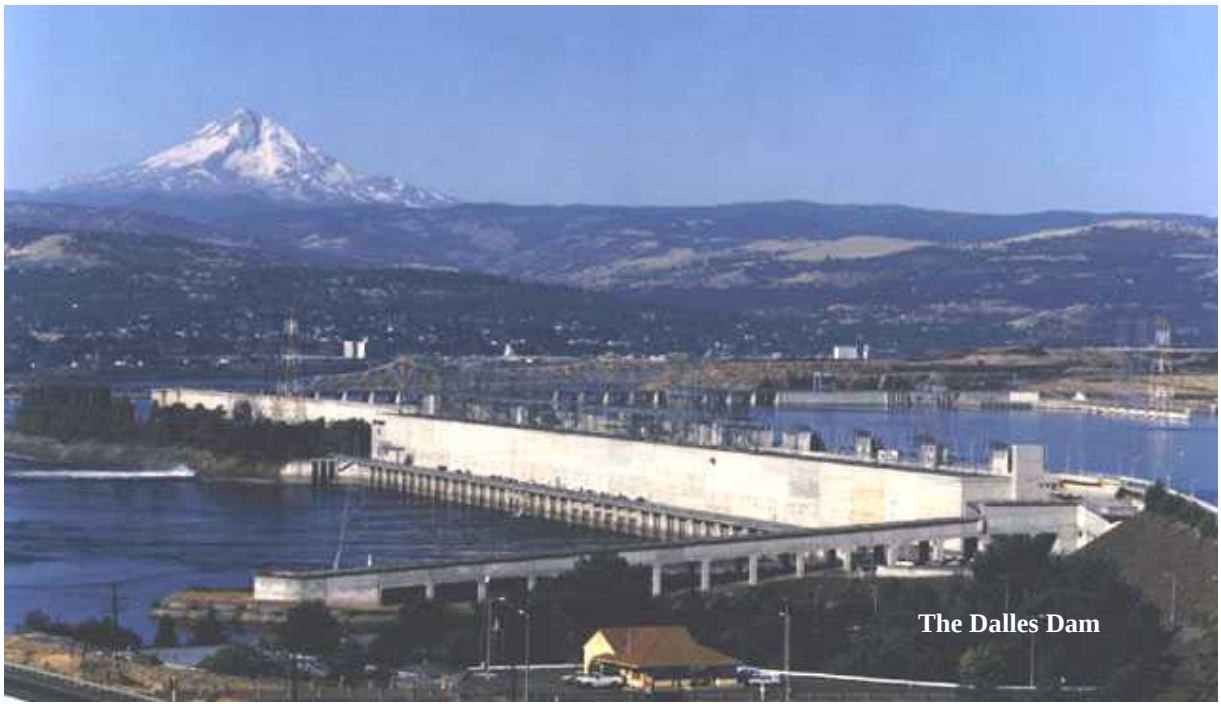
The Fish Passage Center
Annual Report of Accomplishments
2006



The Dalles Dam

Submitted To
The Fish Passage Center Oversight Board
January 31, 2007

Spawning Area Washington Shore North of I205

Profile

The Fish Passage Center (Center) was first established in 1984 by agreement of the Columbia River Intertribal Fish Commission and the National Marine Fisheries Service on behalf of the Basins tribes and the Columbia Basin Fish and Wildlife Council[1]. The Center originally housed two Water Budget managers and provided them with administrative support. The two water budget managers were a component of the Water Budget measures included in the Northwest Power Planning Council's first Fish and Wildlife Program adopted in 1982. One Water Budget Manager represented the basin's tribes and the other represented the state and federal fish and wildlife managers.

Since 1982, the Fish and Wildlife Program has directed that BPA provide funding for the functions carried out by the Fish Passage Center. The Center serves a large number of significant data gathering and analytical functions including the design and oversight of the implementation of the Smolt Monitoring Program, the Gas Bubble Trauma Monitoring Program, and the Comparative Survival Study. The Center provides a non-federal pool of expertise in assessing the effects of dam operations of Columbia Basin salmon, including analysis of juvenile salmon survival related to flow, spill, gas super saturation and passage routes. Tribal and states fishery managers rely heavily on this expertise and have managed their own staffs accordingly. The Center provides a wide range of data and information through its website, including daily fish passage data, historical data and an archive of relevant documents.

In 2003 the Northwest Power Conservation Council adopted the Fish and Wildlife Program Amendments. These amendments established the primary purpose of the Center as the provision of technical assistance and information to the fish and wildlife agencies and tribes in particular and the public in general on matters related to juvenile and adult salmon and steelhead passage through the mainstem hydrosystem. The amendments describe the duties of the Center including the responsibility to:

1) Plan and implement the annual Smolt Monitoring Program;
2) Gather, organize, analyze, house and make widely available, monitoring and research information related to juvenile and adult passage, and to the implementation of the water management and passage measures that are part of the Council's program;
3) Provide technical information necessary to assist the agencies and tribes in formulating in-season flow and spill requests that implement the water management measures of the

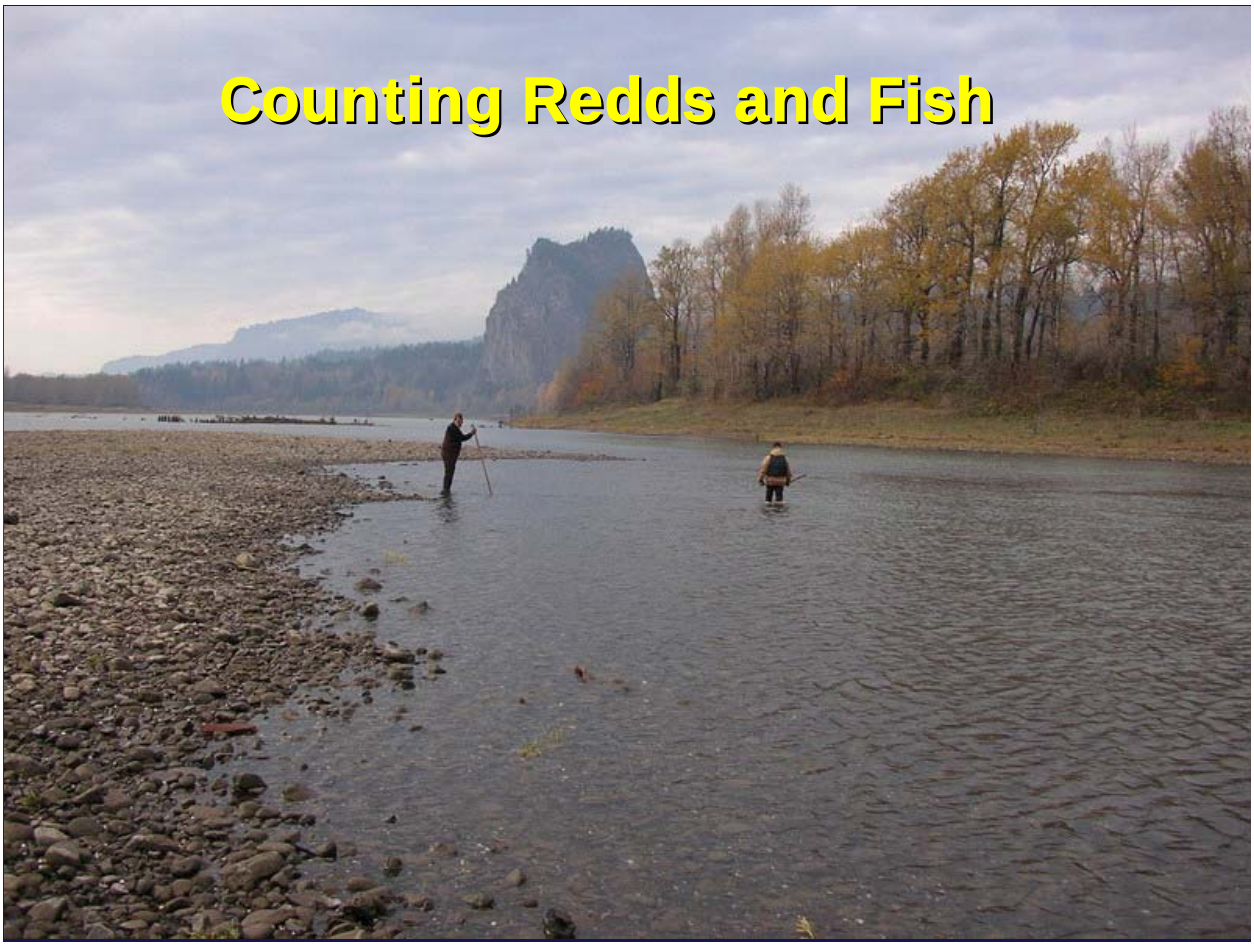
[1] At the time the four Columbia River Treaty tribes were not members of the Columbia Basin Fish and Wildlife Council. Subsequently the Columbia Basin Fish and Wildlife Council was dissolved and the Columbia Basin Fish and Wildlife Authority was established which included expanded membership including the Basin tribes.

Council's program, while also assisting the agencies and tribes in making sure that operating criteria for storage reservoirs are satisfied; and

4) In general, provide the technical assistance necessary to coordinate recommendations for storage reservoir and river operations that, to the extent possible, avoid potential conflicts between anadromous and resident fish.

The 2003 amendments also created an oversight board for the Fish Passage Center that among other things helps to assure the quality of data reported by the Center and the responsiveness of the Center to input from the Northwest Power and Conservation Council.

Ives Island/Pierce Island Area



USFWS Photograph

The Year In Review

The Fish Passage Center Project, the Smolt Monitoring Program project and the Comparative Survival Study project were all affected by the regional and national struggles surrounding legal challenges to the NOAA Fisheries Biological Opinion on Columbia and Snake rivers Endangered Species Act listed salmon and steelhead. This included conference report language which precipitated actions by Bonneville Power Administration to eliminate funding for the FPC project. Subsequent litigation prevented the elimination of the FPC. The contentious environment and high level of uncertainty which followed created an extremely difficult working environment for the FPC staff. The FPC continued on short term contract extensions throughout 2006. The high level of uncertainty caused three long term highly experienced FPC staff to leave the FPC. During this same period of uncertainty, contention and staff departures, the regional Biological Opinion remand process placed additional demands on the FPC staff, for technical support for several remand committees. The dynamic nature of the regional Fish and Wildlife Program, the Biological Opinion implementation, operations of the hydro system for fish passage and the technical support required by the state, federal and tribal fishery managers required a high level of responsiveness and flexibility from the Fish Passage Center even under the adverse working environment that existed. The major and extraordinary accomplishment of the FPC in 2006 was that in the face of all the uncertainty, and adversity all of our assigned and contractual obligations were successfully accomplished.

The Smolt Monitoring Program

The Smolt Monitoring Program (SMP) was successfully implemented according to the plan agreed upon by the state, federal and tribal fishery agencies to provide a consistent, long term database for short term in-season fish passage management and for long term mitigation decisions. The FPC staff provides daily oversight and technical support for remote sites implementing the SMP. Final data and analysis of the SMP data are reported in the Fish Passage Center Annual Report. Data validation and verification and data analysis occur throughout the fall and winter and are presented in the FPC Annual Report the following year. SMP data collection continues through October 31 at most main stem sites. The FPC Annual Report for the 2005 passage season was completed after providing a draft for regional review. It was distributed and posted on the FPC website, along with previous years reports.

Snake River (Lewiston) Trap Smolt Monitoring

Juvenile Sampling Facilify

The FPC daily oversight and technical support for SMP sampling sites included

oversight requirement of the Oregon Department of Environmental Quality and Washington Department of Ecology waivers issued for implementation of the NOAA Biological Opinion spill for fish passage measures. The FPC provides a separate report; an annual summary of GBT data to the US Army Corps of Engineers and to NOAA Fisheries to fulfill state issued dissolved gas waiver permits. This annual report summary was completed and provided to the agencies for incorporation into their 2006 passage season report requirements.

The development of the plan for implementation and the work statements and budgets for the SMP for 2007 was completed in 2006. Discussion with the state, tribal and federal fishery managers took place and FPC staff has begun coordinating the necessary logistics for marking and sampling at remote trap and mainstem sites in 2007, including discussions with agencies and tribes implementing the sampling programs.

Comparative Survival Study

The Comparative Survival Study (CSS) is a jointly developed and sponsored program of the state, tribal and federal fishery management agencies. A CSS Oversight Committee comprised of state, federal and tribal fishery management agencies has been established to provide technical direction for data collection, analysis and preparation of annual status reports. Based on earlier program review comments from the Independent Scientific Review Panel, work continued on development of the simulation computer program model to evaluate the bootstrap confidence intervals used in the CSS for study parameters. The CSS has multiple applications including in-season monitoring, hatchery specific survival data, and long-term development of smolt-to-adult return rates for in-river migrating and transported wild and hatchery spring/summer Chinook. Again in 2006, the proposed and approved PIT tagging of hatchery steelhead for the CSS was precluded due to lack of BPA funding for this additional work.

Completion of the simulator computer program for the CSS was accomplished in 2006, with preliminary results and the program interface presented in the 2006 Annual CSS Status Report. This programs is designed to evaluate the robustness of the Cormack-Jolly-Seber methodology utilized in the CSS, by creating simulated datasets with user controlled input parameters of reach survival, collection efficiency, travel time and other passage parameters. These evaluations along with the resulting characteristics of key parameter distributions and confidence intervals in the CSS will be presented in the upcoming CSS 10-yr Summary Report due in draft by May 31, 2007 for outside review. The CSS 2006 Status Report presented SARs for in-river migrants and transported fish, differential delayed mortality between transported and in-river migrants, and overall juvenile survival rates for upriver and downriver stocks. In addition, the 2006 Fish Passage Center Annual Report also presents the timing, travel time, and juvenile survival of CSS mark groups when summarizing SMP data.

During 2006, FPC staff developed the plan and work statement for the 2007 CSS operations. The staff also coordinated the marking logistics at participating hatcheries and tributary traps, plus coordination with the PITAGIS data system during the 2006 migration season.

Endangered Species Act Section 10 Permit and State Endangered Species Act Permit Requirements

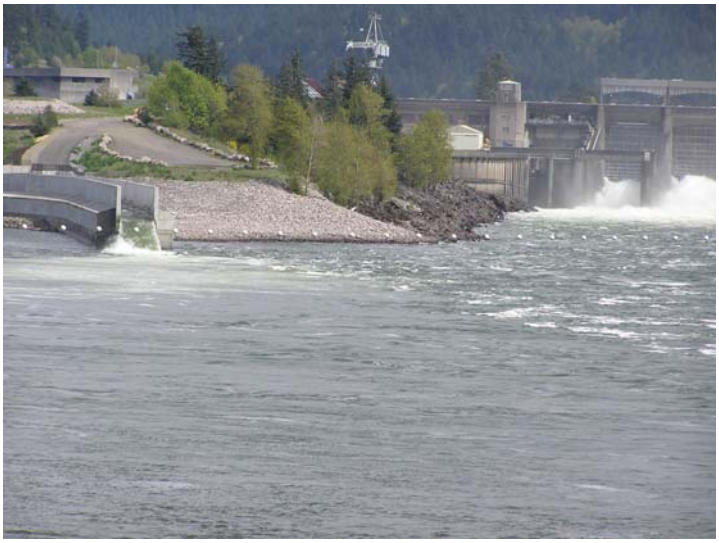
The FPC staff is responsible for application, accounting and reporting for federal and state ESA sampling and monitoring permits for the Smolt Monitoring Program and the

Comparative Survival Study. Estimated numbers of endangered and or threatened species to be handled are submitted to the permitting authority. In 2006 NOAA fisheries modified the permitting process, these modifications added many additional groups of fish to the permitting process and added the requirement that an annual estimation of take be prepared for an annual determination. At the same time in 2006 there was significant uncertainty regarding the status of FPC in the future or whether or not the FPC would be discontinued. The FPC staff successfully met all requirements for permitting and reporting for the Smolt Monitoring Program and the Comparative Survival study, even though significant uncertainty existed whether or not the FPC would continue.

Adult Facilities Inspection Program

The state and federal fishery management agencies fund the FPC Adult Fish Passage Facilities Inspection Program. FPC staff manages the agencies adult facilities inspection program. The FPC staff trains and coordinates fish facilities inspections at federal and Public Utility mainstem Columbia and Snake rivers dams. Inspections are conducted monthly often accompanied by FPC staff. Monthly reports are provided to the FPC. Facility issues that arise as the result of inspections are raised to the project operators by the FPC for discussion and resolution. FPC produces an Annual Adult Facilities Inspection report. The Annual Adult Facilities Inspection Report for 2005 was completed in 2006 and is posted on the FPC website with previous years' reports. The DRAFT 2006 report will be completed by February 15, 2007 for review and comment.

Bonneville Spill Corner Collector



McNary Tilting Weir Gates

Data Acquisition, Storage, Analysis and Distribution

The NPCC 2003 Program Amendment specifically requires the FPC to, "Gather, organize, analyze, house, and make widely available monitoring and research information related to juvenile and adult passage, and to the implementation of the water management and passage measures that are part of the Council's program." The FPC Data System is comprised of several databases that are maintained and updated hourly, daily, weekly, monthly, and annually. These databases are utilized by the state, tribal, and federal fisheries agencies for in-season management deliberations and decisions so they must be accurate with the most recent information available. Smolt passage data, flow, spill, and adult counts are updated daily. The hatchery release database is continually updated through daily discussions between FPC staff and hatchery managers. Ives Island natural spawning area data is updated hourly, as is environmental data for the Walla Walla River. All of these databases were successfully maintained and updated without lapse in 2006. In 2006, many upgrades, improvements, and modifications were made to the FPC data system to facilitate meeting the needs of the agencies, tribes, and the public at large and to improve the reliability of the web site for continuous public access.

Data System upgrades, improvements, and modifications for 2006:

- Built new SQL3 Server for increased security and performance-Main Database
- Built new SQL4 Server for increased security and performance-Pit tag Database
- Built web server-for increased security and performance
- Setup 2 new backup servers for our main file server
- Upgraded our Antivirus Protection
- Upgraded the Spam protection.
- Replaced 2 of the old B/W printers with 2 new models
- Upgraded the memory of the remaining printers
- Converted several computers in the office to perform specific duties, print server, and data collection.
- Built new computers for the 3 new employees.
- Replaced the old monitors with LCD monitors for less eye strain on the user.

Analytical Tools and Web site improvements

- Upgrade of all FPC databases from SQL2000 to SQL2005 Microsoft SQL Server was completed..
- New user friendly graphic user interface for The Comparative Survival Study (CSS) Migration Simulator Application (Visual FoxPro 9 platform) allowing multiple simulation runs inside an application shell.
- Fully automated version of ConsoleAppFishTChart application (Visual Studio 2005 C# Platform) for daily scroll water temperature web posting.
- New version of fish adult counts collection program PrjFileCollector (Visual Studio 6 Visual Basic platform) to accommodate constant changes of Willamette Falls data source.

Technical Assistance and Information to Fish and Wildlife Agencies and Tribes and the Public in General

The primary purpose of the Fish Passage Center is to provide technical assistance and information to fish and wildlife agencies and tribes in particular and the public in general. In 2006 analyses were conducted and presented to the agencies and tribes as requested to facilitate their activities in a wide range of forums related to fish passage and hydro system management and the NOAA Biological Opinion Remand technical committee process. These analysis were made available to the public at large as they were completed; they were posted on the FPC website to provide access to the region.

Several in-season analyses were completed regarding reservoir storage, impacts of specific operations of reservoirs on migration flows. These were provided to the Fish Passage Advisory Committee and posted on the FPC website. FPC staff participated in the Water Quality Team meetings of the Regional Forum providing analysis and recommendations to the agencies and tribes regarding location of total dissolved gas monitors to more accurately reflect migrating fish exposure to total dissolved gas and a review of total dissolved gas measurement needs in the Lower Columbia River. These analyses were summarized and provided to the region in preparation for the Oregon Department of Environmental Quality review of the dissolved gas waiver issued for implementation of the NOAA Biological Opinion. In response to requests generated through the Biological Opinion remand technical committees the FPC staff completed several analysis addressing hydrosystem operation scenarios being discussed in those committees. This included estimation of proportion of juvenile migration by species which would be transported under various hydrosystem operation scenarios. Regular updates were provided during the season on the migration characteristics of juvenile and adult salmonids during the spring season and particularly during the implementation of the court ordered spill.

The FPC staff provided summaries of migration characteristics, travel time survival and smolt-to-adult return from 1997-2006 to each hatchery manager which provides mark groups for SMP and CSS monitoring efforts. These were also provided to the region through the FPC web site. In response to requests from fishery managers the FPC provided analysis of the adult return to Dworshak hatchery, adult conversion rates, and analysis of adult return relative to juvenile migration history.

The FPC staff provided review comments on research proposals and research reports as requested by the agencies and tribes. These were proposed or conducted through the BPA Fish and Wildlife Program process and the US Army Corps of Engineers Anadromous Fish Passage Evaluation Program. Specifically, the FPC staff provided technical assistance to the agencies and tribes in the development and review of research proposals. As well as provide assistance in

reviewing results of research used to make management decisions regarding modifications to dam's structure or operations.

FPC staff made multiple presentations of the Comparative Survival Study results, design and analysis to the Independent Scientific Advisory Board (ISAB) at their request. This included development of written responses to specific comments and questions form the ISAB.

All FPC staff participates in the development of weekly reports from March through October. These weekly reports summarize river and reservoir operations, as well as fish passage information. The reports document any unplanned or planned excursions from the implementation of Biological Opinion measures. The report is distributed via email and paper copy, as well as being posted on the FPC website. The estimated circulation is about 750 readers.

All FPC staff participate in the development of the Annual Fish Passage Center Report. This report serves as historic information relative to the annual operation and management of the hydro system. The report summarizes hydrologic conditions, reservoir operations throughout the water year and focuses on the resulting flows during the migration period. The report also summarizes annual spill operations as provided under the NOAA Biological Opinion spill measures. Annual fish passage metrics; passage indices, passage timing, smolt travel time and survival are presented and discussed along with past years' information collected under varying environmental parameters. The 2006 report summarized fish passage characteristics under the Federal Court ordered passage program. The Annual Report also presents annual and historic adult passage information and yearly hatchery information.

Documents completed by FPC in the 2006 contract year

The culmination of all aspects of the FPC project staff work is presented in several annual, weekly and periodic documents prepared in response to requests. The documents completed in 2006 are listed below and are all available on the FPC website at www.fpc.org.

- Fish Passage Center Annual Report
- 2006 Annual Comparative Survival Study Status Report
- 2006 CSS Design and Analysis Report
- Annual Adult Facilities Inspection Report
- Weekly Reports
- Gas Bubble Trauma Monitoring Summary
- Fish passage Center Accomplishments Annual Report

- Spill and GBT Meeting with Oregon DEQ - December 20, 2006
- 2006 TMT Presentation on Smolt Migration (preliminary results) - December 13, 2006
- 2007 GBT Monitoring Program Protocol for Juvenile Salmonids - November 21, 2006
- Comments on Water Quality Plan for Dissolved Gas and Water Temperature in the Mainstem Columbia and Snake Rivers - November 16, 2006
- Estimating transport proportions for spring and summer juvenile migrants and a discussion of 2006 spread-the-risk management - November 6, 2006
- Preliminary Analysis of sub-yearling Chinook survival in Lower Granite Dam to McNary Dam reach in 2006 compared to years 1998-2005 - October 2006
- The effects of mainstem flow, water velocity and spill on salmon and steelhead populations of the Columbia River - October 2006

- Spring Spill 2006 - September 29, 2006
- Carson Hatchery Report 1997-2006 - August 16, 2006
- Rapid River Hatchery Report 1997-2006 - August 16, 2006
- Priest Rapids Hatchery Report 1997-2006 - August 16, 2006
- McCall Hatchery Report 1997-2006 - August 16, 2006
- Lookingglass Hatchery Report 1997-2006 - August 16, 2006
- Leavenworth Hatchery Report 1997-2006 - August 16, 2006
- Dworshak Hatchery Report 1997-2006 - August 16, 2006
- Wells Hatchery Report 1997-2006 - August 16, 2006
- Bonneville Detections and the Adult Fish Facility - August 1, 2006
- Update to 'Low spring Chinook rack returns at Dworshak Hatchery relative to Rapid River Hatchery' - July 31, 2006
- Spill and adult passage at Little Goose during summer 2005 - July 26, 2006
- Estimated transportation proportion for yearling Chinook and steelhead in 2006 - July 19, 2006
- Low spring Chinook rack returns at Dworshak Hatchery relative to Rapid River Hatchery - July 18, 2006
- Preliminary Gas Bubble Trauma Data and Spill for Spring 2006 - July 12, 2006
- Adult passage, spring summer Chinook - July 7, 2006
- Review of Caudill, et al. (Adult Chinook salmon and steelhead dam passage behavior in response to manipulated discharge through spillways at Bonneville Dam) - July 7, 2006
- Trends in Travel Time of subyearling Chinook in the McNary Dam to Bonneville Dam during July and August - June 22, 2006
- Projections of transport proportions under gas cap spill - May 15, 2006
- Comments on Framework Report April 17, 2006 draft circulated for workgroup review - April 26, 2006
- COMPASS Model Discussion - March 1, 2006
- Data Request Annual Mortalities of Juvenile Salmon - March 28, 2006
- Changes to FPC Work Statement- February 28, 2006
- FPAC memo to CBFWA Re: BPA proposal to transfer Fish Passage Center's Fish Passage Advisory Committee functions and services to the Department of Energy PNNL and CBFWA - February 16, 2006
- Predicting 95% passage for sub-yearling Chinook to manage spill - February 21, 2006
- Presentation of Comparative Survival Study to the ISAB - February 7, 2006
- Estimates of Collection Efficiency and Transportation Proportion for Subyearling Chinook originating above Lower Granite Dam 2006 - February 6, 2006
- Data Request - January 25, 2006

Financial Summary

A substantial amount of time and effort this year was spent in trying to complete work statement tasks within the flat funding budget requirements for 2006 and short term extensions of the contract. We prepared and submitted several FPC budgets and statements of work in response to different scenarios for continuation of the 2006 work and the 2007-2009 solicitation process. Expenditures are closely monitored on an ongoing basis to assure that we stay within

the budget guidelines. Since we have been operating within a meager computer budget for several years, we experienced many equipment failures and breakdowns in 2006. A staffing change resulting from the instability of the FPC allowed for more money to be spent on software and hardware to replace or repair existing equipment. Some of the savings we previously negotiated carried forward into 2006, such as moving to lower cost office space, not re-leasing a vehicle, and changing office equipment to smaller, more cost effective machines such as the copier and postage machines.

The FPC budget has historically been developed in an extremely conservative manner to the minimum required funding to carry out assigned tasks. Since the FPC budget has been managed extremely close to actual costs, there has not been any margin of flexibility in the budget to meet rising costs with the present flat funding policy. Health care, rent and personnel cost increases have occurred and are unavoidable. Personnel costs make up 75% of the FPC budget.

BPA PISCES System

There have been several upgrades to the BPA PISCES System requiring updating of information and adding data to existing statements of work such as metrics, focal species and locations. All reporting and updating has been completed by the required deadlines. The 2006 statements of work were completed in PISCES for the FPC, SMP and CSS contracts. The two month extension updates for the FPC and CSS contracts were completed as requested. The first extension of the 2006 contracts was from December 1, 2006 through January 31, 2007. The second extension for these contracts is from February 1 through March 31, 2007. The SMP statement of work was completed on schedule for 2007 with a start date of March 1, 2007. The contract budget documents were submitted and the contract is displayed in PISCES as "pending". The 2007 statements of work and budget packages were also submitted for CSS and FPC with contract dates of December 1, 2006 through November 30, 2007, however, these are on hold pending funding decisions by the NPCC and BPA.