ 1,168	O&M
DJ					$ 5,860	$ 449	$ 5,928	$ 2,371	
Total	$ 60,719	$ 69,392	$ 79,332	$ 82,531	$ 71,992	$ 84,225	$ 48,928	$ 88,456	

Capital Expenditures
(Fiscal Years 1994-95 through 1996-97)

Fund Type	Fiscal Year			Description
	94-95	95-96	96-97	
GL	$ 6,648	$ 8,511	$ 26,959	Extend Drainpipe and Rip Rap
GOB	$ 11,310	$ 14,480	$ 41,200	
Total	$ 17,958	$ 22,991	$ 68,159	

Source: Compiled by the LAD from SBAS records.

Table D-8
Miles City Hatchery
Operating Expenditures
(Fiscal Years 1989-90 through 1996-97)

Fund Type	Fiscal Year								Description
	89-90	90-91	91-92	92-93	93-94	94-95	95-96	96-97	
GL	$ 16,517	$ 111,111	$ 96,452	$ 113,597	$ 118,915	$ 106,671	$ 87,015	$ 89,348	Operations
DJ	$ 196,697	$ 104,090	$ 141,700	$ 166,774	$ 172,410	$ 154,648	$ 177,073	$ 181,403	
GL								$ 982	Fish Eggs
GL					$ 1,743		$ 3,300	$ 1,570	O&M
DJ					$ 5,230		$ 6,700	$ 3,187	
Total	$ 213,214	$ 215,201	$ 238,152	$ 280,371	$ 298,298	$ 261,319	$ 274,088	$ 276,490	

Capital Expenditures

Fund Type	Fiscal Year								Description
	89-90	90-91	91-92	92-93	93-94	94-95	95-96	96-97	
GOB	$ 19,104	$ 83,628							Gravel Surfacing
GOB	$ 62,500								Water System Repairs
A&E ADVNC	$ 187,500								
GL					$ 99	$ 8,315			Fence Repair
DJ					$ 296	$ 24,945			
GL							$ 36		Replace Boiler
DJ							$ 11,250		
GL							$ 95	$ 2,571	Hatchery Pond
Total	$ 269,104	$ 83,628	$ 0	$ 0	$ 395	$ 33,260	$ 11,381	$ 2,571	

Source: Compiled by the LAD from SBAS records.

Table D-9
Murray Springs Hatchery
Operating Expenditures
(Fiscal Years 1989-90 through 1996-97)

Fund Type	Fiscal Year							
	89-90	90-91	91-92	92-93	93-94	94-95	95-96	96-97
COE	$ 118,404	$ 131,149	$ 132,604	$ 138,101	$ 140,261	$ 136,584	$ 153,996	$ 152,431

Source: Compiled by the LAD from SBAS records.

ADDITIONAL EXPENDITURES FOR HATCHERIES

Additional expenditures not included above include kokanee production for the Hungry Horse Dam mitigation, trucks to transport fish, additional money for fish food, weed control, and radon detection. The following sections detail those expenditures.

Kokanee Production

Over $143,000 was expended to stock Flathead Lake with kokanee for the Hungry Horse Dam mitigation. The expenditures included enhancing the Creston National Fish Hatchery and augmenting the operations at the Flathead Lake and Giant Springs Hatcheries. FWP purchased galvanized tanks for the Creston Hatchery, and provided fish food. Creston staff took care of the fish. Table D-10 details the amount expended for fiscal years 1989-90 through 1996-97.

Table D-10
Expenditures for Kokanee Production
(Fiscal Years 1989-90 through 1996-97)

Fund Type	Fiscal Year								
	89-90	90-91	91-92	92-93	93-94	94-95	95-96	96-97	
GL	$ 1,340	$ 3,215	$ 1,231	$ 1,673	$ 714	$ 1,117	$ 411	$ 10	Giant Springs
DJ	$ 4,019	$ 9,645	$ 3,694	$ 5,020	$ 2,142	$ 3,351	$ 834	$ 20	
GL	$ 1,889	$ 2,202	$ 1,406	$ 2,801	$ 3,062	$ 2,190	$ 2,218	$ 2,704	Flathead Lake
DJ	$ 5,668	$ 6,605	$ 4,216	$ 8,403	$ 9,184	$ 6,569	$ 4,605	$ 5,490	
GL	$ 4,715	$ 4,650	$ 22,861	$ 334	$ 168				Creston
DJ	$ 6,654	$ 6,851	$ 6,842	$ 491	$ 243				
Total	$ 24,285	$ 33,168	$ 40,250	$ 18,722	$ 15,513	$ 13,227	$ 8,068	$ 8,224	

Source: Compiled by the LAD from SBAS records.

Additional Expenditures

In fiscal year 1991-92, FWP received additional funding for hatchery operations, primarily for fish food. The soybean crop was bad one year and the cost of fish food increased significantly. The funding was not included in the individual hatcheries' budgets and was not allocated to specific hatcheries. The following table shows the expenditures for the additional fish food costs.

Table D-11
Additional Expenditures for Fish Food
(Fiscal Years 1991-92 through 1996-97)

Fund Type	Fiscal Year					
	91-92	92-93	93-94	94-95	95-96	96-97
GL	$ 13,400	$ 11,803	$ 135	$ 104	$ 1,444	$ 1,167
DJ	$ 40,197	$ 35,408	$ 404	$ 312	$ 2,932	$ 2,370
Total	$ 53,597	$ 47,211	$ 539	$ 416	$ 4,376	$ 3,537

Source: Compiled by the LAD from SBAS records.

In fiscal years 1994 through 1997 the hatcheries under went radon testing. A total of $7,690 of general license fees and $23,070 of Dingle-Johnson funds were spent on the project.

Expenditures for weed control were $13,592 for fiscal years 1995-96 and 1996-97.

FWP purchased land in the late 1980s in the event they needed to construct another fish hatchery at some time. The department drilled a well at the cost of approximately $200,000. It is a continuously flowing well so in fiscal 1991-92 FWP spent an additional $58,000 to cap the well.

Appendix E

Fishing Access Site Expenditures

State and federal statutes provide a number of sources for fishing access site acquisition, operation, and maintenance funds. These include general license fees, Dingle Johnson, and the Federal Land and Water Conservation Fund. The following describes the accounts into which money is deposited and expended:

1. General License Account (GL) - Includes fishing license sales and fishing access site camping fees.

2. Fishing Access Site Maintenance and Acquisition (FASM and FASA) - Derived from $1 of each resident fishing license, ten percent of the fees for a resident temporary fishing license, $1 of each nonresident two-day license, and $5 of each nonresident season fishing license. Fifty percent of the revenue is for acquisition of fishing access sites. The other fifty percent is used for operation, development and maintenance of sites acquired. Operation and maintenance money must be expended based on the following priority: 1) weed management, 2) streambank restoration, and 3) general operation and maintenance. (This funding distribution terminates July 1, 1999. After July 1999, revenue sources are the same but funds used for operation, development, and maintenance may not exceed 25 percent of the money collected.)

3. Real Property Trust Earnings - O&M (RPTE) - Source is the interest earned on deposits in the Real Property Trust Account. Used to support the operation, development and maintenance of the department's real property.

4. State Parks Federal and Private Revenue (SPF/P) - Primarily from the Federal Land and Water Conservation Fund administered by the National Park Service. Used to acquire, develop and maintain the state parks, recreation areas, and fishing access sites.

5. Dingle Johnson (DJ) - From U.S. Fish and Wildlife Service grants. Monies are from taxes on sale of fishing equipment.

6. Waterfowl Stamp Special Revenue (WSSR) - Sources are the sale of stamps and related artwork for waterfowl. Used for the protection, conservation and development of wetlands in Montana.

Table E-1 shows, by region, expenditures for general operations and maintenance for fiscal years 1989-90 through 1996-97. Region 6 shows few operations and maintenance expenditures since there are no Parks Division staff assigned to that region. Parks staff in Regions 4 and 7 maintain and operate fishing access sites in Region 6.

Table E-1
Fishing Access Site Operations and Maintenance Expenditures by Region
(Fiscal Years 1989-90 through 1996-97)

Region 1

Fund Type	Fiscal Year								Description
	89-90	90-91	91-92	92-93	93-94	94-95	95-96	96-97	
GL	$ 37,699	$ 22,240	$ 30,594	$ 37,180	$ 45,775	$ 74,899	$ 54,320	$ 57,350	O & M
FASA/M	$ 13,128	$ 7,745	$ 7,582	$ 7,221	$ 9,306	$ 14,346	$ 14,893	$ 12,500	
GL	$ 650	$ 566	$ 920	$ 104	$ 1,081	$ 6,433	$ 2,643	$ 822	Weed Control
FASA/M	$ 226	$ 197	$ 248		$ 57	$ 1,341	$ 735	$ 308	
TOTAL	$ 51,703	$ 30,748	$ 39,344	$ 44,505	$ 56,219	$ 97,019	$ 72,591	$ 70,980	

Region 2

Fund Type	Fiscal Year								Description
	89-90	90-91	91-92	92-93	93-94	94-95	95-96	96-97	
GL	$ 34,085	$ 21,323	$ 49,458	$ 54,780	$ 64,662	$ 64,532	$ 46,713	$ 42,764	O & M
FASA/M	$ 11,870	$ 2,562	$ 17,224	$ 19,077	$ 16,288	$ 13,822	$ 22,884	$ 21,301	
GL	$ 3,520	$ 1,756	$ 5,510	$ 5,807	$ 2,384	$ 7,071	$ 5,297	$ 4,987	Weed Control
FASA/M	$ 1,226	$ 98	$ 1,919	$ 2,022	$ 586	$ 4,263	$ 2,595	$ 2,474	
GL							$ 2,891	$ 4,471	Miscellaneous
FASM							$ 1,416	$ 2,218	
GF			$ 1,700						Fishing Access EPP
GL			$ 5,960	$ 9,809					
SPF/P			$ 5,000						
Total	$ 50,701	$ 25,739	$ 86,771	$ 91,495	$ 83,920	$ 89,688	$ 81,796	$ 78,215	

Region 3

Fund Type	Fiscal Year								Description
	89-90	90-91	91-92	92-93	93-94	94-95	95-96	96-97	
GL	$ 69,772	$ 67,931	$ 127,477	$ 84,779	$ 97,111	$ 131,469	$ 90,094	$ 104,250	O & M
FASA/M	$ 14,457	$ 13,863	$ 16,727	$ 13,774	$ 16,611	$ 18,149	$ 14,157	$ 15,197	
GL	$ 5,510	$ 2,984	$ 4,817	$ 3,238	$ 5,385	$ 7,514	$ 3,632	$ 3,119	Weed Control
FASA/M	$ 1,144	$ 579	$ 922	$ 467	$ 882	$ 1,037	$ 571	$ 521	
FASM								$ 98	Vandalism Costs
GL								$ 551	
GL			$ 12,533	$ 11,787					Fishing Access EPP
Total	$ 90,883	$ 85,357	$ 162,476	$ 114,045	$ 119,989	$ 158,169	$ 108,454	$ 123,736	

Region 4

Fund Type	Fiscal Year								Description
	89-90	90-91	91-92	92-93	93-94	94-95	95-96	96-97	
GL	$ 35,567	$ 40,807	$ 43,392	$ 42,961	$ 60,537	$ 76,833	$ 56,023	$ 62,743	O & M
FASA/M	$ 12,382	$ 12,222	$ 13,355	$ 13,165	$ 12,752	$ 15,448	$ 14,669	$ 16,428	
GL	$ 4,400	$ 5,034	$ 5,128	$ 3,515	$ 4,902	$ 5,228	$ 1,826	$ 4,934	Weed Control
FASA/M	$ 1,449	$ 1,211	$ 999	$ 726	$ 873	$ 1,051	$ 478	$ 1,292	
GL	$ 11,844	$ 8,663	$ 12,172	$ 10,738	$ 22,746				Other
GL			$ 4,802	$ 6,826					Fishing Access EPP
Total	$ 65,642	$ 67,937	$ 79,848	$ 77,931	$ 101,810	$ 98,560	$ 72,996	$ 85,397	

Region 5

Fund Type	Fiscal Year								Description
	89-90	90-91	91-92	92-93	93-94	94-95	95-96	96-97	
FASA/M	$ 14,808	$ 15,039	$ 12,626	$ 16,390	$ 15,541	$ 13,185	$ 14,217	$ 15,422	O & M
GL	$ 68,424	$ 78,315	$ 64,710	$ 92,421	$ 86,946	$ 85,398	$ 74,576	$ 81,119	
GL	$ 2,897	$ 6,532	$ 10,534	$ 341	$ 5,783	$ 797	$ 324	$ 327	Weed Control
FASA/M	$ 627	$ 1,254	$ 2,083	$ 59	$ 1,017	$ 137	$ 1,726	$ 1,741	
TOTAL	$ 86,756	$ 101,140	$ 89,953	$ 109,211	$ 109,287	$ 99,517	$ 90,843	$ 98,609	

Region 6

Fund Type	Fiscal Year								Description
	89-90	90-91	91-92	92-93	93-94	94-95	95-96	96-97	
FASM							$ 553	$ 566	O & M
GL							$ 553	$ 566	
Total							$ 1,106	$ 1,132	

Region 7

Fund Type	Fiscal Year								Description
	89-90	90-91	91-92	92-93	93-94	94-95	95-96	96-97	
GL	$ 42,625	$ 46,006	$ 50,582	$ 49,455	$ 47,493	$ 55,544	$ 53,779	$ 48,015	O & M
FASA/M	$ 14,724	$ 14,129	$ 15,572	$ 15,222	$ 12,255	$ 12,550	$ 12,969	$ 11,579	
GL	$ 613	$ 259	$ 86	$ 58		$ 24	$ 1,818	$ 835	Weed Control
FASA	$ 212	$ 79	$ 26	$ 18		$ 6	$ 438	$ 201	
Total	$ 58,174	$ 60,473	$ 66,266	$ 64,753	$ 59,748	$ 68,124	$ 69,004	$ 60,630	

Operations and Maintenance (O & M) Expenditures by Region for Fishing Access Sites
(Fiscal Years 1989-90 through 1996-97)

	Region							Total
	1	2	3	4	5	6	7	
O & M	$ 446,778	$ 503,345	$ 895,818	$ 529,284	$ 749,137	$ 2,239	$ 502,499	$ 3,629,098
Weed Control	$ 16,331	$ 51,515	$ 42,322	$ 43,046	$ 36,179		$ 4,673	$ 194,065
Vandalism			$ 649					$ 652
Fishing Access EPP		$ 22,469	$ 24,320	$ 11,628				$ 58,418
Miscellaneous		$ 10,996		$ 66,163*				$ 77,159
Total	$ 463,109	$ 588,325	$ 963,109	$ 650,121	$ 785,316	$ 2,239	$ 507,172	$ 3,959,392

*Missouri River road expenditures.

Source: Compiled by the LAD from SBAS records.

Table E-2 shows by region the capital expenditures by fishing access sites.

Table E-2
Capital Expenditures for Fishing Access Sites by Region
(Fiscal Years 1989-90 through 1996-97)

Region 1

Fund Type	Fiscal Year								FAS
	89-90	90-91	91-92	92-93	93-94	94-95	95-96	96-97	
GL				$ 727					Big Fork
DJ				$ 3,834					
DJ		$ 16,086	$ 436						Kokanee Bend
GL		$ 5,362	$ 145						
GL	$ 8,617			$ 41		$ 7,082	$ 204		Old Steel Bridge
SPF/P	$ 8,617								
DJ				$ 122		$ 21,247	$ 611		
RPTE							$ 4,973		Somers Boat Dock
DJ							$ 14,919		
GL		$ 1,316	$ 4,331						Tea Kettle
DJ		$ 3,949	$ 12,994						
GL							$ 19,039	$ 8,222	Walstad
DJ							$ 57,117	$ 24,667	
GL							$ 10,000		Boot Jack Lake
DJ				$ 31,590					Flat Iron Ridge
GL				$ 5,987					
GL				$ 1,324	$ 4,419	$ 3,650			Smith Lake
DJ				$ 3,971	$ 13,257	$ 10,952			
RPTE								$ 32	Sophie Lake
DJ								$ 97	
GL					$ 8,551				Thompson Chain of Lakes
FASM							$ 11,416	$ 4,708	Weed Contingency
Total	$ 17,234	$ 26,713	$ 17,906	$ 47,596	$ 26,227	$ 42,931	$ 118,279	$ 37,726	

Region 2

Fund Type	Fiscal Year								FAS
	89-90	90-91	91-92	92-93	93-94	94-95	95-96	96-97	
GL			$ 6,618					$ 5	Beavertail Hill Pond
DJ			$ 19,855						
GL								$ 11,766	Chief Looking Glass
DJ							$ 1,694	$ 8,468	Corrick's Riverbend
GL							$ 565	$ 2,823	
GL	$ 376	$ 168	$ 443						Cyr Bridge
SPF/P	$ 376	$ 168							
DJ				$ 756	$ 6,860	$ 19,764			Erskine
GL				$ 252	$ 2,287	$ 6,588			
GL		$ 377		$ 5,981					Florence Bridge
DJ		$ 1,132		$ 17,942					
GL				$ 135	$ 4,559	$ 1,677	$ 1,000		Hannon
DJ				$ 405	$ 13,677	$ 5,030			
DJ		$ 6,341	$ 12,538						Harpers Lake
GL		$ 2,114	$ 4,179			$ 4,244			
GL								$ 100	Kelly Island
DJ				$ 925	$ 13,477	$ 704			Natural Pier
GL				$ 308	$ 4,492	$ 235			
DJ				$ 504	$ 9,733	$ 206			Roundup Bar
GL				$ 168	$ 3,244	$ 69			
GL				$ 168	$ 3,354	$ 69			Russell Gates
DJ				$ 504	$ 10,061	$ 206			
A&E					$ 1,250				
DJ				$ 1,241	$ 22,289	$ 903			Swartz Creek
GL				$ 414	$ 7,430	$ 301			
GL						$ 14,577	$ 8,133		Tarkio
DJ						$ 43,732	$ 22,268		
DJ				$ 1,432	$ 11,018	$ 13,627			Tucker Crossing
GL				$ 477	$ 3,673	$ 4,542	$ 4,814	$ 1,288	
GL		$ 275	$ 168	$ 2,654					Upsata Lake
DJ		$ 825	$ 504	$ 7,961					
DJ				$ 336	$ 11,195	$ 131			Wally Crawford
GL				$ 112	$ 3,732	$ 44			
GL	$ 173	$ 6,225							Woodside Bridge
SPF/P	$ 173	$ 3,541							
FASM							$ 15,516	$ 28,869	Weed Contingency
FASM								$ 265	Kelly Island
Total	$ 1,098	$ 21,166	$ 44,305	$ 42,675	$ 132,331	$ 116,649	$ 53,990	$ 53,584	

Region 3

Fund Type	Fiscal Year								FAS
	89-90	90-91	91-92	92-93	93-94	94-95	95-96	96-97	
DJ			$ 109		$ 20,250				Black's Ford
GL			$ 36		$ 6,750				
DJ			$ 9,051	$ 6,155					Browne's Bridge
GL			$ 3,017	$ 2,052					
DJ				$ 3,189	$ 13,604	$ 3,431			Causeway
GL				$ 1,063	$ 4,535	$ 1,144			
DJ			$ 109	$ 969	$ 16,408	$ 5,589			Cobblestone
GL			$ 36	$ 323	$ 5,469	$ 1,863			
GL			$ 390	$ 307	$ 29,430	$ 12,886			Dailey Lake
DJ			$ 1,213	$ 1,618	$ 62,045	$ 27,071			
GL				$ 1,300	$ 7,076	$ 252			Deepdale
DJ				$ 3,900	$ 21,229	$ 757			
DJ			$ 109	$ 969		$ 108	$ 2,324	$ 886	Eight Mile Ford
GL			$ 36	$ 323		$ 36	$ 775	$ 151	
GL			$ 36	$ 380	$ 4,417	$ 237			Ennis
DJ			$ 109	$ 1,141	$ 13,251	$ 712			
DJ			$ 109		$ 7,246				Grey Owl
GL			$ 36		$ 2,415				
GL		$ 26,510				$ 6,899	$ 5,511	$ 20,016	Harrison Lake
DJ		$ 79,530				$ 4,097	$ 2,671	$ 60,048	
DJ		$ 264	$ 724	$ 6,061					Henneberry (Pipe Organ)
GL		$ 88	$ 241	$ 2,021					
GL							$ 15,000		Lyons Bridge
GL			$ 4,013						Mayor's Landing
DJ			$ 12,039						
GL	$ 12,350	$ 174	$ 36	$ 5	$ 582	$ 72			McAtee Bridge
SPF/P	$ 12,350								
DJ			$ 109	$ 16	$ 1,745	$ 216			
SPF/P	$ 2,231								Notch Bottom
GL	$ 2,231								
GL			$ 36	$ 323	$ 1,102	$ 6,988			Raynolds Pass
DJ			$ 109	$ 969	$ 3,307	$ 20,964			
GL		$ 2,528							FAS-US89 Bridge
GL			$ 36	$ 323	$ 1,191	$ 7,881			Valley Garden
DJ			$ 109	$ 969	$ 3,572	$ 23,642			
GL		$ 32	$ 2,909						Varney Bridge
DJ		$ 95	$ 8,728						
GL		$ 12,066	$ 3,628	$ 2,495					York Bridge
DJ			$ 10,883	$ 7,484					
SPF/P		$ 12,066							
FASM							$ 30,790	$ 25,182	Weed Contingency
Total	$ 29,162	$ 133,353	$ 57,996	$ 44,355	$ 225,624	$ 124,845	$ 57,071	$ 106,283	

Region 4

Fund Type	Fiscal Year								FAS
	89-90	90-91	91-92	92-93	93-94	94-95	95-96	96-97	
GL							$ 815	$ 7,710	Bean Lake
DJ							$ 2,446	$ 23,129	
GL	$ 423			$ 1,639	$ 412				Big Bend
DJ	$ 1,269			$ 4,916	$ 1,237				
GL						$ 15,043	$ 600		Big Casino Creek
GL				$ 169	$ 349	$ 818			Brewery Flat
DJ				$ 506	$ 1,047	$ 2,454			
GL	$ 358		$ 241	$ 1,106					Burleigh Flats
DJ	$ 1,073		$ 724	$ 3,317					
DJ				$ 1,534	$ 1,248	$ 36,420			Bynum Reservoir
GL				$ 291	$ 591	$ 16,003			
FASM								$ 731	Camp Baker
GL				$ 334	$ 264	$ 672	$ 50		Craig
DJ				$ 1,003	$ 791	$ 2,017	$ 150		
DJ				$ 15,801	$ 1,807				Dunes
GL				$ 5,267	$ 1,562				
GL				$ 318	$ 299	$ 10,570			Eureka
DJ				$ 953	$ 896	$ 31,709			
GL				$ 403	$ 709	$ 12,225			Loma Bridge
DJ				$ 1,209	$ 2,127	$ 36,676			
GL							$ 10,000		Lowery Bridge
GL				$ 567	$ 48				Martinsdale Reservoir
DJ				$ 2,993	$ 102			$ 1,357	
RPTE								$ 452	
DJ							$ 1,212		Pishkun
GL							$ 404		
GL				$ 1,331	$ 5,936	$ 1,036			Smith River
DJ				$ 3,993	$ 17,809	$ 3,107			
GL				$ 309	$ 640	$ 793			Stickney Creek
DJ				$ 927	$ 1,920	$ 2,380			
GL		$ 6,262							Ulm Bridge
DJ		$ 18,787							
GL							$ 775	$ 11,408	Willow Creek
DJ							$ 2,324	$ 34,223	
GL			$ 3,114						Wolf Creek
DJ			$ 9,341						
FASM							$ 24,445	$ 20,387	Weed Contingency
Total	$ 3,123	$ 25,049	$ 13,420	$ 48,886	$ 39,794	$ 171,923	$ 43,221	$ 99,397	

Region 5

Fund Type	Fiscal Year								FAS
	89-90	90-91	91-92	92-93	93-94	94-95	95-96	96-97	
DJ		$ 2,100	$ 95	$ 20,907					Big Horn River
GL		$ 700	$ 32	$ 6,969					
DJ		$ 1,139		$ 164	$ 20,093				Big Rock
GL		$ 380		$ 55	$ 6,698				
DJ		$ 5,693						$ 5,693	Boulder Forks
GL		$ 1,898						$ 1,898	
GL				$ 957	$ 3,645	$ 197			Buffalo Jump
DJ				$ 2,871	$ 10,936	$ 590			
GL				$ 197	$ 1,034	$ 4,851	$ 273		Captain Clark
DJ				$ 1,037	$ 2,254	$ 10,583	$ 596		
DJ				$ 740	$ 13,136				Castle Rock
GL				$ 247	$ 4,379				
DJ				$ 3,987	$ 19,539	$ 3,130			Cliff Swallow
GL				$ 1,329	$ 6,513	$ 1,044			
RPTE								$ 1,100	Deadman's Basin
DJ								$ 3,300	
GL				$ 185	$ 3,517			$ 5,000	Fireman's Point
DJ				$ 555	$ 10,552				
DJ				$ 2,140	$ 5,477	$ 22,826	$ 1,192		Grant Marsh
GL				$ 713	$ 1,826	$ 7,609	$ 397		
DJ						$ 4,842	$ 286	$ 11,297	Grey Bear
GL						$ 1,614	$ 95	$ 3,766	
GL	$ 380	$ 16,522	$ 1,289	$ 3,565				$ 7,630	Grittystone
DJ	$ 1,140	$ 49,565	$ 3,866	$ 21,125					
DJ						$ 9,983	$ 1,065	$ 28,623	Indian Fort
GL						$ 3,328	$ 355	$ 9,541	
GL		$ 2,423							Mallard's Landing
DJ		$ 7,270							
DJ			$ 15,775						Manual Lisa
GL			$ 5,258						
GL	$ 660	$ 6	$ 3,450	$ 2,178					Otter Creek
DJ	$ 1,979	$ 19	$ 10,349	$ 6,535					
GL								$ 6,365	Rosebud Isle
GL				$ 1,152	$ 6,832				Swinging Bridge
DJ				$ 3,456	$ 30,495				
DJ							$ 5,214		Voyager's Rest
GL							$ 1,738		
DJ				$ 6,518					Water Birch
GL				$ 2,173					
FASM							$ 18,058	$ 9,157	Weed Contingency
Total	$ 4,159	$ 87,715	$ 40,114	$ 89,755	$ 146,926	$ 70,597	$ 29,269	$ 93,370	

Region 6

Fund Type	Fiscal Year								FAS
	89-90	90-91	91-92	92-93	93-94	94-95	95-96	96-97	
DJ		$ 5,297		$ 689	$ 1,604	$ 1,221			Bear Paw Reservoir
GL		$ 1,766		$ 230	$ 535	$ 3,664			
GL	$ 162	$ 8,512	$ 3,013			$ 12,035			Dredge Cuts
SPF/P	$ 162	$ 8,491							
DJ		$ 63	$ 9,038						
GL	$ 10,046	$ 362							Duck Creek
DJ	$ 30,139	$ 1,086							
GL			$ 533	$ 612	$ 1,164	$ 3,939			Fresno Dam
DJ			$ 1,598	$ 1,836	$ 3,490	$ 11,816			
WSSR								$ 6,601	Whitetail
DJ								$ 26,249	
GL								$ 63,274	
Total	$ 40,509	$ 25,577	$ 14,182	$ 3,367	$ 6,793	$ 32,675	$ 0	$ 96,124	

Region 7

Fund Type	Fiscal Year								FAS
	89-90	90-91	91-92	92-93	93-94	94-95	94-96	96-97	
GL			$ 424	$ 623	$ 678	$ 13,552	$ 414		Bonfield
DJ			$ 1,271	$ 1,868	$ 2,034	$ 40,657	$ 1,242	$ 1,175	
DJ	$ 1,363	$ 5,180	$ 29,505	$ 1,244					Diamond Willow
GL	$ 454	$ 5,293	$ 9,835	$ 415					
GL	$ 21	$ 6,112							Fallon Bridge
DJ	$ 63	$ 18,335							
GL				$ 2,493	$ 213	$ 6,199			Far West
DJ				$ 7,480	$ 638	$ 18,598			
GL								$ 3,239	Gartside Dam
GL							$ 2,038		Johnson Reservoir
GL		$ 19	$ 2,535			$ 180	$ 1,920	$ 11,446	Intake
DJ		$ 58	$ 7,606			$ 541	$ 5,760	$ 34,337	
DJ							$ 22,183	$ 3,900	Roche Juane
GL							$ 7,394	$ 1,300	
SPF/P	$ 63								Rosebud East & West
GL	$ 63				$ 219	$ 7,363	$ 100		
DJ					$ 657	$ 22,087	$ 300		
DJ		$ 11,783	$ 1,885						Seven Sisters
GL		$ 3,928	$ 628						
GL				$ 286	$ 307	$ 9,062	$ 3,549	$ 1,419	Twelve Mile Dam
DJ				$ 857	$ 921	$ 27,187	$ 10,631	$ 4,093	
FASM							$ 4,259	$ 11,938	Weed Contingency
Total	$ 2,027	$ 50,708	$ 53,689	$ 15,266	$ 5,667	$ 145,426	$ 59,790	$ 72,847	

Captial Expenditures by Region for Fishing Access Sites
(Fiscal Years 1989-90 through 1996-97)

	Region							Total
	1	2	3	4	5	6	7	
Expenditures	$ 318,488	$ 421,413	$ 722,717	$ 399,981	$ 534,690	$ 219,227	$ 389,223	$ 3,005,739
Weed Control	$ 16,124	$ 44,385	$ 55,972	$ 44,832	$ 27,215	$ 0	$ 16,197	$ 204,725
# of Sites	9	19	20	19	20	5	12	104

Source: Compiled by the LAD from SBAS records.