Programmatic Evaluation

ACTIVITIES OF THE U.S. FISH AND WILDLIFE SERVICE FISHERIES PROGRAM

Sport Fishing and Boating Partnership Council

FY 2005–2009

Sport Fishing & Boating Partnership Council

Programmatic Evaluation

Activities of the U.S. Fish and Wildlife Service Fisheries Program

FY 2005–2009

Report of the 2009 Ad Hoc Evaluation Team
to the Sport Fishing and Boating Partnership Council

SPORT FISHING & BOATING
PARTNERSHIP COUNCIL

June 21, 2010

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REPORT SUMMARY AND FINDINGS

In March 2009, the Director of the U.S. Fish & Wildlife Service (FWS) requested the Sport Fishing and Boating Partnership Council (SFBPC or Council) undertake a "follow-up evaluation" to assess the Fisheries Program's progress in meeting its core aquatic resource conservation obligations. The FWS asked the SFBPC for assistance because of the Council's long involvement with the FWS's Fisheries Program as an advisory committee chartered under the Federal Advisory Committee Act.

To conduct this evaluation, the SFBPC empanelled an eight-person Evaluation Team, chaired by Ken Haddad, representing a cross section of those organizations interested and experienced in aquatic resource conservation and in the conduct and impact of the Fisheries Program. To staff the Evaluation Team, SFBPC contracted with D.J. Case and Associates as project consultants and Whitney Tilt, Conservation BenchMarks, as the principal investigator. Evaluation design and data collection was initiated in July 2009 with a report delivered to the SFBPC in May 2010.

The 2009 Evaluation examined the Fisheries Program's performance for the period October 1, 2004, through September 30, 2009. The Team organized its examination according to eight areas of strategic emphasis common to both the FWS FY 2004–2008 Strategic Plan and the SFBPC Partnership Agenda report:

1. Accountability
2. Habitat Conservation and Management
3. Species Conservation and Management
   a. Native Species
   b. Interjurisdictional Fisheries
   c. Aquatic Invasive Species
4. Cooperation with Native American Tribes
5. Recreational Fishing and Other Public Uses
   - Recreational Fishing
   - Mitigation Fisheries
   - Outreach and Education
6. Aquatic Science and Technology
7. Asset Maintenance
8. Workforce Management

One chapter of this report is devoted to each of the eight areas of emphasis. Each of the eight chapters is organized by: context, basis for evaluation, results, findings and observations, and recommendations to increase effectiveness. The following summary of results and findings is organized by areas of strategic emphasis.

This report also presents a set of findings and recommendations that the SFBPC believes warrants the full attention of the Fisheries Program and the FWS. The following seven themes encapsulate these findings, and are deserving of the Program's continued vigilance. The Fisheries Program should:

1. Undertake a consistent approach to stakeholder/partner involvement and communications.
2. Develop consistent data and definitions (e.g., nomenclature and species list, "denominator," mitigation expenses).
3. Develop a single set of performance measures (combining PART, GPRA, Strategic Plan, etc.) and be accountable to them.
4. Undergo meaningful workforce management to right-size the Fisheries Program to current and future budget realities.
5. Undertake a comprehensive evaluation and review of the existing science support model in cooperation with USGS, stakeholders and partners.
6. Synchronize strategic planning effort to budget formation and include budget estimates as part of program planning.
7. Monitor and evaluate program activities on an ongoing basis in cooperation with stakeholders and partners.

1. Accountability (pages 9–20)

The Evaluation Team assessed the Fisheries Program's accountability in four distinct pieces: 1) Accountability to Authority, 2) Accountability to Stakeholders and Partners, 3) Accountability through Open, Interactive Communications, and 4) Accountability through Performance Reporting Systems.

The Fisheries Program works on an ongoing basis with the Administration, Congress, stakeholders, and partners to ensure its activities best meet a set of overlapping, complementary, and sometimes competing authorities and responsibilities.

The Fisheries Program staff meets with states, tribes and partners to coordinate ongoing activities and to discuss future needs and priorities. The methods by which these interactions are conducted, however, varies greatly by region. Program-wide there is no consistent, formal process in place for consulting with stakeholders and partners. This *ad hoc* approach makes it difficult to determine who is **not** at the table and what expectations from stakeholders and partners have **not** been met. The Evaluation Team believes the Fisheries Program should be in the position to consistently demonstrate, across all nine regions, that it understand who its stakeholders/partners are, what responsibilities the Program has to each, what was accomplished for each, and what was not accomplished for each. The specific manner of interactions and process should be left to the determination of the regional offices and field stations to provide a degree of flexibility and adaptability.

Performance measures identified by the Fisheries Program in its 2004–2008 Strategic Plan are largely output-oriented in that they measure what the Program actually does (e.g., produce 50,000 fish in a hatchery) rather than the conservation impact of the actions (e.g., increase wild, self-sustaining population of Apache trout by 15%). As the Fisheries Program continues to revise its vision and strategic plans, it needs to develop more meaningful outcome-oriented goals that measure the change in desired outcomes (e.g., three species recovered to the point where they can be removed from the Endangered Species Act list). The Program should also work to develop a small, sharp set of performance measures. Once this is accomplished, the Program's Fisheries Information System (FIS) database must be dramatically overhauled to reduce overall data input requirements and increase its ability to provide consistent performance reporting, including the ability to produce historical data reports. In FY 2004, FIS was a new database with great potential. That potential is still largely unproven as the amassed data have yet to be translated into measuring meaningful performance.

Finally, the Fisheries Program has invested a great deal of time and credibility into its FY 2009–2013 strategic planning process. A National Stakeholder's Meeting held on November 2, 2009, however, provided a number of insights that the Evaluation Team believes are vital for the Program to heed:

1. Attendance at the National Partners Meeting was disappointing at best, indicating a need to conduct more effective outreach.
2. Partners at the meeting recommended that the Fisheries Program suspend finalizing its 2009–2013 strategic plan until completion of the SFBPC Evaluation and re-energize stakeholder and partner involvement.
3. The draft Strategic Plan covers FY 2009–2013, yet the Program is already in FY 2010 with budgets at some level of decision-making for 2011–2013. The value of a strategic plan that lies outside the budget process is limited; it can only direct program activities where adequate resources already exist.

The Evaluation Team recommends that the existing draft 2009–2013 Strategic Plan be utilized as an interim plan for the near term, and that the Fisheries Program embark on a revitalized visioning process with its stakeholders and partners to fashion a Strategic Plan for 2014–2020. The Strategic Plan must be tied to budget needs and an attendant operational plan should guide implementation.

2. Habitat Conservation and Management (pages 21-34)

In evaluating the role and impact of the Fisheries Program on habitat conservation and management, the Evaluation Team focused on three programs which it believes captures the majority of Fisheries Program habitat management efforts: 1) National Fish Habitat Action Plan, 2) National Fish Passage Program and 3) Fish and Wildlife Conservation Offices. As the Program does not directly manage habitat, it must cooperate with a wide range of federal, state and private landowners in a non-regulatory manner that respects the applicable culture, rights and authorities of its different partners.

The Fisheries Program has become more habitat-based over the past decade, as evidenced by its work with the National Fish Habitat Action Plan (NFHAP) and the National Fish Passage Program (NFPP). In addition, its Fish and Wildlife Conservation Offices (FWCOs) are a leading source of technical outreach and liaison efforts in concert with states, tribes and private landowners.

Presently, the Program demonstrates a strong strategic focus on cooperative programs that involve cost-share and partnerships. NFHAP and NFPP are both designed to be guided by science-based tools that will help prioritize projects and direct resources to where they will have the most impact. The actual utility of these tools remains to be seen, and there is an overall need for the Fisheries Program to demonstrate how the projects they conduct fit into the overall habitat priorities on a landscape and national level—this need for a common "denominator" is a recurring theme in the evaluation.

FWCOs are one of the most important delivery mechanisms for the Fisheries Program's conservation mission. They work cooperatively with tribes, states and private landowners, and are the primary staffing on the ground for NFFP, NFHAP and aquatic monitoring. Unfortunately, a number of factors conspire to undermine the FWCOs' conservation capacity. There is the need for FWS to address the "stove-piping" and confused identifies that exist between FWCOs, Partners for Fish and Wildlife, and other FWS technical assistance programs. While every program has accomplished a good deal for fish and wildlife conservation, the overall impact is diluted as available funding is meted out across program boundaries. While there is ample evidence that the different programs coordinate their efforts well, there is an inherent loss in efficiency as these various programs are scaled down, and a wholesale loss of identity to the general public. The tribal, state and private landowners do not identify with the agency or a program, they identify with a local individual who they come to know, depend on and trust.

3. Species Conservation and Management (pages 35–45)

The Fisheries Program's efforts on species conservation and management are increasingly focused on the conservation, restoration and recovery of native fishes and their habitats. This evaluation examined three broad categories: 1) Native Species, 2) Interjurisdictional Fisheries and 3) Aquatic Invasive Species (AIS).

The Program's work on native species is focused on: 1) maintaining diverse, self-sustaining fish and other aquatic resource populations; 2) restoring aquatic species populations before they require listing under the Endangered Species Act (ESA); and 3) recovering fish and other aquatic resource populations listed under the ESA. One indication of the Fisheries Program's growing emphasis on species conservation is the significant role that the National Fish Hatchery System plays in providing refugia and captive propagation expertise for a growing list of imperiled species.

The Fisheries Program is actively engaged with stakeholders and partners on a wide range of activities directed to an astonishing array of aquatic species. Throughout the United States, habitat improvements, removal of fish passage barriers, reintroduction of extirpated species, development of innovative rearing techniques and the identification

of hosts for imperiled mollusks are routine accomplishments. Increasingly limited resources, however, require the Fisheries Program to direct its conservation activities at a well-defined list of "species of management concern" that articulates a distinct role for the Fisheries Program. Absent a strong set of references clearly stating the priority species, needed actions and necessary resources, the Fisheries Program will be forced to allocate a smaller and smaller share to a growing list of indigent species. There is also the continuing concern that stakeholders and partners will soon grow disaffected if the Fisheries Program's staffing and funding capacity is continually diminished to the point that services are inadequate or absent.

AIS is a growing issue that is much larger than the FWS and its Fisheries Program. At the current level of funding and staffing, efforts to prevent and control AIS appear destined to fail. The Fisheries Program's efforts are targeted and thoughtful given resource realities, but its overall impact will continue to be inconsequential given the enormity of the challenge. In a mandatory act of triage, the Evaluation Team encourages the Fisheries Program to focus limited funding on injurious wildlife designations, develop a comprehensive threat assessment for the country (economically and ecologically), and continue to support stakeholders and partners to implement the on-the-ground actions outlined in the state AIS management plans.

4. Cooperation with Native American Tribes (pages 46–60)

As outlined in the FWS Native American Policy, the federal government has a special relationship with, and responsibility to, Native American governments. The Fisheries Program operates on a different footing with respect to tribes than it does with other stakeholders. While it is tempting to view the more than 200 tribes that the Fisheries Program works with as a single homogeneous entity, the reality is that they represent individual sovereign entities. As such, they represent the Fisheries Program's largest set of stakeholders.

Overall, the Evaluation Team found the Fisheries Program to be committed to fulfilling its obligations toward tribes. Given limited resources and multiple mandates, the Program works to balance its obligations toward tribes with its obligations toward other stakeholders and partners. Presented with a substantial amount of information outlining specific examples of tribal-related activities, the Evaluation Team concludes that much of what is accomplished is region-specific, depending on the number of tribes involved and the particular rights or interests at stake. In addition, many of the reported accomplishments and successes are attributable to the particular commitment, attitude and dedication of the FWS/Fisheries Program personnel involved. This is both an asset and a liability.

To the Fisheries Program's credit, where it communicates with tribes and arrives at mutually agreed upon goals, the result is highly effective. Similar to the FY 2004 Evaluation's finding, however, it remains difficult to determine what tribal responsibilities are not being addressed. Since tribal interactions are not consistently the result of a dedicated process, there are tribes with fisheries interests that go unaddressed. Given the funding challenges of both the Fisheries Program and the tribes, there is an

increased need to be able to assess overall tribal needs with Program abilities. Mirroring the conclusion in *Accountability*, the Evaluation Team believes the Fisheries Program should be in the position to consistently demonstrate that it understands who their tribal stakeholders are, what responsibilities the Program has to each tribe, what was accomplished for each, and what was not accomplished for each. This "four corners" test should be set as national policy with the specific manner of interactions and process left to the determination of the regional offices and field stations. Established at the region level, a list of tribal responsibilities will allow each region characterize its tribal responsibilities, demonstrate its accountability, and provide a foundation for documenting accomplishments and unmet needs.

FWS and its Fisheries Program provide critical support for building the professional capacity of tribal natural resource programs through the training of biologists and conservation officers. These training and educational opportunities are well received by the tribes who are in a position to take advantage of them but it is unclear to the Evaluation Team who of the Tribal Nations did not get the opportunity. It also appears that such training and education programs are early victims to tightening budgets.

The Evaluation Team provides a good deal of background on the special relationship of the United States Government with tribes precisely because it is so unique and important to understand. At a minimum the FWS and Fisheries Program should ensure that all its leadership is versed in tribal trust responsibilities and treaty obligations as well as the associated cultural underpinnings. The Fisheries Program should focus on ensuring that FWCO staff are adequately versed in tribal governments and culture in order to provide effective fisheries services to tribal constituents.

5. Recreational Fishing and Other Public Uses (pages 61–74)

The Evaluation Team assessed the Fisheries Program's public use performance through three distinct efforts: 1) Recreational Fishing, 2) Fisheries Mitigation Services, and 3) Outreach and Education.

The Fisheries Program supports and promotes recreational fisheries in many ways—most importantly by its actions on behalf of aquatic habitats, the fisheries products of the National Fish Hatchery System (NFHS), and by increasing its efforts on getting children outdoors, often with fishing pole in hand. Its active promotion and support of the Sport Fish Restoration (SFR) program cannot be stressed enough as SFR is vital to fishing access and conservation programs across the country.

The Fisheries Program has unequalled expertise in the culture of fish found within the NFHS, FWCOs and science facilities. Utilizing advances in technology combined with a greater understanding of aquatic systems, the NFHS is now a vital contributor to endangered species recovery, a place of innovation for aquaculture, efficient supplier of mitigation sport fish for systems otherwise unable to sustain recreational fisheries, and a system of facilities primed to contribute substantially to aquatic education and outreach.

The focus of much of the NFHS, however, remains on supplying mitigation services as directed by legislation, court decisions and treaties. The Fisheries Program has doggedly pursued responsible parties to negotiate repayment of reimbursable obligations with mixed results. It appears that other federal agencies have grown content to have FWS bear their monetary obligation in full or in part. In the time of ever-tightening budgets, however, the Fisheries Program should strive for 100% reimbursement so that its limited budget can be applied to other priorities.

The challenges of increasing the effect and impact of outreach and education programs on today's youth should not be underestimated. Over the years, FWS and hundreds of other organizations have developed and implemented a wide range of programs directed at aquatic education. Many of these programs have received acclaim for their innovation, their ability to reach under-served audiences, etc. From anecdotal evidence it appears that many of these programs have made an impact on youths that range from pursuing careers in natural resource management to persuading their families to conserve water at home. Unfortunately, the vast majority of these programs seldom sustain themselves over more than a few years and too often fail to effectively reach a large enough audience to gain long-term traction. That said, FWS and its partners have the opportunity to develop best practices for outreach and education that gleans the learnings from other the programs that have been undertaken in the past to forge more impactful and sustained programs in the future. The Fisheries Program is encouraged to work with state fish and wildlife agencies, Fisheries Friends groups, the Recreational Boating and Fishing Foundation and many other organizations to increase the breadth and impact of outdoor education programs aimed at youth.

6. Science and Technology (pages 75–89)

The Evaluation Team examined the following three elements that it believes are the most critical components for review: 1) Science Capacity, 2) Science Support, and 3) Training and Equipment.

The Fisheries Program is highly effective at conducting important science and is making important contributions to fisheries science. Fish Technology Centers, Fish Health Centers, Aquatic Animal Drug Approval Partnership, and Conservation Genetics Lab scientists are recognized as world leaders in many scientific arenas including fish culture, fish health, nutrition and diet development, cryopreservation, ecological physiology, nutrition, population dynamics, new drug approvals, and conservation genetics. Science staff have maintained a high level of peer-reviewed publications while providing an important outlet for grey literature which is often useful to field operations that need to move quickly and can make use of more general knowledge.

Science needs identified at the field and regional office level are rolled up in a relatively efficient manner. But the gap between identified needs and available funding is profound. The Evaluation Team's cursory examination of the science needs of the Fisheries Program and its existing capacity suggests a great deal of important work is not getting accomplished due to a lack of funding and an ineffective relationship with the U.S. Geological Survey (USGS). This "Science Gap" reflecting unfulfilled research needs

was estimated at $51.4 million in FY 2009, with $71.7 million in needs and $20.3 in available funding. Projects that are critical for FWS and the Fisheries Program do not get funded due to inadequate funding levels. This leads to a greater emphasis on locating soft money sources which in turn leads to hiring temporary and term employees. The resulting turnover of employees can create intellectual gaps between hires and require re-training of new personnel.

Since 1996, FWS has been working jointly with USGS to conduct research of importance to the field practitioners. Unfortunately, funding has been static, purchasing power has waned, and there is an ever-widening gap between the Science Support Program (SSP) conducted research and the applied management needs of FWS. In addition, SSP funding supports USGS facilities even when a FWS facility already has the capacity and staffing. As a result of funding shortfalls, soft money is increasingly dictating type of science being conducted, not necessarily the needs of on-the-ground practitioners. There is little evidence to suggest that the business model that has under delivered for the last 16 years will do anything but under-deliver in the future.

The Evaluation Team notes the increasing attention being paid by FWS and the Fisheries Program to "climate change" and "Strategic Habitat Conservation" (SHC). Efforts are underway to develop "Landscape Conservation Cooperatives" (LCCs) across the country to focus on these issues. While aquatic systems will be among the most impacted under any climate change scenario and habitat conservation must be strategic to be successful, the Evaluation Team is concerned, however, that the FWS and its Fisheries Program are spending large amounts of effort on developing these seemingly new programs rather than clearly maintaining their long-term core competencies within the context of these new initiatives. FWS leadership in the development of the National Fish Habitat Action Plan clearly illustrates that the agency has been in the strategic habitat conservation business before now. There is little need to create new LCCs at a time when existing science facilities have underutilized capacities that are increasingly forced to operate on soft money. The unfortunate reality is that programs such as LCCs, regardless of their inherent merits, are too often viewed by Congress as politically motivated and seldom survive intact from one administration to the next, resulting in a net drain on the FWS/ Fisheries Program core competencies. The Evaluation Team encourages the Fisheries Program to focus its aquatic conservation mission on a foundation of core competencies such as NFHAP, Conservation Genetics, and FWCO outreach that is framed in the larger context of workforce management.

7. Asset Maintenance (pages 90–97)

The combination of 1) critical assets in less than operational condition, 2) aging field stations in profound need of updating and refurbishing to allow the efficient and effective rearing of both current and future species, 3) high energy costs, 4) reduced staffing, and 5) flat-lined budgets all conspire to place a considerable strain on the Fisheries Program's capability to consistently meet its aquatic conservation goals.

The Fisheries Program has the capability to track, prioritize, and account for the physical and personal assets under its care. The NFHS currently has identified $152 million

in deferred maintenance needs. Deferred maintenance projects, directed at the repair, rehabilitation, or replacement of constructed assets, rob assets otherwise available for natural resource conservation activities. The NFHS focuses its limited maintenance budget on high-priority, mission-critical water management projects in an effort to maintain current efficiencies. Water facility failures at Alchesay and Craig Brook NFHs illustrate the very real costs, in terms of fisheries conservation outputs, that can and will continue to occur in the face of inadequate maintenance funding.

The potential for the NFHS to increase energy efficiency at many of its facilities speaks to the need for a reasonable investment in energy conservation as the Fisheries Program works to reduce its energy costs and carbon footprint. Because of the public use at these facilities, such projects could also act as pilot projects to encourage private industry to undertake similar efforts.

8. Workforce Management (pages 98–108)

The overall lack of a comprehensive and useful workforce management analysis severely limits the capability of the Fisheries Program to manage its workforce, right-sizing it in the face of continuing budget shortfalls, and to provide sufficient training and work facilities to ensure employees can conduct their jobs safely and effectively.

The Fisheries Program's budget has increased in absolute dollars over the last 10 years, but remains largely stagnant when these budget numbers are adjusted for inflation, add-ons, and other factors that impact how these funds reach the ground. The Evaluation Team was also struck by the overall loss of purchasing power for field stations as a result of increased salary to operations ratios. In FY 2001–2003, the salary to operations ratios rose from 61% to 72%. While more recent data was not provided to the Evaluation Team, it is clear that it is above 90 percent for many field stations in FY 2009. In addition, it is also clear that the erosion of base funding is preventing FWCOs and other programs from accomplishing core functions, while the pressure to fund field stations operations with soft-money and reimbursables increasingly dictates priorities.

The Fisheries Program faces a growing staffing deficiency with numerous vacancies within approved organization charts. These remain unfulfilled largely due to budgetary reasons. For FY 2009, there were an estimated 448 vacancies in approved organizational charts, representing one of every 3.8 FTEs. While the Evaluation Team did not analyze the duration and ultimate outcome of these vacancies, the overall number of vacancies clearly illustrates the need for the Fisheries Program to "right-size" its workforce to current budget realities.

Performance measures for workforce management do not appear to exist. The Fisheries Program has indicated to the Evaluation Team that it plans to identify appropriate workforce performance and workload measures by December 2010. Such analysis and performance measures are long overdue. The Evaluation Team assumes this shortcoming is not limited to the Fisheries Program, but is typical of the entire agency.

The Fisheries Program needs to undertake meaningful workforce management analysis as soon as practicable. To date, workforce analysis has been conducted after the fact and apart from strategic visioning and planning. Partners and stakeholders are invited to help frame the fisheries conservation side of the Fisheries Program only to have the lack of meaningful workforce analysis impact the Program's effectiveness. Taking a more business-like approach will enable the Fisheries Program to thoughtfully examine issues such as 1) loss of conservation output through Fisheries Program/Regional Directorate silos, 2) how organizational charts might be right-sized rather than left vacant, and 3) sustainability of budgeting based on reimbursables rather than core funding.

The Evaluation Team recommends that a workforce management analysis be undertaken utilizing the meaningful involvement of stakeholders, partners and workforce professionals. Rather than request the input of constituents into a "strategic plan" that begins with aquatic habitat and species but does not address the workforce necessary to conduct the mission, such an effort should start with developing a foundational understanding of the existing workforce and its capacities to undertake a fisheries conservation mission.

Recommendations to Increase Effectiveness

1. At the national, regional, and field level, continue to identify and engage stakeholders and partners in the process of developing a 2014–2020 Strategic Plan. Establish a core set of resource-driven performance measures that the Program will report against.

2. At the regional level, develop a consistent, formal process to demonstrate who stakeholders and partners are, what their expectations are, and what the Fisheries Program has/has not accomplished on their behalf within each fiscal year. Regions should be consistent in reporting but retain flexibility in how partners are approached.

3. Maintain funding available per Fish Habitat Partnership for project funding and administrative support at levels adequate to achieve success.

4. Evaluate Fish and Wildlife Conservation Offices, Partners for Fish and Wildlife and other technical outreach programs in light of state/tribal/landowner needs, workforce management, budget forecasts, and organizational efficiency. Based on outcome, ensure proper funding and administrative support for Fish and Wildlife Conservation Offices mission.

5. Develop a definitive set of reportable data for "Species of Management Concern," including: a) management status (i.e., listed, recovery plan, covered by Fishery Management Plan), b) species trends (i.e., declining, stable, improving, meeting management goals), c) identification of barriers to reaching self-sustaining levels over time, and d) other data allowing objective assessment of the resource and its status.

6. Develop improved metrics for demonstrating effectiveness of Aquatic Invasive Species programs aimed at a) prevention, b) control of establishing populations, and c) budget allocations versus demonstrated need.

7. Collaborate with stakeholders on undertaking a full assessment of the Aquatic Invasive Species issue and evaluate the efficiency of the existing program, as well as what the Fisheries Program needs in order to be successful within the larger context of this cross-cutting issue as represented by the Aquatic Nuisance Species Task Force. Provide a report to Department of the Interior, Congress and other interested parties.

8. Consistent with Recommendation #2, each Region should develop a list of all tribes to which it has a Fisheries Program responsibility. For each of these tribes, Fisheries Program will track the nature of the responsibility; the tribe's requested assistance and what the Fisheries Program has agreed to deliver. It will also outline who the tribal contact is, how they wish to be communicated with, and how often. Such information should be updated on an annual basis

9. U.S. Fish and Wildlife Service leadership, Fish and Wildlife Conservation Office staff tasked to work with tribes, and tribal liaisons should demonstrate tribal knowledge and experience, either by nature of their prior education and experience or by nature of a dedicated course of on-the-job training.

10. Continue to pursue full cost recovery of reimbursable mitigation costs from Bureau of Reclamation and other responsible parties. Absent an acceptable negotiation, the Fisheries Program should examine ways to transfer these operations to the responsible party or shutter the operations.

11. Undertake a detailed analysis of the existing business model of U.S. Geological Survey providing science support to U.S. Fish and Wildlife Service and other Department of the Interior agencies.

12. Report to stakeholders and partners on the annual maintenance requirements, Administration's budget request, available funding and overall deferred maintenance need of the Fisheries Program.

13. Along with its constituents, continue to press to make all U.S. Fish and Wildlife Service roads (including National Wildlife Refuge System and National Fish Hatchery System) eligible to receive federal highway funding for road maintenance.

14. In cooperation with stakeholders and partners and with support of workforce professionals, undertake a detailed workforce analysis that examines current workforce readiness, capacity necessary to accomplish strategic plan elements and budget needs.

Conclusion

The Fisheries Program of the U.S. Fish and Wildlife Service has been responsive to the observations and recommendations arising from the FY 2004 Evaluation undertaken by the SFBPC. During the period FY 2005–2009, the on-the-ground capabilities of the Fisheries Program have worked effectively with stakeholders and partners to restore habitats, conserve native species, and develop innovative technologies. This programmatic evaluation provides ample evidence of the skills, dedication and accomplishments of the Fisheries Program. This report also presents a set of findings and recommendations that the SFBPC believes warrants the full attention of the Fisheries Program and the FWS. The following seven themes encapsulate these findings, and are deserving of the Program's continued vigilance. For the coming years, the Fisheries Program should:

1. Undertake a consistent approach to stakeholder/partner involvement and communications.
2. Develop consistent data and definitions (e.g., nomenclature and species list, denominator, mitigation expenses).
3. Develop a single set of performance measures (combining PART, GPRA, Strategic Plan, etc.) and be accountable to them.
4. Undergo meaningful workforce management to right-size the Fisheries Program to current and future budget realities.
5. Undertake a comprehensive evaluation and review of the existing science support model in cooperation with USGS, stakeholders and partners.
6. Synchronize strategic planning effort to budget formation and include budget estimates as part of program planning.
7. Monitor and evaluate program activities on an ongoing basis in cooperation with stakeholders and partners.

INTRODUCTION

In a March 2009 letter from the director of the U.S. Fish & Wildlife Service (FWS or Service) to the chairman of the Sport Fishing and Boating Partnership Council (SFBPC or Council), the director took note of the "independent and rigorous review" of the Fisheries Program that the SFBPC undertook in 2005. The director requested the SFBPC undertake a "follow-up evaluation" to assess the Fisheries Program's progress in meeting its core aquatic resource conservation obligations.[1] The FWS asked the SFBPC for assistance because of its long involvement with the FWS's Fisheries Program as a committee chartered under the Federal Advisory Committee Act (FACA)[2].

The SFBPC accepted the undertaking in a July 10, 2009 letter to Gary Frazer, Assistant Director for Fisheries and Habitat Conservation. The letter indicated that Council Fisheries Issues Committee Chair Ken Haddad would chair the evaluation effort and that a final report would be delivered to FWS in 2010.

To conduct this evaluation, the SFBPC empanelled an eight-person Evaluation Team that represented a cross section of those organizations interested and experienced in aquatic resource conservation and in the conduct and impact of the Program (Table 1). As a team, they were charged by the SFBPC to conduct an independent, impartial, and constructive review. To staff the Evaluation Team, the Council contracted with D.J. Case and Associates as project consultants. The principal investigator is Whitney Tilt, Conservation BenchMarks.[3]

The 2009 Evaluation undertook an examination of the FWS Fisheries Program's activities, stated goals and objectives and accomplishments for the period October 1, 2004 (FY 2005) through September 30, 2009 (FY 2009). The 2009 evaluation is founded on the nine areas of emphasis common to the Programmatic Evaluation undertaken by the SFBPC in 2005, the FWS Fisheries Strategic Plans and the SFBPC Partnership Agenda Report. In addition, Facility/Asset Maintenance and Workforce Management were specifically added to the examination. The five elements in *italics* below constitute focal areas of particular interest to this evaluation per the FWS director request.

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[1] Letter from Paul Schmidt, Acting Deputy Director to Ryck Lydecker, Chairman, Sport Fishing and Boating Partnership Council, March 9, 2009 (reference FWS/FHC/AFHC/MAHR/DCN040125)

[2] Sport Fishing and Boating Partnership Council. 2002. *A Partnership Agenda for Fisheries Conservation: Report of the Fisheries Program Strategic Plan Steering Committee*. Washington, D.C.: U.S. Fish and Wildlife Service.

[3] Whitney Tilt's qualifications include co-author of the *Programmatic Evaluation of the U.S. Fish and Wildlife Service Fisheries Program, FY 2004* (co author 2005), *Independent Evaluation of the Effectiveness of the U.S. Fish and Wildlife Service's National Wildlife Refuge System 2007* (co-author 2008), National Fish Habitat Action Plan (consultant for drafting 2006), P*artnership Agenda for Fisheries Conservation* (committee member and co-author 2002) and Saving a System in Peril: A Special Report on the National Fish Hatchery System (committee member and co-author 2000).

- Partnerships & Accountability
- Aquatic Habitat Conservation & Management
- *Native Species*
- Interjurisdictional Fisheries
- Recreational Fishing
- *Aquatic Science & Technology*
- *Cooperation with Native American Tribes*
- Mitigation Fisheries
- *Aquatic Nuisance Species*
- *Facility/Asset Maintenance*
- Workforce Management

Conduct of the Evaluation

The Evaluation Team primary responsibilities are to: 1) establish clear and agreed-upon indicators and benchmarks of success, 2) undertake an assessment of Fisheries Program activities (FY2005–2009) utilizing those measures, and c) prepare an assessment report to the SFBPC for presentation to the Director of the Service by early 2010. Project consultants are responsible for collecting necessary data and developing them into a format for review by the Evaluation Team. Data will be gleaned from a wide range of published and unpublished material, including summaries and reports, correspondence, databases, financial statements and interviews provided by FWS and its stakeholders and partners.

Whitney Tilt initiated evaluation design and data collection in late July 2009. The Fisheries Program assigned a point of contact to coordinate all data collection efforts for which preliminary data and evidence were delivered to the Evaluation Team by late October 2009. The Evaluation Team met to begin its deliberations on November 12–13, 2009 and delivered its report to the SFBPC on May 25, 2010.

The Evaluation tool was directly adapted from the 2005 SFBPC evaluation which in turn was developed following the process developed by Dr. Steven Yaffee and colleagues at the University of Michigan. Using this tool, the 2005 team developed a set of 12 evaluation questions. The 2005 final report contained an evaluation of each of these questions. The 2009 Evaluation Team utilized the 2005 evaluation as the foundation on which to conduct the 2009 effort.

The Fisheries Program engages in a wide range of fisheries conservation efforts, including control of aquatic invasive species such as Asian Carp. (Photo: USFWS)

Table 1 | **SFBPC 2009 Fisheries Program Evaluation Team**

Assessment Team	
James Anderson Executive Director Northwest Indian Fisheries Commission	**Noreen Clough** Principal NKC Consulting, Inc.
Ken Haddad (Chair) Executive Director Florida Fish & Wildlife Conservation Comm.	**Chris Horton** Conservation Director Bass Anglers Sportsmen Society
Gary Kania Vice President for Policy Congressional Sportsmen's Foundation	**Elizabeth Maclin** Director, Rivers Unplugged Campaign American Rivers
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1. Methodology

The process and methodology used in the 2009 evaluation closely mirrors that developed for and used in the 2005 evaluation. The evaluation examines all aspects of the FWS Fisheries Program except the Marine Mammals Program. The program's primary function is managing Marine Mammal Incidental and is staffed in the Washington Office by the Division Habitat and Resource Conservation.

Step 1: Develop Evaluation Criteria and Assessment Process

In November 2009, the Evaluation Team began to examine the Fisheries Program's activities, its stated goals and objectives, strategies for achieving its objectives, and its assets and liabilities. The Team organized its examination on the following eight areas of strategic emphasis common to both the Fisheries Program's FY 2004–2008 Strategic Plan and the SFBPC Partnership Agenda report:

1. Accountability
2. Habitat Conservation & Management
3. Species Conservation & Management
   - Native Species
   - Interjurisdictional Fisheries
   - Aquatic Invasive Species

4. Cooperation with Native American Tribes
5. Recreational Fishing and Other Public Uses
    - Recreational Fishing
    - Mitigation Fisheries
    - Outreach & Education
6. Aquatic Science & Technology
7. Asset Maintenance
8. Workforce Management

Step 2: Developing an Assessment Framework
From the goals, strategies, and activities identified in Step 1, the Evaluation Team selected the most important elements of the Fisheries Program to be evaluated. The Team then developed an Evaluation Assessment Tool with a specific set of questions and indicators (measures) to answer the queries "What would success look like?" and "What progress has been made toward success? These are presented as a set of performance measures at the beginning of each evaluation chapter (Tables 2, 6, 12, 16, 18, 26, 31 and 33).

The Evaluation Team used the set of evaluation questions utilized in the FY 2004 evaluation as a foundation for the FY 2005–2009 evaluation. These questions attempt to capture the greatest amount of measurable information in conducting a focused evaluation of the Fisheries Program. By design, these questions focus on the Program's strategic focus, as well as its accountability to aquatic resources and to the public.

Step 3: Conducting the Evaluation
In preparing the assessment tool, the principal investigator met with the FWS Fisheries staff to outline the initial data request and establish a timetable and format for delivery of the information.

The data were assembled from October 2009 to April 2010. As information was received, it was inventoried and posted to a project website accessed by Evaluation Team members. In several cases, the Team requested clarifications and/or additional data with select data sets remanded to the agency with additional instructions. An inventory of the resources examined and utilized in this evaluation is provided as Exhibit 1. Data have been archived on DVD discs and filed with the FWS and SFBPC as part of this report.

2. Strategic Plan Goals, GPRA and SFBPC Evaluation
In 2004, a National Fisheries Program Strategic Plan for FY 2004–2008 was drafted. The plan identifies key performance measures and related outputs that seek to capture the core functions of the Fisheries Program. These measures gauge the Program's progress towards meeting Department of the Interior (DOI) and FWS annual and long-term performance goals. The Program also addresses a set of Government Performance and Results Act (GPRA) measures. The SFBPC evaluation effort in FY 2004 developed an additional set of benchmarks and performance measures in the course of its assessment.

3. Structure of this Report
This assessment is presented as an Executive Summary, Introduction, and eight evaluation chapters. Each of the eight chapters is organized by:

a. **Context**, outlining the role and mandate for Fisheries Program involvement.

b. **Basis for Assessment** describing the nature of inquiry followed by the Evaluation Team and presentation of performance measures.

c. **Results** presenting analysis of information received.

d. **Findings and Observations**, providing a discussion of the Evaluation Team's conclusions.

e. **Recommendations to Increase Effectiveness**, framing actions for consideration by FWS as it continues to refine and focus its Fisheries Program.

Nomenclature and Definitions

Indicator: An attribute that can be measured or described and is used to answer one or more evaluation questions.

Benchmark: A comparison allowing assessment of change in an indicator.

4. Data Control and Field Verification
The data and information utilized by the Evaluation Team consisted of responses prepared by the eight Fisheries Program regions, data requests from the Fisheries Programs Fisheries Information System (FIS) and Fisheries Operational Needs System (FONS) databases, and summaries prepared by Fisheries Program staff in Arlington, VA. A number of field visits and personal contacts were made by Evaluation Team members and project staff to discuss the submissions, add context and understand nuances. These discussions were informative and the input affected the ultimate evaluation, though specific data are not necessarily referenced in all parts of the review.

5. Nomenclature, Acronyms/Abbreviations, List of Tables and Appendices
Some of the terms used in this report have a number of interpretations that could lead to confusion. Accordingly, a set of definitions is provided here along with a glossary of acronyms used in this report.

Benchmark: A baseline value allowing assessment of change in an indicator. The benchmark used in this report as FY 2004 performance.

Indicator: An attribute that can be measured or described and is used to answer one or more evaluation questions.

Interjurisdictional fisheries: Fish populations managed by two or more states, nations, or tribal governments because of geographic distribution or migratory patterns of these populations. The term infers management designation, not merely a description of species distribution.

Partner: An agency, organization, or individual that shares common interest in fisheries that is willing to offer and/or share financial and intellectual resources with FWS and its Fisheries Program.

Stakeholder: A state, tribe, or other entity with a role or set of rights outlined in law or treaty that intersects with the role and responsibility of the FWS Fisheries Program.

ACRONYMS/ABBREVIATIONS

AADAP	Aquatic Animal Drug Approval Program	NFBW	National Fishing and Boating Week
AFS	American Fisheries Society	NFH	National Fish Hatchery
ARD	Assistant Regional Director	NFHAP	National Fish Habitat Action Plan
AFWA	Association of Fish and Wildlife Agencies	NFHS	National Fish Hatchery System
AIS	Aquatic Invasive Species	NGO	Non-Governmental Organization
ANILCA	Alaska Native Interest Lands Conservation Act	NMFS	National Marine Fisheries Service, NOAA
ANCSA	Alaska Native Claims Settlement Act	NOAA	National Oceanic and Atmospheric Administration
ANSTF	Aquatic Nuisance Species Task Force	NWR	National Wildlife Refuge
BIA	Bureau of Indian Affairs	NWRS	National Wildlife Refuge System
BPA	Bonneville Power Authority	OCAP	Operating Criteria and Procedures, dam operations
BR	Bureau of Reclamation	OMB	Office of Management and Budget
BRD	Biological Resources Division, USGS	PART	Program Assessment Rating Tool
CCP	Comprehensive Conservation Plan, FWS, National Wildlife Refuge System	PFW	Partners for Fish and Wildlife Program
CHMP	Comprehensive Hatchery Management Plan	QAQC	Quality Assurance Quality Control
CUP	Central Utah Project	R1	Region 1, Pacific NW Region, FWS (CA, HI, ID, NV, OR, WA)
DOD	Department of Defense	R2	Region 2, Southwest Region, FWS (AZ, NM, OK, TX)
DOI	Department of the Interior	R3	Region 3, Midwest Region, FWS (IA, IL, IN, MI, MN, MO, OH, WI)
DQA	Data Quality Act	R4	Region 4, Southeast Region, FWS (AL, AR, FL, GA, KY, LA, MS, NC, PR, SC, TN)
FHC	Fish Health Center	R5	Region 5, Northeast Region, FWS (CT, DE, MA, MD, ME, NH, NJ, NY, PA, RI, VA, VT, WV)
FIS	Fisheries Information System, FWS	R6	Region 6, Rocky Mountain Region (CO, KS, MT, ND, NE, SD, UT, WY)
FMP	Fishery Management Plan	R7	Region 7, Alaska Region
FP	Fisheries Program of the U.S. Fish and Wildlife Service	R8	Region 8, California-Nevada Region (formerly CNO-part of Region 1)
FTC	Fisheries Technology Center	RO	Regional Office, FWS
FTE	Full Time Employee	RP	Recovery Plan
FONS	Fisheries Operational Needs System, FWS	SARP	Southeast Aquatic Resources Partnership

FWCO	Fish and Wildlife Conservation Offices	SFBPC	Sport Fish and Boating Partnership Council
FWS	U.S. Fish and Wildlife Service	SOP	Standard Operating Procedure
GPRA	Government Performance and Results Act	TVA	Tennessee Valley Authority
HACCP	Hazard Analysis and Critical Control Point	USACE	U.S. Army Corps of Engineers
IJ	Interjurisdictional	USGS	U.S. Geological Survey
INRMP	Integrated Natural Resource Management Plan	WAG	Work Activity Guidance, FWS
LAPS	Land Acquisition Priority System, NWRS	WMD	Wetland Management Districts, part of NWRS
MT FWMAO	Montana Fish and Wildlife Management Assistance Office	WO	Washington Office, FWS
NCTC	National Conservation Training Center		

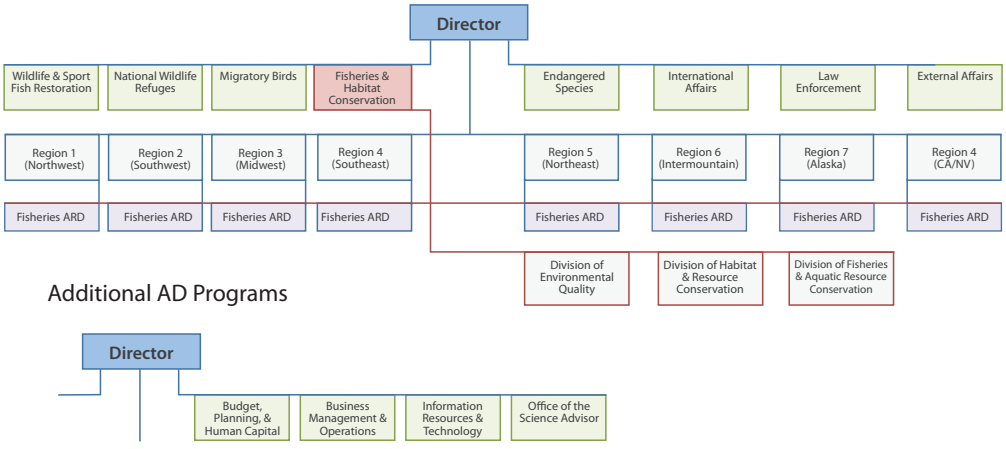
The Fisheries Program's National Fish Passage Program provides financial and technical assistance to remove or bypass artificial barriers that impede the movement of fish and contribute to their decline. (James River photo: USFWS)

1. ACCOUNTABILITY

Context

In 2002, the SFBPC published *A Partnership Agenda for Fisheries Conservation* (Agenda). The report was the result of a process to gather input from a broad array of stakeholders, including the states, tribes and other organizations. The first issue and recommendation advanced by the Agenda, and stated as an operating principle, was the critical importance of strong, two-way communications between the FWS and its partners. "Too often, key management decisions affecting aquatic resources appear to have been made unilaterally by the FWS and communicated to partners only after decisions have been made, eroding partners' trust. The FWS must recognize and acknowledge its accountability to its partners. The FWS should meet regularly with its partners to jointly establish goals and objectives and also must be an active part of state and tribal processes where the FWS has an identifiable role and is asked to participate."[4] The position of the Fisheries Program within the FWS is presented in Figure 1.

Figure 1. Organizational Chart of the U.S. Fish and Wildlife Service



In response to the *Agenda*, the first focus area for the National Fisheries Program Strategic Plan, FY 2004–2008, is Partnerships and Accountability calling for "open, interactive communication between the Fisheries Program and its partners." The Evaluation Team elects to title this focus "Accountability" as it is the most descriptive of the focus areas. "Partnerships" are tools for achieving the Fisheries Program's mission in general and for increasing the collaboration necessary for successful fisheries management, and they are highlighted throughout this evaluation as vital tools in all the Program's efforts. Partnerships, however, is not synonymous with accountability and specific partnerships are not singled out here.

[4]A Partnership Agenda for Fisheries Conservation, Sport Fish and Boating Partnership Council (January 2002), p. 16.

Basis for Evaluation

Indicators, baselines and benchmarks addressing the Fisheries Program's accountability are presented in Table 2. The FY 2004 evaluation included an indicator that Fisheries Program was accountable to its authorities and its actions are consistent with those authorities. This indicator was dropped for this evaluation due to the inability to identify any useful individual measure to track such performance.

Indicator 1.1 examines Fisheries Program communications with stakeholders and partners; 1.2 addresses whether program activities reflect stakeholder and partner input; 1.3 focuses on how the Program communicates with its stakeholders and partners; and 1.4 targets how the Fisheries Program measures its performance.

Table 2 **Accountability: Indicators, Baselines and Benchmarks**

Indicator	Measure	Baseline (FY 2004)	Performance (FY 2009)	Target (FY 2013)
1.1. FP meets regularly with Stakeholders and partners in determining priorities and activities.	Evidence of a deliberate planning process with states, tribes, and partners for each region.	Evidence of meetings, but not of a formal and comprehensive process.	Evidence of meetings and outreach, but highly variable dependent on region. Lack of a formal and deliberate process.	Formal process established to identify and meet with all stakeholders and interested partners.
1.2. FP program activities reflect Stakeholder & Partner input.	FWS FP Budget Request reflects priorities.	Demonstrated.	Demonstrated.	Continued demonstration.
1.3. Stakeholders and partners receive regular and consistent communications from FP.	Production of an annual National Accomplishments Report.	In development for first time for FY 2004. Draft reviewed by Evaluation Team was not linked to stated goals.	Annual report of progress toward stated goals not formally produced.	Annually report performance against targeted set of performance goals to Stakeholders & Partners.
1.4. Key performance measures and related outputs are integrated into Strategic Plan and operational plans as mechanism for accountability.	Key performance measures in place.	All regions are said to be working to incorporate performance measures into individual work plans.	Draft 2009-2013 Strategic Plan has no (n=0) metrics for accountability.	By FY 2011, concise set of performance measures developed that track fisheries conservation outputs.
	Key performance measures reliably tracked and reported by FIS.	NP.	FIS has great deal of data and potential but outputs are not consistent or reliable.	By FY 2011, key performance measures consistently tracked in FIS and data.

NP= Information requested by Evaluation Team but not provided by Fisheries Program during course of this evaluation.

Results

In examining the Fisheries Program's accountability, the Evaluation Team examined four distinct pieces: 1) Accountability to Authority, 2) Accountability to Stakeholders and Partners, 3) Accountability through Open, Interactive Communications, and 4) Accountability through Performance Reporting Systems.

Accountability to Authorities

The FWS Fisheries Program must be accountable to a wide range of legislative authorities, treaties, compacts, court orders, mitigation agreements and cooperative agreements. Tables 3 and 4 provide a listing of these authorities while Exhibit 2 provides a complete description as provided by FWS.

To assess whether or not the Fisheries Program is accountable to its diverse array of authorities and mandates, the Evaluation Team examined whether the Program clearly understands it authorities and whether the Program's activities were consistent with its authorities. This inquiry, however, does not lend itself to a straightforward examination of metrics. As in FY 2004, the data provide evidence that the Fisheries Program has devoted time and energy to integrating the broad array of laws, regulations, court decisions, and executive orders into its operations. By and large though, this growing burden of fisheries-related authorities has accumulated an expanding set of program responsibilities, often with little concern for how the activities will be staffed and budgeted, or how the agency should deal with resulting inconsistencies. For example, the Fisheries Program stocks non-native rainbow trout in selected water courses as mitigation for federal water projects on one hand, while being responsible for working with stakeholders to recover listed native fish that may be impacted by the mitigation activities on the other hand.

FWS Fisheries Program cooperates with wide range of landowners in pursuing its conservation mission. (Photo: USFWS)

Table 3 | **Principle Legislation and Other Authorities**

Anadromous Fish Conservation Act	Lacey Act
Comprehensive Environmental Response Compensation and Liability Act	Magnuson/Stevens Fishery Conservation and Management Act of 1976
Department of Transportation Act	Marine Mammal Protection Act
Endangered Species Act of 1973	National Aquaculture Act of 1980
Estuarine Protection Act	National Environmental Policy Act of 1969
Exclusive Economic Zone of the USA	National Fish Hatchery System Volunteer Act of 2006
Federal Aid in Sport Fish Restoration Act	National Wildlife Refuge System Administration Act of 1966
Federal Power Act	Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990
Federal Water Pollution Control Act	Pacific Salmon Treaty Act of 1985
Federal Water Project Recreation Act	Reorganization Plan No.4 of 1970
Fish and Wildlife Act of 1956	Rivers and Harbors Act of 1899
Fish and Wildlife Coordination Act	Recreation Use of Conservation Areas Act
Fish and Wildlife Conservation Act of 1980	Recreational Fishing (Executive Order 12962)
Fish and Wildlife Improvement Act of 1978	Reorganization Plan No.4 of 1970
Fisheries Joint Resolution, 1871	Sikes Act
Fisheries Restoration & Irrigation Mitigation Act of 2000	Sport Fishing and Boating Safety Act
Indian Self-Determination & Education Assistance Act of 1976	Watershed Protection and Flood Prevention Act
Invasive Species (Executive Order 13112)	

As noted in the FY 2004 evaluation, the Fisheries Program's priorities and activities from year to year are heavily influenced by the annual appropriations process and the resulting directives provided by Congress. The budget, along with accompanying language, has as profound an effect on Program "mandates" as the authorities listed in Tables 3 and 4 (See Workforce section, page 98, for more discussion).

Table 4 | **Regionally Specific Authorities**

Alaska National Interest Lands Conservation Act	Great Lakes Fishery Act of 1956
Atlantic Coastal Fisheries Cooperative Mngt. Act	Klamath River Basin Fishery Resources Restoration Act
Atlantic Salmon Convention Act of 1982	Mississippi Interstate Cooperative Resource Agreement
Atlantic Striped Bass Conservation Act	Mitchell Act
Belloni Decision (US v. Oregon)	New England Fishery Resources Restoration Act of 1990
Boldt Decision (US v. Washington)	Pacific Northwest Electric Power Planning and Conservation Act
Central Valley Project Improvement Act	Pere Marquette River Amendment
Chehalis River Fishery Resources Study	Salmon & Steelhead Conservation & Enhancement Act
Colorado River Storage Project Act	State of Alaska v. Babbitt (Katie John I)
Connecticut River Basin Atlantic Salmon Compact Act	Trinity River Basin and Wildlife Restoration
Elwha River Ecosystem and Fisheries Restoration Act	Trinity River Fishery Restoration
Emergency Striped Bass Study Act	Voight Decision (Lac Courte Oreilles v. Wisconsin)
Fish-Rice Rotation Farming Program of 1958	Water Resources Development Act of 1976
Fox Decision & US v. Michigan Consent Decree	Yakima Fishery Enhancement Project
Great Lakes Fish and Wildlife Restoration Act	Yukon River Salmon Act of 1995

It appears to the Evaluation Team that the Program appropriately sets priorities in light of its authorities, the current state of knowledge, and the needs of the fishery resource. The Program has shown itself capable of addressing a large and cumbersome set of authorities, and is working with the Administration, Congress, stakeholders, and partners to help ensure its activities appropriately and acceptably balance overlapping, complementary and sometimes competing authorities and responsibilities.

The Evaluation Team concludes that the Fisheries Program's "Accountability to Authorities" is best answered by the outcome of the remaining evaluation, providing insight into how well the Program conducts its activities consistent with budget and staffing.

Accountability to Stakeholders & Partners

The mandate to conserve the nation's fisheries resources is not the sole responsibility of the FWS Fisheries Program. States and tribes often have the primary responsibility in fisheries and at the federal level, FWS shares federal fisheries management responsibility with the National Marine Fisheries Service (Department of Commerce, National Oceanic and Atmospheric Administration) among others. As many fisheries extend

STAKEHOLDERS have a direct stake in fisheries conservation mandated by legislation, treaty, and the like. States and tribes are the two most common stakeholders in fisheries.

PARTNERS have a stated interest in fisheries conservation, but their participation is voluntary.

beyond the territorial boundaries of the United States, international treaties and cooperation with countries like Canada are required. Added to these stakeholders, a talented and energetic array of conservation partners is dedicated to conserving fisheries, as are private landowners across the country.

At the national, regional, and field station levels, the Fisheries Program is acutely aware of the need to involve stakeholders and partners in every facet of its mission. The Program's stated mission is "Work with partners to restore and maintain fish and other aquatic resources at self-sustaining levels and support federal mitigation programs for the benefit of the American public." On a more practical level, the Program recognizes that working cooperatively with states, tribes and partners is the only way significant fisheries conservation will be achieved.

In examining Fisheries Program's accountability to stakeholders and partners, the Evaluation Team asked the question, "How does the Program work, both internally and externally, with states, tribes, federal agencies and partners as it develops its priorities and activities?" To assess this, the team sought evidence that the Program communicates with its stakeholders and partners in a deliberate manner and that the Program utilizes this interaction to develop its plans, budgets and activities.

There is clear evidence that Fisheries Program staff meets with states, tribes and partners to coordinate ongoing activities and to discuss future needs and priorities. The methodology of conducting this interaction with stakeholders and partners, however, varies greatly by region. Program-wide there is no consistent, formal process in place for consulting with stakeholders and partners. This *ad hoc* approach does not make it possible to connect the issues emerging from these important discussions to the actual work conducted by the Fisheries Program; nor can an observer determine who was ***not*** at the table that should have been.

Regions provided evidence that stakeholder and partner needs were incorporated into their Fisheries Operational Needs System (FONS) requests. For example, in FY 2009, FONS had 1,127 projects that identified partners willing to contributing in-kind and financial resources totaling $470 million. Cooperative projects ranged from genetic studies of imperiled fish to dam removals, with required FWS funding estimated at $285 million.

Strong evidence of the Program's interest in involving stakeholders and partners is evident in the development and substance of the National Fisheries Program Strategic Plan for FY 2004–2008 and the emerging plan for FY 2009–2013. A similar commitment to stakeholder and partner involvement is found in National Fish Habitat Action Plan (Habitat Conservation & Management section, page 21) and in numerous regional projects, such as the development and implementation of fish passage projects. These actions serve the Program well in demonstrating its commitment to stakeholders and partners. Nevertheless, the Fisheries Program needs to develop a consistent and convincing process to assure that appropriate stakeholders and partners are involved as it determines its annual activities and priorities.

Accountability to Open, Interactive Communication
To assess Fisheries Program accountability to open and interactive communication, the Evaluation Team examined evidence of communications and formal feedback to stakeholders and partners.

In 2008, the Fisheries Program began publishing *Eddies* on a quarterly basis. *Eddies* seeks to inform its readers of the Fisheries Program's work — past, present, and future. *Eddies* has a distribution list of 7,000 for hard copy and approximately 2000 email subscriptions (as of December 2009). In November 2009, the *Eddies* website (www.fws.gov/eddies) averaged 2,500 visitors per day. Unlike other FWS publications such as *People, Land, and Water*, *Fish & Wildlife News,* and the *Endangered Species Bulletin, Eddies* is dedicated to fisheries conservation and the work of the Fisheries Program.

All regions provided evidence of web sites, fact sheets, press releases and other communication efforts. A number of regions publish a regular newsletter to their partners. Region 3's *Fish Lines* remains the best example of a formal and regular report to stakeholders and partners from a regional office that appears to be appreciated by those who receive it. Each month, Region 3 Fisheries distributes 175 hard copies of *Fish Lines* to key internal and external partners and uses a listserve to email the link to 1,420 general distribution subscribers. According to Editor Dave Radloff, *Fish Lines* receives a lot of positive feedback from its readers.

Eddies, Fish Lines and other communication efforts are geared more toward a general fisheries audience — they relate success stories. In FY 2004, the Evaluation Team reviewed a draft "National Accomplishments Report" intended to detail program accomplishments in relation to strategic plan goals. The 2004 Team found it to be more of a "highlights report" than an accomplishments report that marked progress against strategic goals.

The Fisheries Program states that it anticipates expanding *Eddies* to include a final yearly issue that focuses on national accomplishments. Such a report will fill the "communications of accountability" need only if it becomes focused and linked to stated goals at the national and regional levels. In turn, the National Accomplishments Report can then support a regular conversation between the Fisheries Program and its stakeholders and partners.

Accountability through Performance Reporting Systems
Accountability is the result of a clear set of performance measures that are reported in clear language on a regular basis.

The Fisheries Program is faced with the challenge to develop, implement, and refine performance measures that track progress toward these diverse set of natural resource management activities and other goals contained in each of the Strategic, GPRA, and PART evaluation documents. The National Fisheries Program Strategic Plan for FY

2004 – 2008 identified a number of key performance measures and related outputs that sought to capture the core functions of the Fisheries Program. These measures allegedly gauge the Program's progress toward meeting DOI and FWS annual and long-term performance goals and GPRA measures. In addition, the President's Office of Management and Budget (OMB)'s Performance Assessment Rating Tool (PART) and the SFBPC's FY 2004 evaluation in 2006 recommended various metrics and performance measures.

In its FY 2004 Evaluation, the SFBPC Evaluation Team stated its hope that FWS would work with OMB and others to codify these various sets of metrics into a single set of performance criteria and measures along with appropriate modifications to data collection systems. This has largely not been accomplished, and in 2009, the Program still faces a bewildering set of data and performance measures it must account for. As of December 2009, FIS tracks a total of 38 measures with 66 data fields. The Fisheries Program actively attempts to track dozens of measures requiring data and reporting which require a substantial commitment of time and resources from the field station, regional offices and Washington headquarters. All this effort, however, does not easily translate into greater accountability, primarily because the output-oriented data are not linked to expected outcome-oriented performance toward fisheries conservation goals.

As of this evaluation, there continues to be the need to develop a single set of performance measures that measure performance, not activity. Working with OMB, OI and FWS, the Fisheries Program should work toward this integrated set of performance measures as part of its next strategic planning session, with a goal to develop the shortest possible list. The good news is that it will represent much less data collection.

The 2004 Evaluation Team noted the "growing usefulness" of the Fisheries Information System (FIS) which was emerging as the Fisheries Program's primary tool in managing and reporting accomplishments. The 2004 Team observed: "It is clear that FIS is currently not a decision-support tool, but the Team hopes it will evolve to become such. Part of this evolution should include stricter quality control of data input into FIS. This arises from the Team's experience with the inconsistent quality of data output from the system."[5] Unfortunately, the 2009 Evaluation Team could summarize its findings using the same language as that utilized by the 2004 Team.

FISHERIES INFORMATION SYSTEM (FIS) CAPABILITIES. FIS is the primary tool used by the Fisheries Program for accountability, reporting requirements, planning, budget justifications, station management, internal communication, outreach and program evaluations. FIS is a relational database comprised of several modules: Station Profile, Populations, Plans, Accomplishments, Reports, and Fisheries Operational Needs System (FONS). FIS was first developed in 1998, is web-based and considered "state-of-the-art." The Fisheries Program uses FIS to track priority needs, outcomes, performance, and cost drivers (e.g., populations, fish barriers). In 2006, FIS was integrated into the Service's Environmental Conservation Online System (ECOS) to provide a central

[5]Programmatic Evaluation of the U.S. Fish and Wildlife Service Fisheries Program, FY 2004, Sport Fish and Boating Partnership Council (June 2006), p 5–6.

data access point, to increase reporting efficiency by sharing data with other FWS databases and to expand the use of spatial analysis tools. In 2009, a new on-line version of the Fish Distribution Module of FIS was launched to track the distribution of fish and other organisms produced at National Fish Hatcheries to locations in the wild and to other facilities. The new database uses Google mapping tools to delineate and track fish distribution. FIS is working toward additional enhancements to further link information between ECOS databases (e.g., Fish Passage Decision Support System), expanding consistency and communication between programs, and enhancing potential management applications.

The FONS module identifies Fisheries Program unfunded needs providing a centralized mechanism to collect and prioritize projects for budget initiatives, funding increases, and flexible funding. FONS is a database of projects that provides a tracking mechanism and allows the Fisheries Program to document the total unfunded needs of the Program (with the exception of construction and maintenance needs). The purpose of FONS is to capture needs beyond what the current Fisheries Program operational base funding will cover, as well as for NFPP and NFHAP funding needs (base funds and Congressional add-ons). FONS projects may be entered at any time during the year and are ranked by Field Stations and Regional Offices for a given fiscal year. Highly ranked FONS projects may be selected as part of a Fisheries Program budget increase request and may be included in the annual President's Budget Request. Only projects entered into the FONS module are eligible for new funding through inclusion in the President's Budget Request as part of an increase request. Other programs such as the NFPP and the NFHAP require projects to be included in the FONS Module.

FIS suffers from a number of disconnects and defects that unfortunately are more common than rare in databases. While the Evaluation Team does not intend to be critical of the overall FIS system or its managers, a number of observations indicate the strong need to ensure FIS works for the Fisheries Program rather than the other way around:

1. FIS attempts to capture ***all*** information that ***might*** be useful. At the field level, the data demands of FIS are just one of many data calls that come down from the regional and Washington offices demanding more and more administrative time and effort.
2. FIS was largely incapable of producing consistent data on the majority of performance measures requested by the Evaluation Team for a variety of reasons. Nor was it capable of producing a national summary of "species of management concern" (Species Conservation chapter, page 38), which the FY 2004 Evaluation Team recommended.
3. Data output is only as good as the data input and the definitional parameters placed on the data. Input from regional offices and field stations is highly variable in quantity and quality. Once in FIS, bad data contaminate the entire database. Moreover, the sheer volume of data lends a sense of "quality" (that this much data must be accurate), that in actuality is not the case.

Findings and Observations

The Fisheries Program addresses a large and cumbersome set of authorities. It works on an ongoing basis with the Administration, Congress, stakeholders, and partners to ensure its activities best meet a set of overlapping, complementary and sometimes competing authorities and responsibilities.

The Fisheries Program staff meets with states, tribes and partners to coordinate ongoing activities and to discuss future needs and priorities. The methodology of conducting this interaction, however, varies greatly by region. Program-wide there is no consistent, formal process in place for consulting with stakeholders and partners. This ad hoc approach makes it difficult to determine who is ***not*** at the table and what expectations from stakeholders and partners have ***not*** been met. The Evaluation Team believes the Fisheries Program should be in the position to consistently demonstrate, across all nine regions, that it understands who its stakeholders/ partners are, what responsibilities the Program has to each, what was accomplished for each and what was not accomplished for each. This should be established as a "four corners" test that each region is capable of demonstrating.[6] The specific manner of interactions and process should be left to the determination of the regional offices and field stations to provide a degree of flexibility and adaptability.

An effective way to communicate accountability is for the Fisheries Program to produce an accomplishments report tracked back to its strategic plan and its obligations to stakeholders and partners. This is not a question of portraying only good news of successful partnerships, but rather performance against expectations, which include honest statements about the impact of limited funding, vacant FTEs and expanding mandates.

Performance measures identified in Fisheries Program 2004 – 2008 Strategic Plan mark a starting point rather than an end point. The Fisheries Program notes that the measures must be modified as the Program becomes more sophisticated in measuring performance. Most of the measures are output-oriented in that they measure what the Fisheries Program actually does (e.g., produce 50,000 fish in a hatchery) rather than the conservation impact of the actions (e.g., increase wild self-sustaining population of Apache trout by 15%). Several outcome-oriented measures have also been developed (e.g., percentage of self-sustaining populations). The Fisheries Program has turned the corner and with the performance measures identified in its Draft 2009 – 2013 Strategic Plan, although still largely output-oriented, is moving toward a more outcome-oriented performance focus. As the Fisheries Program continues to revise its vision and strategic plans, it needs to develop more meaningful outcome-orientated goals that measure the change in the desired outcome (e.g., three species recovered to the point where they can be removed from the ESA list). The Program should also rise to the challenge to develop a small, sharp set of performance measures. Once this is accomplished, the Program's Fisheries Information System database must be dramatically overhauled to reduce overall data input demands and increase its ability to provide consistent performance reporting, including the ability to produce historical data reports.

[6] The "4 corners" presumption in law details what falls inside an agreement and what a reasonable person would conclude the parties had in mind in drafting the agreement.

Finally, the Fisheries Program has invested a great deal of time and credibility into its strategic planning process. The Program completed its National Fisheries Program Strategic Plan for FY 2004–2008. The plan was built on an extensive foundation established by working with stakeholders and partners. As of October 15, 2009, the Program had completed a draft strategic plan for FY 2009–2013 utilizing the same framework and outreach efforts as undertaken for the Program's first strategic plan. A National Stakeholder's Meeting held on November 2, 2009, however, provided a number of insights that the Evaluation Team believes are vital for the Program to heed:

1. Attendance at the National Partners Meeting was disappointing at best, indicating a need to conduct more effective outreach. It is not sufficient merely to attempt to involve partners in the process.
2. Partners at the meeting recommended that the Fisheries Program suspend finalizing its 2009–2013 strategic plan until completion of the 2009 evaluation and re-energize stakeholder and partner involvement.
3. The draft Strategic Plan covers FY 2009–2013, yet the Fisheries Program is already in FY 2010 with budgets in some level of decision-making for 2011–2013. The value of a strategic plan that lies outside the budget process is limited; it can only direct activities where adequate resources already exist.

The Evaluation Team recommends that the existing draft 2009–2013 Strategic Plan be utilized as an interim plan in the near term, and that the Fisheries Program embark on a revitalized visioning process with its stakeholders and partners to fashion a Strategic Plan for 2014–2020. The Strategic Plan must be tied to budget needs and an attendant operational plan should guide implementation.

The Fisheries Program routinely acknowledges that it cannot conduct its fisheries conservation mission without its stakeholders and partners, and the Program cannot assume stakeholder and partner support without accountability.

Recommendations to Increase Effectiveness

1. At the national, regional and field level, continue to identify and engage stakeholders and partners in the process of developing a 2014–2020 Strategic Plan (or the nearest term that can direct budget processes). Establish a core set of resource-driven performance measures that the Program will report against.
2. At the regional level, develop a consistent, formal process to demonstrate who stakeholders and partners are, what their expectations are, and what the Fisheries Program has/has not accomplished on their behalf within each fiscal year. Regions should be consistent in reporting, but retain flexibility in how partners are approached.

2. HABITAT CONSERVATION AND MANAGEMENT

Context

Habitat loss is the primary cause for the reduction in biodiversity across the United States and the number one challenge facing fish and wildlife managers. Habitats are lost when they are destroyed, altered and/or degraded to the extent that the habitats no longer provide life support services to the fish, wildlife and plants that depend on them. Habitat loss in the United States began as early settlers cleared the land, drained and filled wetlands, and cleared streamside forests. Today agriculture, housing developments, roads and other human activities continue to alter aquatic habitats on a daily basis.

In the past 300 years, one-half of the original wetlands in the United States have been drained and filled. More than 75,000 high dams and thousands of low dams block 600,000 miles of rivers (17% of all river miles) in the United States.[7] Dams stop the migration of fish and isolate populations of mussels, crayfish, snails and other aquatic animals. They also alter water flow and temperature regimes, change rivers into reservoirs, and smother streambeds with sediment so they can no longer support native stream life.

Aquatic habitat is not only critical to the survival of aquatic species; it provides significant benefits to human society as well. There are numerous benefits from healthy aquatic habitats. Some are obvious and easy to quantify (e.g., increased commercial fish landing) while others are more subtle though equally important (e.g., flood crest moderation). Table 5 lists a few of the many recognized benefits.

Table 5 | **Benefits of Healthy Aquatic Ecosystems**

Improved water quality
Mitigation of droughts and floods
Increased groundwater replenishment
Improved wildlife habitat
Improved recreation (fishing, wildlife viewing, human reconnection with the natural environment)
Increased cycling and movement of nutrients
Maintenance of biodiversity
Moderation of weather extremes and their impacts
Increased economic values (tourism and recreation, real estate, water availability)

The Fisheries Program is involved in aquatic habitat issues across the United States. Since the Fisheries Program does not manage a land base outside of its National Fish Hatcheries, the Program must work cooperatively on lands owned by the states, Tribal Nations and private interests, as well as the National Wildlife Refuge System and other federal agencies. In an ongoing series of partnerships, the Fisheries Program works to stabilize, mitigate, and enhance degraded aquatic habitats through such programs as National Fish Habitat Action Plan, Partners for Fish and Wildlife and the National Fish Passage program.

[7] Why is Aquatic Biodiversity Declining, Louis Helfrich et al, Department of Fisheries & Wildlife Sciences, Virginia Tech, 2009.

Two principal activities undertaken by the Fisheries Program in support of habitat conservation and management are the identification and assessment of habitat needs for fish and other aquatic species and the protection and restoration of their habitats. Fisheries personnel perform an important and wide-ranging support role as providers of technical assistance and funding through the NFHAP and NFPP. They assist the Department of Defense (DOD) with the management and restoration of fish and wildlife populations and their habitats on DOD lands and they help develop prescriptions to regulate instream flows or fish passage criteria in the hydropower re-licensing process with the Federal Energy Regulatory Commission (FERC). Within the FWS, Fisheries staff assist national wildlife refuges to develop the aquatic component in their Comprehensive Conservation Plans (CCP's) and work with endangered species programs to designate critical habitat for listed aquatic species.

Basis for Evaluation

In evaluating the role and impact of the Fisheries Program on habitat conservation and management, the evaluation examines how the Program provided leadership, funding and staffing to habitat projects, and how effectively the Fisheries Program targeted its limited resources to the highest priority project. Indicators, baselines and benchmarks addressing the Fisheries Program's habitat performance are presented in Table 6.

Table 6 | **Habitat: Indicators, Baselines, and Benchmarks for Habitat**

Indicator	Measure	Baseline (FY 2004)	Performance (FY 2009)	Target (FY 2013
2.1. FP provides leadership, funding, and staffing to improve aquatic habitats that are shared priorities with stakeholders and partners.	NFHAP funding/FHP	$163,000 (FY06)	$477,000	$1,000,000
	# of barriers removed or bypassed	131	161	Develop target & denominator utilizing FPDSS
	Miles/acres accessed	1,644/6,717	1,235/25,277	Develop target & denominator utilizing FPDSS
	FWCO consultation metric	NA	NA	TBD
2.2. Assessment tools are in place to determine effectiveness of conservation actions.	Condition analysis tool for NFHAP	Proposed	To be completed in FY 2010	TBD
	Fish Passage Decision Support System	In development	In development	TBD

NA = Not Available; TBD = To be Determined

Results

To assess the Fisheries Program's impact on habitat conservation and management, the Evaluation Team focused on three programs that it believes captures the majority of the Program's efforts: 1) National Fish Habitat Action Plan, 2) National Fish Passage Program and 3) Fish and Wildlife Conservation Offices.

National Fish Habitat Action Plan

The National Fish Habitat Action Plan (NFHAP) is an ambitious effort to address the loss and degradation of aquatic habitats. Looking to develop a partnership effort for fish on the scale of what was done for waterfowl in the 1980s through the North American Waterfowl Management Plan, an ad hoc group of conservation interests, supported by the SFBPC, began developing the NFHAP in 2001.

NFHAP's mission is to protect, restore and enhance the nation's fish and aquatic communities through partnerships that foster fish habitat conservation and improve the quality of life for the American people. This ambitious mission will be achieved by supporting existing fish habitat partnerships and fostering new efforts, mobilizing and focusing national and local support for achieving fish habitat conservation goals, setting national and regional fish habitat conservation goals, measuring and communicating the status and needs of fish habitats, and providing national leadership and coordination to conserve fish habitats. The plan established six objectives that are outlined in Table 7 along with a status statement.

Table 7 | **National Fish Habitat Action Plan Objectives and Status**

Objective	Status (as of Fall 2009)
Conduct a condition analysis of all fish habitats within the United States by 2010	The National Fish Habitat Assessment is underway with oversight by the Science & Data Committee of the National Fish Habitat Board. A "Framework for Assessing the Nation's Fish Habitats" was approved by the Board in October 2008. The 2010 assessment will utilize existing data that are meaningful for assessing fish habitat and provide coverage for all or most of the U.S. A group at Michigan State University has completed the national rivers assessment and is working on lakes and reservoirs. A group within NOAA/ NMFS is conducting the coastal habitat assessment. The FWS Fisheries Program has representatives on the Science & Data Committee, and has funded much of the work at Michigan State University.
Identify priority fish habitats and establish Fish Habitat Partnerships targeting these habitats by 2010	The National Fish Habitat Board has grappled with the identification of priority fish habitats on a national scale, and instead identified priority strategies and targets in November 2007, pending completion of the 2010 assessment. Fish Habitat Partnerships consider the national priorities in identifying regional-scale priorities and fish habitat conservation projects. See material at fishhabitat.org under the "Science and data" tab, and the next objective on Fish Habitat Partnerships.

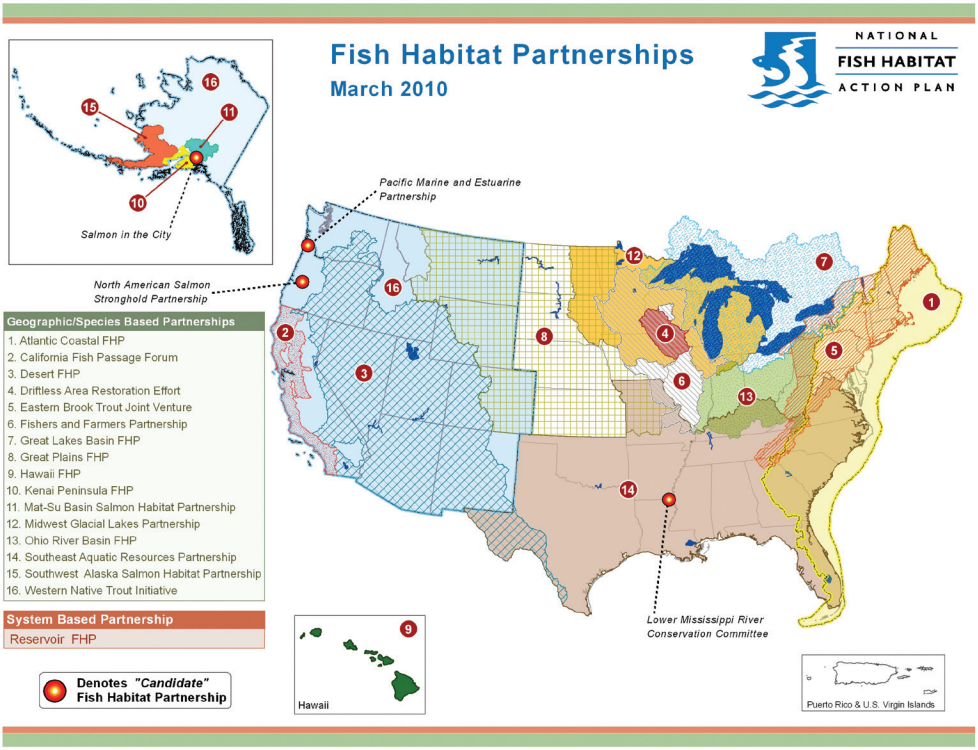
Objective	Status (as of Fall 2009)
Establish 12 or more Fish Habitat Partnerships throughout United States by 2010	The National Fish Habitat Board established guidelines for Fish Habitat Partnerships in January 2007, and a process and schedule for approving FHPs that meet the criteria in June 2007. A total of 14 FHPs have been approved by the Board and the number is likely to climb to 17 by March 2010. These FHPs cover nearly all areas of the United States. All 50 states are involved in one or more FHPs.
Prepare a "Status of Fish Habitats in the United States" report in 2010 and every five years thereafter	Planning for the 2010 report has begun, under the leadership of Dr. Doug Austen. Release of the report will follow completion of the National Fish Habitat Assessment late in 2010.
Protect all healthy and intact fish habitats by 2015	Protection of healthy and intact fish habitats is the first priority strategy of the National Fish Habitat Board. The Board approved the Southwest Alaska Salmon Habitat Partnership, the first FHP focused on protecting intact habitats. However, NFHAP projects focused on protection have been few, because project funding through the Fisheries Program cannot be used to acquire real property interests. The National Fish Habitat Conservation Act currently moving in Congress would authorize funding for protection through real property acquisition. This objective will receive more attention after 2010 objectives have been achieved, and especially if the legislation is passed, but it is clearly an extremely ambitious objective.
Improve the condition of 90 percent of priority habitats and species targeted by Fish Habitat Partnerships by 2020	Since 2006, FWS has funded 188 Action Plan projects in 36 states that address priorities of Fish Habitat Partnerships. More than $8.5 million of Service funds were matched by $19.8 million from partners. Most of the projects focus on improving riparian and instream habitats and removing barriers. Results of the projects are recorded in FWS's Fisheries Information System. There is a need to extract this information for analysis and to combine it with results of projects supported by other funding. The Board is developing a National Data System to be housed at USGS/ National Biological Information Infrastructure that will provide the tools to track progress toward this objective.

More than $14 million has been invested in NFHAP since 2006, supporting the formation of national and regional partnerships, development of a habitat condition report and on-the-ground projects. NFHAP has funded 188 Action Plan projects in 36 states that restore instream and riparian vegetation, treat acidic drainage from abandoned mines, remove barriers such as culverts and old dams, and identify pristine waters for protection. Federal funds totaling $8.5 million were directed to these on-the-ground projects that were matched by $19.8 million from partners.

As of October 2009, 14 Fish Habitat Partnerships (FHPs) have been established: 13 focusing on geographic/species-based partnerships and one system-based partnership (Table 8, Figure 2). The FHPs are established reaching across jurisdictional boundaries and land ownerships to: 1) assess the condition of species and habitats at landscape scales, 2) collectively set priorities for conservation action, and 3) share capabilities among agencies and non-governmental partners to conduct the necessary work. In addition to the 14 current FHPs, there are numerous "candidate" partnerships working to develop on-the-ground efforts and earn formal recognition by NFHAP (11 as of November 2009).

The FWS Fisheries Program plays a vital, though non-traditional, leadership role in NFHAP—it leads from the middle. The Fisheries Program provides primary coordinators for six FHPs. Each FWS Region receives funds ($125,000 in FY 2010) to support development and operation of FHPs. The Fisheries Program is involved in all FHPs at varying levels: serving on steering and support committees, conducting habitat assessments, strategic planning, and project coordination. The leadership of the Fisheries Program recognizes the critical role of FHPs to aquatic resource conservation and is in the process of discussing the configuration of FHPs on the landscape and how to meet their operational needs both short and long term. In addition, a growing number of FWCOs in several regions have re-focused their operations around FHPs.

Figure 2. Fish Habitat Partnerships, March 2010.



The Service's NFHAP coordinator serves as the FHP liaison for the National Fish Habitat Board. This role involves coaching candidate FHPs toward meeting the Board's criteria, maintaining regular contacts among FHPs and with other NFHAP sectors (e.g., Science & Data Committee, Federal Caucus), and administering the Board's processes of approval of FHPs. FWS Policy 717 FW 1, directing the appropriate use of NFHAP funds, was approved in March 2009 after extensive review by FWS, AFWA and the National Fish Habitat Board.

NFHAP is based on the premise of using best-available science to develop strategies and prioritize actions. All 14 recognized FHPs have developed strategic plans that link scientific assessments of habitat condition to conservation strategies and actions. Each FHP has a science and data sub-group that communicates with the national Science & Data Committee of the National Fish Habitat Board. FHPs use their strategic plans to identify and prioritize projects that are conducted with FWS funds and matching funds. As of December 2009, the scientific basis of NFHAP is still under development. The Fisheries Program has provided financial and/or technical assistance in all aspects of NFHAP scientific development. The *Framework for Assessing the Nation's Fish Habitats*, completed in October 2008, is the first comprehensive, process-based methodology for describing the condition of all categories of fish habitats, from mountain streams to near shore marine waters. The National Fish Habitat Assessment, due to be completed in 2010, will provide the first nationwide assessment of factors that affect all categories of fish habitat, scalable from small local watersheds to the national scale. The NFHAP National Data System, development of which was initiated in 2009, will provide the means to track habitat conditions, conservation needs and completed projects by all NFHAP partners.

Table 8 | **National Fish Habitat Action Plan Fish Habitat Partnerships (as of October 2009)**

Fish Habitat Partnerships	Recognized by NFHAP	Focus
Atlantic Coast FHP	2009	Improve fisheries habitat conservation through policy development and education and develop creative approaches to the challenges of effectively integrating habitat protection, restoration and enhancement into fisheries management programs and plans.
Desert FHP	2009	Benefit native desert fishes by bringing agencies, organizations and the public together to work towards the recovery and conservation of these imperiled species and their habitats.
Driftless Area Restoration Effort (DARE)	2007	Address habitat degradation, loss and alteration that are the primary factors contributing to the decline of fish populations in this unique region.
Eastern Brook Trout Joint Venture	2007	Direct locally-driven efforts that build partnerships to improve fish habitat, working to ensure healthy, fishable brook trout populations throughout their historic eastern United States range.

Fish Habitat Partnerships	Recognized by NFHAP	Focus
Great Lakes Basin FHP	2009	Protect, restore, enhance and sustain fish habitat in the Great Lakes Basin by providing leadership, coordination and collaboration with existing and future partners.
Great Plains FHP	2009	Work together to conserve (protect, restore, and enhance) aquatic resources of rivers and streams throughout the prairies of the central United States
Hawaii FHP	2009	Cooperatively develop and implement aquatic conservation projects in Hawaiian streams and estuaries through the support and participation of government agencies, non-governmental organizations, and the private sector.
Matanuska-Susitna Basin Salmon HP (Mat-Su)	2007	Conserve and restore a 24,500 square mile basin in southcentral Alaska with thriving populations of chinook, coho, sockeye, pink and chum salmon as well as world-class rainbow trout, char and grayling.
Midwest Glacial Lakes Partnership	2009	Protect, restore and enhance Midwestern glacial lakes fish and aquatic communities through partnerships that foster fish habitat conservation and improve the quality of life for the American people.
Ohio River Basin FHP	2009	Protect, restore, and enhance priority habitat for fish and mussels in the watersheds of the Ohio River Basin.
Reservoir FHP (system-based)	2009	Protect and improve healthy aquatic habitat in reservoir systems for the benefit of fish and wildlife and the enhancement of quality of life for people and their communities.
Southeast Aquatic Resource Partnership	2007	Address the significant threats to Southeastern U.S. aquatic resources—34% of North American fish species and 90% of native mussel species are listed or of special concern.
Southwest Alaska Salmon HP	2008	Conserve fish, wildlife and habitat and perpetuate the uses they support through voluntary habitat conservation in Southwest Alaska.
Western Native Trout Initiative	2008	Conserve Western native trout and their habitats and maintain their cultural, scientific and recreational value.

The Fisheries Program has played an important role in developing NFHAP and many of the emerging regional partnerships, such as the Eastern Brook Trout Joint Venture and the Southeast Aquatic Resource Partnership. These regional efforts bring together a wide array of partners to set priorities and take actions for habitat restoration, and set measurable goals backed by science. All 50 states are involved in one or more FHPs. In general, state fisheries agencies are enthusiastic participants in FHPs, but most are limited by available staff and travel funds. To date, the resources to support FHPs have been ad hoc and from a variety of sources. Multistate Conservation Grants, jointly administered by AFWA and FWS, have provided crucial support for five of the FHPs. In addition to the FHPs where the Fisheries Program provides the coordinators, state agencies, USGS, NGOs and a local government provide coordinators for the other FHPs.

With initial success and the growth in number and scope of FHPs, funding is becoming a critical need for sustaining the conservation goals of the plan. The level of funding to date is shown in Table 9. As an illustration of need, an analysis of FONS projects in June 2009 found 416 projects addressing FHP priorities, with first-year funding needs of $29.4 million, and 5-year unmet funding needs of $55.8 million. An initial assessment of the FHP operational needs finds a minimum level of staffing and operational funding of $150,000 to support a full-time coordinator to provide communication, outreach and record-keeping at a basic level. A moderate level of $400,000 adds specialists in biological planning, GIS analysis or outreach, and is likely to fully meet the needs of smaller FHPs. A higher level of $750,000 is needed to meet the needs of larger FHPs and address the complexity of biological planning and GIS analysis across large, diverse landscapes.

Table 9 | **NFHAP Funding & Fish Habitat Partnership, FY 2006–2010**

Metric	FY 2006	FY 2007	FY 2008	FY 2009	FY2010
Number of FHPs	5	5	5	6	15
Total NFHAP Funding	$985,000	$2,985,000	$5,153,000	$5,153,000	$7,153,000
Total Project Funding	$813,000	$1,760,000	$3,246,000	$2,746,000	$3,556,000
NFHAP funding/FHP	$197,000	$597,000	$1,031,000	$859,000	$477,000
Project Funding/FHP	$163,000	$352,000	$649,000	$458,000	$237,000

The core operational funding provided by federal sources to the FHPs is greatly leveraged by partner organizations that provide in-kind contributions and matching funds. Many FHPs are also seeking to partner with Bird Conservation Joint Ventures and other collaborative efforts to identify common interests and enhance operational efficiency. The Evaluation Team requested information on budget for short-and long term conservation needs by FHP and was informed that FHP strategic plans do not generally include budgetary needs.

The challenge for the Fisheries Program will be to continue to help partners build support for NFHAP, secure passage of the National Fish Habitat Conservation Act and acquire funding for NFHAP implementation. As Table 9 illustrates, overall funding for NFHAP has increased, but failed to keep pace with the addition of new habitat partnerships.

National Fish Passage Program

From colonial times through the 1800s, the economic activity of the United States was driven by rivers—for power, water supply, irrigation and transportation to markets. As a result thousands of culverts, dikes, water diversions, dams, and other artificial barriers were constructed to impound or redirect water. An estimated 2.5 million of these barriers still exist, many of which no longer serve their original purpose and were abandoned years ago. Collectively these barriers represent a leading cause for fish population extermination, declines and literally represent barriers to restoration of valuable fisheries such as salmon and shad.

In 1999, the Fisheries Program launched the National Fish Passage Program (NFPP), a voluntary, non-regulatory effort that provides financial and technical assistance to remove or bypass artificial barriers that impede the movement of fish and contribute to their decline. Since 1999, NFPP has worked with over 700 partners on a cost-share basis to remove or bypass 749 barriers across the country. Working with local communities and partners, NFPP has re-opened 11,249 miles of river and 80,556 acres of wetlands for fish. Completed projects range from large-scale projects such as the removal of Edwards Dam on Maine's Kennebec River and the removal of the Merrimack Village Dam in New Hampshire, to the repair or removal of culverts and irrigation diversions. A set of performance metrics for the NFPP are presented in Table 10. Examples of the diversity of NFPP projects include:

- North Triple Culvert Replacement Project, Texas Coast, increased estuarine water exchange six-fold and stabilized water flow to over 70 acres of highly productive feeding and nursery habitat important to red drum and dozens of other fishes and birds.
- Governor's Creek project, Montana, replaced two undersized culverts with a 64-foot bridge restoring the stream's natural hydrologic function, and the ability of Westslope cutthroat trout and fluvial Arctic grayling to migrate to and from the Big Hole River.
- Mill Creek passage project, Eglin Air Force Base, Florida, removed six barriers and two ponds to restore habitat for the endangered Okaloosa darter. Flowing through Elgin's golf course, the re-design included a 200-foot-long fish passage culvert underneath a fairway, replete with glass skylights to encourage fish to swim through.
- Hemlock Dam removal, Washington, opened 15 river miles and more than 20,000 acres of wetlands on the Wind River to threatened steelhead in the lower Columbia River basin. Hemlock Dam was the number-one limiting factor to steelhead recovery in the Wind River.

NFPP projects leverage federal appropriations with an average match of $3 in partner funding for each federal dollar. Funding for this program has doubled since 2004 and continues to gain momentum and support within the Service and its partners. In the coming years NFPP will play a critical program in dealing with the effects of global climate change by maintaining and restoring connectivity.

Table 10 | **Selected Fish Passage Metrics, FY 2004–2009***

Metric	FY 04	FY 05	FY 06	FY 07	FY 08	FY 09
# of fish passage barriers removed or bypassed	131	123	106	121	157	161
Miles reopened to fish passage	1,644	1,179	989	1,043	637	1,235
Acres reopened to fish passage	6,717	1,518	756	1,232	29,195	25,277
# of habitat assessment completed	937	873	3,652	2,199	1,262	1,989

* large variations in miles/acres indicative of large dam removal projects, such as Hemlock Dam in Region 1, that open up large areas of habitat to fish passage. Illustrates need for a denominator to help determine performance.

To support the barrier removal process, the Service developed the Fish Passage Decision Support System (FPDSS), an on-line, web-based, national inventory of barriers, with geo-spatial and quantitative tools that assists resource managers with identifying critical areas, prioritizing fish passage projects, and modeling the removal of barriers to make better decisions on the management of aquatic resources. It is considered the most comprehensive database of fish passage barriers in the nation and continues to evolve and receive additional functionality to address the concepts of climate change and landscape-scale conservation. The Fisheries Program co-chairs a federal Fish Passage Steering Committee where federal agencies share resources and ideas to address the issues of fish passage and connectivity across the United States.

In FY 2009, $11 million was appropriated for NFPP. The program requires a one-to-one match in aggregate across the whole FWS region, which provides a good deal of flexibility to undertake most important projects. While FPDSS and other tools have improved the ability to prioritize projects on a landscape basis relative to their natural resource protection potential, the ability of partners to pull together projects with a ready source of matching funds remains a primary attribute of NFPP projects.

Fish and Wildlife Conservation Offices

Much of the Fisheries Program's on-the-ground competence is found in the network of 65 Fish and Wildlife Conservation Offices (FWCO) in 32 states, where over 300 biologists work with states, tribes and partners to *restore and maintain fish and other aquatic resources. FWCOs are the main "storefronts" for technical assistance to wide range of stakeholders and partners.* The important role of fulfilling federal trust responsibilities to Tribal Nations is largely conducted by the FWCOs working to conserve and manage fish and wildlife resources on tribal lands (see Cooperation with Tribes, page 46). FWCOs provide technical and biological information to partners regarding the condition of habitat and populations of fish and other species (including many terrestrial species). They work cooperatively to restore aquatic habitats and re-open fish passage, including activities under NFHAP and NFPP. Using both non-regulatory and partner-based

approaches, NFHAP is administered by FWCOs to meet Fisheries Program and FWS habitat goals, and the FWCO leaders serve as key administrative and technical partners for the NFPP.

In 1871, the U.S. Fisheries Commission, a progenitor of today's FWS, was given the assignment "to *ascertain whether any and what diminution in the number of food fishes of the coast and inland lakes has occurred.*"[8] That need, which continues today, is largely the function of the FWCOs who work with partners to: 1) restore and maintain fish and other aquatic organisms at self-sustaining levels; 2) evaluate, combat and mitigate the harmful effects of non-native and invasive species; and 3) implement watershed-level aquatic habitat conservation across the American landscape to counteract habitat loss and stream fragmentation. FWCO personnel serve on planning review teams, technical committees, species management boards, fishery policy boards and participate in unique or specialized regional management projects to help ensure the sustainability of these valuable species. Positive results stemming from these collaborative efforts include the recovery of the Gila trout and Atlantic coast striped bass stocks. FWCOs assist in managing aquatic resources within the Great Lakes Basin helping to restore lake trout and lake sturgeon populations while also working to control aquatic invasive species such as Asian carp and sea lamprey. The Connecticut River Coordinator's Office, the Columbia River Fisheries Program Office and the Lower Mississippi River Fisheries Coordination Office, to name three examples, concentrate on effectively managing interjurisdictional fisheries.

The role of FWCOs is unique to the Service and not found in other public agencies. Unlike the National Marine Fisheries Service, Forest Service, Park Service or Bureau of Land Management, FWCOs have the mandate to work across habitat types and land ownerships.

The amount of activity is impressive. In FY 2008, for example, FWCOs conducted 1,249 habitat assessments of 231,400 wetland acres, 515,392 upland acres, and 9,392 in-stream miles; removed 94 barriers, reopened 28,751 acres and 641 stream miles to fish passage; and restored 64.7 in-stream miles and 65.6 riparian miles. The diffuse nature of FWCOs, however, makes it challenging to quantify the program's overall impact on aquatic resources.

Because their work is wholly collaborative, it is difficult for FWCOs to claim "credit" for much of their success as it lies internal to the success of state, tribal and private conservation efforts. The program's "utility player" nature makes it difficult to garner organized constituent support for the program and FWCOs are further hampered by the lack of a standard (or enforced) naming convention for field stations.[9] The net impact of this confused identity is that partners are generally unaware of FWCOs' important

[8] "Spencer Fullerton Baird," Mark Madison, Eddies, Special Issue 2009, p 6.

[9] In addition to Fish and Wildlife Conservation Offices (FWCOs), examples of station names include: Fisheries Resource Office (FRO), Fishery Coordination Office (FCO), National Wildlife and Fish Conservation Office (NWFCO), and Fish and Wildlife Resource Complex (FWRC).

activities and that they are part of the Fisheries Program. This in turn translates into a lack of funding support.

Adding to FWCO's "identify crisis," the Service's restructured budget for the Fisheries Program fails to target a distinct subactivity to fund FWCOs. As presently organized, FWCO activities are funded under the Fisheries and Aquatic Resource Conservation section in the FWS budget with four sub-activities: 1) Habitat Assessment and Restoration, 2) Population Assessment and Cooperative Management, 3) Aquatic Invasive Species and 4) Marine Mammals. Since FY 2004, FWCOs have received funding increases. Unfortunately, a significant portion of this available funding has come in the form of earmarks and pass-throughs resulting in a net decline of funding available for general program operations. This funding challenge is exacerbated by the fact that direct and indirect costs are paid from base funds not earmarks, consistent with Congressional guidance, which further reduces available funding.

Two examples illustrate the challenge facing FWCOs. First, budgets for the NFPP and NFHAP have enjoyed increases critical for the overall conduct of these programs, but only 30% of those increases are available for salaries, benefits and operating costs of FWCOs. Second, salary and benefit costs for FWCOs increased from $24.1 million in FY2004 to $26.9 million in FY2008. As funding has not kept pace, the program has been forced to leave available FTE positions unfilled. The number of FWCO FTEs has decreased 14% from 352 in FY 2004 to 302 FTEs in FY2008. This comes at the precise time that NFHAP, NFPP and other FWCO responsibilities are increasing (see Workforce Management, page 98, for further discussion). The continuing erosion of base funding and subsequent loss of FTEs hinders the FWCO's ability to accomplish core functions such as conducting and analyzing population assessments (activities that are typically field staff-intensive). Fishery management plan development and implementation is a key way that the FWCOs provide conservation leadership and value to partners. Sound data from population assessments form the underpinnings of these plans.

In response, FWCOs are actively pursuing reimbursables to avoid closing field stations. This is helpful in the short-term but damaging long-term, as is discussed in greater detail in the Workforce Management chapter of this report. FWCO responsibilities to the tribes are part of a mandatory trust responsibility and successful partnerships for NFHAP, NFPP and other important programs requires FWCOs that have adequate capacity. Otherwise, discretionary activities such as stock assessments will not be conducted and partners will question what is to be gained by cooperating with FWS.

Findings and Observations

In response to feedback from Congress, stakeholders and partners, the Fisheries Program became more habitat-based over the past decade. The establishment of the NFPP and NFHAP are two strong indicators of the Program's commitment to habitat work. The Fisheries Program houses the competence to assess aquatic habitats, prioritize needs, apply sound science, and utilize innovative applications. The Program does not directly manage aquatic habitat but rather must cooperate with a wide range of federal, state, and private land owners who do control land use. This requires the Fisheries Program to work in a non-regulatory manner that respects the applicable culture, rights and authorities of its different partners. Funding levels for NFHAP, NFPP and FWCOs are presented in Table 11 for FY 2005-2010.

The evidence provided demonstrates that the Fisheries Program provides leadership in fish habitat improvement through its work with the NFHAP and the NFPP. In addition, its FWCOs are a leading source of technical outreach and liaison efforts in concert with states, tribes and private landowners.

Table 11 **Funding Levels for Selected Habitat Programs, FY 2005–2010 (thousands $)**

Program	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY2010
National Fish Habitat Action Plan	$158	$985	$2,985	$5,153	$5,153	$7,153
National Fish Passage Program	$3,639	$3,646	$5,000	$10,828	$10,828	$10,828
Fish and Wildlife Conservation Offices	$16,277	$16,498	$15,906	$16,583	$18,274	$19,061

FWCO funding consists of General Program Activity budgets for: FY05-Anadromous Fish Mgt. and Fish & Wildlife Assistance; FY06-10: FWCO Maintenance & Equipment, Habitat Assessment & Monitoring, and Population Assessment & Cooperation Management.

The FY 2004 Evaluation found the Program's habitat activities to be opportunistic rather than strategic. In FY 2009, the Program demonstrates a strong strategic focus on cooperative programs that involve cost-share and partnerships. NFHAP and NFPP are both designed to be guided by science-based tools that will help prioritize projects and direct resources to where they will have the most impact. The actual utility of these tools currently under development remains to be seen and there is an overall need for the Fisheries Program to demonstrate how the projects they conduct fit into the overall habitat priorities on a landscape and national level—this need for a common "denominator" is a common theme in the evaluation.

In FY 2004, FIS and FONS were new databases with great potential. That potential remains largely unproven as the data contained in this report attest. Amassed data has yet to translate into performance measures and accountability.

It is imperative that the amount of available funding available to NFHAP and each Fish Habitat Partnership (FHP) grows as the program expands. NFHAP's ambitious goals and auspicious beginnings will fall short if a growing number of FHPs are forced to share a static or chronically diminished funding pie.

To minimize impact to riparian and aquatic habitat, stream restoration techniques can include use of draft horses to place rock structures. (Photo: USFWS)

FWCOs are one of the most important delivery mechanisms for the Fisheries Program's conservation mission. They work cooperatively with states, tribes and private landowners and are the primary staffing on the ground for NFFP, NFHAP, and aquatic monitoring. Unfortunately a number of factors conspire to undermine the FWCOs conservation capacity. There is the need for FWS to address the "stove-piping" and confused identities that exist between FWCOs, Partners for Fish and Wildlife, and other FWS technical assistance programs. While each program has accomplished a good deal for fish and wildlife conservation, their overall impact is diluted as available funding is meted out across program boundaries. While there is ample evidence that the different programs coordinate their efforts well, there is an inherent loss in efficiency as these various programs are scaled down and a wholesale loss of identity to the general public. Tribes, states, and private landowners do not identify with the agency or even the program, they identify with an local individual they have come to know, depend on, and trust.

Recommendations to Increase Effectiveness

1. Maintain funding available per Fish Habitat Partnership for project funding and administrative support at levels adequate to achieve success.
2. FWS to evaluate FWCO, partners and other technical outreach programs in light of state/tribal/landowner needs, workforce management, budget forecasts, and organizational efficiency. Based on outcome, ensure proper funding and administrative support for FWCO mission.

3. SPECIES CONSERVATION AND MANAGEMENT

Context

North America is blessed with a rich and diverse aquatic fauna including a large number of endemic species found nowhere else in the world. Aquatic habitats support a bewildering array of fish, from darters and dace to suckers and sunfishes—along with freshwater crayfish, mussels and snails that together with dozens of other species make up the aquatic biological diversity of the United States and North America. Many of these species, such as the trout, salmon, bass, and perch, support commercial or recreational fisheries of high economic value, and many of these species are solely endemic to North America.

Since 1900, more than 120 aquatic freshwater species have become extinct in North America. More than one-third of the 822 native freshwater fish species in the United States face the risk of extinction. Thirty four percent of fish, 65% of crayfish, and 75% of freshwater mussels in the U.S. are classified as rare or extinct, in comparison to 11–15% of terrestrial vertebrates.[10] The 2008 American Fisheries Society's imperiled freshwater species list includes 700 species, subspecies and populations — 230 listed as vulnerable, 190 threatened, and 280 endangered. Some 61 species are presumed extinct. The 700 taxa on the 2008 list represents a 92% increase over the number listed in 1989, in large part as a result of improvements in assessment and taxonomy. Of the species found on the 1989 list, only eight have been removed from the 2008 list due to improved status while 89% are in the same or worse condition. The declines are generally attributed to five broad categories of activities: (1) competition with humans for water; (2) pollution or alteration of habitat; (3) introduction of non-native species; (4) over-exploitation for commercial or recreational use; and most recently (5) changes in climate.[11]

Successful conservation and management of aquatic species provides numerous benefits including: 1) the restoration and recovery of listed and unlisted species; 2) self-sustaining populations that provide for increased commercial and recreational opportunities; 3) benefits to Tribal Nations; and 4) more flexible land, water and species management.

Basis for Evaluation

Indicators, baselines and benchmarks addressing the Fisheries Program's Species Conservation activities are presented in Table 12. For native species, the Evaluation Team asked the question, "What impact does the Fisheries Program's actions have on the conservation status of native aquatic species for which it has a direct responsibility?" The Team wanted evidence that the Program was appropriately involved in areas where: 1) it has expertise, 2) it is successfully carrying out the tasks assigned in management plans, and 3) mechanisms are in place to monitor and evaluate results.

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[10] 1997 Species Report Card: The State of U.S. Plants and Animals. Bruce Stein & Stephanie Flack, the Nature Conservancy, 1997. The Imperiled Status of North American Aquatic Animals, Larry Master, Biodiversity Network News 3:1-2, 7-8 (1990).

[11] Conservation Status of Imperiled North American Freshwater and Diadromous Fishes, Howard L. Jelks et al, fisheries 33(8): 372–407.

Table 12 | **Species: Indicators, Baselines and Benchmarks**

Indicator	Information Request	Baseline (FY 2004)	Performance (FY 2009)	Target (FY 2013
3.1. FP is effectively managing fish and other aquatic species for which it has a lead responsibility.	% Species of Management Concern demonstrating improved management status as compared with previous years.	NP	NP	Demonstration of continued improvement in restoring species to self-sustaining levels.
	% Species of Management Concern managed to self-sustaining levels	14%	15%	Demonstration of continued improvement in restoring species to self-sustaining levels.
3.2. FP provides assistance and coordination for AIS activities directed by regional step-down plans.	Evidence of on-the-ground success against AIS and adequate resources applied to the issues	NP	NP	FP and AIS partners to develop quantifiable measures of performance that go beyond coordination activities and planning.

NP= Information requested by Evaluation Team but not provided by Fisheries Program during course of this evaluation.

Results

The Fisheries Program's strategic plan organizes its species conservation and management responsibilities into three broad categories: 1) Native Species, 2) Interjurisdictional Fisheries and 3) Aquatic Invasive Species.

Native Species

The Fisheries Program's overall focus represents an increased emphasis on restoration and recovery of native fishes and their habitats from a decade ago. The Program's work on native species is focused on: 1) working to maintain diverse, self-sustaining fish and other aquatic resource populations; 2) restoring declining fish and other aquatic resource populations before they require listing under the Endangered Species Act (ESA); and 3) recovering fish and other aquatic resource populations listed under the ESA.

Native fish and other aquatic species that are not formally listed under the ESA are managed by the states and tribes. Therefore the Fisheries Program acts in a supporting role to these management agencies. Generally the Fisheries Program's responsibilities with non-listed species are outlined in a fishery management plan (FMP) cooperatively prepared by the responsible management agencies and partners. For species listed under the ESA, the Fisheries Program receives its designation as lead or support from the FWS/Ecological Services and does not, and cannot, act independently. Collectively, the Fisheries Program is actively engaged in recovering and restoring selected native aquatic species on a national and international level. Program personnel are involved in developing and implementing recovery plans and FMPs for imperiled native species and species of concern in partnership with a myriad of agencies.

The scope and breadth of the Fisheries Program's challenge in conserving native species is captured in the sheer number of species the Fisheries Program has some form of responsibility. Within the Program these species are considered "species of management concern" or "trust species" by virtue of a species being: 1) tribal trust species, 2) listed under the ESA, 3) reared/held in the National Fish Hatchery System, 4) interjurisdictional, and/or 4) present on FWS lands. As the Fisheries Program does not have a comprehensive list of such species, the Evaluation Team assembled a list from various sources comprising 611 species of fish, mollusks and other aquatic species. Table 14 summarizes the complete list provided as Exhibit 3.

National Fish Hatcheries (NFHs) play an increasingly important role in conserving native species by providing refugia for species that cannot survive in the wild because of insufficient quality or quantity of habitat, and they serve as a source for restocking or supplementing existing populations. Development of captive propagation or refugia programs are a central strategy to re-establish wild populations for aquatic species listed under the ESA. Seventy of the 128 species (55%) held for propagation or as a refugium population at National Fish Hatcheries are listed under the Endangered Species Act (Exhibits 3 and 4). These NFHs are actively managing these captive populations as part of ongoing recovery or restoration efforts as called for in a recovery plan or FMP. Similarly, FWS policy states that stocking may only be conducted as part of a recovery plan, FMP, or other formal agreement. Exhibit 4 provides a summary of the 71 NFHs and their primary production.

Proactive conservation efforts by the Fisheries Program and its partners are working to keep several populations from potential listing actions, including the Alligator gar, Atlantic and Lake sturgeon, paddlefish, and robust redhorse (see box, page 39). Throughout the regions, habitat improvements, removal of fish passage barriers, reintroduction of extirpated species, development of innovative rearing techniques and the identification of hosts for imperiled mollusks are routinely accomplished by Fisheries Program field stations in concert with stakeholders and partners.

Table 13 present metrics that, to the Evaluation Team's mind, gets to the core of native species management. For species of management concern or trust species (aquatic species in need of active management, restoration and/or recovery for which there is a management plan), what percent are at self-sustaining levels? This metric does not count number of consultations, meetings, actions undertaken, or other widgets—it goes to the status of the resources. While the Fisheries Program considers this measure to be one of its most important, it also acknowledges that it is "our most complicated and most analyzed measure since 2008. The regions may not know what species should be on this list and they also may not know which ones are self-sustaining from year to year. Species list in FIS has no detail/attributes boxes to check."[12] As indicated by the wide fluctuation in the total number of species of management concern, there is no standardized denominator recognized by the Fisheries Program so the number fluctuates widely.

[12] Robert Pos, personal communication, November 10, 2009.

The FY 2004 Evaluation stated the need for FWS to clearly evaluate and report on the outcomes of its efforts to improve the status of listed native species and other species of management concern. As the data in Table 13 clearly illustrate, this capability is still in development as of December, 2009. Finding no single set of reference data on what was a "native species," "species of management concern," etc., the FY 2004 Evaluation Team developed its own reference list. The 2009 Evaluation Team continued to identify a lack of a single comprehensive listing of "species of management concern" or "trust" species, and assembled the updated list included as Exhibit 3. The Fisheries Program indicates that it has launched an effort in FY 2010 to assemble a comprehensive list of their "species of management concern."[13]

Table 13 | **Selected Native Species Metrics, FY 2005-2009**

	FY 05	FY 06	FY 07	FY 08	FY 09
Total # of species of management concern (SMC)	199	174	150	164	146
# of SMC at self-sustaining levels	59	70	63	48	22
% SMC managed to self-sustaining levels[1]	30%	40%	42%	29%	15%

[1] Full metric is "percent of fish species of management concern that are managed to self-sustaining levels in cooperation with affected states and others as defined in approved management documents."

For FY 2009, the Program's FIS database documents 1,556 projects benefitting 170 different species (Exhibit 5).[14] A total of $14.3 million was expended from Fisheries Program accounts with an additional $15.0 million contributed in non-Program funding. Examples of projects include:

- Participation in Humboldt Bay and Eel River Estuary Habitat Goals Advisory Committee
- Field evaluations of alligator gar populations and planning to prevent listing of the species
- Hydrological restoration of the Mollicy Unit of Upper Ouachita NWR
- Video imaging at fish weirs to estimate Yukon River salmon returns
- Developing captive broodstock to restore Westslope cutthroat trout
- Development of a native fish management plan for the Shivwits Band of the Paiute Indian Tribe (Virgin River spinedace)
- Sonar data enhancement for green sturgeon in the Yuba and Feather Rivers.

[13] Leslie Hartsell, personal communication, March 17, 2010.

[14] As discussed on page 54, FWCOs often have lead responsibility with selected Tribes and partners which will include terrestrial species such as the black-footed ferret, mule deer, and swift fox.

To provide an example of how the Fisheries Program can bring its capabilities to bear to conserve native species, a look at the Robust Redhorse is illustrative (see box).

Robust Redhorse Conservation Efforts

The robust redhorse was discovered in the Yadkin River of North Carolina and first described by Edward Cope in 1869. Yet the fish remained a mystery, unknown to scientists, until individuals were captured in the Oconee River, Georgia in 1991. Historically, the robust redhorse occurred in large Atlantic Slope rivers from the Altamaha River drainage in Georgia to the Pee Dee River drainage in North and South Carolina. FWS and the State of Georgia worked with various researchers to develop strategies to restore the species to portions of its former range. Successful stocking in the Broad and Ogeechee rivers in Georgia and the Broad and Wateree rivers of South Carolina has re-established historical populations. Much of the FWS effort was accomplished through work by the Warm Springs Fish Technology Center and the Warm Springs National Fish Hatchery. With the restoration's success, the Warm Spring FTC and NFH have moved on to other conservation priorities, while continuing to serve on the Robust Redhorse Conservation Committee to help manage sustaining wild stocks.

Table 14 | **Summary of Aquatic Species of Interest to Fisheries Program**

Total Number of Species = 611	**Number of Native Species = 605**
Species propagated/held at NFHs = 128	IJ Species = 196
Species covered under FMPs = 82	ESA Listed = 189
Species stocked for Mitigation = 15	On FWS/Tribal Lands = 350
Tribal Trust Species = 239	Commercial & Recreational = 93

Interjurisdictional Fisheries

Interjurisdictional (IJ) fisheries are fish stocks whose effective management extends beyond a single agency.[15] For example, pacific salmon species in the Columbia River extend across numerous states, tribes, and Canada before entering international marine waters; pallid sturgeon cross state and tribal boundaries along the Missouri River during their lifecycles; and striped bass migrate across invisible jurisdictional boundaries on a daily basis as they traverse large rivers and estuaries.

The "IJ" designation indicates the need for species management across administrative boundaries. Imposing jurisdictional boundaries upon living resources that move freely across these unseen boundaries is a fundamental challenge. The sheer volume of legislation, court orders, and other mandates have led to overlapping authorities and difficulty defining federal, state, tribal, and local roles. Success is predicated on a collaborative and coordinated approach between the government entities that share management responsibilities. Solving these issues requires a focused, prioritized, and coordinated effort on the part of those entities with shared fisheries management responsibilities.

[15]For this evaluation, interjurisdictional fisheries are defined as "populations managed by two or more States, nations, or Native American Tribal governments because of geographic distribution or migratory patterns of these populations."

The Fisheries Program places an emphasis on those IJ fish activities which have the highest level of clear federal authority and responsibility (e.g., Atlantic striped bass, Great Lakes lake trout, Pacific salmon). On a daily basis, Fisheries Program staff provide technical expertise, assist in documenting findings, and formulate strategies for expected and proposed actions to recover and enhance interjurisdictional aquatic resources. However, the Program continues to operate under essentially flat budgets and has not had the resources to maintain current fisheries management operations that conserve inland and anadromous IJ fisheries, nor properly develop the capacities necessary to address IJ fisheries resource problems associated with under-managed resources such as near shore marine fisheries and coral reef fisheries.

FWS policy states that the Fisheries Program will only become involved in IJ fish issues where there is a cooperative Fishery Management Plan (FMP) that outlines the roles of all participants. There is inherent confusion, however, over the term "interjurisdiction species." A species can be considered an IJ species in one region while the same species might be not considered an IJ species in an adjoining region. Further adding to the confusion, the FIS database does not track which species are considered IJ. A total of 196 species were identified as "IJ" by one or more regions though it is not clear that FMPs are in place for each of these species (Exhibit 3).

Fisheries Program staff acknowledge the continuing challenges to building interjurisdictional fisheries management capabilities, meeting expectations by Service partners, and addressing all of the IJ fisheries needs under the Program's responsibility. The challenge of effectively managing an IJ fish, such as the paddlefish, goes well beyond the Fisheries Program and FWS. While large rivers like the Columbia and Missouri pose major challenges to effective fisheries management, managing the natural resources of the Arctic, Atlantic and Pacific oceans, Great Lakes and Gulf of Mexico are daunting. The United States has jurisdiction over 3.4 million square nautical miles of ocean territory in its exclusive economic zone—larger than the combined land area of all fifty states. At last count, more than 55 congressional committees and subcommittees oversee some 20 federal agencies and permanent commissions in implementing at least 140 federal ocean-related statutes.[16]

Aquatic Invasive Species (AIS)

One of the greatest challenges facing aquatic resources in the United States is an increasing number of nonnative plants and animals that threaten the diversity and abundance of native aquatic species, the ecological stability of infested waters, and the commercial, agricultural, and recreational activities dependent on those waters. Aquatic habitats are especially susceptible to aquatic invasive species (AIS) due to their interconnected nature, the high commercial and recreational traffic they receive, and the stressed condition of many of our aquatic habitats and the species that depend on them. Scientists believe these nonnative introductions are second only to habitat alteration as a factor in the decline of native aquatic species in North America. New introductions and the spread of already established invasive species have the potential to add to these declines and hinder efforts to restore already depleted and listed native species.

[16] An Ocean Blueprint for the 21st Century, Final Report of the U.S. Commission on Ocean Policy, 2004.

Invasive species cause significant ecological damage by outcompeting native species, altering local food webs, and reducing the resources available for other organisms. Though the nationwide impact has yet to be properly quantified, the economic costs of invasive species are substantial.[17] Every year the State of Florida spends up to $30 million simply to control invasive aquatic species in its freshwater lakes and streams; zebra mussels caused $750 million to $1 billion in losses to natural resources and damage to infrastructure in the Great Lakes for the period 1989–2000; and an estimated $2 million has been spent to control and monitor the spread of the Mediterranean green seaweed in California—to name just three of the hundreds of AIS species.[18]

Under the provisions of the Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990 and the National Invasive Species Act of 1996 (NISA), FWS's primary role focuses on coordinating and integrating activities to prevent and control invasive aquatic species. The Fisheries Program conducts its national and regional coordination role by providing leadership and support to the Aquatic Nuisance Species Task Force (ANSTF), its regional panels, committees and working groups. The ANSTF is co-chaired by the FWS Director and the Under Secretary of Commerce for Oceans and Atmosphere. The membership is comprised of 13 federal agencies and 12 ex-officio members representing other governmental entities. ANSTF's mission is to develop and implement a program to prevent introduction and dispersal of aquatic nuisance species; to monitor, control, and study such species; and to educate and inform the general public and AIS program stakeholders about the prevention and control of these species.

Presented with an overwhelming task, the Fisheries Program targets the prevention of new AIS introductions and minimizing range expansion and population growth of established AIS. In FY 2009, activities included:

- Providing leadership, coordination support and staffing for ANSTF including managing (directly or indirectly) and providing support for six ANSTF regional panels.
- Supporting states and tribes in implementing 31 State/Interstate AIS management plans.
- Conducting surveys and monitoring for baseline trend information, early detection, and rapid response for AIS including: New Zealand mud snail, zebra and quagga mussels, Asian carp, northern snakehead, blood red shrimp, and ruffe.
- Working cooperatively with the participants of the ANSTF Western Regional Panel to develop the Quagga-Zebra Mussel Action Plan for Western U.S. Waters.

[17]David Pimentel et al estimated the economic impact of invasive species at $120 Billion (David Pimentel, Rodolfo Zuniga, Doug Morrison, Update on the environmental and economic costs associated with alien-invasive species in the United States, Ecological Economics, Volume 52, Issue 3, Integrating Ecology and Economics in Control Bioinvasions, 15 February 2005, Pages 273-288, ISSN 0921-8009, DOI: 10.1016/j.ecolecon.2004.10.002).

[18]Ken Haddad, personal communication; Final Report of the U.S. Commission on Ocean Policy, chapter 17 (2004)

- Continuing to implement Fisheries HACCP plans and promoting its use by other partners through trainings and workshops.[19]
- Facilitating prevention-related conservation projects through the numerous regional and local partnerships of the 100th Meridian Initiative.

Attempting to quantify its impact on AIS, the Fisheries Program tracks a number of metrics (examples in Table 15). Many of these measures tally activities aimed at managing and controlling populations of established invasive species—specifically the number of AIS populations controlled and managed and the number of activities supporting control and management of AIS. These efforts are important though their effectiveness is not evident from the metrics and most experts concede it is an uphill battle to control well-established invasive species. As with other performance metrics discussed in this report, there is a lack of a denominator to indicate the overall extent of the expectations compared with delivery, and these metrics fail to measure what is being accomplished for the aquatic resource.

Table 15 | **Selected Aquatic Invasive Species Metrics, FY 2005–2009**

	FY 05	FY 06	FY 07	FY 08	FY 09
# of AIS populations controlled/ managed annually	11	8	14	11	11
# of activities to support management/ control of AIS	175	42	150	1670	256
# of risk assessment conducted to evaluate potential AIS	12	6	41	57	47
# of surveys conducted for early detection & rapid response for AIS	494	35	496	541	387
# of partnerships established and maintained for AIS tasks	275	74	283	883	529

It is widely agreed that the most effective efforts are 1) the prevention of new AIS introductions, and 2) the early detection and rapid response to newly introduced species. Though it is virtually impossible to count the number of invasive species not introduced, the overall trend in new, established introductions should ideally approach zero. Current Fisheries Program priorities, therefore, focus on preventing introductions and spread, detecting and monitoring new introductions, application of "rapid response" methodology to new introductions, and research and education. FWCOs represent much of the FWS's infrastructure for delivering the AIS Program. Level-funded at less than $5.5 million annually, the Service's small investment in combating aquatic invasive species in the past had gone a long way towards seeding and supporting the cooperative public-private partnerships needed to combat invasive species. However, this level of funding is wholly inadequate to accomplish the goals of NISA, now and in the future.

[19]Hazard Analysis and Critical Control Points.

Despite increased AIS control efforts over the past 10 years, available resources have remained mostly stagnant. Available funding for implementing ANSTF-approved species control plans has historically been less than 2% of the amounts identified in the plans as necessary for reasonable chance of success. In FY 1999, $800,000 was available for five approved State/Interstate AIS plans (≈$160,000 per plan); in FY 2009, $1.075 million was available for 31 approved plans (≈$34,000 per plan). Plan funding is expected to decrease in the future as several more plans come online (there are 36 approved plans for FY 2010).

It is estimated that between 3,000 and 10,000 species are involved in commercial trade (e.g., pet and aquarium supply) and have the potential to be imported into the U.S. Perversely, while these species have the potential to cause millions of dollars of negative economic impact, existing regulations assume the organisms are benign until proven injurious. The burden of proof is not on the importers but on FWS and other agencies charged with protecting U.S. natural resources.

The process for listing potential AIS as injurious is laborious and slow. Since the mid-1990s, only five species have been listed as injurious due to lack of resources. There remain hundreds of evaluations needed to assess whether these thousands of trade species should be listed as injurious wildlife, under 18 USC 42 of the Lacey Act. The Fisheries Program has the lead responsibility for injurious wildlife listing within the FWS, while the Office of Law Enforcement and International Affairs issue permits.

Findings and Observations

The Fisheries Program's efforts on species conservation and management are increasingly focused on restoration and recovery of native fishes and their habitats. This focus recognizes the ongoing need to effectively manage species across administrative boundaries and requires the control of aquatic invasive species whose impact on selected habitats and native species is believed to be second only to habitat loss.

The Program's work on native species is focused on: 1) maintaining diverse, self-sustaining fish and other aquatic resource populations, 2) restoring declining fish and other aquatic resource populations before they require listing under the ESA and 3) recovering fish and other aquatic resource populations listed under the ESA. One indication of the Fisheries Program's growing emphasis on species conservation is the significant role that the NFHS plays in providing refugia and captive propagation expertise for a growing list of native imperiled species.

The Fisheries Program is actively engaged with stakeholders and partners on a wide range of activities directed to an astonishing array of aquatic species, as Exhibits 3 and 5 make clear. Throughout the regions, habitat improvements, removal of fish passage barriers, reintroduction of extirpated species, development of innovative rearing techniques and the identification of hosts for imperiled mollusks are routine accomplishments. In the future, the Fisheries Program needs to develop a list of "species of management concern" that becomes the denominator against which to gauge its performance. In turn, the

status of each trust species can be summarized along with the number that are at self-sustaining levels (Table 13). Stakeholders and partners can be encouraged to report along similar lines.

Increasingly limited resources require the Fisheries Program to direct its attention to a well-defined list of "species of management concern." As presented in Exhibit 3, such species are those that have one or more of the following attributes: 1) tribal trust, 2) ESA-listed (with recovery role identified for Fisheries Program), 3) resident in NFH (as result of recovery/FMP/ mitigation role), 4) IJ (as result of role identified in FMP for Fisheries Program), and/or 5) resident on FWS lands (with role identified for Fisheries Program). Absent a strong set of references clearly stating the priority species, needed actions and necessary resources, the Fisheries Program will be forced to allocate a smaller and smaller share to a growing list of indigent species. There is also the continuing concern that the Fisheries Program's stakeholders and partners will soon grow disaffected if the staffing and funding capacity of the Program is continually diminished.

In many ways, all fisheries conservation work by the Fisheries Program is "interjurisdictional" by definition since the Program must work cooperatively with states, tribes and land managers who own the habitat or manage the resource. Success is not the result of command and control but rather a collaborative and coordinated approach between the government entities that share management responsibilities. FWS policy states that the Fisheries Program will only become involved in IJ fish issues where there is a cooperative FMP that outlines a role for the Program. It is clear to the Evaluation Team, however, that the Fisheries Program needs a clearer understanding of what IJ species are within its "species of management concern." This is especially true as the Program presently lacks the resources to effectively undertake current fisheries management operations directed at inland and anadromous fisheries. When marine species and fisheries are considered, the need for tightly defined roles and responsibilities is even more important. NOAA and the regional fisheries councils and commissions play a major role in marine waters. Absent a major overhaul of legislative authority over marine and coastal waters, involvement of the Fisheries Program must be limited and targeted to prevent duplicative and ineffective actions that will spread the limited resources of the Fisheries Program even more thinly.

Aquatic invasive species is a growing issue that is much larger than the FWS and its Fisheries Program. At the current level of funding and staffing, efforts to prevent and control AIS are destined to fail. The Fisheries Program's efforts are targeted and thoughtful given resource realities, but its overall impact will continue to be inconsequential given the enormity of the challenge. In a mandatory act of triage, the Evaluation Team encourages the Fisheries Program to focus limited funding on injurious wildlife designations, develop and implement a comprehensive AIS threat assessment for the country (both economically and ecologically), and continue to support stakeholders and partners to implement the on-the-ground actions outlined in state AIS management plans.

Recommendation to Increase Effectiveness

1. Develop a definitive set of reportable data for "Species of Management Concern" including: a) management status (i.e., listed, recovery plan, covered by FMP), b) species trends (i.e., declining, stable, improving, meeting management goals), c) identification of barriers to reaching self-sustaining levels over time, and d) other data allowing objective assessment of the resource and its status.
2. Develop improved metrics for demonstrating effectiveness of AIS programs aimed at a) prevention, b) control of establishing populations, and c) budget allocations versus demonstrated need.
3. Fisheries Program and stakeholders to collaborate on undertaking a full assessment of the AIS issue and evaluate the efficiency of the existing AIS program, as well as what the Fisheries Program needs in order to be successful within the larger context of this cross-cutting issue as represented by the ANS Task Force. Fisheries Program should submit a report to DOI, Congress and other interested parties.

Fisheries Program actively cooperates with States, Tribes and other partners on conservation of native fish species, such as Bull Trout. (Photo: USFWS)

4. COOPERATION WITH NATIVE AMERICAN TRIBES

Context

Tribal Nations manage aquatic resources and habitats on 56 million acres of tribal trust lands, 44 million acres of Alaska Native lands, and particularly in the Great Lakes and Pacific Northwest regions, large areas outside of reservations where tribal hunting, fishing and gathering rights are guaranteed in various treaties with the United States and other authorities.[20] These lands include valuable fish and wildlife habitats that support flora and fauna that are integral to the physical, social, cultural, economic and spiritual well-being of tribal communities.

Consistent with the reserved rights doctrine and a plethora of federal treaties, laws and court decisions, tribes retain natural resource management responsibility on tribal lands and elsewhere where treaty or similar rights attach. This responsibility is exercised consistent with the goals and priorities set by tribes themselves for their communities as they strive to provide for the underlying lifeways that are at the heart of their society and culture. Despite many continuing challenges and unmet needs, tribal natural resource management programs are successful because they are based upon a sound foundation of culturally-appropriate principles, as well as upon sound biology and science.

For many tribes, revenues generated through recreational and commercial fishing provide important economic benefits for them and surrounding communities. One indication of this economic activity is a report that found a total of $19 generated in retail sales for every dollar spent to rear trout at Alchesay-Williams Creek National Fish Hatchery and release them on tribal lands.[21] Similarly, commercial fishing in the Pacific Northwest and in the Great Lakes provide very significant employment and income for many tribal members.

Successful tribal natural resource management programs also provide significant recreational, economic and other opportunities for the general public. They protect and conserve natural resources that are harvested by non-Native Americans, they protect and enhance habitats and ecosystems that are relied upon by others for economic benefit and development, they protect public health and safety for others and they promote cooperation and partnerships that are effective and efficient for multiple stakeholders. In many instances, tribal authority is exercised over resources or in geographic areas that are subject to the management authority of other governments-federal, state, or foreign. Thus, the coordination of this authority among the agencies and other actors involved is a necessary ingredient for the protection and restoration of fisheries resources.

The federal government's policy for many years has been to recognize tribal natural resource use and management rights, and to support tribal self-determination and

[20] *See* American Indians and Alaska Natives, Department of the Interior, Office of American Indian Trust, and, regarding reserved and/or treaty hunting, fishing and gathering rights, www.glifwc.org [Great Lakes Indian Fish and Wildlife Commission] and www.nwifc.org [Northwest Indian Fish Commission].

[21] The Economic Effects of the Recreational Use of Alchesay-Williams Creek National Fish Hatchery 2004, James Caudill, FWS Division of Economics, 2006.

self-government with respect to natural resource management programs. This policy is rooted in an overall fiduciary obligation (a trust responsibility) toward particular tribes recognized by the courts and Congress.

The government-to-government relationship extrinsic to federal treaty making and in the federal trust responsibility toward Tribal Nations imposes duties of good faith and fair dealings, and requires federal agencies to interact directly with Tribal Nations on a governmental basis, not merely as a segment of the general public. Federal agencies have a responsibility to consult with tribal governments and their designated governmental representatives before taking actions that affect tribal lands, resources, people, or treaty rights.

The Department of the Interior serves a primary trusteeship role regarding the assets and resources that the United States holds in trust for tribal governments and their members (e.g. Reservations and ceded territory fishing and hunting rights) and other legal obligations that attach to the United States by virtue of the special relationship between the federal government and Native American governments. The identification and quantification of trust assets is recognized as an ongoing and evolving process.[22] The relationship between the tribes and FWS is defined by a specific set of legal and management requirements. In the conterminous United States, the FWS's relationship with tribes is directed by reserved rights doctrines, Executive Orders, judicial mandates and specific treaties between the federal government and individual tribes. In Alaska, FWS is directed by the Alaska National Interest Lands Conservation Act.

As of 2008, 562 tribal entities were recognized by the federal government.[23] Of these, FWS provides a wide range of assistance to more than 200 tribes across the United States in support of Native American management of tribal lands and treaty/traditional use areas (Exhibit 6). Each tribe and set of treaty obligations represents a unique set of fisheries-related responsibilities and interests. The Fisheries Program often fulfills both treaty obligations and trust responsibilities. In conducting its responsibilities, the Fisheries Program walks a delicate line that must recognize and accommodate tribal rights and respect tribal self-governance and self-determination without abdicating federal management and stewardship responsibilities or subordinating its responsibilities to other authorities. In addition, there is the ongoing challenge of distinguishing the appropriate Fisheries Program role given the Bureau of Indian Affairs and other federal programs, as well as finding funds that are dedicated to meeting its responsibilities to tribes given that most Fisheries Program-related directives generally do not provide dedicated tribal funding.

One example of how the Fisheries Program's work with tribal governments has evolved dates back to 1941 with assistance to the Wind River Reservation in Wyoming. Initially, Fish and Wildlife Management Assistance staff conducted surveys to assess what fish and wildlife resources occurred on tribal lands because little information was available

[22] Definition of the Federal Government's Trust Responsibility to Tribes included in the Indian Self Determination Act and the FWS Native American Policy (Exhibit 4).

[23] Federal Register 73 (April 4, 2008):18553-18557.

to form foundations for conservation planning and actions. That effort evolved into working with tribes to establish game codes for regulating hunting and fishing and for protecting habitat (e.g. timber harvest, grazing, mineral extraction, water diversion, and recreation guidelines). The Fisheries Program now points to dozens of other instances where tribes, with Fisheries Program assistance, have developed and expanded their fisheries management programs.

Another seminal example of how the FWS and the Fisheries Program fulfilled its tribal responsibilities comes from the Great Lakes region. In the late 1980s, tribal members exercising treaty fishing rights in northern Wisconsin became the targets of heated protesters. Tribal members were subjected to racial epithets, rock-throwing, harassment, and assaults. Pipe bombs were found at boat landings and shots were fired at boats out in the water. Protesters cited their concern for sustainable fisheries as their primary motivation so a joint assessment was undertaken by federal, state and tribal agencies to assure the general public that tribal treaty rights were not harming the fishery.[24] FWS and the Fisheries Program served an important role in helping to provide objective, credible information to answer questions about the fishery. As important, they stood by the tribes and their treaty rights in the infancy of a state-tribal fishery management relationship and thereby helped to establish tribes as legitimate natural resource managers vis-à-vis other agencies. The final report of this effort put to rest any claims that the well-managed and well-regulated tribal treaty fishing caused harm.[25]

Basis for Evaluation

An evaluation of the Fisheries Program's progress in fulfilling its responsibilities toward Tribal Nations measures accomplishment against the benchmarks of meeting treaty obligations, fulfilling trust responsibilities, and supporting tribal self-determination and self-governance. Thus, relevant questions include how the Fisheries Program:

1. carries out its responsibilities in a manner that fulfills treaty obligations and the trust responsibility;
2. engages tribes on a government-to-government basis and documents how its decisions and actions have considered tribal input;
3. supports and seeks to enhance tribal natural resource management programs; and
4. supports effective, efficient cooperation and partnerships in areas of jurisdictional overlap?

The Fisheries Program undertakes a broad range of activities in supporting tribal interests. The set of indicators, baselines and benchmarks addressing the Program's tribal cooperation activities are presented in Table 16. In assessing the FWS's capabilities and performance, the Evaluation Team framed the first indicator to demonstrate that the

[24] The fisheries sustainability claim was flatly rejected by the federal courts which found racial animus as the underlying motive.

[25] *Casting Light Upon the Waters, A Joint Fishery Assessment of the Wisconsin Ceded Territory*, March 1991, confirmed that Chippewa spearing had not harmed the resource and that fish populations in the ceded territory were healthy

Fisheries Program routinely incorporates tribal interests into their fisheries management activities. The second indicator seeks to address the question of how the Fisheries Program prioritizes and supports conservation actions, fish production, technical assistance, and increased capacity for tribes. The remaining two indicators examine how the Fisheries Program seeks to incorporate an understanding of tribal communities and their fisheries resource needs in implementing programs.

Table 16 | **Tribal Cooperation: Indicators, Baselines, and Benchmarks**

Indicator	Measure	Baseline (FY 2004)	Performance (FY 2009)	Target (FY 2013)
4.1. Improved satisfaction of tribes concerning FP interactions with tribes.	Demonstrate that tribes are "at the table" and their interests part of management decisions. Demonstrate support for intergovernmental partnerships and arrangements in areas of jurisdictional overlap or other shared interests.	No evidence of such an assessment.	No evidence of such an assessment across all regions.	Formal process established to identify all tribal stakeholders & commitments.
4.2. Agreement between individual tribes and FP on fisheries resource needs and priorities, and execution of same.	% of planned tasks implemented for tribal fish and wildlife conservation as prescribed by tribal plans or agreements-Fisheries.	74%	77% (2008)	90+% requests fulfilled on mutually-agreed upon activities.
4.3. FP assists tribes in identifying and securing federal and non-federal funding support.	# of grants and $ received by tribes as result of FP activities.	28 grants/$6 M (Tribal Wildlife Grants).	41 grants/$7 M (Tribal Wildlife Grants).	Increased percentage of grant success. Documentation of continued success.
4.4. FP supports building of tribal capacity through training.	% of tribal participants received requested training.	NP	NP	Develop ability to track and report.
4.5. FWS/FP leadership is trained in history, culture and responsibilities of tribes.	#/% of all FWS/FP leadership trained in history, culture and responsibilities of tribes.	45 (0-11% by region)	Unable to Assess	100% of leadership, liaisons, & positions tasked with tribal interactions trained.

NP= Information requested by Evaluation Team but not provided by Fisheries Program during course of this evaluation.

Results

As outlined in the FWS Native American Policy, the federal government has a special relationship with and responsibility to Native American governments. The Fisheries Program operates on a different footing with respect to tribes than it does with other stakeholders. While it is tempting to view the more than 200 tribes that the Fisheries Program works with as a single homogenous entity, the reality is that they represent 200+ sovereign entities. As such, they represent the largest single set of stakeholders for the Fisheries Program.

The Program undertakes a broad range of activities in supporting tribal interests, including:

- Ensuring that tribes are "at the table" as full governmental partners when decisions are made that affect tribal rights or interests; and otherwise ensuring that tribal rights and interests are taken into consideration in relevant fisheries management decisions.
- Tribal consultation processes on the full range of Fisheries Program activities, including priority setting and program implementation.
- Funding, training and other assistance to tribal natural resource management programs, as well as training or other opportunities for individual tribal members.
- Support for intergovernmental partnerships and arrangements in areas of jurisdictional overlap or other shared interests.
- Within the Fisheries Program itself, providing education, training and other support to help staff understand their responsibilities toward tribes, and FWS employment opportunities for tribal members.

The Fisheries Program expends a great deal of energy and activity at fulfilling its trust responsibility to Tribal Nations. The Evaluation Team was presented with a substantial amount of information outlining specific examples. While this is helpful, it demonstrates the trees of the forest, but not the forest. Of continuing concern is whether there exists a strategic framework into which these specific examples fit. Similarly, substantial specific examples do not necessarily indicate that tribes are satisfied with Fisheries Program interactions with them, or that all activities conducted by the Program are those mutually agreed-upon as priorities. What the Program sees as its successes is only one part of the story. The other part is whether tribes are satisfied with Fisheries Program interactions with them or that all activities conducted by the Program are consistent with tribal rights and interests or otherwise mutually agreed-upon as priorities. The Evaluation Team's examination of the Fisheries Program's cooperation with tribes is examined through four lenses: 1) Understanding Tribal Expectations, 2) Delivery of Trust Services, 3) Building Tribal Capacity, and 4) Cultural Acuity.

Understanding Tribal Expectations

Where the Fisheries Program works with tribes, significant progress is being made in both meeting aquatic conservation needs and in supporting the development of tribal fisheries management programs. The Evaluation Team, however, was unable to assess the overall satisfaction of tribes with the Fisheries Program's performance of its responsibilities as no comprehensive examination of the relationship is present. Consultations with tribes continue to be largely *ad hoc* in nature and are not the result of a consistent and systematic process. Similar to the FY 2004 evaluation, it remains impossible to determine what consultations and responsibilities are ***not*** being addressed. The positive factor is that where the Fisheries Program and tribes have a consistent relationship, evidence points to good working relationships and solid conservation outcomes. For example, the Fisheries Program provides over a half million fish for stocking purposes on the Blackfeet Reservation in Montana and it has resulted in a world class fishery providing direct benefits of over $250,000 directly to the tribal fish and wildlife department, which enables it to employ several staff members. It also provides over 200,000 angler days of fishing annually for an indirect benefit exceeding several million dollars to local economies.[26]

The FY 2004 evaluation recommended that the Fisheries Program develop a regional assessment capability to determine tribal satisfaction with the Program's priorities and activities conducted on behalf of the tribes. This Evaluation Team found ample evidence of consultations and activities conducted, but little to no capacity to answer the questions: 1) what responsibilities does the Fisheries Program have to specific tribes for which there is a trust responsibility, 2) how does the Program ensure joint development of priorities with tribes, and 3) what was accomplished on an annual basis in fulfillment of those agreements. As one example, Region 4 indicates that there is no regional policy or process for addressing tribal obligations and interactions. A tribe, such as the Cherokee Nation, informs the region how many fish they need, and the Fisheries Program provides them. Region 4 Fisheries also provides technical assistance to the Cherokee Nation in operation of its fish hatchery in regards to operations and fish health issues.[27] This approach is too informal to ensure tribal trust responsibilities are being fulfilled and to prevent misunderstandings as staffs and circumstances change.

Similar to discussions under the Accountability section, the Fisheries Program faces an ongoing challenge to integrate tribal considerations into its ongoing operations. Not only must FWS and the Fisheries Program address tribes on equal footing, government to government, but the agency and the Program must largely deal with tribes as individual entities with different cultures, differing capacities and personalities. Fisheries Program personnel do not always know who they need to talk to, letters and emails go unanswered, and tribal governments change. The tribal dynamic is different for each FWS region. Collectively, this creates a very challenging situation, but it does not excuse inaction. Examined anecdotally, it appears that some regions work hard to integrate tribes, while others appear to take a more ad hoc approach. The challenge is amply illustrated in Region 6. The region includes over 40 tribes with a land base of some 20

[26] Ron Skates, Montana FWCO, interview.

[27] Cindy Williams, Fisheries Program Supervisor, Region 4, personal communication.

million acres. Less than half of the tribes receive any kind of real technical assistance from the Fisheries Program, not because of the lack of desire but due to Program staffing and budgetary shortfalls.

All FWS regions and the Washington Office have designated Native American liaisons that act as the lead point-of-contact between the FWS and tribes. As such, they have a responsibility for ensuring the Service fulfills its trust responsibilities to federally recognized tribes, including activities conducted by the Fisheries Program. The national office and regional office liaisons are housed under External Affairs. The national liaison position requires knowledge and experience in tribal history, culture and responsibilities. Each regional office hires its own liaison, who may or may not have tribal knowledge and experience.[28] From the perspective of the tribes, liaison positions may be useful, but not as a substitute for peer-to-peer relationships with technical assistance staff.

Delivery of Trust Services

The Fisheries Program is actively engaged in providing fish products and technical assistance to tribes (Table 17). In Region 1, for example, the Fisheries Program worked with the Confederated Tribes of the Chehalis to reestablish native plant communities along the Chehalis River and collected spawning information on coho and fall Chinook salmon to estimate the annual spawning escapement. In Region 2, four San Carlos Apache tribal members, aged 15–18, were hired to work on a Youth Conservation Corps crew to complete sport fish surveys, water quality monitoring, revegetation and upland fencing projects.[29] In Wyoming, the Program works with the Wind River Indian Reservation to evaluate information related to big game management, native fish restoration and oil and gas development.

The number of tribal consultations conducted to support tribal fish and wildlife conservation is a workload measure for the Fish and Wildlife Conservation offices. The number reported has dropped dramatically from 630 in FY 2004 to 60 in FY 2008. This is not a reflection of actual work load but indicative of confusion based on what constitutes a "consultation," what is "technical assistance" and other definitional questions that then reflect data entry into FIS. While FIS/FONS captures work activity directed at tribal agreements, the Fisheries Program continues to lack an effective mechanism for tracking and reporting the total number of tribal technical assistance requests that have been received and agreed to. Therefore it is difficult to determine overall performance relative to agreed-upon responsibilities.

[28] Patrick Durham, FWS Native American Liaison, Washington, DC, personal communication.

[29] The San Carlos project also helped meet the Arizona's Fisheries Resources Office's trust responsibilities as budget shortages have not allowed hiring of full-time employees to conduct this work (see Workforce for more discussion, page 98).

Table 17 | **Selected Cooperation with Tribes Metrics, FY 2004–2009**

Metric	FY 04	FY 05	FY 06	FY 07	FY 08	FY 09
% of tribes satisfied with FP performance of its tribal responsibilities [1/]	–	–	–	–	–	NA
% of planned tasks implemented for tribal fish and wildlife conservation as prescribed by tribal plans or agreements	–	–	82% (61/74)	72% (118/165)	77% (243/314)	64% (293/459)
#/% of tribal consultations conducted to support tribal fish and wildlife conservation [2/]	630 (?%)	571 (?%)	364 (?%)	120 (?%)	60 (?%)	198 (?%)
# of training sessions to support tribal fish and wildlife conservation [2/]	103	101	139	82	50	100
# of grants and $ (millions) received by tribes as result of FP activities. [3/]	67/$6M	28/$6M	28/$6M	36/$6M	38/$6M	41/$7M

NA = not available

[1/] Fisheries Program does not have track "tribal satisfaction."

[2/] FP expects that the number of tribal consultations and number of tribal training sessions to "ebb & flow" as needs and opportunities change. The availability of personnel and funds are also factors.

[3/] Includes only Tribal Wildlife Grants — capped at $250,000 for 2002-2006. In 2008 cap lowered to $200,000/grant.

Note: these output measures were strictly FWCO workload measures prior to 2007. After the 2006 Fisheries PART, FP broadened to include any activity that accomplished task in nay measure (i.e., NFHS facilities can also contribute to these measures).

It has been a consistent challenge for the Fisheries Program to incorporate meaningful tribal participation in a wide variety of efforts, from the NFHAP to input on its strategic plans. Like other constituents, tribes face staffing and budgetary shortfalls that make it difficult to spare time and people to attend meetings or review documents. Moreover, many of these types of efforts are broad in scope, often encompassing regional if not national issues or institutional arrangements. Individual tribal leaders and staff often feel ill at ease in participating in such efforts as perceived "representatives" of tribes other than their own tribe. In addition, feedback indicates that many tribal officials view input into initiatives such as federal agency strategic plans as a poor use of time because of a perceived disconnect between what has been promised in the past and what has been actually provided to tribes either in terms of the federal program delivery or funding to tribal programs.

The Fisheries Program recognizes the importance of Tribal Nation participation, but acknowledges the challenge of gaining this participation for these and other reasons, including the lack of agency travel funds for tribal representatives. Four tribal organizations have proven very valuable in helping to represent certain tribal perspectives or particular groups of tribes: Great Lake Indian Fish and Wildlife Commission, Native American Fish and Wildlife Society, Northwest Indian Fisheries Commission and Columbia River Intertribal Fish Commission. Other organizations, such as the Montana-Wyoming Tribal Fish and Wildlife Commission and Great Plains Tribal Commission, provide important coordination roles as well. Unfortunately, these organizations still only represent a small portion of the Fisheries Program-affected Tribal Nations and increasing tribal participation in important regional and landscape strategies should remain the goal.

For the Fisheries Program, the primary points of contact for the tribes tend to be the Fish and Wildlife Conservation Offices (FWCOs). The overall responsibilities of the FWCO program is outlined in Habitat Conservation section (page 30). The Montana Fish and Wildlife Management Assistance Office illustrates the important role that FWCOs play in the delivery of services.

MONTANA FISH AND WILDLIFE MANAGEMENT ASSISTANCE OFFICE (MT FWMAO). MT FWMAO was established in 1991 in Bozeman, Montana with sub-stations at Kalispell and Lewistown, Montana. The office provides biological services to all Montana Indian Reservations and other federal, state, and Service programs as requested in coordination with the Regional Native American Coordinator and other FWS offices. The Native American Training and Education Center was established in conjunction with the Bozeman facility to assist Native Americans from across the country in furthering their education and field training in several areas, including fish and wildlife management, law enforcement, endangered species and other natural resource fields. In 1996, the MT FWMAO was reorganized into a Branch of Tribal Assistance and a Branch of Native Fishes Management to expand its work on fisheries beyond reservation boundaries. The office is headed by a member of the Cheyenne River Tribe.

The MT FWMAO provides technical assistance to tribal governments to allow them to make informed decisions regarding tribal fish and wildlife resources in support of the overall goal of tribal self-determination. They also assist tribes in acquiring and maintaining the necessary skills to build tribal capacity. The Fisheries Program provides diverse services that include maintenance and enhancement of recreational fisheries, protection of imperiled fish species (e.g., bull trout, Yellowstone cutthroat, and Westslope cutthroat) and analysis and enhancement of aquatic and related terrestrial habitats. They are also active in wildlife programs, including black-footed ferret, swift fox and chronic wasting disease. This is also an example of the difficulty of isolating Fisheries Program activities with tribes from other FWS programs. From a tribal perspective, bureaucratic nuances within a federal agency often are irrelevant; when tribes look for assistance they turn to the person and program they know, regardless of whether it is terrestrial or aquatic.

Building Tribal Capacity

Tribes set goals and priorities for their communities to provide for their society and culture. Despite continuing challenges and unmet needs, tribal natural resource management programs are successful because they are based upon a sound foundation of culturally-appropriate principles, as well as upon sound biology and science. The Fisheries Program provides important training and education to assist tribes in building their own natural resource management capacity. The Program is also an important source for funding support.

FWS and its Fisheries Program provide critical support for building the professional capacity of tribal natural resource programs through the training of biologists and conservation officers. Between 40 and 80 tribal law enforcement officers are trained each year by Fisheries and Law Enforcement staff to improve tribal reservation conservation law enforcement. Since FY 2006, the number of training sessions to support tribal fish

and wildlife conservation has fallen sharply from 139 in FY 2006 to 100 in FY 2009. The number of new or modified cooperative agreements with tribes or Intergovernmental Personnel Assignment (IPA) agreements that support tribal fish and wildlife conservation has followed a similar trend, dropping from 28 in FY 2006 to six in FY 2009 as a result of a lack of funding.

In addition to conducting training sessions, the FWS supports a biologist training program that annually educates a number of tribal youths on fish and wildlife management principles. These students earn Bachelor of Science or Master of Science degrees at Montana State University and are encouraged to either return to their home tribe to manage their fish and wildlife resources or to seek careers in FWS to further the agency's cooperative work with tribes.

The FWS's Student Career Experience Program (SCEP) is a recruitment source for agency personnel providing for a work-study partnership between the students, education institutions and FWS. In Montana, 14 students have participated in SCEP since 1991, of which 13 were Native American. Of these students, seven students received their Bachelor's Degree and two earned Master's degrees. Sixty percent of the students have gone on to work for federal agencies, 21% have returned to work for tribal natural resource programs, and the remainder have taken jobs with other organizations.

With assistance from the Native American Fish and Wildlife Society, Bureau of Indian Affairs and other federal agencies, the Native American Training and Education Center (NATEC) provides tribal resource managers and conservation officers with targeted specific training opportunities. Unlike SCEP, there is no commitment to provide permanent employment to NATEC graduates, and NATEC pays tuition and other education-related fees. To date, NATEC has provided training to 689 tribal conservation officers/natural resource managers from over 175 different tribal governments.[30] In 2008, 22 individuals from 10 different reservations received training. A wildlife disease workshop was also hosted with USGS-Madison, while a national law enforcement training session was cancelled due to lack of funding. Interest in NATEC, both from students and tribal natural resource personnel remains high, but the program struggles to meet demand with limited resources.[31] The role of NATEC is viewed as a valuable asset by many in the field, but it is largely viewed as a non-FWS program by FWS leadership.

The Fisheries Program also supports a variety of other educational projects. In New Mexico, the Fisheries Program funded a Youth Conservation Corps project at the Mescalero Fish Hatchery reaching under-served youth. The project has been noted to be more than a job after school or on the weekends. It is character building. In the words of the station manager: "We practice integrity, humility and courage. We honor our ancestors by caring for the homelands which they sacrificed their lives to protect. It is a pathway to our future, a bridge between school and work, a conduit to a career in natural resources management. It is pride built upon self-awareness in who we are as

[30] Montana Fish and Wildlife Conservation Office Annual Report, FY 2008.

[31] Evaluation Team requested but did not receive detailed information on how many tribal members requested training but were turned away due to lack of funding.

Indian people, conscious of our heritage, obligated to preserving the blessings of the Creator. We honor our elders, our tradition, and our culture. We cherish our lands, our forests and our waters, and we pledge to create a better world for generations yet to come."

GRANTS SUPPORT. A lack of funding is the most commonly identified barrier to improving fish and wildlife conservation on tribal lands. Tribal environment and natural resource management programs are particularly vulnerable to budget reductions or reallocation of federal funds. The loss of what might be considered a small amount of funding to other agencies can have a major impact on a particular tribal program and simply amount to *de facto* elimination of that program. Not only does this undermine treaty responsibilities, it also has an impact on natural resources whose benefits extend beyond reservation boundaries.[32] As one example, Jamie Dolan, University of Arizona, surveyed 37 western United States tribes. The survey found 86% managing their own fish and wildlife programs, 73% had healthy fish and game populations and 66% were meeting program goals. Unfortunately, only 16% had adequate funding.

In its Native American Policy, the FWS pledges to assist Native American governments to identify federal and non-federal funding sources available to tribes. Fish passage, endangered species and other funds are periodically made available to tribes. The Service has also partnered with tribes, Trout Unlimited and other NGOs to complete habitat restoration and species recovery where FWS funds have been inadequate to meet project objectives. All these efforts have been helpful but inconsistent from year to year, program to program, and tribe to tribe.

The major grants program for tribes administrated by FWS is the Tribal Wildlife Grants Program, which provides competitive grants for tribes to develop and implement programs for "the benefit of wildlife and their habitat, including species of Native American cultural or traditional importance and species that are not hunted or fished."[33] Proposals are evaluated according to resource benefit, performance measures, work plan, budget, capacity building, and their partnerships and contributions. For FY 2005-2008, the FWS Tribal Wildlife Grants awarded 130 grants, totaling $24 million in support of tribal priorities. In FY 2009, 41 grants received a total of $7 million (Table 17). But Tribal Wildlife Grants is only a portion of the picture when it comes to determining how the Fisheries Program is conducting its trust responsibilities for tribes. Help with identifying and applying for other fisheries-related grants is an important service the tribes would like to receive from the Fisheries Program. However, no information on the extent and success of such efforts was provided to the Evaluation Team. Tribes are not currently eligible for federal Sport Fishing Restoration funds as are states, the

[32] Tribal Nations Issues and Perspectives, Great Lakes Indian Fish and Wildlife Commission, April 26, 2005.

[33] The Tribal Wildlife Grants (TWG) program was created by Congress within the State Wildlife Grant program in 2002, setting aside $5 million to establish a competitive tribal grant program for Federally-recognized Indian tribes. These funds were not subject to further requirements of the formula-based State Wildlife Grant program.

District of Columbia and territories. The lack of access to dedicated funding, such as available through the Wildlife and Sport Fish Restoration Program, severely undermines tribal program development.

As budgets grow tighter for the Fisheries Program, there have been reported efforts to provide technical assistance to tribes on a reimbursable basis. In a few instances the Program attempted to charge selected tribes for fish stocking. This speaks to the budget straits of the Fisheries Program on one hand while contradicting the tribal trust relationship on the other. Given the chronic financial challenges faced by majority of tribes, this is understandably problematic to tribes. Most tribes do not have adequate funding to reimburse FWS even if they were so inclined. The tribes view these activities as a trust responsibility or treaty obligation that the FWS needs to honor.

Cultural Acuity

The FY 2004 evaluation found that there was no formal training for Fisheries Program staff on tribal history, culture and responsibilities, although the Program did employ Native Americans who are well versed in this area. All supervisors in Region 7 (Alaska) were required to take ANILCA and ANCSA training and many other field offices did employ personnel with specialized tribal-related training.[34] In addition, some FWS personnel participate in tribal organizations such as the Native American Fish and Wildlife Society, to share scientific information, cultural knowledge and professional contacts.

As of FY 2009, the Fisheries Program appears to provide greater opportunities for training in tribal cultures through courses at the FWS National Conservation Training Center and special trainings conducted throughout the regions, such as Tribal Trust Training conducted by the Bozeman Fish Technology Center in February 2010. In addition, some positions within the Fisheries Program are staffed by Native Americans who serve both as mentors for incoming Native American staff and instructors for formal and informal trainings. It is not clear whether these positions are filled strategically with Native Americans or whether they are incidentally held by tribal members. There continues to be opportunities for improvement, however. Regional Native American Liaisons, for example, need not be trained and experienced in tribal culture and training opportunities remain sporadic. Position descriptions for Fisheries Program personnel who work with tribes in the majority of regions are standardized for biological experience and training, but do not require prior tribal-related training and experience. Most importantly, the leadership of FWS and the Fisheries Program is not required to have undergone tribal trust training as part of their leadership development.

[34] Alaska National Interest Lands Conservation Act (ANILCA) and Alaska Native Claims Settlement Act (ANCSA).

Findings and Observations

Overall, the Team found the Fisheries Program to be committed to fulfilling its obligations toward tribes. Given limited resources and multiple mandates, the Program works to balance its obligations toward tribes with its obligations toward other stakeholders and partners. The Fisheries Program reports that it recognizes its responsibilities toward tribes through strategic plan step-downs, work plans of relevant regions and field stations, and budgets (to the extent funding is available).

The Fisheries Program's ability to meet its responsibilities, prioritize needs and conduct a wide spectrum of activities that benefit Tribal Nations is a function of both the Program's own capacity as well as the capacity and staff of the individual tribes, which vary widely. Where tribes have more developed programs and employ full-time fish and game staffs, the Fisheries Program works as a partner to address priority issues, from recovery of native/endangered species to enhancement of recreational fisheries. In other cases, where a tribe's fisheries capacity is still developing, the Program's relationship more likely involves technical assistance, tasks, cooperatively building professional staff and developing the foundations of a professional tribal fisheries management program.

Fisheries Program assists Tribes across the United States in a range of fisheries conservation activities, such as management of Pacific salmon stocks for subsistence use in Alaska. (Photo: USFWS)

The Evaluation Team was presented with a substantial amount of information outlining specific examples of tribal-related activities or projects from various FWS regions. The Team concludes that much of what is accomplished is region-specific, depending on the number of tribes involved and the particular rights or interests at stake. In addition, much of the reported accomplishments and successes can be attributable to the particular commitment, attitude and dedication of the FWS/Fisheries Program personnel involved. This is both an asset and a liability—leadership is as leadership does, and an agency acts through its people. On the other hand, where there is a leadership or personnel vacuum, there may not be an institutional basis for meeting tribal responsibilities.

To the Fisheries Program's credit, where it communicates with tribes and arrives at mutually agreed upon goals, the result is highly effective. Similar to the FY 2004 evaluation's finding, however, it remains difficult to determine what tribal responsibilities are ***not*** being addressed. Since tribal interactions are not consistently the result of a dedicated process, there are tribes with fisheries interests that go unaddressed. Given the funding challenges of both the Fisheries Program and tribes, there is an increased need to be able to assess overall tribal needs with Program abilities. Mirroring the conclusion in Accountability (page 20), the Evaluation Team believes the Fisheries Program should be in the position to consistently demonstrate, across all nine regions, that it understands who its tribal stakeholders are, what responsibilities the Program has to each tribe, what was accomplished for each, and what was not accomplished for each. This "four corners" test that each region is capable of demonstrating its tribal responsibilities should be established as a national policy with the specific manner of interactions and process left to the determination of the regional offices and field stations to provide a degree of flexibility and adaptability. This is the basis for Recommendation 8 below. Established at the region level, a list of tribal responsibilities will allow each region to characterize its tribal responsibilities, demonstrate its accountability, and provide a foundation for documenting accomplishments and unmet needs.

FWS and its Fisheries Program provide critical support for building the professional capacity of tribal natural resource programs through the training of biologists and conservation officers. These training and educational opportunities are well received by the tribes who are in a position to take advantage of them, but it is unclear to the Evaluation Team which of the Tribal Nations did not get the opportunity. It also appears that such training and education programs are early victims to tightening budgets.

In the introduction of this section, the Evaluation Team provided background on the special relationship of the United States Government with tribes precisely because it is so unique and important to understand. At a minimum the FWS and Fisheries Program should ensure that all its leadership is versed in tribal trust responsibilities and treaty obligations as well as the associated cultural underpinnings. The Fisheries Program should focus on ensuring that FWCO staff are adequately versed in tribal governments and culture in order to provide effective fisheries services to tribal constituents.

Recommendations to Increase Effectiveness

8. Consistent with Recommendation #2, each Region should develop a list of all tribes to which it has a Fisheries Program responsibility. For each of these tribes, the Fisheries Program will track the nature of the responsibility, the tribes that requested assistance, and what the Program has agreed to deliver. It will also outline who the tribal contact is, how they wish to be communicated with, and how often. Such information should be updated on an annual basis

9. FWS leadership, FWCO staff tasked to work with tribes, and tribal liaisons should demonstrate tribal knowledge and experience, either by nature of their prior education and experience or by nature of a dedicated course of on-the-job training.

5. RECREATIONAL FISHING AND OTHER PUBLIC USES

Context

The Fisheries Program has an important role in providing for public use and enjoyment of America's outdoors and natural resources. Specifically, the Program provides support for recreational fishing on public lands and a leading role in mitigating for the loss of public fisheries through its national fish hatcheries. The Program also has an ongoing education and outreach role in educating the public about the importance of aquatic systems, and their wise use and management.

Recreational fishing remains one of America's most popular outdoor pastimes. Some 50 million anglers went fishing in 2008, generating billions of dollars in retail sales across the country. Fishing is considered a "gateway" activity leading to involvement in other outdoor activities such as boating.[35] Recreational anglers and others generate hundreds of millions of dollars in excise taxes each year ($404.5 million in 2009) that return to states and local communities through the Sport Fish Restoration Program to fund boating, fishing and aquatic resource conservation activities.

The Dingell-Johnson/Wallop-Breaux Sport Fish Restoration program (SFR) is considered one of the nation's hallmark conservation efforts. SFR utilizes a user pays-user benefits approach. Industry partners that manufacture equipment commonly used by anglers and boaters pay an excise tax, boaters that purchase fuel pay a tax, and other users pay into SFR. In turn, these funds are placed in a dedicated fund managed by the FWS, and allocated to each state via a formula derived from the number of fishing licenses sold and the state's land area. It is likely that no other single conservation effort can claim a greater contribution to fish and wildlife conservation than SFR and its wildlife counterpart, Pittman-Robertson Wildlife Restoration. For the period 1952–2009, more than $6 billion has been collected, distributed to states and matched by partners under SFR. In 2009, a total of $404.5 million was distributed to the states. While the SFR program is administered by the FWS Wildlife and Sport Fish Restoration Program, its dependence on sportsmen and boaters to pay into the fund and SFR's contribution to aquatic conservation make it a vital effort for the Fisheries Program as well.

The Fisheries Program supports recreational fisheries in a number of ways addressed in other areas of this evaluation, such as restoring and enhancing habitat through the National Fish Habitat Action Plan, National Fish Passage Program, and its Fish and Wildlife Conservation Offices (Habitat Conservation & Management, page 21). The Fisheries Program also conducts activities in support of recreational fishing on Department of Defense lands, at the request of individual installations as authorized in the Sikes Act. Most importantly for this discussion, the Program operates the National Fish Hatchery System (NFHS).

The NFHS plays a singular role in the nation's fisheries. While most state, tribal and private hatcheries primarily raise and stock fish for commercial, recreational and

[35] Special Report on Fishing and Boating, RBFF and the Outdoor Foundation, 2009. Sportfishing in America, Am. Sportfishing Assoc. (2008), p 4.

subsistence fishing, national fish hatcheries (NFHs) help ensure recovery of threatened or endangered species, restore native fish stocks to self-sustaining levels, mitigate fisheries lost as a result of federal water projects and supply fish to waters on tribal and Service lands. More than 100 laws, treaties, executive orders and court decisions affect hatchery operations, requiring the Fisheries Program to balance its many mandates while attempting to maintain modern and efficient hatcheries in the locations specified by law.[36]

Composed of 71 hatcheries, the NFHS propagates and/or offers refugia to more than 129 species (82 fish species, 32 mollusks and 15 other aquatics) in FY 2009. In FY 2006, 34 of the 50 fish species had recreational fishing potential and were distributed across 42 states. These fish species include important recreational and commercial species like rainbow trout, Pacific salmon, striped bass and American shad. NFHs also raise a growing number of imperiled species such as the pallid sturgeon, bonytail chub, Rio Grande silvery minnow and fountain darter. In addition to the 70 NFHs, the Program operates seven Fish Technology Centers, nine Fish Health Centers and the Aquatic Animal Drug Approval Partnership (see Science and Technology Section, page 75).

The Fisheries Program is responsible for conducting fishery mitigation programs arising from the construction of federal locks and dams. Twenty-nine of the 71 NFHs are solely or partially dedicated to the production of fish for mitigation stockings.

The public use efforts of the Fisheries Program provide a wide range of community benefits in addition to recreational fishing. For example, fish from National Fish Hatcheries support endangered species restoration and ongoing tribal trust responsibilities across the United States. Through its NFHs and other activities, the Fisheries Program has also had long involvement in public outreach and education. Tours and educational programs at NFHs provide an up-close look at fish and other aquatic species. Schools and other programs have long benefitted from outreach materials produced on aquatic systems by the Fisheries Program and other FWS programs. Public outreach was not a stand-alone focus area in the Fisheries Program's 2004–2008 Strategic Plan, but its growing importance warrants specific attention in this evaluation.

Basis for Evaluation

The Evaluation Team examined three principal activities of the Fisheries Program dealing with public use: Recreational Fishing, Fisheries Mitigation Services, and Public Outreach. The set of indicators, baselines and benchmarks addressing the Fisheries Program's Recreational Fishing and other public use activities are presented in Table 18.

The indicators for public use direct attention to the Fisheries Program conducting agreed-upon activities in support of recreational fishing (Indicator 5.1); conducting mandated mitigation activities (Indicator 5.2); receiving reimbursement for mitigation services (Indicator 5.3); and supporting educational and outreach activities in support of aquatic conservation (Indicator 5.4).

[36] National Fish Hatcheries, Authority Needed to Better Align Operations with Priorities, GAO, June 2000

Table 18 | **Recreational Fishing & Public Use: Indicators, Baselines and Benchmarks**

Indicator	Measure	Baseline (FY 2004)	Performance (FY 2009)	Target (FY 2013)
5.1. FP implements its roles outlined in agreements and management plans with states, tribes, and partners in support of recreational fishing.	# of state, tribal and partner requests, and % fulfilled (e.g., fish stocking, technical assistance, assessments) in support of recreational fishing.	630 (unknown percent) problem with definition of "request."	NP	100% fulfillment of tasks outlined in MOAs with states, tribes, DOD facilities.
5.2. FP meets its acknowledged mitigation responsibilities.	% of mitigation production targets met.	42% (11/26)	FY07: 83% (29/35) FY09: NP	100% plans in place. 100% of activities conducted are in alignment with plans.
	#/% of fish & eggs requests fulfilled (Hatchery Production Summaries/Fish & Egg Distribution Summary).	63.245 million fish (3.4 million pounds) distributed. No information on what was requested.	NP	100% of agreed-upon fish and egg requests fulfilled.
5.3. Responsible federal agency fully reimburses FWS for mitigation services.	#/% of water development projects where responsible federal agencies agree on mitigation needs and costs.	2 of 6 agencies (BPA and partial BR).	Completed negotiation with CE. Continuing with BR, BIA, NMFS, and TVA.	100% cost recovery.
	% of reimbursable costs covered by appropriate federal agency.	64%	≈55%	100%
	Value of priority activities on which FP is unable to work because of lack of cost-recovery (lost opportunity cost).	$14.2 million	$17.5 million	$0
5.4. FP actively supports education and outreach activities.	# of Friends Groups.	15	29	75% of NFHs (n=53) have Friends Groups.
	# of outdoor education programs conducted at FP facilities.	84	100+	100% participation of all FP facilities in 1 or more activities annually.

NP = Information requested by Evaluation Team but not provided by Fisheries Program during course of this evaluation.

Results

The Evaluation Team assessed the Fisheries Program's public use performance in three parts: 1) Recreational Fishing, 2) Fisheries Mitigation Services and 3) Outreach and Education.

Recreational Fishing
Successful fisheries conservation in the United States is directly linked to the support and contributions of recreational anglers. The SFR program is ample evidence of this as illustrated in the context section above.

A primary activity of the Fisheries Program in support of recreational fishing is the stocking of hatchery-reared fish. In FY 2006, a total of 135 million fish (5.1 million pounds) were distributed to stakeholders and partners. In the southeastern United States, the recreational use of NFH-stocked fish generates significant economic effects. NFHs in nine Southeastern states (Arkansas, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee, and Louisiana) expend approximately $5 million annually to stock 22.3 million fish, representing 15 species in 12 different states. These stockings generated over 3.2 million angler days of fishing effort, $239 million in total economic output, 3,100 jobs with incomes totaling $63 million, and $14.0 million in state and federal taxes.[37] In the southwestern United States, a total of $19 was generated in retail sales for every dollar spent to rear trout at Alchesay-Williams Creek NFH and release them on tribal lands.[38] A complete list of NFHs and selected attributes is provided as Exhibit 4.

Table 19 provides a limited amount of information available on outputs from the NFHS in support of recreational fishing. While the data are extremely limited, it appears from anecdotal information that the NFHS effectively fulfills state, tribal and partner requests where available budget and facility conditions allow (see Asset Maintenance, Condition of Facilities, page 93). Requests fulfilled for support of recreational fishing largely arise from their mandated activities in the course of native fish conservation, cooperation on IJ fisheries and mitigation.

[37] Economic Effects of Rainbow Trout Production by the National Fish Hatchery System based on The Economic Effects of Rainbow Trout Stocking by Fish and Wildlife Service Hatcheries in FY 2004, Dr. Jim Caudill, U.S. Fish and Wildlife Service, Division of Economics, Arlington, Virginia, December, 2005.

[38] The Economic Effects of the Recreational Use of Alchesay-Williams Creek National Fish Hatchery 2004, James Caudill, FWS Division of Economics, 2006.

Table 19 | **Selected Recreational Fishing & NFHS Metrics, FY 1998, 2002, 2006–2009**

Metric	FY 98	FY 02	FY 06	FY 07	FY 08	FY 09
# of state, tribal and partner requests, and % fulfilled (e.g., fish stocking, technical assistance, assessments) in support of recreational fishing.*	630 (?%)	NP	NP	NP	NP	NP
Fish Number (Millions)	164.3	150.7	135.1	NP	NP	NP
Fish Weight (Million Pounds)	5.7	5.4	5.1	NP	NP	NP
Eggs (Millions)	121.5	95.9	165.8	NP	NP	NP

NP= Information requested by Evaluation Team but not provided by Fisheries Program during course of this evaluation.

* FP indicates that they do not track total number of state, tribal and partner requests. The closest they have are plans or MOUs/MOAs.

With its unique role both to conserve native fish and to support recreational fishing, the Fisheries Program has an ongoing challenge to balance recreational fishing and subsistence use with the conservation of native species.[39]

Fisheries Mitigation Services

The Fisheries Program is involved in fisheries mitigation services as a result of two primary attributes: 1) FWS is the designated agency for providing mitigation resulting from selected federal water projects and 2) expertise of NFHS in efficiently providing quality fisheries products. Table 20 presented a set of metrics for fisheries mitigation services and Table 21 provides a summary of Fisheries Program stocking activities in FY 2008.

The appropriate approach to mitigating lost fisheries and habitat impacted by federal water development projects has been, and continues to be, a hotly-debated topic that often splinters along the "native fish" versus "recreational fish" arguments. Some interests welcome the introduced sport fish while others decry the loss of native species. Regardless of this debate's merits, the simple fact is that the activity is not a discretionary activity of the Fisheries Program, but rather is mandated by law in site-specific agreements. The Fisheries Program's responsibility is to provide the agreed-upon fisheries (e.g., 1.1 million Chinook salmon smolt annually from Carson NFH in mitigation for Bonneville Dam impacts on the Columbia River). The mitigation product must be disease-free, genetically-sound and efficiently produced. Decisions as to whether the approved mitigation activity continues to be appropriate in light of native fish and other concerns cannot be made unilaterally by the FWS or Fisheries Program, but only as part of project relicensing, ESA recovery or other process.

[39] In 1996, the directors of National Marine Fisheries Service and FWS established a joint "policy for conserving species listed or proposed for listing under the Endangered Species Act while providing and enhancing recreational fisheries opportunities."

Table 20 | **Selected Fisheries Mitigation Services Metrics, FY 2004–2009**

Metric	FY 04	FY 05	FY 06	FY 07	FY 0	FY 09
% of mitigation production targets met.	42% (11/26)	90% (9/10)	72% (28/39	83% (29/35)	80% (43/54)*	82% (46/56)*
% of reimbursable costs covered by appropriate federal agency.	64%	≈55.3%	≈55.3%	≈55.3%	≈55.3%	≈55.3%

*data from FIS FY archived PM report; however, ALL tasks were included in all the task-based measure after the Fisheries PART (i.e., production tasks not broken out separately). Total values presumed to be close to production tasks since the other task types are not normally implemented for mitigation by Fisheries. The other available tasks are "applied science & tech tasks", "marking & tagging tasks", "post-stocking survival tasks", and other tasks including "assessment", "ANS", "Fish Passage", and "Habitat". Except for production tasks, these others would be very low priorities.

For the Evaluation Team, two questions regarding the Fisheries Program's fisheries mitigation services were of primary interest: 1) is the Program meeting its acknowledged mitigation responsibilities in terms of percentage of mitigation production targets met, and 2) is the Program being reimbursed by responsible parties for these services?

Table 21 | **Summary of Mitigation Activities, FY 2008**

FWS Region	Contributing NFHs	Fish Species	Purposes	Receiving Waters
1	8	4	recreation/broodstock/commercial/IJ	25
2	1	1	recreation	1
3	1	1	recreation	1
4	8	4	recreation	129
5	0	0		0
6	8	6	recreation/outreach	68
8	1	2	recreation/commercial	4
Totals	27 of 29	11		228

MEETING MITIGATION RESPONSIBILITIES. The role of the FWS is to provide fish and associated technical support to mitigate adverse effects from federally funded water projects as directed by statutory authority. Table 22 summaries mitigation activities for FY 2008, where 27 NFHs stocked 11 species into 228 water bodies for recreational, commercial, broodstock and other purposes.[40] Twenty-nine NFHs are solely or partially dedicated to the production of fish for mitigation stockings (Table 24). These responsibilities are outlined in detail in the "Report to the Office of Management and Budget on the U.S. Fish and Wildlife's Fisheries Mitigation Programs," May 28, 2002.

[40] Fish species: brook trout, brown trout, Chinook salmon, Coho salmon, cutthroat trout, lake trout, northern pike, rainbow trout, steelhead, striped bass, and walleye.

By policy, all fish stocked out of the NFHS for mitigation are the result of a plan developed in cooperation with the appropriate statutory agencies. Mitigation plans are developed for each mitigation activity conducted by the Fisheries Program. Each plan is directed to contain identifiable annual mitigation goals, annual budgets and cost reimbursement requirements. Each plan is to undergo a regular review and update in concert with stakeholders and partners. These plans are maintained at the field station and regional office. The FY 2004 evaluation found that many facilities operated under a memorandum or other informal agreement, rather than a formal plan. Through recent negotiations with the U.S. Army Corps of Engineers (USACE) on mitigation reimbursement, the Regions will be required to develop detailed mitigation plans that will be reviewed annually by the FWS, USACE and the states.

The FY 2004 evaluation assembled information on requested levels of mitigation services and outputs for each of the mitigation hatcheries, which is provided as Exhibit 7.

Table 22 | **National Fish Hatcheries with Mitigation Responsibilities**

National Fish Hatchery	Mitigation Source (Responsible Agency)
Carson NFH, WA	Bonneville Dam, Columbia River (NMFS)
Chattahoochee Forest NFH, GA	Chattahoochee & Savannah river dams (CE); Blue Ridge Dam (TVA)
Coleman NFH, CA	Keswick/Shasta Dam, Sacramento River (BR)
Creston NFH, MT*	Hungry Horse Dam, Flathead River (BIA)
Dale Hollow NFH, TN*	5 dams, Chattahoochee, Cumberland & Savannah (CE); 11 dams (TVA)
Dworshak NFH, ID	Lower Snake River dams (BPA); Dworshak Dam (CE)

Table 23 | **Reimbursed and Non-Reimbursed Mitigation Costs, FY 2010 (Estimated)**

Agency	Project Costs (FY 2002 Est.)	Reimbursed Costs (FY 2010 Est.)	% Reimbursed	Non-Reimbursed Costs (FY 2010)
Corps of Engineers	$9,753,413	$4,700,000	48.2%	$5,053,413
Bureau of Reclamation	$8,964,450	$160,000	1.8%	$8,804,450
Tennessee Valley Authority	$1,040,841	$0	0.0%	$1,040,841
Bonneville Power Authority [1/]	$13,415,645	$13,375,878	99.7%	$39,767
National Marine Fisheries Service [2/]	$5,148,083	$3,449,216	67.0%	$1,698,867
Bureau of Indian Affairs [3/]	$914,195	$0	0.0%	$914,195
GRAND TOTAL	$39,236,627	$21,685,094	55.3%	$17,551,533

[1/]BPA also provides approximately $40,000 in electricity.

[2/]Mitchell Act mitigation activities administered by the National Marine Fisheries Services are not associated with specific water development projects and will be addressed separately from the water development agencies.

[3/] BIA responsibilities linked to two projects in Nevada. Weber Dam and Reservoir provides irrigation water for the Walker River Paiute Indian Reservation mitigation for Lahontan cutthroat trout. Wild Horse Dam is part of the Duck Valley Irrigation system with rainbow trout stocked to benefit the Duck Valley Indian Reservation.

National Fish Hatchery	Mitigation Source (Responsible Agency)
Eagle Creek NFH, OR	Bonneville Dam, Columbia River (NMFS)
Ennis NFH, MT*	Missouri & Snake River dams (BR); Wild Horse Dam, Owyhee R. (BIA)
Entiat NFH, WA	Grand Coulee Dam, Columbia River (BR)
Garrison Dam NFH, ND*	Missouri River system dams (BR &CE)
Gavins Point NFH, SD*	Missouri River system dams (CE)
Greers Ferry NFH, AR	White & Little Red River dams (CE)
Hagerman NFH, ID	Lower Snake River dams (BPA)
Hotchkiss NFH, CO*	Colorado River dams (BR)
Jackson NFH, WY*	Shoshone and Snake River dams (BR)
Jones Hole NFH, UT*	Colorado River/Utah Project dams (CUPA)
Lahontan NFH, NV*	Truckee River dams (BR); Weber Dam (BIA)
Leavenworth NFH, WA	Grand Coulee Dam, Columbia River (BR)
Little White Salmon NFH, WA	Bonneville Dam (NMFS); John Day Dam (CE), Columbia River
Livingston Stone NFH, CA	Keswick/Shasta Dam, Sacramento River (BR)
Mammoth Spring NFH, AR*	White & Little Red River dams (CE)
Neosho NFH, MO*	Table Rock Dam, White River (CE)
Norfork NFH, AR*	Arkansas & White River dams (CE)
Spring Creek NFH, WA	Bonneville Dam (NMFS); John Day Dam (CE), Columbia River
Tishomingo NFH, OK*	Oologah Dam, Arkansas River & Sardis Dam, Yazoo River (CE)
Valley City NFH, ND*	Missouri River system dams (BR, CE, DOA)
Willard NFH, WA	Bonneville Dam, Columbia River (NMFS)
Winthrop NFH, WA	Grand Coulee Dam, Columbia River (BR)
Wolf Creek NFH, KY*	Cumberland & Kentucky River dams (CE)

* Hatchery is also involved in activities other than mitigating federal water resource development projects.

REIMBURSEMENT. The NFHS provides "fish as mitigation" on behalf of the Bureau of Reclamation (BOR), USACE and other federal government entities. While the federal water project development agency and/or federal project beneficiaries are responsible for funding associated mitigation costs, recovering actual costs from these parties has proven problematic for the Fisheries Program with the end result that it is not fully reimbursed for these programs and must use its own resource management funds to cover its unreimbursed costs. Given the unmistakable fact that tight budgets constrain all aspects of the Fisheries Program, this diversion of funding continues to impair the Program's ability to deliver other needed aquatic resource programs. Table 23 summarizes reimbursed and non-reimbursed mitigation costs.

As of 2004, agreement on mitigation needs, costs and reimbursement had been reached with some agencies, like Bonneville Power Authority. Cost recovery with other agencies awaited the conclusion of ongoing negotiations with BOR and the USACE. The

FY 2004 Evaluation Team called on FWS to develop a single set of actual mitigation expenses and reimbursables, and to complete negotiations to receive cost recovery from all responsible parties. Since that evaluation, the FWS has made solid progress with USACE, negotiating a $4.7 million reimbursement beginning in FY 2010. Due to budget cuts within USACE, that amount has already been reduced to $4.5 million in 2010 and is expected to shrink to $3.5 million in 2011. Of interest, the USACE reimbursement also comes at a higher administrative cost, as the Corps treats FWS like a contractor, increasing cost of doing business for the Fisheries Program.

Reimbursements from other agencies remain incomplete—in particular with the BOR. After much discussion with key DOI representatives at the assistant secretary level, a final determination was made in September 2005 that out of $5.4 million requested by FWS (a number that had been carefully researched by DOI and Fisheries staffs), BOR owed FWS no more than the $160,000 reimbursement associated with Hotchkiss NFH mitigation related to the Aspenill Dam on the Colorado River. The assistant secretaries agreed to only support costs that were backed by reports developed pursuant to the Fish and Wildlife Coordination Act (requiring development agencies to inventory resources prior to dam construction). However, most of the BOR dams predate the legislation. Without an inventory for setting a mitigation target level, DOI and BOR judged the Fisheries Program's actions as simply creating and or enhancing recreational fisheries, not mitigating a measured resource loss (aka: de facto mitigation). Another legislative barrier to reimbursement is language in the Colorado River Storage Project Act requiring that mitigation costs be borne by rate payers; a move not allowed by DOI. In addition to the $5.4 million, there is an additional $1.2 million in reimbursable costs associated with the Central Utah Project (CUP) whose authorizing legislation established a separate program and funding within BOR. Initially, CUP reimbursement was to be negotiated separately, but FWS has not been allowed to go back for further negotiation after the deputy secretary declared that BOR had reimbursed FWS all that they needed.

Legislation for Colorado River storage and other projects with the BOR allow administrative discretion within DOI on who carries the costs.[41] To date, DOI has allowed FWS to carry costs properly borne by BOR. In the name of agency accountability alone, DOI should transfer these costs to BOR and allow reimbursement of the Fisheries Program. Efforts to negotiate reimbursement from the BOR in 2005 were "taken off the table" at the departmental level and the Fisheries Program indicates it is continuing to work on outstanding reimbursements from TVA, BPA and others.

One of the elements that assisted the Program in negotiating with the USACE was development of a tight presentation of what rainbow trout cost to produce vis-à-vis commercial/ private facilities, quality of product, etc. This detailed documentation may need to be provided for other species to deal effectively with BOR and others.

A significant portion of the NFH budget goes to producing fish for mitigation. The FY 2009 hatchery operations and maintenance budget was $66.3 million, annual

[41] Report to the Office of Management and Budget on the U.S. Fish and Wildlife Service Fisheries Mitigation Programs" May 28, 2002. page 34.

reimbursable mitigation costs were estimated at $39.2 million, actual reimbursement was approximately $21.7 million, and the Fisheries Program covers some $17.6 million in reimbursable costs with its general operations budget (Tables 23 and 34). The Program's mitigation activities on behalf of other responsible federal agencies and water beneficiaries should not be a drain on other fisheries management activities. Of the responsible agencies, only Bonneville Power Authority is reimbursing 100% of project costs. A solid argument can be made that FWS shares a tribal trust responsibility with Bureau of Indian Affairs for the Walker River and Duck Valley tribes. While some progress has been made with the USACE, the collective impact of this issue represents a significant lost opportunity for the rest of the Fisheries Program. Assumption of a $17.6 million shortfall on behalf of other federal agencies amounts to 30% of the Fisheries Program's FY 2009 general program activity budget ($59.545 million), and comes at the expense of other fisheries conservation activities.

Outreach and Education

While the Fisheries Program's 2004–2008 Strategic Plan for Public Use largely focused on recreational fishing and mitigation fisheries, it also contained a brief statement on pursuing "opportunities to enhance education and outreach to address the public's interest in learning more about the nation's fish resources and the habitats on which they depend." Suggested actions were to improve the NFHS to provide the American public with enjoyable places to learn about the nation's fisheries resources.

The Fisheries Program is engaged in wide array of outreach events, including environmental education and a variety of outdoor activities that are specifically directed towards children. Public outreach and education have been a part of the Fisheries Program for quite some time, mainly due to the fact that many facilities are in close proximity to metropolitan areas. This presents unique opportunities for both the public and the facilities. For example, it is not uncommon that a child has his or her first fishing experience at a hatchery-sponsored fishing event, which could inspire the participant to pursue other fishing opportunities not associated with the hatchery. Thus, these participants become advocates of the fishing and/or conservation ideology, which ultimately helps to increase environmental awareness.

More than 1.54 million people visited the 71 NFHs in 2009. Children oriented events attracted over 100,000 kids last year and the diversity of programs and events that are provided to the public by the Fisheries Program is surprising. The diversity of events hosted by NFHs is presented in Table 24. Field stations conduct hundreds of events each year with little or no dedicated funding (Table 25). As the result of solid relations with the surrounding community, these events are largely possible due to community and business support as well as the hard work of volunteers who gave over 138,743 volunteer hours for Fisheries Program activities in FY 2009.

The foreword of Richard Louv's *Last Child in the Woods* quotes a fourth-grader in San Diego: "I like to play indoors better 'cause that's where all the electrical outlets are." At home, children too seldom hear the words "go play outside." Parents these days feel it is their duty to keep kids safe from outside threats but this act of safety may be causing more harm than good. Harm comes in the form of what Louv calls "Nature Deficit

Disorder," Symptoms include an increase in Attention Deficit Hyperactivity Disorder (ADHD), childhood obesity, lack of creativity, ignorance of local flora and fauna, loss of respect for nature, and a diminishing sense of community. While researchers debate the root causes for people spending less time outdoors and its associated impacts on our mental health, there is little debate that the trend spells trouble for our natural areas and our long-term commitment to the conservation of biological diversity.[42]

Table 24 | **Examples of Outreach Activities on NFHs, FY 2009**

Adopt a Salmon Program	Greers Ferry Lake & Little River Clean up
Alternative School on NFH property	Hatchery Holidays
Anatomy Dissection Class	Hatchery Tours
Antrim County 4H Conservation Tour	Horse and Sleigh rides
Booth Day	Ice Fishing Michigan
Booth Society "Garden Party"	Kids Fishing Days
Boy Scout Environmental Days	Kids in the Creek Program
Boy Scout Fishing Jamboree	Know Your James River Watershed Program
Career Days	Louisiana Junior Duck Stamp Program
Catch and Release Fly Fishing	National Hunting and Fishing Day
Conservation Camps	Open House Events
Derby for the Elderly	Parades
Derby for the Mentally and Physically Challenged	Passport to Fishing & Boating
Disabled Veteran Fishing Ponds	Paw Claws Scale and Tails Event
Dogwood Tour	Ruby's Garden Event
Earth Day events	Salmon in Schools Program
Eco Bus Outdoor Education Program	Shadow Day Program
Environmental Field Days	Sidewalk Art Event
Environmental Preservation Day	Spawning Spectacular
Father's Day Fishing Event	State and County Fairs
Fish Are Fun	Stream Team Program
Fish Culture Hall of Fame	Summer Outdoor Education Program
Freshwater Folk Festival	Watershed Watchers
Girl Scout Camp (on hatchery property)	Weddings
Green Earth Gang- Plants Trees to save Streams	

The FWS and the DOI have responded to this challenge by establishing an Office of Youth in Natural Resources and developing its Let's Go Outside campaign. Within the FWS, the National Conservation and Training Center and other programs are dedicating energy and resources to this effort. The Fisheries Program has also increased its efforts

[42] Finding Our Way Out—Restoring Our Vital Link to Nature, Whitney Tilt, PERC Reports (Fall/Winter 2009): 12–15.

as evidenced in the Program's draft 2009–2013 Strategic Plan which pledges to "seek opportunities to enhance education and outreach to address the public's interest in learning more about the Nation's fish resources and the habitats on which they depend, helping to create tomorrow's conservationists." The Program states its interest to work with the DOI Office of Youth as well as developing community-level partnerships within and near communities where fisheries facilities are located, as called for in the National Fish Hatchery System Volunteer Act of 2006.

The Fish Hatchery System Volunteer Act provides a legislative vehicle for the Fisheries Program to formalize and expand its many volunteer groups by establishing the National Fisheries Friends Partnerships, which is presently undergoing 501(c)(3) incorporation procedures. Activities, goals and objectives for the National Partnership operate under the guidance of a volunteer board of directors, established in 2009, all of whom are Friends members. Guidance and coordination is provided by Fisheries Program staff in the Washington office.

There are currently 30 Fisheries Friends groups representing NFHs in all FWS regions except Alaska. These volunteer organizations partner with the Fisheries Program at National Fish Hatcheries, Fish and Wildlife Conservation Offices and Fish Health and Fish Technology Centers, similar to how National Wildlife Refuge Friends organizations work with FWS Refuges. While each group operates somewhat uniquely, all provide volunteer labor; work to organize, sponsor and run community events such as open houses and fishing derbies; provide educational opportunities for the public, often with the focus on children; and assist with other outreach programs that promote aquatic resource conservation. This potential of friends groups, volunteers and increased outreach programs is captured in Table 25.

Table 25 | **Selected Education & Outreach Metrics, FY 2004–2009**

Metric	FY 04	FY 05	FY 06	FY 07	FY 08	FY 09
# of Friends Groups	15	29	24	27	29	30
Number of volunteer participation hours-Fisheries	100,762	102,208	120,055	138,805	129,333	138,743
# of aquatic outreach & education activities and/or events-Fisheries*	289	197	1,502	1,940	2,585	5,233

* Wide range in number of events reflects inconsistencies in definition and reporting.

National Wildlife Refuges have long been viewed as places for compatible outdoor recreation. National Fish Hatcheries also provide outstanding opportunities as places of discovery, though they are often under-utilized as compared with their potential. For example, the Friends of the Bozeman Fish Technology Center (BFTC) brought the Gallatin Valley Land Trust, Montana Outdoor Science School (MOSS), and dozens of other partners together to build a teaching bridge and hiking trail which has become one of the area's favorite destinations for getting outdoors. The BFTC also partnered with MOSS to provide educational services as a means of increasing the BFTC's education and outreach capabilities. This partnership has become so solid that MOSS relocated to

the BFTC campus. This is just one example of where Fisheries Program facilities can be "adopted" by the local communities that they serve, through organizations through the efforts of Friends Groups and other outdoor-minded individuals and organizations.

Findings and Observations

The Fisheries Program has a continuing role in meeting the public's interest in fisheries conservation and quality angling experiences. The Fisheries Program supports and promotes recreational fisheries in many ways—most importantly by its actions on behalf of aquatic habitats (see Habitat and Native Species chapters), the fisheries products of the NFHS, and by increasing its efforts on getting children outdoors, often with fishing pole in hand. Its active promotion and support of the Sport Fish Restoration Program cannot be stressed enough as the SFR program is vital to fisheries programs across the country. As SFR is funded by excise taxes on fishing equipment, motorboat and small engine fuels, and import duties, all fisheries conservation agencies have a direct tie to promoting responsible use of aquatic resources. Recreational fishing has also been shown to be a "gateway" activity leading to involvement in other outdoor activities—75% of fishing enthusiasts participate in multiple outdoor activities.[43]

The Fisheries Program supports and promotes recreational fisheries in many ways—most importantly by its actions on behalf of aquatic habitats, the fisheries products of the NFHS, and by increasing its efforts on getting children outdoors. (Photo: W. Tilt)

As observed by the FY 2004 Evaluation Team, however, the universe of possible actions on behalf of recreational fishing is large, and the Fisheries Program may fall short of the high expectations held by many stakeholders and partners without a clearly defined recreational fishing role. The 2009 Evaluation finds a similar environment today; save for a handful of statements in the 2004–2008 Strategic Plan, recreational fishing activity continues to take place in a policy vacuum.

[43] Special Report on Fishing and Boating, Recreational Boating & Fishing Foundation and the Outdoor Foundation (2009), page 4.

The Fisheries Program has unequalled expertise in the culture of fish found within the NFHS, FWCOs and science facilities. Historically, attention was largely paid to important sport and commercial fish species, but increasingly the Fisheries Program is extending its expertise to restoring native species and recovering listed species. The role and impact of the NFHS has undergone a quiet transition that is remarkable. Utilizing advances in technology combined with a greater understanding of aquatic systems, the NFHS is now a vital contributor to endangered species recovery, a place of innovation for aquaculture, efficient supplier of sportfish for systems otherwise unable to sustain recreational fisheries, and a system primed to contribute substantially to aquatic education and outreach.

The focus of much of the NFHS, however, remains on supplying mitigation services as directed by legislation, court decisions and treaties. The Fisheries Program has doggedly pursued responsible parties to negotiate repayment of reimbursable obligations with mixed results. It appears that other federal agencies have grown content to have FWS bear their monetary obligation in full or in part. In the time of ever-tightening budgets, however, the Fisheries Program should strive for 100% reimbursement so that its limited budget can be applied to other priorities.

The challenges of increasing the effect and impact of outreach and education programs on today's youth should not be underestimated. Over the years, FWS and hundreds of other organizations have developed and implemented a wide range of programs directed at aquatic education. Many of these programs have received acclaim for their innovation, their ability to reach under-served audiences, etc. From anecdotal evidence it appears that many of these programs have made an impact on youths that range from pursuing careers in natural resource management to persuading their families to conserve water at home. Unfortunately, the vast majority of these programs seldom sustain themselves over more than a few years and too often fail to effectively reach a large enough audience to gain long-term traction. That said, FWS and its partners have the opportunity to develop best practices for outreach and education that gleans the learnings from other the programs that have been undertaken in the past to forge more impactful and sustained programs in the future. The Fisheries Program is encouraged to work with state fish and wildlife agencies, Fisheries Friends groups, the Recreational Boating and Fishing Foundation and many other organizations to increase the breadth and impact of outdoor education programs aimed at youth.

Recommendation to Increase Effectiveness

10. FWS/Fisheries Program should continue to pursue full cost recovery of reimbursable mitigation costs from Bureau of Reclamation and other responsible parties. Absent an acceptable negotiation, Fisheries Program should examine ways to transfer these operations to the responsible party or shutter the operations.

6. SCIENCE AND TECHNOLOGY

Context

The Fisheries Program houses significant applied science and technology capabilities that support aquatic resource management activities of the FWS, its stakeholders and partners. This expertise is highly valued and, in many cases, unique. One attribute distinguishes the Program's science and technology from that traditionally found in other scientific institutions: a focus on applied science that addresses on-the-ground management needs.

The scientific capacity of the FWS was dramatically altered in 1993 with creation of a National Biological Survey (NBS).[44] NBS drew research components from several DOI bureaus, but principally from the bureau with the most fully developed biological research capacity—the FWS. NBS received 10 research centers, 11 field stations, 38 university-based Cooperative Fish and Wildlife Research Units, and 1,627 employees from the FWS with the stroke of a pen. In addition, $110 million in appropriated funds and $48 million in real and personal property were stripped from the FWS budget. NBS was a short-lived concept that faced an overall lack of support in Congress. Ultimately its scientific capacity, already diminished from its original 1993 values, was transferred in 1996 to the U.S. Geological Survey as a new division—the Biological Resource Discipline (BRD).[45]

The concept of NBS, now housed in BRD, was to provide science support for DOI agencies with greater efficiency and better science. With the transfer of some 95% of the science capacity out of FWS and the Fisheries Program in 1993, FWS has been forced to broker a new relationship with BRD to get its science needs addressed. FWS and the Fisheries Program have also worked to retool their internal services in the attempt to support rapid turn-around for on-the-ground science needs that are not being met by USGS or other entities. Examples of the Fisheries Program's current capabilities and leadership in science and technology include:

- Seven Fish Technology Centers (FTCs) provide the field offices, hatcheries, and Regional management bodies (including recovery teams) with applied science and research solutions in genetics; ecological physiology, nutrition, cryopreservation; statistical analyses; sampling protocols; culture techniques and technologies; fish feed research and many other areas.
    - FTC scientists have published nearly 200 papers in peer-reviewed journals over the last 5 years and provide expertise on recovery teams, regional management councils and other venues, ensuring transfer and integration of scientific information into management actions.

[44] Interior Secretary Babbitt created a National Biological Survey with Secretarial Order No. 3173.

[45] Federal Land Management Agency Budget Analysis, FY 1995, National Fish and Wildlife Foundation.

- Conservation Genetics Laboratory (see box, page 89).[46] Along with the genetics capacity within the FTCs,the Conservation Genetics Laboratory provides critical information for recovery programs and other fisheries management activities, and have applications for landscape-level management and modeling. New rapid genetics analysis techniques provide managers with a real-time information basis for informed management decisions.
- Nine Fish Health Centers (FHCs) provide leadership in fish health management strategies that contribute to the survival, enhancement, restoration and recovery of fish and other aquatic species in support of national and regional priorities. FHCs provide on-the-ground fish health assessment, diagnostics and control for both wild and hatchery populations.
    - Capabilities include rapid response pathogen detection and isolation, disease diagnostics, treatment recommendations and infection control via biosecurity. FHCs manage the National Wild Fish Health Survey database, working with partners to track geographic distribution of fish disease in the wild.
- The Aquatic Animal Drug Approval Program (AADAP) conducts research and works to ensure continued progress towards obtaining FDA-approved and EPA-compliant new animal drugs for use in federal, state, tribal and private aquaculture programs throughout the United States (see box for further information on AADAP).

[46] Conservation Genetics network is comprised of five Fisheries Program facilities (Abernathy (WA), Dexter (NM), Lamar (PA), and Warm Springs (GA) FTCs, and the Anchorage Genetics Lab (AK)) and the National Forensics Lab in Ashland, OR (Law Enforcement).

Aquatic Animal Drug Approval Partnership (AADAP)

Located in Bozeman, Montana, AADAP is the only program in the United States dedicated solely to the pursuit of new, U.S. Food and Drug Administration (FDA) approved drugs for use in aquatic species. More specifically, AADAP is a research-based program that helps to lead a coordinated national effort to generate data, analyze results, compile final study reports, disseminate information and data, and manage all other aspects of requisite data submissions to FDA in support of new drug approvals.

AADAP activities are focused on the needs of public aquaculture and aquatic resource management for new FDA approved drugs. Fish culturists and management biologists require access to certain approved drugs in order to maintain the health and fitness of both captive and wild fish populations. As such, AADAP's work is geared toward creating new tools (therapeutic drugs) for enhanced fish production in public hatcheries, as well as the development of non-therapeutic drugs (e.g., spawning hormones, anesthetics, and marking agents) critical for field-based management activities.

The drug approval process is expensive and time-consuming, and the economic incentives for pharmaceutical companies to pursue "small market" aquatic species drug approvals are extremely limited. Hence, AADAP collaborates closely with pharmaceutical companies, as well as with other federal, state, and private sector entities, to complete all effectiveness and safety data requirements necessary to support FDA approval of new drugs labeled for use in aquatic species.

In additional to the FTCs, FHCs, Conservation Genetics Lab and AADAP, the FWCOs apply and promote sound science principles through on-the-ground implementation of fisheries assessment and other management activities. FWCOs have expanded expertise in population dynamics to support increased rigor in assessment activities, providing states and regional management councils with critical information for aquatic resource management (see page 30 for further discussion on FWCOs). The NFHS also provides leadership in the application of new technology to improve efficiency and effectiveness of hatchery operations in support of producing organisms that meet species recovery and restoration management objectives. Recent NFHS advances in effluent treatment, water and energy conservation, behavioral conditioning, Hazard Analysis and Critical Control Points (HACCP) planning, and innovative diets demonstrate dedication and leadership in the application of new science and technology. Many FTC and FHCs are co-located with one or more NFHs.

Basis for Evaluation

In reviewing science and technology, the Evaluation Team concentrated on two indicators that address the Program's ability to identify, coordinate and deliver science needs to the field and whether Program staff are properly trained and equipped to conduct their jobs (Table 26).

The FY 2004 evaluation also examined how well the Fisheries Program implemented and monitored Quality Assurance/Quality Control (QA/QC) and Standard Operating Procedures (SOP) policies. The FTC evaluation protocol includes criteria for the assessment of both QA/QC practices and adherence to laboratory SOPs. High compliance with these criteria was demonstrated in the last "round" of seven FTC evaluations. In addition to FTC SOPs, a broad SOP for the NFHS provides guidance for implementing sound science. As it appears that compliance to these standards are fully integrated into the Fisheries Program facilities and programs, the FY 2009 Evaluation Team elected not to focus on that aspect.

Table 26 | **Science & Technology: Indicators, Baselines, and Benchmarks**

Indicator	Measure	Baseline (FY 2004)	Performance (FY 2009)	Target (FY 2013)
6.1. FP effectively identifies fisheries research needs, coordinates with partners, and delivers requested results.	#/% of science needs being addressed.	51/101 (50%) in recovery plans; 96/206 (47%) in FMPs.	NP	75%
	Available funding/Identified science needs (%).	NA	$27 million/$72 million (38%)	60%
	% of applied science and technology tasks implemented as prescribed by Recovery Plans.	50% (51/101)	61% (710/1173)	75%
	% of applied science and technology tasks implemented as prescribed by FMPs.	47% (96/206)	59% (2241/3760)	75%
	# of applied scientific/technology tools developed and shared with partners through publications.	222	311	400
6.2. FP employees are adequately trained and equipped.	# of FP employees trained and provided in-service opportunities in science and technology applications.	315/ total 830 FTEs received all forms of training.	NP	100% of key scientific staff receives training appropriate to their expertise.
	# of peer-reviewed publications and technical presentations.	512/127	NP	50%+ of FP scientific staff publishing peer reviewed journals annually.

NP= Information requested by Evaluation Team but not provided by Fisheries Program during course of this evaluation.

The former Fisheries Program performance measure "number of peer-reviewed publications and technical presentations" was revised by the Fisheries Program in 2009. The new performance measure, "total number of applied aquatic science and technological tools developed and shared with partners through publications," counts only the number of publications accepted and published in peer-reviewed journals.

Results

The Evaluation Team examined the following three elements that it believes are the most critical components for review: 1) Science Capacity, 2) USGS Science Support, and 3) Training and Equipment. A brief examination of the cooperative research unit program is also provided.

Science Capacity

Science needs within the Fisheries Program are generally developed from the field up. The Fisheries Program's Fisheries Information System (FIS) provides the central method by which the Program assesses its science needs and capacities and establishes priorities. The Fisheries Operational Needs (FONS) module of FIS documents and ranks needs within the context of specific recovery plans, fisheries management plans and other obligations, as well as the Fisheries Program strategic plan objectives. Assessment and ranking of needs is conducted annually by regional offices. In 2009, there were 198 FONS projects, with year 1 funding needs of $25.5 million, ranked as priorities relative to the strategic plan objective "Develop and share applied aquatic science & technology tools with partners." From this, a total of 11 projects (5.5% of requested projects) were funded with $504,498 (2% of requested funding).

The unmet science needs of the FWS in FY 2010 are estimated at $230 million—reflective of the enormous unmet need for science capacity. While substantial progress has been made in such areas as conservation genetics, many science support needs remain unmet, and emerging science needs will further tax current capabilities. Expanded applied research capabilities in population dynamics and modeling, aquatic ecology and physiology, GIS, genetics, and aquatic animal health have been identified by the Fisheries Program as high priority needs for addressing emerging management issues. However, flat and eroding base funding has limited the Fisheries Program's efforts to meet growing science support needs. In addition, support from USGS-BRD has not met expectations. For example:

- **FISH TECHNOLOGY CENTERS (FTCS):** FTCs are uniquely positioned to provide innovative, applied science as well as science support for emerging issues such as climate change. Their success in establishing a coordinated network of genetics laboratories is exemplary, but their capabilities in priority areas like population dynamics, modeling and physiology are razor-thin with additional research staff and laboratory facilities needed to ensuring this capacity.
- **FISH HEALTH CENTER (FHCS):** As the incidence of new diseases and aquatic invasive species increases, expansion of existing capabilities will be required to meet diagnostic, policy and fish health research needs. On-the-ground fish heath assessment will be critical to preventing new disease outbreaks and adequate staffing will be required to meet this need.

- **NATIONAL FISH HATCHERY SYSTEM (NFHS):** The average National Fish Hatchery's age is approaching 60, with several over 100 years old. Although the NFHS is positioned to be a model in the implementation of sound science and technology, a major re-tooling of the NFHS facilities and infrastructure is required to fully meet desired objectives. Maintenance backlogs and vacant positions compromise the ability of NFHs to fully implement state-of-the-art science and technology in their operations (see Workforce and Asset Management sections for further discussion).
- **FISH AND WILDLIFE CONSERVATION OFFICES (FWCO):** FWCOs currently have significant fish population dynamics and modeling expertise but fall short of current and growing demands. They are well positioned to provide science and technology tools for restoring impaired fish habitats and meet expanding population dynamics and modeling needs. Despite significant work load shifts towards fish habitat conservation that have emerged over the past decade, FWCOs struggle to invest in habitat assessment technologies and skill sets due to lack of funding as well as direction from workforce management planning. Increased priority on the fisheries science role of FWCOs is critically needed.

The FY 2004 Evaluation Team expressed its concern over the lack of focus on science and its role in both the Fisheries Program and FWS as a whole. It found "no convincing evidence that prioritized resource management needs are consistently linked to the Program's Strategic Plan or coupled with capabilities or needs for science and technology. Rather they appear to be opportunistically pursued where financial resources are available, or might become available."

In response to this critique and its subsequent PART review, the Fisheries Program currently reports the percent of tasks implemented as prescribed in three task-based performance measures: 1) recovery plans, 2) mitigation plans, and 3) fishery management plans. FIS documents tasks and accomplishments while all FONS projects (for science and otherwise) are linked to a specific strategic plan objective and then ranked by the Regional Offices. A set of "Science & Technology" tasks are presented in Table 27.

The Fisheries Program houses significant applied science and technology capabilities that support aquatic resource management activities of the FWS, its stakeholders and partners. (Photo: Ron Skates, USFWS)

Table 27 | **Selected Science & Technology Metrics, FY 2004–2009***

Metric	FY 04	FY 05	FY 06	FY 07	FY 08	FY 09
# of applied scientific/technology tools developed and shared with partners through publications. [1/]	222	206	632	614	394	311
% of applied science and technology tasks implemented as prescribed by Recovery Plans. [2/]	50% (51/101)	69% (66/96)	59% (93/157)	67% (96/143)	60% (707/1177)	61% (710/1173)
% of applied science and technology tasks implemented as prescribed by Mitigation Plans. [2/]	–	–	86% (6/7)	33% (1/3)	69% (37/54)	82% (46/56)
% of applied science and technology tasks implemented as prescribed by FMPs.	47% (96/206)	50% (68/136)	63% (130/205)	61% (134/220)	60% (2150/3599)	59% (2241/3760)

* Prior to FY2006, these measures only reported NFHS accomplishments. After FY2006, these measures reported all accomplishments including FWCOs, AADAP & Region 9. FY2004 data from National Fisheries Program Strategic Plan Fiscal Years 2004–2008. FY2005 data from FY07 Budget Justification Greenbook. FY06–07 data from FIS archived PM reports. Individual tasks were broken out in those two fiscal years. FY08-09 data from FIS archived PM report, however, all tasks were included in the task-based measure for PART, (i.e., not broken out).

[1/] This was a NFHS workload measure initially but did not include FWCO accomplishments.

[2/] After the 2006 Fisheries PART, all individual task base measures (e.g., applied science and technology tasks) were combine together under FMPs, Recovery Plans, or Mitigation Plans as new Fisheries PART measures. Increased number of tasks due in part to new plans added to the FIS plans module each year.

The 2004 Evaluation Team also stated its concern that the Fisheries Program "is attempting to address its science and technology needs through its own staff, rather than seeking expertise outside the program." The Program's primary outside source is the USGS-BRD, addressed below. An examination of the FIS Accomplishments Module captures partner information for all activities in the Fisheries Program, including science & technology development activities. Ample evidence of collaboration is found across the Fisheries Program in pursuit of common science objectives. In addition, the FTC evaluation program specifically assesses the extent to which each FTC collaborates with science partners outside the facility.

USGS Science Support

The business model attempted in 1993 with the creation of the National Biological Survey and ultimately housed in USGS/BRD emphasized the centralized delivery of science support within DOI. But 16+ years of practical experience suggests the concept has failed. While USGS unquestionably conducts important scientific work, it has failed in large measure to fulfill FWS's crucial mission-driven science needs. USGS budgets have been inadequate to fulfill these needs and many observers see an ever-widening gap between USGS priorities and the applied science needs of FWS and its Fisheries Program. Despite commitments made in 1993, there appears to be no effective process for determining and pursuing common priorities for applied management science, no uniform DOI implementation of biological monitoring, and no consistent and effective process for science and technology transfer to DOI agency managers.

While limited and inconsistent, USGS does provide valuable support across regions; examples include:

- In Region 1, the Oregon State University's Coop Unit works collaboratively with the FWS (Abernathy FTC) on various projects.
- In Region 2, USGS provides hydrology information that complements FWS's biological information for the Edwards Aquifer.
- In Region 5, the USGS Leetown Science Center provides assistance with a multispecies management model/framework for horseshoe crab and red knot.
- Patuxent Wildlife Research Center is assisting San Marcos FTC with modeling related to Edwards Aquifer Recovery Implementation Program (also structured decision support training).
- USGS provides genetic tagging support for Connecticut River Atlantic salmon restoration program.
- USGS has conducted studies of Atlantic salmon early life ecology and survival in Maine rivers.
- USGS provides structured decision making support for a variety of issues.
- USGS Coop Unit (VA Tech) assists with culture of endangered freshwater mussels in the Appalachians.
- USGS's Upper Midwest Environmental Science Center has assisted in the generation of efficacy and safety data required to support the approval of new drugs for use in aquatic species.
- USGS participates in FTC Evaluations and vise versa.
- San Marcos FTC has worked collaboratively with the USGS Columbia Environmental Center (currently collaborating on a chlorine and ozone toxicity study for escapement prevention) and Patuxent Wildlife Research Center.

The primary avenue for USGS budget support to FWS science needs is Science Support Partnership (SSP) funding. SSP funding is provided to USGS researchers to address priority needs of FWS programs, to be shared among all six FWS programs and allocated on a regional basis. Unfortunately, this funding (approximately $4 million annually, for new and ongoing research benefitting FWS programs) has not been adequate to address the extent of Fisheries Program research needs. For example, in 2009, the Fisheries Program was the recipient of $6250,000 in research projects, out of $4.0 million total funding made available to FWS research projects.

Research needs and SSP projects are tracked by the Fish & Wildlife Information Needs and Studies (FWINS) database. The database is available to any FWS user to enter needs or track SSP project progress or results. Currently, all Washington Office SSP projects and some regional projects are required to be entered into the database. However, all SSP projects across all regions are not consistently tracked in the system. The FWINS database is funded and managed by the Service's Office of Science Support.

Over the years FTCs have obtained funding for collaborative work as part of SSP projects with USGS. However, USGS now requires the funding to be used exclusively by USGS laboratories, and the required administrative overhead further taxes the value of the SSP program. If increased funds were available, FWS would likely use the USGS laboratories more, though often they would be required to transfer work to USGS laboratories away from FTCs/FHCs/Genetic Centers where the capacity and expertise already exists, but not the funding.

Beyond inadequate funding and administrative barriers, however, there are other issues related to SSP that need to be addressed. For example, a lack of incentive for USGS researchers to conduct applied research with limited publication value has been identified as a barrier. Also, lengthy delays in obtaining access to USGS generated data have occurred in the past (for researchers who prefer not to release data prior to publishing), which limits timely management applications.

In addition to USGS funding, FTCs and FHCs receive increasingly important funding support from "soft-money" (aka "reimbursable funds") sources such as grants and fellowships. While a vital source of support, "soft money" is so-named because of its ephemeral nature. In addition, it has a profound impact on what is considered a "priority." Faced with insufficient base funding, priorities become what can be funded. The pros and cons are illustrated by Abernathy FTC. As noted in its 2008 evaluation, "the Center is very successful in obtaining non-Service funds to conduct much of its research and technical assistance. This creates flexibility within the programs but also leads to hiring temporary and term employees. The Conservation Genetics and Ecological Physiology programs require highly specialized skills. The constant turnover of employees can create an intellectual gap between hires and requires re-training of new personnel."[47]

The current situation with growing dependence on soft money shifts the focus from addressing science priorities to addressing what can be funded. Science "priorities" become increasingly opportunistic at the very time it should be becoming more targeted.

Quality of Science

Program review is one indicator of quality control. To this end, all FTCs are required to undergo field evaluations. The stated purpose of these evaluations is to ensure the quality, relevance and integration of FTC activities, to maintain quality control of FTC products, and to ensure that FTCs are productive and address priority aquatic resource needs.[48] The evaluation teams are led by the National Research Coordinator and include external science partners from USGS and other federal agencies, states, and universities. The review protocol includes an evaluation of program performance in relation to Fisheries Strategic Plan objectives (degree of alignment). In the last round of seven evaluations, the FTCs were found to be 100% aligned. Each center is to be evaluated "at least every 5 years." Table 28 summaries the status of these evaluations.

[47] Abernathy Fish Technology Center Evaluation Program, October 6–10, 2008, FWS, p 4.

[48] Fish Technology Center Evaluation Program, revised February 2007, FWS, p 2.

Table 28 | **Field Evaluations of Fish Technology Centers**

Fish Technology Center	Year Established	Last Evaluation	Next Evaluation
Abernathy FTC, Washington	1972	10/2008	10/2013
Bozeman FTC, Montana	1983	4/2006	4/2011
Dexter FTC, New Mexico	1991	2/2008	3/2012
Mora FTC, New Mexico	1997	10/2005	10/2010
NE Fisheries Ctr. (Lamar) FTC, Pennsylvania	1965	10/2006	10/2011
San Marcos FTC, Texas	1977	1/2002	5/2010
Warm Springs FTC, Georgia	1993	8/2007	8/2012

Another indicator of scientific capability is the volume of published papers. Fisheries Program staff are actively involved in disseminating the results of their work through peer-reviewed channels. The Evaluation Team reviewed information on the number and subject matter of peer-reviewed articles indicating that Program scientists are publishing and being recognized. Table 27 provides the number of applied scientific/technology tools developed and shared with partners through publications demonstrating the importance of publishing results.

The FY 2004 Evaluation recommended that all scientific investigations, whether successful or not, have a final report or publication. FTC scientists have several options for sharing research information that may not warrant a lengthy paper including the Journal of Fish & Wildlife Management, and Technical Information Bulletins (following in-house FTC guidelines/review process).[49] The FTC QA/QC Protocol stipulates that "grey" literature be recorded in FTC Technical Bulletins.[50] A new FWS Publication Series (2009) is now available that provides an on-line venue for sharing short papers (Journal of Fish & Wildlife Management – Notes).

Fisheries Program scientists also hold several active patents, one patent license, and have entered into Cooperative Research and Development Agreements (CRADAs) with private sector entities for technology development. The FWS Technology Transfer Policy stipulates awards/incentives for technology transfer activities.

[49] Research Information Bulletins (RIBs) and Fact Sheets are relatively simple 1–2 page flyers that cover all aspects of natural resource science to inform others about the final or interim results of recently completed and ongoing studies, new techniques, or new information useful to a variety of audiences, including resource managers, scientists, and the general public. Timely interim information is often provided for long term studies, or as more readable and accessible synopsis of more in-depth publications. Notes is one of four manuscript categories of the Journal of Fish & Wildlife Management, characterized by shorter research papers of more limited scope and inference.

[50] Grey literature refers to a body of scientific material not easily found through conventional published channels such as technical reports from government agencies or scientific research groups, working papers, or white papers.

Employees are encouraged to be active members in professional societies, such as the American Fisheries Society, and flexible work schedules may be offered to pursue advanced degrees. One of the primary ways researchers and scientists stay up to date is through interactions with professional colleagues by attending professional meetings, symposia, etc. To attend professional meetings, however, staff need to be nominated and receive regional office approval. This proves both difficult to budget and receive approval, especially in light of tight budgets.

As a policy, the Fisheries Program actively supports training to enable its personnel to meet the FWS goal of at least 40 hours of training annually for each employee. Program staff have access to training opportunities offered by the National Conservation Training Center (NCTC) as well as other governmental and non-governmental offerings. Much of this training is technology and science-based. In addition, employees are encouraged to identify training needs on an annual basis in an Individual Development Plan (IDP - a part of the FWS Employee Performance Planning process). For upper-level biologists, keeping abreast of advances in science and technology also requires interactions within the larger scientific community and training that is available only outside FWS.

Cooperative Research Units

When the FWS was established in 1940, a system of university-based Cooperative Research Units (CRUs) were an integral part of the agency's science base. In 1993, the CRUs were transferred out of the FWS and ultimately housed under the USGS. At present, the USGS Cooperative Research Units program consist of 40 cooperative fish and wildlife research units located on university campuses in 38 states. The CRU program is a partnership among USGS, FWS, state natural resource agencies, host universities, and the Wildlife Management Institute. CRU's mission is to 1) conduct scientific research for the management of fish, wildlife and other natural resources, 2) provide technical assistance to natural resource managers in the application of scientific information, and 3) train future natural resource professionals. USGS funds 2–5 federal research scientists at each unit with each host university providing office space and administrative support. Federal and state agencies provide base funding and logistical support for research activities. The National Cooperators Coalition completed a strategic plan for 2007–2011 which targets enhanced graduate education, conducting large-scale research that transcends ecological and state boundaries, and integrating science with conservation and management more comprehensively.

While not directly linked to the FWS Fisheries Program, the Evaluation Team provides a brief examination of the CRUs here as a result of the vital role CRUs play in augmenting fisheries research capacity and in training tomorrow's Fisheries Program professional.

Similar to the Fisheries Program, the CRU face flat budgets and rising costs (see Workforce discussion, page 98). From FY 2001–2006, USGS appropriated funding for the CRU program changed minimally, while uncontrollable costs related to mandated salary increases rose substantially. The cumulative impact of these costs represented a net loss of over $2 million in spending power, or roughly 12% of CRU's annual budget since FY 2001. During this time period, the program redirected cost savings from vacated positions and reduced Headquarters operations to cover salaries and benefits of

the remaining unit scientists and staff. Funding from FY 2007 to FY 2010 (proposed) increased from $14.76 to 19.31 million while vacancies increased to 26 scientists.[51] Table 29 illustrates both the great potential of the CRU program and its vulnerabilities (information not available for FY 2007–2009).

Table 29 | **Cooperative Research Units Annual Performance Summary, FY 2002–2006**

Activity	FY 02	FY 03	FY 04	FY 05	FY 06
Academic Service Courses	42	55	38	49	45
Guest Lectures	82	89	98	69	24
Honors Or Awards	109	133	111	72	48
Papers Presented	792	745	859	693	213
Technical Publications	159	142	133	134	29
Theses And Dissertations	119	150	140	111	38
Scientific Publications	410	381	332	237	5
Students - Current	545	579	592	581	574
Students - New	164	148	124	134	41
Students - Graduated (Masters)	77	101	96	107	62
Students - Graduated (PhD)	30	17	20	20	31

Findings and Observations

The science being conducted by the Fisheries Program is largely directed at high priority needs within capacities increasingly strained by tight budgets and reduced personnel. From the evidence examined, the science and technology output of the Fisheries Program is of high quality, as evidenced by the large number of peer reviewed articles published in the scientific literature. Projects with funding get accomplished while other high priority projects without available funding do not. This leads to greater emphasis on locating soft money sources, which in turn leads to hiring temporary and term employees. The resulting turnover of employees can create intellectual gaps between hires and require re-training of new personnel.

Science needs identified in the National Fish Habitat Plan, Fish Passage Program and fishery management plans are rolled up in a relatively efficient manner. But the gap between identified needs and available funding is profound. The Evaluation Team's cursory examination of the science needs of the Fisheries Program and its existing capacity suggests a great deal of important work is not getting accomplished due to a lack of funding and an ineffective relationship with USGS. This "Science Gap" reflecting unfulfilled research needs was estimated at $51.4 million in FY 2009 (Table 30). Projects that are critical for FWS and the Fisheries Program do not get funded due to inadequate funding levels.

[51] Cooperative Fish and Wildlife Research Units Program, Annual Report 2006, USGS.

Table 30 | **The Science Gap, FY 2006–2009**

Metric	FY 2006	FY 2007	FY 2008	FY 2009
Identified science needs (FONS)	–	–	–	$71,706,627
Total Hard Funding (FP budget, Science Support Funding+)	12,526,389	15,165,249	19,496,305	20,282,804
Gap	N/A	N/A	N/A	$51,423,823
Total Soft Money support	$4,376,077	$5,565,269	$7,143,253	$6,848,043

N/A = Not available as FONS database does not track snapshots of past year's needs.

Since 1996, FWS has been working jointly with USGS/BRD to conduct research of importance to the field practitioners. Unfortunately, funding has been static, purchasing power has waned and there is an ever-widening gap between SSP-conducted research and the applied management needs of FWS. In addition, SSP funding supports USGS facilities even when a FWS facility already has the capacity and staffing. As a result of funding shortfalls, soft money is increasingly directing the nature and scope of science, not necessarily the needs of on-the-ground practitioners. There is little to suggest that the business model that has under-delivered for the last 16 years will do anything but under-deliver into the future.

While numerous training opportunities are available to Fisheries Program staff to hone science and technology skills, the Evaluation Team found the need for a logical process to make sure the right employees are receiving the appropriate training in a timely fashion. An improved process should be part of employees' annual performance reviews and/or station evaluations as are conducted by the FTCs.

The CRUs play a vital role in increasing fish and wildlife research capacity as well as training tomorrow's Fisheries Program professionals, but the CRUs face many of the same challenges as the Fisheries Program. The overall impact is being diminished as a result of budget issues and a lack of overall leadership pressing to maintain the CRUs as a vital partner in applied fish and wildlife research as well as a conduit for tomorrow's FWS professionals.

Many species, from Atlantic Sturgeon to Coho Salmon benefit from the science and technology capacity of the Fisheries Program. (Photo: USFWS)

The FY 2004 evaluation presented three recommendations for Science and Technology: 1) develop a system for prioritizing resource management needs linked to the Fisheries Program strategic plan, 2) assure that all scientific investigations, whether successful or not, have a final report or publication, and 3) develop a sharper tool to track its requests

to USGS and the level of project support received. As outlined in this chapter, the Fisheries Program has made significant progress in addressing all three recommendations.

The Evaluation Team concludes the Fisheries Program is highly effective at conducting important science and is making important contributions to fisheries science. FTC/FHC/AADAP/Genetics Lab scientists are recognized as world leaders in areas of fish culture, fish health and conservation genetics. Science at the research facilities is carefully planned and directed, as witnessed by the results of FTC programmatic evaluations. Fisheries Program staff have maintained a high level of peer-reviewed publications while providing an important outlet for grey literature, which is often useful to field operations that need to move quickly and can make use of more general knowledge.

The Evaluation Team notes the increasing attention being paid by FWS and the Fisheries Program to climate change and Strategic Habitat Conservation (SHC). Efforts are underway to develop Landscape Conservation Cooperatives (LCCs) across the country to focus on these issues. These issues are obviously important—aquatic systems will be among the most impacted under any climate change scenario and habitat conservation must be strategic to be successful. The Evaluation Team states its concern, however, that the FWS and Fisheries Program are spending a large amount of effort and funding on developing these seemingly new programs rather than clearly maintaining their long-term core competencies within the context of these new initiatives. FWS leadership in the development of the NFHAP clearly illustrates that the agency has been in the strategic habitat conservation business before now. There is little need to create new LCCs at a time when existing science facilities have underutilized capacities that are increasingly forced to operate on soft money.

The unfortunate reality is that programs such as LCCs, regardless of their inherent merits, are too often viewed by Congress as politically motivated and seldom survive intact from one administration to the next, resulting in a net drain on the FWS/Fisheries Program core competencies. The Evaluation Team encourages the Fisheries Program to focus its aquatic conservation mission on a foundation of core competencies such as NFHAP, Conservation Genetics and FWCO outreach that is framed in the larger context of workforce management (see Workforce chapter, page 98).

Recommendation to Increase Effectiveness

11. Undertake a detailed analysis of the existing business model of USGS BRD providing science support to FWS and other DOI agencies.

Alaska's Conservation Genetics Laboratory (CGL)

Understanding genetic relationships among organisms is crucial in defining population boundaries, management units and potential migrations corridors. The Fisheries Program's genetics centers provide the basic science to help the Service and its partners to better measure and assess the taxonomic status and population relationships of fish and wildlife. Conservation genetics is the application of genetic sciences to inform the conservation of species. Genetic variation provides the raw material for species adaptation and evolutionary flexibility in response to environmental change. As genetic diversity declines, a species' ability to adapt to environmental change decreases and extinction risk increases.

The Alaska Conservation Genetics Lab (CGL) was established in 1987 in Anchorage as FWS's first conservation genetics laboratory. CGL projects focus on dozens of species, from salmon to sea otters, from Russia to the Lower 48. Two areas of emphasis in CGL research are the characterization of Population Structure and Mixed-Stock Analysis (MSA). The CGL is equipped to perform multiple types of genetic research, from microsatellite analysis to direct DNA sequencing. Lab staff have published over 40 scientific articles in peer reviewed literature since 2000. CGL serves a keystone role in the FWS "Conservation Genetics Community of Practice" that provides a geographically diverse network of expertise, cross-regional collaboration and shared standards.

As an example of practical and timely application, CGL uses MSA to provide managers with information on specific patterns of salmon migration and harvest allowing regulation of subsistence, commercial and sport fisheries. CGL is currently using MSA across the Arctic-Yukon-Kuskokwim region to provide managers vital information for chum, coho and chinook salmon, as well as for dolly varden from southeast Alaska to Russia. CGL is providing stock-of-origin allocation estimates to state and federal managers from chum salmon samples collected at the Pilot Station test fishery—less than 48 hours after receiving them in the lab. By combining this information with sonar abundance estimates, CGL is able to provide critical run strength and timing information —weeks to months ahead of other sources of stock-specific information, such as weir and escapement projects.

The cost of providing this type of genetic information is minimal when compared to the cost of many traditional fisheries projects, such as weirs mark-recapture studies, especially in remote locales. In fact, some projects have been eliminated due to our ability to replace and enhance the information they provided with genetic analysis for tens or even hundreds of thousands of dollars less.

7. ASSET MAINTENANCE

Context

The Fisheries Program's mission is significantly dependent on having functional physical assets, such as field offices, fish hatcheries and water supplies, and safe and reliable equipment (distribution trucks, movable pumps and generators, boats, etc.). Asset maintenance involves proper, ongoing maintenance of the Fisheries Program's real property inventory. Program-wide, these assets are estimated at $1.63 billion, including 71 NFHs and 65 FWCO offices. Fixed assets include such items as buildings, roads, bridges, levees, water management structures, fish raceways, boardwalks, fences and other structures and facilities. They also include structures on the National Register of Historic Places, such as D.C. Booth Historical NFH in South Dakota and other historically important buildings such as the Montana FWCO at the Bozeman FTC. Most of the fixed assets lie with the NFHS since the FWCO offices are largely co-located with other NFHS or FWS facilities or are leased from the General Service Administration (GSA). Fisheries Program staff consider 75% of NFHS' assets as mission critical including its water supplies and rearing units. Many of these facilities are also uniquely located due to their dependence on presence of a clean and reliable water supply. Current replacement values for real property and equipment values for science centers are included under NFHS.

In addition, the Fisheries Program maintains $56 million worth of personal property (equipment) that must be kept in a safe operating condition. Personal property includes all moveable equipment items with an acquisition cost of $5,000 or more, such as automobiles and trucks, heavy equipment, boats, all-terrain vehicles and shop/laboratory/office equipment, including laptop computers. The NFHS has approximately $35 million and the FWCOs some $21 million worth of personal property. Funding for these items within the NFHS comes through the NFHS maintenance and equipment budget element 1321 and the construction element 2830 of the FWS budget. The NFHS maintenance budget has three components: 1) annual maintenance, 2) deferred maintenance, and 3) equipment repair and replacement. Funding for FWCO equipment comes through 1322, FWCO maintenance and equipment.

The average NFH is 65 years old, with its oldest operating hatchery, Neosho NFH in southwest Missouri, being more than 122 years old (established in 1888). Years of use have resulted in an aged infrastructure in need of constant repair, while shifting missions require refurbishment to allow the culture of native species not previously kept in captivity.[52]

[52] The first "fish hatchery" operation in the United States was a facility located on the McCloud River in northern California. Established in 1872 by Livingston Stone under the direction of Spencer Baird, the station stripped salmon and rainbow trout eggs for stocking efforts throughout the country. The facility no longer exists.

The FWS uses the Service Asset Maintenance Management System (SAMMS) to document facility and equipment maintenance needs and deficiencies, justify budget requests and provide a basis for management decision making. It includes property inventories (for fixed assets $5,000+), condition assessments (providing facility condition index), budget planning and a management reporting system.

The condition of physical assets is tracked by the Facility Condition Index (FCI), which calculates an asset's repair need as a fraction of its replacement value.[53] DOI standards state that mission critical assets should be kept in "good" condition, with a repair need fraction of less than 5%. A rigorous condition assessment process ensures that the NFHS's repair needs are objectively determined. Each station conducts an annual condition assessment with a comprehensive condition assessment undertaken by FWS every five years.

Facility Condition Index	Good	Fair	Poor
Cost to repair/Replacement Cost	0–5%	>5–10%	>10%

For personal property, each station tracks its equipment's useful life and its operations and maintenance costs, and judgments are made when a particular piece of equipment's condition warrants replacement.

With a primary goal of ensuring that the Fisheries Program's critical assets are in fully operational condition, attention to both annual maintenance (regular servicing of water supply components) and deferred maintenance (outstanding repair needs of these vital assets) is necessary.

Basis for Evaluation

Ensuring Fisheries Program facilities are fully functional is critical to its mission and its ability to play a pivotal role in conserving aquatic species. For this evaluation, FCI provides a strong measure for the overall condition of fixed assets relative to the maintenance and deferred maintenance costs. A similar measure for personal property is "useful life," though its calculation is more subjective. Industry standards dictate a minimum of 2% of total asset value being set aside annually for maintenance. Indicators, baselines and benchmarks addressing the Fisheries Program's asset maintenance are presented in Table 31.

[53] For example, if a building's replacement value is $1,000,000 and the cost of correcting its existing deficiencies is $100,000, the building's FCI is $100,000 divided by $1,000,000; that is 0.10 or 10%. When the FCI is higher, the condition of the facility will be worse. General industry guidelines are: 0-5% is good; 5.01-10% is fair; and greater than 10% is poor.

Table 31 | **Asset Maintenance: Indicators, Baselines and Benchmarks**

Indicator	Measure	Baseline (FY 2004)	Performance (FY 2009)	Target (FY 2013)
7.1. FP maintains physical assets and equipment in safe and functioning condition.	Facility Condition Index of mission critical assets	19% (Poor)	11.4% (Poor)	Assets in "Good" condition (>5%)
	Useful Life of Personal Equipment	NP	NP	Personal property is operated in and does not exceed useful life.
	Maintenance funding at 2% or better of total asset value	>1%	>1%	2%

NP= Information requested by Evaluation Team but not provided by Fisheries Program during course of this evaluation.

Results

The following evaluation examines 1) Condition of Facilities 2) Equipment, 3) Energy Costs and 4) Lost Opportunities due to aging infrastructure. Lastly, the case history of the National Wildlife Refuge System and its maintenance is examined briefly. A set of selected performance measures for asset maintenance is presented in Table 32.

Table 32 | **Selected Asset Maintenance Metrics, FY 2005–2009**

Metric	FY 05	FY 06	FY 07	FY 08	FY 09
Facility Condition Index (FCI) of FP Mission Critical Facilities	19%	10%	12%	11%	11.4%
% of NFHS historic structures in good condition	85%	N/A	81%	76%	81%
Estimated Deferred Maintenance for FP (millions of $)	N/A	$29.0	$24.0	$28.8	$28.8
% of equipment ($5–$25K) replaced consistent with prescribed normal useful life replacement standards	NP	NP	NP	NP	NP

NP= Information requested by Evaluation Team but not provided by Fisheries Program during course of this evaluation.

Condition of Facilities

The ability of the NFHS to accomplish its mission is largely determined by the condition of key assets associated with water delivery, aquatic species culture, and effluent management. These assets include water delivery and water discharge systems as well as rearing and holding facilities. Three-fourths of the NFHS's $1.63 billion of real property assets are mission-critical. These are the water management assets directly tied to fish production, wells, raceways, tank rooms, emergency pumps and similar systems.

The NFHS has developed asset performance measures and believes it has a sound strategy for ensuring its crucial assets are kept fully functional. Condition of facility assets is measured by the FCI, an indicator of condition commonly applied in both private industry and government. The DOI standard is that mission critical assets be maintained in "good" condition. In FY 2009, the FCI of mission critical assets was 11% ("poor" condition by DOI standards). Such condition places the NFHS at risk, forced to operate at reduced efficiencies, increased deferred maintenance costs and reduced conservation outputs due to such factors as fish losses associated with water supply failures.

Private industry standards for asset maintenance call for annual maintenance funding of about 2% of value for typical assets. For the NFHS with total assets of $1.63, this would represent $32.6 million in annual maintenance. FY 2010 maintenance funding, however, is estimated at $17.6 million ($8.223 annual maintenance, $8.269 deferred maintenance and $1.167 million for equipment) representing an annual maintenance deficit of some $15 million. Fortunately, the NFHS is benefitting from the American Recovery and Reinvestment Act of 2009 (ARRA). There are a total of 186 ARRA projects in the NFHS totaling $34.171 million: 172 deferred maintenance projects worth $28.950 million, nine capital improvement projects worth $4.585 million, and five energy efficiency projects worth $636,000. These projects, funded in FY 2009–2010, chiefly target mission-critical assets and will help keep the repair need (as a fraction of the assets' replacement value) of the NFHS's critical assets under 10%, indicating fair condition, through the end of FY 2010. However, as the National Wildlife Refuge example illustrates (page 96), failure to maintain an adequate ongoing maintenance budget will quickly result in a growing list of deferred maintenance.

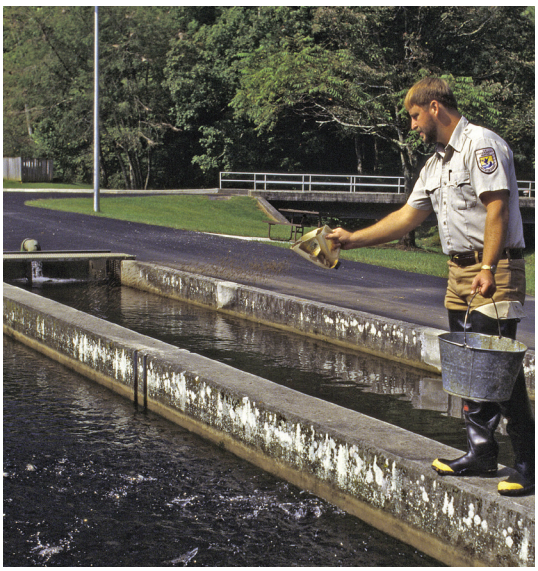
The NFHS focuses its limited maintenance budget on high-priority, mission-critical water management projects and human health and safety projects in an effort to maintain current efficiencies and prevent production losses. The NFHS currently has $152 million in deferred maintenance needs identified. NFHS has developed a 5-Year Deferred Maintenance/Construction Plan, which provides the projects of greatest need in priority order with focus first on critical health and safety and critical resource protection. The long-term goal is to get these critical assets into good condition with a repair need under 5%. Unfortunately, water supply failures continue to impact significant fish production programs at several stations (see Lost Opportunities below).

Equipment

A wide range of personal property (equipment), valued in excess of $56 million, is essential to Fisheries Program operations.

For the FWCOs, maintenance and equipment funds are for the purchase and upkeep of over $21 million in assets such as boats, vehicles and sampling equipment. This equipment is essential for inventory and monitoring of native species, and critical to the Fisheries Program's mission to restore native aquatic populations to self-sustaining levels. Fisheries offices use SAMMS to provide a comprehensive understanding of preventive maintenance needs and accomplishments.

Over $35 million worth of equipment is utilized by the NFHS, consisting of machinery (fish pumps, tractors, loaders, backhoes, riding mowers), fish transports (trucks, tanks, oxygen containment), standard vehicles (pickups, sedans, vans), and tools (table saws, welders and hand-held power tools). With proper operation by trained and qualified operators, and with scheduled maintenance completed and documented in a timely manner, equipment can be safely operated over its full functioning lifespan.



The ability of the National Fish Hatchery System to accomplish its mission is largely determined by the condition of key assets associated with water delivery, aquatic species culture, and effluent management. (Photo: USFWS)

Replacement efforts generally target items with a value between $5,000 and $30,000, and include passenger vehicles. More expensive equipment is identified for purchase in the Five-Year Deferred Maintenance Plan. To minimize the need to purchase expensive, specialized equipment, the NFHS works closely with the National Wildlife Refuge System to accomplish certain projects. In the event of scheduling conflicts, specialized equipment is leased from the private sector and refuge-based equipment operators are loaned to hatcheries for the duration of the project, saving the Service considerable funds.

In theory, the Fisheries Program attempts to manage its equipment using "useful life" replacement standards. A piece of equipment's useful life is an educated guess on how long the equipment can be expected to last with an estimate of the repair and replacement costs. The assumption is that the orderly replacement of equipment, similar to routine maintenance, is more cost effective than the alternative of using equipment until it breaks. The Program acknowledges that while it would be preferable to replace equipment when it exceeds its useful life, funding is not available. As a result, the Program uses equipment until it fails or becomes unsafe to use before it is replaced. The Program was unable to report the percentage of equipment replaced within useful life standards (Table 32).[54]

[54] The Service has a policy on motor vehicle replacement (http://www.fws.gov/policy/320fw2.html). Fisheries Program staff report that fish distribution trucks routinely exceed the policy due to lack of funds to replace them.

Energy Costs

The movement (pumping) and the heating and cooling of water have always been energy-intensive activities. Not surprisingly, NFHs are energy-intensive stations, as illustrated by the following:

- NFHS real property assets constitute 8% of all Service assets by replacement value, yet account for 31% of all energy use.
- NFHs represent 7% of total FWS-wide assets, yet consume 31% of the energy (16 NFHs account for 60% of all NFHS energy use).
- The average NFHS field station uses 2.3 billion BTUs annually—three times the 0.7 billion BTU average used by non-NFHS field stations.

NFHs have enormous opportunities for operational improvement resulting in reduction of energy costs, including building renovations, use of newly developed technologies and deployment of renewable energy systems. Two specific examples are the use of variable frequency drive water pumps, which offer electrical use reductions of 50% when pump speeds are dropped by only 20%, and installation of micro-hydro turbines in water lines at certain fish hatcheries which could provide all necessary electricity for the stations. Further analysis of the NFHS's energy expenditures, along with increased metering, are first steps to increasing efficiencies that can help NFHs lower energy costs and reduce their carbon footprints.

Lost Opportunities

With these critical assets in overall poor condition, situations occur where fish or other species are lost or placed at considerable risk. Recently discovered water line leaks at Alchesay NFH in Arizona, for example, reduced the water supply by half, forcing a large early release of fish reared for 17 tribal fishing programs, which in turn significantly impacted tribal economies and tribal youth training programs. Another maintenance-related incident occurred at Craig Brook NFH (Maine) in July 2009, when most of an entire cohort of Atlantic salmon broodstock was lost due to water supply issues. The impact of such failures goes beyond the hatchery to the larger community—every dollar of fish not distributed can cost local economies $20 to $60, or delay the recovery of listed species.

Properly managed, annual preventive maintenance is the most logical and cost-effective way to address emerging maintenance issues as they occur. NFHS annual maintenance funds pay salaries of maintenance employees, ensure timely upkeep of hatchery real property and equipment, purchase maintenance-related supplies (e.g., lumber, pipe, paint, tools, filters), and replaces small equipment (generally less than $5,000). Similarly, critical water assets such as wells and pumps require regular care to ensure dependable operation. The use of SAMMS and condition assessments provide the Fisheries Program with the tools to proactively track recurring maintenance needs, reduce number of more costly deferred maintenance deficiencies and foster successful operations and mission delivery. Adequate maintenance funding allows for the routine servicing of mission-critical components, reducing the likelihood of system failures and increasing the life expectancy of facilities and equipment.

Lessons from the National Wildlife Refuge System

In the mid-1990s, failure to maintain the National Wildlife Refuge System's (NWRS) infrastructure and equipment became a critical concern. Alarmed that inadequate funding was seriously and substantially undermining the ability of the refuge system to pursue its core wildlife conservation mission, the Cooperative Alliance for Refuge Enhancement (CARE) was formed in 1996. A coalition of 20+ diverse conservation and recreation organizations, CARE pushed for increased funding for operations and maintenance within the NWRS. The NWRS maintenance budget increased dramatically—from $21 million in 1996 to $91.5 million in 2004 (a 336% increase over eight years).

The availability of increased funds from 1997 to 2004 allowed the NWRS to address preventive maintenance requirements, target the most urgent deferred maintenance projects and selectively add new facilities. Largely as a result of these additional resources, the majority of refuge managers in 2007 did not view maintenance concerns as a constraint to their refuge's purpose. However, from 2004 to 2007, maintenance funding fell 30% as the refuge system celebration of its centennial faded and concerns for mundane maintenance issues were eclipsed by other conservation issues of interest to Congress and its constituents. Should the recent backsliding in maintenance funding continue, infrastructure maintenance will soon become a critical problem again.[55]

Also of interest to the Fisheries Program, the NWRS is eligible to receive funding from the Federal Highway Administration for maintenance of its roads system. Unfortunately the NFHS is not eligible for these same funds to maintain its roads, despite several efforts to correct the situation. The NFHS has been dropped from recent reauthorizations of the Transportation Bills at the 11th hour. Until the Transportation Bill includes the NFHS, funding for repair/rehabilitation/construction of NFHS public access roads and bridges must come either through the Five-Year Deferred Maintenance Plan, or the Five-Year Capital Improvement Plan (Construction), which takes funding away from critical health and safety projects and mission-critical projects.

Findings and Observations

The combination of 1) critical assets in less than operational condition, 2) aging field stations in profound need of updating and refurbishing to allow the efficient and effective rearing of both current and future species, 3) high energy costs, 4) reduced staffing and 5) flat-lined budgets all conspire to place a considerable strain on the Fisheries Program's capability to consistently meet its aquatic conservation goals.

The NFHS currently has $152 million in deferred maintenance needs identified. Deferred maintenance projects, directed at the repair, rehabilitation or replacement of constructed assets, rob assets otherwise available for native species restoration, endangered species recovery, tribal assistance and public recreation. The NFHS focuses its limited maintenance budget on high-priority, mission-critical water management

[55] An Independent Evaluation of the Effectiveness of the U.S. Fish and Wildlife Service's National Wildlife Refuge System, Management Systems International, Final Report, June 2008.

projects and human health and safety projects in an effort to maintain current efficiencies. Water facility failures at Alchesay and Craig Brook NFHs illustrate the very real costs, in terms of fisheries conservation outputs, that can and will continue to occur in the face of inadequate maintenance funding. Failure to include NFHS public access roads as eligible for funding from the Federal Highway Administration increases maintenance costs, further detracting from mission-critical projects.

The Fisheries Program has the capability to track, prioritize and account for the physical and personal assets under its care. ARRA funding in FY 2009–2010 provides a much needed boost to the Program's asset maintenance. But it is a one-time infusion and its beneficial effects will soon fade without adequate funding on an ongoing basis.

Given the impact of CARE in bringing attention to the maintenance needs of the NWRS, the Fisheries Program and its partners should seek to engage CARE to include the NFHS under its considerations.

Lastly, the potential for the NFHS to increase energy efficiency at many of its facilities speaks to the need for a reasonable investment in energy conservation as the Fisheries Program works to reduce its energy costs and carbon footprint. Because of the public use at these facilities, such projects could also act as pilot projects to encourage private industry to undertake similar efforts.

Recommendations to Increase Effectiveness

12. Report on the Fisheries Program's annual maintenance requirements, Administration's budget request, available funding and overall deferred maintenance need to stakeholders and partners

13. FWS and its constituents should continue to press to have Service roads (including NWRS and NFHS) eligible to receive Federal Highway Administration funding for road maintenance.

8. WORKFORCE MANAGEMENT

Context

The stated goal of the Fisheries Program is to "maintain and support an adequately-sized, strategically positioned workforce with state-of-the-art training, equipment, and technologies in their career fields."

The Fisheries Program in FY 2008 employed more than 1,208 FTEs in 149 stations, from the director's office in the Main Interior Building in Washington, DC, to field offices from Abernathy, Washington to Warm Springs, Georgia.[56] Employees are engaged in a diverse set of roles, from fisheries biologists and geneticists to administrators and maintenance workers. Each of these staff is judged critical to the Fisheries Program's success and is assumed to be trained, equipped and supported to perform his or her job safely-often under demanding environmental conditions-and kept current with the constantly expanding science of fish and aquatic resource management and conservation.

Often lost in the term "workforce management" is the understanding that the care of an organization's employees is critical for recruiting and retaining highly qualified professionals, transitioning knowledge from one cohort of employees to the next, creating work places that nourish rather than simply extract units of work, and for the overall conservation success of the Fisheries Program.

In its 2004–2008 Strategic Plan, the Fisheries Program pledged to:

- **Staff field stations with competencies necessary, and at levels adequate to effectively meet the Service's goals and objectives for fish and other aquatic resource conservation.** The Program will analyze positions and organizational structures at all fisheries field stations, identify the critical staff and functions needed to support various types and sizes of hatcheries and fishery resources offices, and fill critical vacancies or gaps in the workforce with well-qualified individuals.
- **Provide employees with opportunities to maintain competencies in the expanding knowledge and technologies needed to improve opportunities for professional achievement, advancement, and recognition.** The Program will identify training and developmental learning opportunities both inside and outside the Service for all skills utilized, as well as preparing staff for future leadership positions.
- **Provide employees with access to facilities and equipment needed to effectively, efficiently, and safely perform their jobs.** The Program will provide its employees with state-of-the-art biotechnology, information technology and maintenance and safety equipment. Mission critical water management assets will be brought into, and kept, in good working order to minimize safety risks to staff and visitors and minimize the potential risk of fish loss incidents.

[56] Stations that are "complexes" of fish health, fish technology and fish hatcheries counted as a single station.

Basis for Evaluation

Workforce management and facility condition were not expressly evaluated in the 2004 Evaluation. In its 2004–2008 strategic plan, the Fisheries Program noted that it lacked specific performance measures for workforce management. The Fisheries Program committed itself to developing appropriate measures and linking the deployment and competencies of the workforce to the Program's strategic goals. As of December 2009, as presented in the draft FY 2009–2013 strategic plan, the Fisheries Program has yet to develop metrics to "gauge progress toward filling the highest priority staffing positions needed to implement the Strategic Plan and meeting training needs to reach and maintain competencies required to implement the Strategic Plan." The only measure presented for workforce management is the "number of volunteer hours supporting Fisheries objectives."[57] The Program has indicated it plans to identify other appropriate performance and workload measures by December 2010.

In light of the total absence of workforce management performance measures, the 2009 Evaluation Team presents three indicators adapted from the stated objectives presented in the Program's strategic plans (Table 33).

Table 33 | **Workforce Management: Indicators, Baselines and Benchmarks**

Indicator	Measure	Baseline (FY 2004)	Performance (FY 2009)	Target (FY 2013)
8.1. Field stations staffed with necessary competencies at levels adequate to effectively meet FP's strategic objectives	Field Stations staffed at levels directed in approved organizational charts.	NP	73%	95%+
8.2. Employees able to maintain & enhance competencies necessary for professional achievement, advancement, & recognition.	Each employee has continuing education plan developed and is provided access to that training.	NP	NP	To be developed
8.3. Employees have access to facilities and equipment necessary to effectively, efficiently, and safely perform their jobs.	See Asset Maintenance Indicator (7.1)	NP	NP	To be developed

NP= Information requested by Evaluation Team but not provided by Fisheries Program during course of this evaluation.

[57] The Evaluation Team has moved this measure to its consideration of Public Use (page 61).

Results

The Evaluation Team's analysis of workforce management examines four distinct components: 1) budget trends, 2) staffing levels, 3) opportunity for achievement, advancement and recognition and 4) staff access to proper facilities and equipment to safely and effectively perform their jobs. The first three components are addressed below, while staff's access to proper facilities is addressed under Asset Maintenance (page 90).

Budget Trends
In a March 2005 briefing for Senate and House Appropriations Committee staff, the Fisheries Program stated:

- Some regions have financial problems that may force closing of field stations in the near future.
- While the Program has enjoyed significant increases over 2001, most increases have been for targeted, regional initiatives.
- Salaries and benefits make up an increasing proportion of available funds, approaching or exceeding 80% in five regions. The situation is most severe in FWCOs, where salary and benefit costs exceed 85% in several regions.
- Financial problems are worse in FWCO than in NFHS: more than one-third of FWCO stations had no increases or even decreased budgets from FY 2001 to 2004.
- For NFHS, nearly half the stations have not received FONS funding.
- Scant funding for operations results in unsatisfactory work environments for employees and volunteers, as well as underachievement of performance targets

These six bullet points ring equally true in 2010 as they did five years earlier. The overall budget of the Fisheries Program has increased in absolute dollars for the ten-year period, 2001–2010, from $85.77 million to $148.35 million. But when these budget numbers are adjusted for inflation, add-ons and other factors that impact how these funds reach the ground, the budget has remained largely flat. A significant portion of funding available to the Fisheries Program has come in the form of earmarks and pass-throughs for regional initiatives including, NFPP, and the NFHAP. While these earmarks and initiatives are important, much of this funding cannot be utilized for Fisheries Program salaries and operations. For example, while the Fisheries Program has received increases for the NFPP and NFHAP, only 30% of those increases is available for salaries, benefits and operating costs internal to the Fisheries Program, such as the FWCOs. Table 34 (page 101) presents the Fisheries Program budget broken out by the nature of appropriation, budget lines and adjusted for inflation.

Table 34 | **U.S. Fish and Wildlife Service Fisheries Program Appropriation & Budget, FY 2001–2010 (in thousands of $)**

Fisheries Program 13XX	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**
Congressional Appropriation Enacted	85,770	102,049	103,604	114,321	115,172	116,488	117,778	126,499	131,831	148,345
Congressional Earmarks	-	-	-	6,815	5,423	5,073	2,239	492	2,469	6,950
Regional Initiatives	-	-	-	26,707	27,240	26,457	26,444	27,952	26,475	30,444
National Fish Passage Program	-	-	-	3,792	3,639	3,646	5,000	10,828	10,828	10,828
National Fish Habitat Action Plan	-	-	-	0	158	985	2,985	5,153	5,153	7,153
Marine Mammals				4,569	4,572	4,370	3,162	2,976	3,371	5,815
Other Expenses	-	-	-	23,878	24,301	23,376	23,492	23,474	23,990	25,501
General Program Activities	-	-	-	48,560	49,839	52,581	54,456	55,624	59,545	61,654

Fisheries Program 13XX	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**
Hatchery Operations (1311 & 1312)	31,445	36,313	35,070	39,014	37,925	45,735	45,808	45,919	48,649	54,421
Hatchery Maintenance & Rehabilitation (1313/1321)[1]	15,025	18,137	17,449	18,979	18,987	16,468	16,565	17,167	17,654	17,835
Hatchery Operations & Maintenance (1310)	46,470	54,449	52,518	57,993	56,912	-	-	-	-	-
FWCO Maintenance & Equipment (1322)	-	-	-	-	-	1,335	1,334	1,394	1,394	532
Total Maintenance & Equipment (1320)	-	-	-	-	-	17,803	17,899	18,561	19,048	18,367
Anadromous Fish Management (1331)	8,448	9,957	9,512	10,291	10,215			-	-	-
Fish & Wildlife Assistance (1332)	28,517	33,976	37,997	41,468	43,473			-	-	-
Marine Mammals (1333/1337)	2,335	3,668	3,577	4,569	4,572	4,370	3,162	2,976	3,371	5,815
Habitat Assessment & Restoration (1334)	-	-	-	-	-	10,624	13,878	22,257	22,923	27,087
Population Assessment & Cooperative Mgt. (1335)	-	-	-	-	-	32,521	31,577	31,463	32,488	34,411
Aquatic Invasive Species (1336)	-	-	-	-	-	5,435	5,454	5,323	5,352	8,244
Fish & Wildlife Mgt/Aquatic Habitat & Species Con. (1330)	39,301	47,600	51,086	56,328	58,260	52,950	54,071	62,019	64,134	75,557
Subtotal-Fisheries	85,770	102,049	103,604	114,321	115,172	116,488	117,778	126,499	131,831	148,345
(Inflation adjustment in 2001 constant dollars)		1,633	4,144	6,745	10,596	14,677	17,784	24,288	25,443	32,636
Fisheries Budget (in 2001 Constant Dollars)	85,770	100,417	99,460	107,576	104,576	101,811	99,994	102,211	106,388	115,709

[1] In FY 2008, Hatchery Maintenance & Rehabilitation (1313) changed to NFHS Maintenance & Equipment (1321)

While Congressional add-ons have provided money for important initiatives across the nation, these programs also represent a drain on

the overall Fisheries Program in terms of workforce management. Consistent with Congressional guidance, FWS does not deduct direct or indirect costs from Congressional adds-ons in order to assure that earmarked funding is allocated as fully as possible. Direct and indirect costs incurred by these projects are paid from base funds-funds that otherwise would have gone to address other resource issues throughout the Fisheries Program. Programs such as NFPP and NFHAP incur direct program costs for Fisheries Program staff to develop funding agreements and administer and monitor agreements implemented with non-FWS entities receiving pass-through funding that is absorbed from other base funds as well.

Nationwide, the Program received more than $21.2 million in FY 2008 of reimbursable funding, about level with $20.2 million received in FY 2004. These funds represent important sources of support for the Program, directly supporting several large-scale projects, such as the Lower Snake River Compensation Plan and the Great Lakes Sea Lamprey Control Program. Reimbursable funding comes from a wide range of sources; in Region 8, for example, sources include the Central Valley Project Improvement Act, Bay Delta Accord, Bureau of Reclamation and Corps of Engineers. The role of reimbursable funding is apparent in Table 36, where of a total of 1,208.8 FTEs (36%) in FY 2009 were supported by reimbursable funding. In many cases, the Program is actively pursuing identification of new reimbursable funding sources to stave off field office closures. As discussed elsewhere in this report (for example, page 83), reimbursable funding has impacts on how priorities are established, and how staffing is conducted.

Salaries and benefits represent a growing percentage of total budgets with the result that many field stations, once their budgets have been applied to salaries and benefits, have little to no funding left with which to conduct their conservation mission—from fuel for vehicles to field equipment with which to conduct stream assessments. Program-wide, salary and benefit costs increased from $24.1 million in FY2004 to $26.9 million in FY2008. Unfortunately available appropriations provided only $23.6 million and $25.6 million respectively for salaries. A general rule of thumb for the ratio of salaries to operations is ideally 70/30. For the Fisheries Program, available funding fails to even cover salaries and benefits expenses for many field stations. Operational funding, if available at all, has come from reimbursable funding. The cumulative impact of this is a net loss in spending power for the Fisheries Program forcing the Program to identify cost savings from vacated positions and reduced operations to cover salaries and benefits of the remaining staff. The impact of this shortfall is readily apparent in Table 35.

Table 35 | **Selected Program Salary & Operations Budgets, FY 2004-2008 (in thousands)**

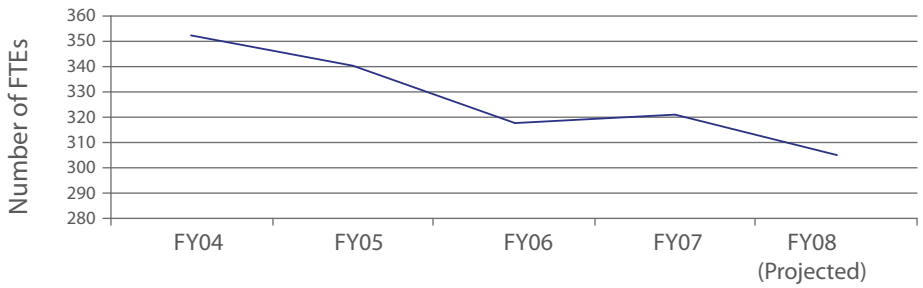
	FY04	FY05	FY06	FY07	FY08
Allocation	$56,263	$58,887	$55,782	$59,553	$62,972
Deductions (Pass-through, etc.)	($32,614)	($32,382)	($34,185)	($33,468)	($37,358)
Available for Salaries and Ops	$23,649	$26,505	$21,597	$26,086	$25,614
Total Salary Costs	$24,077	$26,727	$26,423	$27,597	$26,901
Funding Available - Salary Costs	($428)	($222)	($4,826)	($1,512)	($1,288)
Reimbursable Funds	$20,234	$19,309	$19,877	$22,165	$21,222

Staffing Levels

Typical of many natural resource management agencies, the Fisheries Program's work force in FY 2005–2008 was asked to do more with less. Many authorized positions lie vacant, not for lack of qualified applicants, but for cost-saving to meet available budgets. Region 5 (Northeast Region) acknowledges that it has used vacancy management for years to manage its budget shortfalls. Multiple stations have been essentially "mothballed" due to funding levels and the need to maintain a personnel threshold at other stations. The future offers no relief—the Fisheries Program has been told to expect a 5% reduction in FY 2012.

The Fisheries Program faces a growing staffing deficiency. Numerous positions are, and will become, eligible for retirement (approximately half of the entire federal workforce is eligible to retire by 2013), and numerous positions are vacant and remain unfilled. Figure 3 illustrates this trend outlining available FTEs for FWCOs, AIS and Marine Mammals. For the period FY 2004–2008, these programs underwent a 13% reduction in FTEs. This loss of FTEs for FWCOs directly results in an inability to accomplish mission-critical functions, such as tribal trust responsibilities and AIS management activities, as referenced in earlier chapters.

*Figure 3. Available FTEs for FWCO, AIS & Marine Mammals, FY 2004–2008**



* Analysis assumes that 100% of pass-through funding is not retained except for the 30% which is already available from Fish Passage and NFHAP funds.

As outlined in the Habitat Conservation and Management chapter (page 30), FWCOs are the main "storefronts" of the Fisheries Program for technical assistance to a wide range of stakeholders and partners. However, the programs work on tribal trust, fish passage, and habitat assessment cannot be accomplished without sufficient operating funds, of which little is directly available except for specific pass-through projects or through reimbursable funding, which is an uncertain source of funding for effective long-term planning. The erosion of base funding is preventing the FWCOs from accomplishing core functions. For example, the long-term lack of sufficient funding and staffing has reduced four of the Southeast Region's (Region 4) seven FWCOs to offices containing only one person. For Region 5 in the Northeast, three FWCOs have one FTE while three have zero. In the Southwest (Region 2), important vacancies have gone unfilled for several years. Not surprisingly, the result is that FWCO staff have been unable to meet partner expectations to address critical natural resource needs. This history of insufficient program funding throughout the regions has eroded capabilities well below the critical level, such that many of the Service's partners question the Service's commitment to these activities. The Lander Wyoming FWCO is illustrative of how the erosion of base funding impacts the capacity to conduct fisheries conservation.

For Lander FWCO, salaries and benefits have risen about 6% annually and constitute 90% of the office's budget. In addition to salaries, rent, fuel costs, travel, equipment and maintenance costs continue to rise every year. Fuel costs alone increased 25% in 2009 (an increase of $10,000) and Lander has not received any general operations increases in five years. To make ends meet, two FTEs are working on soft-funded projects rather than addressing the FWCO's core mission. So less attention is given to service tribal trust responsibilities, leaving FWS vulnerable to a PL 92-638 (Self Determination Act) claim by the tribes. In addition, fewer surveys and evaluations are conducted to meet strategic habitat conservation goals, fewer miles of streams are restored and less effort is invested in achieving self-sustaining populations of native burbot, sauger and Yellowstone cutthroat trout.

To gain additional insight into staffing trends, the Evaluation Team gathered information on staffing and related budget information by station; the information is summarized in Table 36 and detailed by region and field station in Exhibit 8. This information is apparently not tracked Program-wide and the Evaluation Team collected the data from each region individually. Table 36 presents a single snapshot of budgets and FTEs. An examination of FY 2008 or FY 2010 could present significantly different data for specific field stations given the nature of reimbursable funding and budget add-ons. As such, this information is not an indicator of "equity" between regions. In FY 2009, 64% of the FTEs were funded by the Fisheries Program's Congressionally appropriated budget (Resource Management Budget) and 36% were funded by reimbursable agreements. Of particular note, however, is the fact that one out of every 3.8 FTEs in approved organizational charts lies vacant. While some of these positions may be vacant awaiting approved hires, the vast majority are vacant due to lack of budget.

Table 36 | **Fisheries Program Staffing & Budgets by Field Station, FY 2009***

FWS Region	Total FTEs	Resource Mgt. Budget FTEs	Reimbursable FTEs	# of Budget-Related Vacancies	Resource Mgmt. Budget
R1	281.0	107.3	174.0	49.0	20,034,821
R2	84.0	80.0	4.0	46.0	10,613,089
R3	177.0	87.0	90.0	77.0	12,024,998
R4	124.5	120.5	4.0	36.3	12,636,479
R5	125.8	118.4	7.4	79.8	14,182,997
R6	156.0	117.2	38.8	23.0	9,844,210
R7	61.8	54.6	7.2	4.0	8,781,387
R8	164.8	51.3	113.4	116.4	7,680,675
R9 (HQ)	34.0	34.0	0	17.0	$8,729,625
Totals	1,208.8	770.3	438.8	449.5	$104,528,281

*See Exhibit 8 for full presentation of data.

The ongoing loss of FTEs does not only represent a staffing issue. It also represents an ongoing brain drain as experienced field managers retire, often without any kind of proper knowledge transfer. This situation also places an unnecessary strain on the incoming personnel, as the lack of a proper transition means the new staff members must bring themselves up to speed without the benefit of the outgoing staff's experience and insights. These positions often remain vacant for a significant period of time, stagnating relationships with stakeholders and partners. Adding additional urgency to this situation is the fact that approximately half of the entire federal workforce will be eligible to retire by 2013.

Properly conducted, workforce management shapes an effective organizational staff where the systematic application of experience, mentoring and on-the-job experience are used to shape the workforce. For example, the Fisheries Program hires temporary employees to fill shorter term positions; in turn, these positions might be extended and/or converted to term or permanent FTEs. Term personnel staff a job for a year or more and can be terminated if the project becomes short of funds or if the staffer does not work out. Permanent FTEs are ideally hired on as temps or terms, trained on the job, and converted to permanents. Equally vital to workforce management is the use of student employment programs such as the Student Temporary Employment Program (STEP) and the Student Career Employment Program (SCEP) to recruit a diverse and energized workforce to meet its needs. In addition, many field stations make use of student interns and SCAs (Student Conservation Associates) and graduate students connected with cooperating universities. Finally, NFHs and other offices greatly benefit from the assistance of volunteers. One result of tightening budgets is an increased reliance on volunteers. While volunteers have always been critical to natural resource conservation, they are increasingly doing jobs that would have properly been conducted by Fisheries Program staff.

In the past 10 years, FWS and the Fisheries Program have undertaken several efforts to analyze their workforce and mission readiness. The Fisheries Program conducted workforce analyses in FY 2004 and FY 2005 on FWCOs and the NFHS, respectively. It is not clear that these analyses were effectively incorporated into workforce management decision-making. While portions of the workforce have been examined, these efforts have not been systematically rolled up into a statement of workforce readiness and used to develop a set of performance metrics. By early FY 2012, the Fisheries Program has stated its commitment to reanalyzing its workforce management needs and implementing strategies to ensure a qualified and effective workforce, including an analysis of how many additional staff may be required to meet all objectives of the Program.

Training and Advancement

It is just as important for any organization to motivate and engage its workforce as it is for that organization to identify whether its people have the right skills in the right place, have the proper training and have the proper tools to successfully meet the needs of their positions. The Fisheries Program states that it places a high priority on teamwork, both within individual offices as well as between regional and national offices. The Program also states it will continue to identify improved means to recognize and reward achievement and that individual and group recognition will be addressed through the policy. It is the Program's stated intention to develop appropriate performance measures to ensure such policies are implemented.

The Fisheries Program also states its intent to strengthen its support of the Fisheries Training Committee's efforts to develop recommendations for training needs, curricula changes and technical and professional development. For example, the Fisheries Program will work to ensure its employees have the necessary training and skill sets required to effectively use GIS technology to understand relationships between different datasets needed to support and strengthen the Program's mission.

It is clear that the National Conservation Training Center and other training opportunities are available to FWS employees. However, insufficient information was provided to the Evaluation Team to assess the degree to which current employees avail themselves of these opportunities, especially considering tight budgets.

Findings and Observations

The overall lack of a comprehensive and useful workforce management analysis severely limits the capability of the Fisheries Program to manage and right-size its workforce in the face of continuing budget shortfalls, and to provide sufficient training and work facilities to ensure employees can conduct their jobs safely and effectively.

The Fisheries Program's budget has increased in absolute dollars over the last ten years, but remains largely stagnant when these budget numbers are adjusted for inflation, add-ons, and other factors that impact how these funds reach the ground. The Evaluation Team was struck by the overall loss of purchasing power for field stations as a result of increased salary-to-operations ratios. In FY 2001-2003, the salary-to-operations ratios rose from 61% to 72%. While more recent data were not provided to the Evaluation Team, it is clear that it is above 90% for many field stations in FY 2008 and 2009. In addition, it is also clear that the erosion of base funding is preventing FWCOs and other programs from accomplishing core functions while the pressure to fund field stations operations with soft-money and reimbursables increasingly dictates priorities.

The Fisheries Program faces a growing staffing deficiency with numerous vacancies within approved organization charts which remain unfilled due to budgetary reasons. For FY 2009, there were an estimated 448 vacancies in approved organizational charts representing one of every 3.8 FTEs. While the Evaluation Team did not analyze the duration and ultimate outcome of these vacancies, the overall number of vacancies clearly illustrates the need for the Fisheries Program to "right-size" its workforce to current budget realities.

Workforce metrics do not appear to exist. As of December 2009, the Fisheries Program has yet to develop metrics to "gauge progress toward filling the highest priority staffing positions needed to implement the Strategic Plan and meeting training needs to reach and maintain competencies required to implement the Strategic Plan." The Fisheries Program has indicated to the Evaluation Team that it plans to identify appropriate workforce performance and workload measures by December 2010. Such analysis and performance measures are long overdue. The Evaluation Team assumes this shortcoming is not limited to the Fisheries Program but typical of the entire agency.

The Fisheries Program needs to undertake meaningful workforce management analysis as soon as practicable. To date, workforce analysis has been conducted after the fact and apart from strategic visioning and planning. Partners and stakeholders are invited to help frame the fisheries conservation side of the Program only to have the lack of meaningful workforce analysis impact the Program's effectiveness. Taking a more business/MBA approach will enable the Fisheries Program to thoughtfully examine such questions as 1) loss of efficiency of conservation output through Fisheries Program/Regional Directorate silos, 2) how organizational charts might be right-sized rather than approved then left vacant, and 3) sustainability of budgeting based on reimbursables rather than core funding.

Avoiding the traditional "black box" approach that results in thick binders that confuse rather than enlighten, the Evaluation Team recommends that a workforce management analysis be undertaken utilizing the meaningful involvement of stakeholders and partners, along with workforce professionals. Rather than request the input of constituents into a "strategic plan" that begins with aquatic habitat and species but does not address the workforce necessary to conduct the mission, such an effort should start with developing a foundational understanding of the existing workforce and its capacities to undertake a fisheries conservation mission.

The three indicators presented in Table 33 lie at the core of all the Fisheries Program's conservation mission: field station properly staffed, trained and equipped. The Fisheries Program needs to be in the position to report against its asset readiness just as competently as a HACCP plan for a national fish hatchery or a recovery plan for an imperiled fish.

Recommendation to Increase Effectiveness

14. In cooperation with stakeholders and partners and with support of workforce professionals, undertake a detailed workforce analysis that examines current workforce readiness, capacity necessary to accomplish strategic plan elements and budget needs.

The Fisheries Program in FY 2008 employed more than 1,208 FTEs in 149 stations, from the director's office in the Main Interior Building in Washington, DC to field offices from Abernathy, Washington. (Photo: USFWS)

CONCLUSION AND ACKNOWLEDGMENTS

The Fisheries Program of the U.S. Fish and Wildlife Service has been responsive to the observations and recommendations arising from the FY 2004 Evaluation undertaken by the SFBPC. During the period FY 2005–2009, the on-the-ground capabilities of the Fisheries Program have worked effectively with stakeholders and partners to restore habitats, conserve native species, and develop innovative technologies. This programmatic evaluation provides ample evidence of the skills, dedication, and accomplishments of the Fisheries Program. This report also presents a set of findings and recommendations that the SFBPC believes warrants the full attention of the Fisheries Program and the FWS. The following six themes encapsulate these findings, and are deserving of the Program's continued vigilance. For the coming years, the Fisheries Program is strongly encouraged to:

1. Undertake a consistent approach to stakeholder/partner involvement, and communications.
2. Develop consistent data and definitions (e.g., nomenclature and species list, denominator, mitigation expenses).
3. Develop a single set of performance measures (combining PART, GPRA, Strategic Plan, etc.) and be accountable to them.
4. Undergo meaningful workforce management to right size the Fisheries Program to current and future budget realities.
5. Undertake a comprehensive evaluation and review of the existing science support model in cooperation with USGS, stakeholders and partners.
6. Synchronize Strategic Planning effort to budget formation and include budget estimates as part of program planning.

Monitor and evaluate program activities on an ongoing basis in cooperation with stakeholders and partners.

The Evaluation Team voluntarily gave their time and expertise to this effort. Under the leadership of Ken Haddad, they capably answered the SFBPC's charge to conduct an independent, impartial, and constructive review. To a person, their commitment to this project is centered in their commitment to the wise use and management of aquatic resources and to supporting the mission of the U.S. Fish and Wildlife Service and its Fisheries Program.

One of the benefits of immersing oneself into a programmatic evaluation is the wealth of information learned and the privilege to learn more about the outstanding and professional employees that account for the Fisheries Program's success.

This report would not be possible without the help of many individuals. At the risk of omission, I would like to acknowledge the following:

Jim Anderson, Noreen Clough, Ken Haddad, Chris Horton, Gary Kania, Elizabeth Maclin, Mallory Martin, and Jim Zorn for their time, talents, and good humor in conducting this review.

Doug Hobbs for carrying out all of the logistics necessary for the Evaluation Team to work productively.

Gwen White and Sarah Sanders for their skillful note-taking, editing, and logistical support.

Brian Arroyo and the Fisheries Program staff. Over the course of this project dozens of Program staff gave me their full attention even as they faced a desk full of work. While the questions were not always comforting or easy, they responded with candor and honesty. It is testament to their commitment to fisheries conservation.

Whitney Tilt, Conservation BenchMarks

Principal Investigator/Report Author

June 21, 2010

Exhibit 1. FWS letter to SFBPC re: Evaluation, March 9, 2009

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Washington, D.C. 20240

MAR 0 9 2009

In Reply Refer To:
FWS/FHC/AFHC/MAHR/DCN040125

Mr. Ryck Lydecker, Chairman
Sport Fishing and Boating Partnership Council
Boat Owners Association of the United States
880 South Pickett Street
Alexandria, VA 22304

Dear Chairman Lydecker,

The U.S. Fish and Wildlife Service (Service) is truly appreciative of the effective partnership built with the Sport Fishing and Boating Partnership Council (Council) and their work on behalf of the Service's Fisheries Program (Program). The Council has been central to many of the improvements made by the Program in the past decade to meet its varied missions and deliver on-the-ground solutions for the conservation of our Nation's valuable fisheries and other aquatic resources.

In 2005, the Council undertook an independent and rigorous review of the Program – in part to address a requirement of the Administration's Program Assessment Rating Tool process, but chiefly to assist the Program in its drive to ensure effective delivery of its National Strategic Plan. The Council rated the Program "Effective" and provided recommendations to improve that delivery.

It has been nearly four years since the Council's review, and the Program has made significant progress in implementing your recommendations. Consistent with the Program's focus on accountability, the Service requests the Council undertake a follow-up evaluation to assess the Program's progress in meeting its core aquatic resource conservation obligations. In the course of your evaluation, the Service requests that the Council pay particular attention to five areas of Program activities in particular: native species, aquatic invasive species, work with Tribal nations, Fisheries Program scientific/research capacity, and facility/asset maintenance.

As was the case in 2005, we anticipate that decisions on mechanisms and protocols used to conduct the evaluation and to develop recommendations will be determined by the Council's Fisheries Issues Committee, in consultation with the Service's Fisheries Program.

TAKE PRIDE IN AMERICA

Please contact Mr. Gary Frazer, Assistant Director, Fisheries and Habitat Conservation, at (202) 208-6394, or Mr. Stuart Leon, Chief, Division of Fisheries and Aquatic Resource Conservation, at (703) 358-2189, for any questions regarding this request. We look forward to working with the Council again on this important task, for the betterment of our natural resources.

Sincerely,

Paul R. Schmidt

Acting Deputy Director

Exhibit 2. SFBPC letter to FWS re: Evaluation, July 10, 2009

SPORT FISHING & BOATING
PARTNERSHIP COUNCIL

Gary Frazer, Assistant Director
Fisheries and Habitat Conservation
U.S. Fish and Wildlife Service
1849 C Street, NW
Mailstop 3242
Washington, D.C. 20240

JUL 1 0 2009

Dear Gary,

In 2005, the Sport Fishing and Boating Partnership Council completed the first full assessment of the activities of the Fish and Wildlife Service's Fisheries Program. The assessment was completed at the request of the Service Director, and was required by the Office of Management and Budget. More recently, the Service has requested that the Council undertake another assessment of the Fisheries Program. I am writing to inform you that the Council is in the initial phases of beginning the next assessment of this evaluation.

The 2005 report, which serves as the basis for the current assessment, lays out many measures that can be used to determine whether the Fisheries Program is accomplishing the goals, missions and outcomes that it has established for itself through its strategic plan, and the many legislative authorities under which it operates. It also establishes baselines upon which progress is measured.

Much of the initial work a Council-appointed assessment team will undertake involves requesting and analyzing data provided by you and your staff. To aid in this first phase, it would be helpful if you identified a point of contact on your staff that can fulfill data and document requests. A second phase of the assessment will determine "what the data say" in terms of the program activities and their relationship to accomplishing the programs strategic goals. It is our hope that this information will inform the strategic planning effort that you will soon undertake.

With the assistance of Council Coordinator Doug Hobbs, I hope to begin the assessment sometime in the next week. Council Fisheries Issues Committee Chair Ken Haddad is leading this effort and he is now assembling a work group which will begin interaction with you and your staff soon. As indicated above, the Council expects to have some initial findings and recommendations sometime in mid to late Fall 2009 and a final report to in early 2010. I will soon be following up with a request for specific information and data which will be used to kick off the Council's re-evaluation effort.

U.S. Fish and Wildlife Service
4401 N. Fairfax Drive, MS EA-3103
Arlington, VA 22203
P 703.358.2336 F 703.358.2548

Should you care to further discuss this matter, please contact me or Council Coordinator Doug Hobbs (at 703-358-2336).

Sincerely,

Ryck Lydecker
Chairman
Sport Fishing and Boating Partnership Council

Cc: SFBPC members
Elizabeth Stevens
Bruce Decker
Stuart Leon
Joe Moran

Exhibit 3. FWS Fisheries Evaluation 2009 Assessment Inventory of Resources

Includes documents 1) referenced in evaluation report, 2) utilized as background for report development, and/or 3) illustrative of program work products.

1. 2005 Evaluation (ER05) & Other Reports (REP)

ER05-01. SFBPC Programmatic Evaluation of the U.S. Fish and Wildlife Service Fisheries Program, FY 2004, Final Report. Sport Fishing and Boating Partnership Council, 2005 (*Fisheries Program Evaluation, Final Report Transmitted 6-22-2005.pdf*). 54 pp. ‡

ER05-02. Template for Evaluation. Appendix 1, SFBPC Programmatic Evaluation of the U.S. Fish and Wildlife Service Fisheries Program, FY 2004, Final Report. Sport Fishing and Boating Partnership Council 2005 (*ER05-02 Appendix 1-Template for Evaluation.pdf*). 13 pp. ‡

ER05-03. Evaluation Assessment Tool. Appendix 2, SFBPC Programmatic Evaluation of the U.S. Fish and Wildlife Service Fisheries Program, FY 2004, Final Report. Sport Fishing and Boating Partnership Council 2005 (*ER05-03 Appendix 2-Evaluation Assessment Tool.pdf*). 10 pp. ‡

ER05-04. Fish and Aquatic Species of Interest to Fisheries Program. Appendix 3, SFBPC Programmatic Evaluation of the U.S. Fish and Wildlife Service Fisheries Program, FY 2004, Final Report. Sport Fishing and Boating Partnership Council 2005 (*ER05-04 Appendix 3-Aquatic Species List.pdf*). 7 pp. ‡

ER05-05. Fish Distributed by National Fish Hatchery System Unit, FY 2004. Appendix 8, SFBPC Programmatic Evaluation of the U.S. Fish and Wildlife Service Fisheries Program, FY 2004, Final Report. Sport Fishing and Boating Partnership Council 2005 (*ER05-05 Appendix 8-Fish Distributed by NFHS FY 2004.pdf*). 5 pp. ‡

ER05-06. List of Unfunded FONS Projects, totaling $14.2 million, FY 2004. Appendix 9, SFBPC Programmatic Evaluation of the U.S. Fish and Wildlife Service Fisheries Program, FY 2004, Final Report. Sport Fishing and Boating Partnership Council 2005 (*ER05-06 Appendix 9-Unfunded FONS Project List FY 2004.pdf*). 9 pp. ‡

ER05-06. List of Unfunded FONS Projects, totaling $14.2 million, FY 2004. Appendix 9, SFBPC Programmatic Evaluation of the U.S. Fish and Wildlife Service Fisheries Program, FY 2004, Final Report. Sport Fishing and Boating Partnership Council 2005 (*ER05-06 Appendix 9-Unfunded FONS Project List FY 2004.pdf*). 9 pp. ‡

ER05-07. FWS Fisheries Evaluation, FY 2004, Summary (*ER05-07 Fisheries Program Evaluation, FY 2004 Summary.pdf*). 11 pp. ‡

REP-01. Saving a System in Peril, Special Report on the National Fish Hatchery System.

Sport Fishing and Boating Partnership Council, September 2000 (*REP-01 Saving a System in Peril-SFPC 9-2000.pdf*). 56 pp. ‡

‡ Archived on CD as Word (.doc), Adobe (.pdf), PowerPoint (.ppt) Excel (.xls) or other format.

REP-02. A Partnership Agenda for Fisheries Conservation. A Special Report by the Sport Fish and Boating Partnership Council, January 2002 (*REP-02 Partnership Agenda for Fisheries Conservation-SFBPC 2002.pdf*). 34 pp. ‡

2. FWS Strategic Plans (SP)

SP-01. National Fisheries Program Strategic Plan Fiscal Years 2004 – 2008, Conserving America's Fisheries, January 20, 2006. U.S. Fish and Wildlife Service (*SP-01 National Fisheries Strategic Plan 2004-2008 Final 1-20-2006.pdf*). 50 pp. ‡

SP-02. Conserving America's Fisheries and Aquatic Resources, National Fisheries Program Strategic Plan Fiscal Years 2009 – 2013. Draft October 15, 2009 (*SP-02 National Fisheries Strategic Plan 2009-2013 10-15-2009.doc*). 48 pp. ‡

SP-03. Washington Office (Region 9) 2004-2008 Strategic Plans Measures (*SP-03 Strategic Plan Measures, FY 2004-08.xls*). 1 spreadsheet. ‡

SP-R1-01. Pacific Region Fisheries Program Strategic Plan, 2009-2013, Final Draft. Region 1 Evidence 10-2009 (*SP-R1-01 Pacific Region 2009-2013 Strategic Plan Final Draft.doc*). 35 pp. ‡

SP-R3-01. Region 3 Implementing the Strategic Vision, Accomplishment Highlights, FY 2003-2007, March 2007. FWS Region 3 Evidence 10-2009 (*SP-R3-01 Midwest Region Strategic Vision Accomplishments FY 2003-2007.pdf*). 184 pp. ‡

SP-R3-02. Conserving America's Fisheries, National Fisheries Program Region 3 Strategic Plan FY 2009 – 2013, Draft June 30, 2009. FWS Region 3 Evidence 10-2009 (*SP-R3-02 Region 3 Strategic Plan FY2009-2013 Draft 6-2009.doc*). 66 pp. ‡

SP-R5-01. Northeast Region Fisheries Program, Strategic Plan, FY 2009-2013, June 2009. FWS Region 5 Evidence 10-2009 (*SP-R5-01 Northeast Region Fisheries Program, Strategic Plan, FY 2009-2013.pdf*). 21 pp. ‡

3. 2009 Evaluation Process (EP)

EP-01. Letter from FWS Director to SFBPC Chair requesting assistance in conducting evaluation, March 9, 2009 (*EP-01 FWS-SFBPC Lydecker letter 3-9-09.pdf*). 2 pp. ‡

EP-02. Letter from Ryck Lydecker to Gary Frazer, FWS AD Fisheries, agreeing to conduct a follow-up evaluation, July 10, 2009 (*EP-02 SFBPC Chair letter to Frazer re Eval 7-10-09.pdf*). 2 pp. ‡

EP-03. Letter to FWS Alaska Regional Office Fisheries Staff regarding SFBPC programmatic evaluation of FWS Fisheries Program and preliminary request for information, August 20, 2009 (*EP-03 FWS Fisheries Region 7 Office Brief & Data Call#1 8-28-2009.pdf*). 7 pp. ‡

‡ Archived on CD as Word (.doc), Adobe (.pdf), PowerPoint (.ppt) Excel (.xls) or other format.

EP-04. Preliminary Data Request with Washington Office Remarks, revised 9-22-2009 (*EP-04 Program Evaluation Information Request Revised 9-22-09.pdf*). 8 pp. ‡

4. Issue Papers (IP) & Meetings (MT)

IP-01. Asset Management in the National Fish Hatchery System (NFHS). Informational Brief for the 2009 SFBPC Evaluation. Jon Streufert, Fisheries Program, U.S. Fish and Wildlife Service, October 9, 2009 (*IP-01 FWS Issue Paper-Asset Management NFHS 2009.doc*). 2 pp. ‡

IP-02. How Should the Service Enhance its Leadership Role in Fisheries Science and Technology? Briefing Paper prepared for SFBPC 2009 Evaluation Team by FWS Fisheries Staff, 10-2009 (*IP-02 FWS Issue Paper-Science Tech 2009.doc*). 3 pp. ‡

IP-03. The Role of the Service in the Field of Aquatic Invasive Species. Briefing Paper prepared for SFBPC 2009 Evaluation Team by FWS Fisheries Staff, 10-2009 (*IP-03 FWS Issue Paper-AIS 10-2009.doc*). 4 pp. ‡

IP-04. Has the Service's Fisheries Program Become More Habitat Based? Briefing Paper prepared for SFBPC 2009 Evaluation Team by FWS Fisheries Staff, 10-2009 (*IP-04 FWS Issue Paper-Habitat 10-2009.doc*). 4 pp. ‡

IP-05. How has the Fisheries Program been effective in working with the primary management authorities in conserving interjurisdictional fisheries? Briefing Paper prepared for SFBPC 2009 Evaluation Team by FWS Fisheries Staff, 10-2009 (*IP-05 FWS Issue paper-IJ Fish 10-2009.doc*). 3 pp. ‡

IP-06. How well does the Fisheries Program incorporate an understanding of Tribes/ Native Corporations and their needs into its operations? Briefing Paper prepared for SFBPC 2009 Evaluation Team by FWS Fisheries Staff, 10-2009 (*IP-06 FWS Issue Paper-Native Americans 10-2009.doc*). 4 pp. ‡

IP-07. The Effect of the Fisheries Program's Actions to Conserve and Enhance Native Aquatic Species. Briefing Paper prepared for SFBPC 2009 Evaluation Team by FWS Fisheries Staff, 10-2009 (*IP-07 FWS Issue Paper-Native Species 10-2009.doc*). 7 pp. ‡

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FAM-R1-01. Region 1 SAMMS 2009 and 2010 Directive, 9-29-2009. FWS R1 Evidence 10-2009 (*FAM-R1-01 R1 SAMMS 2009-2010 Directive 9-29-09.pdf*). 1 pp. ‡

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16. Workforce (WF)

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WF-02. Individual Development Plan template, revised July 2003 (*WF-02 FWS Individual Development Plan Template 2003.doc*). 4 pp. ‡

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WF-04. The Future Workforce of the Fish and Wildlife Management Assistance Program. Identity Paper, Workforce Planning, October 25, 2004 (*WF-04 Future FWCO Workforce 10-2004.pdf*). 11 pp. ‡

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17. Fisheries Program Budgets (BUG)

BUG-01. The Federal Budget Timetable, U.S. House of Representatives Budget Committee (*BUG-01 Congressional Budget Timetable.pdf*). 2 pp. ‡

BUG-02. Fisheries Program Appropriation & Budget, FY 2001-2010, with 2001 Constant Dollar Calculations. Assembled by Evaluation Team (*BUG-02 FWS Fisheries Program Approp & Budge FY 2001-2010.xls*). 1 spreadsheet. ‡

BUG-03. Fisheries Program Budget, Briefing for Senate and House Appropriations Staff, March 2005 (*BUG-03 Fisheries Program Congressional Briefing 5-2005.pdf*). 31 pp. ‡

BUG-04. Fisheries Program Answers to House Appropriations Question 1, 2005 (*BUG-04 Fisheries Program Q2 Answers for Congress 2005.pdf*). 10 pp. ‡

BUG-05. Fisheries Program Answers to House Appropriations Question 2, 2005 (*BUG-05 Fisheries Program Q2 Answers for Congress 2005.pdf*). 9 pp. ‡

BUG-06. Explanation of Marine Mammal Program Funding and Overall Relationship to Fisheries Program. Response to Evaluation team query, April 2010 (*BUG-06 Marine Mammal Program Description 4-2010.doc*). 1 pp. ‡

BUG-07. Fisheries Program Budget Detail, FY 2000 (*BUG-07 FWS Fisheries Program Budget Detail, FY 2000.xls*). 1 spreadsheet. ‡

BUG-08. Fisheries Program Budget Detail, FY 2001 (*BUG-08 FWS Fisheries Program Budget Detail, FY 2001.xls*). 1 spreadsheet. ‡

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BUG-10. Fisheries Program Budget Detail, FY 2003 (*BUG-10 FWS Fisheries Program Budget Detail, FY 2003.xls*). 1 spreadsheet. ‡

BUG-11. Fisheries Program Budget Detail, FY 2004 (*BUG-11 FWS Fisheries Program Budget Detail, FY 2004.xls*). 1 spreadsheet. ‡

BUG-12. Fisheries Program Budget Detail, FY 2005 (*BUG-12 FWS Fisheries Program Budget Detail, FY 2005.xls*). 1 spreadsheet. ‡

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BUG-15. Fisheries Program Budget Detail, FY 2008 (*BUG-15 FWS Fisheries Program Budget Detail, FY 2008.xls*). 1 spreadsheet. ‡

BUG-16. Fisheries Program Budget Detail, FY 2009 (*BUG-16 FWS Fisheries Program Budget Detail, FY 2009.xls*). 1 spreadsheet. ‡

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BUG-18. U.S. Fish and Wildlife Service, Resource for Change, Budget Needs for FY 2010 (*BUG-18 FWS FY 2010 Budget Needs.pdf*). 40 pp. ‡

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18. Regional Evidence (RE)

RE-R1-01. Region 1 Response to Data Call for Questions. FWS Region 1 Data 10-2009 (*RE-R1-01 FWS R1 Response to Data Call for Questions.doc*). 58 pp. ‡

RE-R1-02. Pacific Region Fisheries Briefing prepared for Assistant Director, Fisheries, April 1, 2008. FWS Region 1 Data 10-2009 (*RE-R1-02 Pacific Region Fisheries Briefing-April 2008.ppt*). 32 slides. ‡

RE-R2-01. Region 2 Response to Data Call for Questions-Text Responses. FWS Region 2 Data 10-2009 (*RE-R2-01 FWS R2 Response to Data Call for Questions-Text Responses.xls*). 1 spreadsheet. ‡

RE-R3-01. Region 3 Response to Information Request. FWS Region 3 Evidence 10-2009 (*RE-R3-01 FWS R3 Response to Information Request.xls*). 1 spreadsheet. ‡

RE-R4-01. Region 4 Evidence to Augment and Support Data Submission. FWS R4 Evidence, 10-2009 (*RE-R4-01 Region 6 Evidence to Augment and Support Data Submission.xls*). 1 spreadsheet. ‡

RE-R5-01. Region 5 Response to Data Call for Questions. FWS R5 Data, 10-2009 (*RE-R5-01 Region 5 Response to Data Call for Questions.xls*). 1 spreadsheet. ‡

RE-R5-02. Region 5 Response to Data Call for Questions-Text Responses. FWS Region 5 Data 10-2009 (*RE-R5-02 FWS R5 Response to Data Call for Questions-Text Responses.doc*). 46 pp. ‡

RE-R6-01. Region 6 Evidence to Augment and Support Data Submission. FWS R6 Evidence, 10-2009 (*RE-R6-01 Region 6 Evidence to Augment and Support Data Submission.doc*). 4 pp. ‡

RE-R6-02. Region 6 Response to Data Call for Questions, 10-15-2009. FWS R6 Evidence, 10-2009 (*RE-R6-01 Region 6 Response to Data Call for Questions 10-15-09.doc*). 9 pp. ‡

RE-R7-01. Region 7 Response to Data Call for Questions. FWS Region 7 Data 10-2009 (*RE-R7-01 FWS R7 Response to Data Call for Questions.doc*). 26 pp. ‡

Exhibit 4. Authorities, Policies & Directives

General Authorizations

Airborne Hunting Act - PL 92-159, as amended (85 Stat. 480). This act added section 13 (16 U.S.C. 742j-l) to the Fish and Wildlife Act of 1956 which is commonly referred to as the Airborne Hunting Act or Shooting from Aircraft Act, and prohibits shooting or attempting to shoot or harassing any bird, fish, or other animal from aircraft except for certain specified reasons, including protection of wildlife, livestock, and human life as authorized by a Federal or State issued license or permit. States authorized to issue permits are required to file reports with the Secretary of the Interior containing information on any permits issued.

Anadromous Fish Conservation Act, as amended (16 U.S.C. 757a-757f). This act authorizes the Secretary of the Interior to enter into cooperative agreements with the States and other non-Federal interests for conservation, development, and enhancement of the Nation's anadromous fishery resources.

Comprehensive Environmental Response Compensation and Liability Act (26 U.S.C. 4611-1682, P.L. 96-510 (1980)). The "Superfund" statute authorized the collection of taxes on crude oil and petroleum products, chemicals, and hazardous wastes. The Department of the Interior is a trustee for natural resources, *and* the Service is responsible for the protection and restoration of trust resources Injured by uncontrolled releases of hazardous materials.

Department of Transportation Act (16 U.S.C. 1653f). Section 4 of Public Law 89-670, approved October 15, 1966, provides for maintenance of natural beauty on lands traversed by highway projects and for preservation of wildlife refuges and public packs through consultation with the Secretary of the Interior.

Endangered Species Act of 1973, as amended (16 U.S.C 1531-1543). Implemented the Convention of International Trade in Endangered Species of Wild Fauna and Flora (T.I.A.S. 8249) signed by the United States March 3, 1973, and the Convention on Nature Protection and Wildlife , Preservation in the Western Hemisphere (50 Stat. 1354) signed by the United States October 12, 1940. The act provides for the conservation of threatened and endangered species of fish, wildlife and plants by Federal action and by encouraging the establishment of State programs.

Estuary Protection Act (16 U.S.C. 1221-1226). Expresses Congressional policy on values of estuaries and need to conserve their natural resources. Authorizes the Secretary of the Interior, in cooperation with other Federal agencies and the States, to study and inventory estuaries of the United States; including land and water of the Great lakes. Also, authorizes the Secretary to enter into cost-sharing agreements with States and subdivisions for permanent management of estuarine areas in their possession. Requires that the Secretary provide his views and recommendations on all projects that impact estuarine areas, and that require Congressional approval.

Exclusive Economic Zone of the United States of America (Presidential Proclamation 5030 of March 10, 1983). This Presidential action proclaims the sovereign rights and jurisdiction of the United States over natural resources and other activities in an Exclusive Economic Zone (EEZ) contiguous to the territorial sea of the United States as well as its territories and possessions and extending generally from three miles to 200 nautical miles offshore. This assertion of sovereign rights over the EEZ is intended to advance the development of ocean resources and promote the protection of the marine environment while not affecting other lawful uses of the EEZ, including the freedom of navigation and overflight by citizens of other nations. Neither does the proclamation change established U.S. policies concerning the continental shelf, marine mammals, and fishes, including highly migratory species such as the tunas.

Federal Aid in Sport Fish Restoration Act of August 9, 1950, as amended (16 U.S.C. 777-777k). This Act which has been amended several times is commonly referred to as the "Dingell-Johnson Act." It was most recently amended by PL 98-369, which was approved on July 18, 1984. It provides Federal aid to the States for management and restoration of fish having "material value in connection with sport or recreation in the marine and/or fresh waters of the United States." Funds from excise taxes on certain items of sport fishing tackle (Internal Revenue Code of 1954, sec. 4161) are appropriated to the Secretary of the Interior annually and apportioned to States on a formula basis for paying up to 75 percent of the cost of approved land acquisition, research, development, and management projects. An amendment on October 23, 1970, by P.l. 91-503 (84 Stat. 1101) provided, among other things, for development of comprehensive fish and wildlife resource management plans as an optional means for participating in the program. Over $432 million has been apportioned to the States for fish restoration projects since this program began in 1952.

Federal Power Act, as amended (16 U.S.C. 791a-825r). Provides, among other things, for cooperation between the Federal Power Commission (now the Federal Energy Regulatory Commission-FERC) and other Federal agencies in the investigation of proposed power projects, and for other agencies to provide information to FERC upon request. Provides that licenses issued by FERC for hydroelectric projects within Indian reservations, nation- al wildlife refuges and other specified areas that are withdrawn from the public domain must contain conditions that the Secretary of the Interior may require. Requires a Commission finding before approving private hydroelectric applications that the project is "best adapted" to a comprehensive waterway development plan for all public uses, including recreation. Requires licensees to construct fishways when required by the Secretary of the Interior.

Federal Water Pollution Control Act Amendments, as amended (33 U.S.C. 1251-1365, 1281-1292, 1311- 1328, 1341-1345, 1361-1376). The 1972 amendments (PL 92-500, 86 Stat. 816) represented a major initiative to restore the quality of the Nation's waters. A major national goal established by the amendments was the achievement of water quality which provides for protection and propagation of fish, shellfish, and wildlife. Title IV (33 U.S.C. 1341-1345; 86 Stat. 877) set up a Federal permit and license system to carry out certain Pollution discharge activities in navigable waters. Section 402 (33 U.S.C. 1342; 86 Stat. 880) requires permits from the Environmental

Protection Agency for the discharge of any pollutant into navigable water (National Pollutant Discharge Elimination System Permits). Section 403 (33 U.S.C. 1343; 86 Stat. 883) provides for control of ocean discharges. Section 404 (33 U.S.C. 1344; 86 Stat. 884) provides for the Corps of Engineers to issue permits for the discharge of dredged or fill materials into the navigable waters with oversight by the Environmental Protection Agency. Permit applications may be reviewed by the U.S. Fish and Wildlife Service for impacts on fish and wildlife. Section 405 (33 U.S.C. 1345; 86 Stat 884) provides for regulating the disposal of sewage sludge. Public Law 95-217, the Clean Water Act of 1977 (91 Stat. 1566), provides further that approved State programs may substitute for the Federal 404 permit program. This and other amendments substantially increase the Service's consultative responsibilities under the Act. The 1977 amendment also extended the target dates for achieving national water quality standards established in the Act.

Federal Water Project Recreation Act (16 U.S.C. 460(L)(12)-(21), P.L. 89-72 (1965)). Authorizes the Secretary of the Interior to provide facilities for outdoor recreation and fish and wildlife enhancement at all reservoirs under his control, except within the national wildlife refuges.

Fish and Wildlife Act of 1956, as amended (16 U.S.C. 742a-742j). Established a comprehensive national fish and wildlife policy; directs the Secretary of the Interior to provide continuing research, extension and information services, and to take any necessary steps to develop, manage, protect, and conserve fishery and wildlife resources, including research, acquisition of refuge lands, development of existing facilities and other means.

Fish and Wildlife Coordination Act, as amended (16 U.S.C. 661-666c). Authorizes assistance to Federal, State, and other agencies in development, protection, rearing, and stocking of fish and wildlife and controlling losses thereof. Authorizes surveys of fish and wildlife of all Federal lands and on effects of pollution. Authorizes surveys to prevent losses of, and to enhance, fish and wildlife at water-use projects constructed or licensed by the Federal Government. Authorizes incorporation of conservation measures at Federal waters projects and use of project lands by the U .S. Fish and Wildlife Service or State wildlife agencies. Also requires that the costs of constructing, operating, and maintaining measures to prevent or compensate for damages to fish and wildlife caused by a Federal project be considered integral costs of the project.

Fish and Wildlife Conservation Act of 1980 (16 U.S.C. 2901-2911). The Act authorizes $20 million over four years for development of comprehensive State plans for non-game species and implementation of non-game projects, and directs the FWS to undertake a study of alternative funding mechanisms.

Fish and Wildlife Improvement Act of 1978 (16 U.S.C. 7421; 92 Stat. 3110) Public Law 95-616, approved November 8, 1978. This Act authorizes the Secretary of the Interior and the Secretary of Commerce to assist in training of state fish and wildlife enforcement personnel to cooperate with other federal or state agencies for enforcement of fish and wildlife laws and to use appropriations to pay for rewards and undercover operations. The law provides authority to the Secretaries to enter into law enforcement

cooperative agreements with State or other Federal agencies, and authorizes the disposal of abandoned or forfeited items under the fish, wildlife, and plant jurisdictions of these Secretaries.

Public Law 105-328, signed October 30, 1998, amended the Act to allow the Fish and Wildlife Service to use the proceeds from the disposal of abandoned items derived from fish, wildlife and plants to cover the costs of shipping, storing and disposing of those items, and expanded the use of fines, penalties and forfeiture funds received under ESA and Lacey Act to include the costs of shipping, storing and disposing of items. Specifically prohibits the selling of items whose sale is banned under other laws.

Fisheries Joint Resolution (16 U.S.C. 744, Public Law 41-22). The 1871 Act created an independent Commissioner of Fish and Fisheries to investigate the decline in food fish and to stock such fish.

Indian Self-Determination and Education Assistance Act of 1976 (25 U.S.C. 450-450n). This Act, approve d January 4, 1975 (P .1.93-638), recognizes and responds to the strong desire of Indian people to control relationships among themselves and with non- Indian governments, organizations, and persons. It also assures maximum Indian participation in making educational and other Federal services to Indian communities more responsive to the needs and desires of those communities, and commits the Federal Government to maintain its unique and continuing relationship with and responsibility to Indian people. Further, it establishes requirements, procedures, and provisions for Indian tribes and the Departments of the Interior and Health and Human Services regarding contractual arrangements and grants, and mandates that all rights and benefits will be retained by Federal employees subsequently employed by tribal organizations as a result of this Act. The sovereign immunity and trusteeship rights enjoyed by any Indian tribe are not affected by this Act.

Invasive Species (Executive Order 13112, 1999). Signed by President Clinton, the EO established a National Invasive Species Council, which helps coordinate activities of existing federal agencies that address terrestrial and aquatic invasive species. It also directed Federal agencies to conduct, as appropriate, activities related to invasive species prevention; early detection, rapid response, and control; monitoring; restoration, research; and education. The Order also directed Federal agencies to not authorize, fund, or carry out actions that it believes are likely to cause or promote the introduction or spread of invasive species in the United States unless the agency has determined and made public its determination that the benefits of such actions clearly outweigh the potential harm caused by invasive species; and that all feasible and prudent measures to minimize risk of harm will be taken in conjunction with the actions.

Lacey Act of 1900 (18 U.S.C. 43- 44). The Act authorizes the Secretary of the Interior to adopt measures to aid in restoring game and other birds in parts of the U.S. where they have become scarce or extinct and to regulate the introduction of birds and animals in areas where they had not existed. All sections but one of the original 1900 Act have been repealed and either restated in or reenacted by other code provisions. The Lacey Act Amendments of 1981 are summarized below. The Act, makes it illegal to partake

in the trade of fish, wildlife, or plants taken in violation of any U.S. or Indian tribal law, treaty, or regulation as well as the trade of any of these items acquired through violations of foreign law. The Secretary of Commerce is authorized to issue regulations including, but not limited to, cooperating with the Secretary of the Interior for the marking and labeling of packages containing fish or wildlife. This Act does not apply to the interstate shipment, through Indian country or a State, of any fish or wildlife or plant legally taken if the shipment is en route to a State in which the fish or wildlife or plant may be legally possessed.

Amendments of 1981 (PL 97-79, 16 U.S.C. 3371-3378) repealed the Black Bass Act and sections 43 and 44 of the Lacey Act of 1900, replacing them with a single comprehensive statute. Under this law, it is unlawful to import, export, sell, acquire, or purchase fish, wildlife or plants taken, possessed, transported, or sold: 1) in violation of U.S. or Indian law, or 2) in interstate or foreign commerce involving any fish, wildlife, or plants taken possessed or sold in violation of State or foreign law. The law covers all fish and wildlife and their parts or products, and plants protected by the Convention on International Trade in Endangered Species and those protected by State law. Commercial guiding and outfitting are considered to be a sale under the provisions of the Act.

Magnuson/Stevens Fishery Conservation and Management Act of 1976, as amended (16 U.S.C 1801-1882). Established a 200-mile fishery conservation zone (FCZ), effective March 1, 1977. Also established, among other things, were eight Regional Fishery Management Councils on each of which the U.S. Fish and Wildlife Service is a non-voting member.

Marine Mammal Protection Act of 1972, PL 92-52 (16 U.S.C. 1361-1407), as amended. The 1972 Marine Mammal Protection Act established a Federal responsibility to conserve marine mammals with management vested in the Department of Interior for sea otter, walrus, polar bear, dugong, and manatee. The Department of Commerce is responsible for cetaceans and pinnipeds, other than the walrus. With certain specified exceptions, the Act establishes a moratorium on the taking and importation of marine mammals as well as products taken from them, and establishes procedures for waiving the moratorium and transferring management responsibility to the States. The law authorized the establishment of a Marine Mammal Commission with specific advisory and research duties. Annual reports to Congress by the Departments of Interior and Commerce and the Marine Mammal Commission are mandated.

National Aquaculture Act of 1980, as amended (16 U.S.C. 2801-2810). Directs the Secretary of the Interior to participate in establishing the National Aquaculture Development Plan and authorizes research, development, and other activities to encourage advancement of aquaculture in the United States. A 1984 amendment (P.1. 98-623) extended the authorization of this Act through FY 1985 and authorized $1,000,000 for Department of the Interior implementation of the Act.

National Environment Policy Act of 1969 (42 U.S.C. 4321-4347). Requires all Federal agencies to consult with each other and to employ systematic and interdisciplinary

techniques in planning and decision making. It also requires that every recommendation or report on proposals for legislation or other major Federal actions significantly affecting the quality of the human environment include a detailed statement of:

"(i) the environmental impact of the proposed action,

"(ii) any adverse environmental effects which cannot be avoided should the proposal be implemented,

"(iii) alternatives to the proposed action, "(iv) the relation between local short term uses and enhancement of long term productivity, and

"(v) any irreversible and irretrievable commitments of resources…involved…in the proposed action."

National Fish Hatchery System Volunteer Act of 2006 (Public Law 109-360, 120 Stat. 2058-2061). Enacted to enhance an existing volunteer program of FWS and promote community partnerships for the benefit of national fish hatcheries and fisheries program offices. Under the Act, the Secretary of the Interior may accept any gifts, devises, or bequests of real and personal property for the benefit of the National Fish Hatchery System. It allows the gifts and their proceeds to be spent without further appropriation. It also directs the Secretary, subject to the availability of appropriations, to: (1) carry out volunteer enhancement pilot projects at one or more System facilities; and (2) develop guidance for hatchery education programs. It authorizes the Secretary to approve community partnership enhancement projects and programs for a System facility. Lastly, it directs the Secretary to develop guidance for the hatchery education programs to further the mission of the system and the purposes of individual hatcheries and also authorizes the Secretary to develop or enhance hatchery education programs.

National Wildlife Refuge System Administration Act of 1966, as amended (16 U.S.C. 668dd-668ee). Constitutes an "Organic Act" for the National Wildlife Refuge System and provides guidelines and directives for administration and management of all areas in the system including "wildlife refuges, areas for the protection and conservation of fish and wildlife that are threatened with extinction, wildlife ranges, game ranges, wildlife management areas, and waterfowl production areas. "

Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990 — Title I of PL 101-646 (104 Stat. 4761, 16 U.S.C. 4701). This Act established a broad new Federal program to prevent introduction of and to control the spread of introduced aquatic nuisance species and the brown tree snake. The U.S. Fish and Wildlife Service, the U.S. Coast Guard, the Environmental Protection Agency, the Army Corps of Engineers, and the National Oceanic and Atmospheric Administration all were assigned major, new responsibilities, including membership on an Aquatic Nuisance Species Task Force established to develop a program of prevention, monitoring, control, and study. Responsibilities involving the Service include:

As a Task Force member, the Service must be consulted by the Secretary of the Transportation (through the Coast Guard) on regulations requiring ballast-water exchange or treatment requirements for ships entering the Great Lakes. As a Task Force

member and joint chair of the Task Force, the Service must: (1) jointly conduct a study on the environmental effects of ballast water exchange on receiving water and identify areas within waters of the U.S. and the Exclusive Economic Zone where exchange of ballast water poses no threat; (2) jointly conduct a study of whether aquatic nuisance species threaten the ecological characteristics and uses of the waters of the U.S. other than the Great Lakes; and (3) cooperate in a study to determine the need for controls on vessels entering waters of the U.S. other than the Great Lakes.

The Service must act with the National Oceanic and Atmospheric Administration as co-chair of the Aquatic Nuisance Species Task Force, and by May 29, 1991, the Director and the Under Secretary of NOAA were directed to develop an MOU describing their roles in carrying out the subtitle. The Task Force, composed of Federal agencies and representatives of States and regional entities, is to develop and implement an aquatic nuisance species program to prevent their introduction and dispersal in waters of the U.S.

Pacific Salmon Treaty Act of 1985 (P.L. 99-5). This Act approved March 15, 1985, implements the treaty between the United States and Canada concerning Pacific salmon (the Treaty) agreed to by authorized representatives of both nations in Seattle, W A, on January 16, 1985, and signed in Ottawa, Ontario, on January 28, 1985. The treaty went into force when signed by President Reagan and Canadian Prime Minister Brian Mulroney in Quebec City, Quebec, on March 18, 1985. The Act specifies that the U.S. Section of the Pacific 9. Salmon Commission (the Commission) established by the Treaty shall consist of four U.S. Commissioners knowledgeable or experienced concerning Pacific salmon. The Commissioners are to be appointed by the President and represent the major interests involved-the States of Alaska, of Oregon and Washington, the Pacific Northwest tribes, and the U.S. Government. An alternate is to be designated for each Commissioner. Also specified is the U.S. membership of the three Panels-Southern, Northern, and Fraser River—established by the Treaty. The Act establishes voting and consultation requirements for the U .S. Section and authorizes interagency cooperation. The Secretary of State in consultation with the Secretaries of Commerce and the Interior is authorized to approve, disapprove, or otherwise act on fishery regimes and Fraser River Panel regulations proposed in accordance with the Treaty and refer them to the appropriate States, treaty Indian tribes, and fishery management councils for implementation. The Secretary of Commerce is authorized to promulgate and enforce Federal regulations superceding any State or treaty Indian tribal law, regulation, or order determined to be inconsistent with U .S. obligations under the Treaty .The Act also makes it unlawful for any person or vessel subject to u.s. jurisdiction to violate the Act, regulations adopted thereunder, or any Fraser River Panel regulation adopted by the U.S. Appropriation of such 1 sums as may be necessary to carry out the purposes of the bill and provisions of the Treaty are authorized. Repeals the Sockeye Salmon or Pink Salmon Fishery Act of July 29, 1947 (16 U.S.C. 776-776£), as amended.

Reorganization Plan No.4 of 1970 (5 U.S.C. Appendix). Transferred to the Secretary of Commerce, effective October 3, 1970, all functions vested by law in the former Bureau of Commercial Fisheries (BCF) together with functions of the Department of the Interior administered through, or related primarily to, that Bureau; only Great

Lakes fishery research, activities related to the Great Lakes Fishery Commission, and a few other activities were excepted. Concurrently established in the Department of Commerce as the National Oceanic and Atmospheric Administration, which included the position of Assistant Administrator for Fisheries with responsibility for all matters related to living marine resources. Transferred the personnel, property, records, and unexpended funds of the now-defunct BCF to the National Marine Fisheries Service.

Rivers and Harbors Act of 1899, as amended (33 U.S.C. 401 et seq.). The Act of March 3, 1899, among other things, makes it unlawful for anyone to conduct any work or activity in navigable waters of the United States without a Federal permit. Under section 10 of the Act (33 U .S.C. 403; 90 Stat. 1151), dikes, dams and similar obstructions to navigation require the consent of Congress unless the navigable portion of the involved water body lies wholly in one State in which case the structure may be built under authority of the State with approval of the Chief of Engineers and the Secretary of the Army. The Secretary of the Army is authorized to issue permits to construct piers, jetties and similar structures, or to dredge and fill in navigable waters. Under section 9 of the Act (33 U .S.C. 40 I; 30 Stat. 1151), the Secretary of Transportation [acting through the U.S. Coast Guard] is authorized to issue permits for the construction of bridges and causeways over navigable waters. Authority of the Corps of Engineers to issue permits for the discharge of refuse into or affecting navigable waters under section 13 of the 1899 Act (33 U.S.C. 407; 30 Stat. 1152) was modified by Title IV of Public Law 92-500, October 18, 1972, the Federal Water Pollution Control Act Amendments of 1972, as amended (33 U.S.C. 1341-1345; 86 Stat. 877) establishing National Pollutant Discharge Elimination System Permits. The Fish and Wildlife Coordination Act, as amended (16 U.S.C. 661-666c; 48 Stat. 401) provides authority for the U .S. Fish and Wildlife Service to review and comment as to the effects on fish and wildlife of the works and activities proposed to be undertaken or permitted by the Corps of Engineers.

Recreation Use of Conservation Areas Act (16 U.S.C. 460k-460k-4). Commonly known as the Refuge Recreation Act of 1962. Authorizes the Secretary of the Interior to administer refuges, hatcheries, and other conservation areas for recreational use when such use does not interfere with the primary purpose for which these areas were established. Also provides for public use fees, permits, and penalties for violations of regulations.

Reorganization Plan #4 of 1970 (35 F.R. 15627). The plan transferred all functions vested by law in the former Bureau of Commercial Fisheries (BCF), and all functions of the Department of the Interior administered through or related to the BCF, (with the exception of Great Lakes Fishery Research and a few other activities) to the Secretary of Commerce. It concurrently established the National Oceanic and Atmospheric Administration in the Department of Commerce, and created the position of the Assistant Administrator for Fisheries with responsibility for all matters related to living marine resources. The Assistant Administrator's organization is the National Marine Fisheries Service (NMFS). The personnel, property, records, and unexpected funds of the BCF were transferred to the NMFS.

Sikes Act, as amended (16 U .S.C. 670a-6700). Public Law 86-797, approved September 15, 1960, provided for cooperation by the Departments of the Interior and Defense with State agencies in planning, development and maintenance of fish and wildlife resources on military reservations throughout the United States. Public Law 93-452 of October 18, 1974 (88 Stat. 1369) authorized conservation and rehabilitation programs on AEC (now DOE), NASA, Forest Service and BLM lands. These programs are carried out in cooperation with the States by the Secretary of the Interior and on Forest Service lands by the Secretary of Agriculture. The 1974 law authorized appropriations through June 30, 1978, to the Departments of Defense, Interior, and Agriculture. The Secretary's funding authorization (16 U.S.C. 6700) was subsequently extended through September 30, 1981, by P .l. 95-420 (92 Stat. 921; approved October 5, 1978) and through September 30, 1985, by PL 97-396.

Sportfishing and Boating Safety Act - Title VII, Subtitle D, Section 7404, Public Law 105-178 (16 U.S.C. 777g-1). Award grants to States to pay the cost of constructing, renovating, or maintaining tie-up facilities for transient, nontrailerable recreational vessels. Program authorizes matching funds on a competitive basis for constructing, renovating, or maintaining tie-up facilities for transient, nontrailerable recreational vessels.

Watershed Protection and Flood Prevention Act, as amended (16 U.S.C. 1001-1009). The Act of August 4, 1954, also referred to as the Small Watershed Projects Act or Public Law 84-566, declares a policy of assisting State and local organizations in preventing erosion, floodwater and sediment damages in watersheds and to further "the conservation, development, utilization and disposal of water, and the conservation and utilization of land. " Authorizes the Secretary of Agriculture to assist local organizations in preparing and carrying out certain works of improvement. Section 12 of the Act, as added by Public Law 85-624, August 12, 1958 (16 U.S.C. 1008; 72 Stat. 567), directs that the Secretary of the Interior be notified of approval of assistance so that he "may make surveys and investigations" and recommend measures for "conservation and development of wildlife resources," However, inclusion of such measures in the project are discretionary with the local organization and the Secretary of Agriculture. The cost of such conservation surveys and reports must be borne by the Secretary of the Interior.

Area-Specific Authorizations

Alaska National Interest Lands Conservation Act (16 U.S.C. 3101). Provides for the designation and conservation of certain public lands in Alaska, including designation of units of the National Wildlife Refuge System. Establishes nine new and enlarges seven existing national wildlife refuges, directs specific studies of fish and wildlife resources in several regions of Alaska, and establishes subsistence use of renewable resources as the priority use on public lands.

Atlantic Coastal Fisheries Cooperative Management Act, as amended (PL 103-206; 16 USC 5101-5108). The Act requires federal, state, and interstate cooperation in development, implementation and enforcement of coastal fishery management plans to promote interstate conservation and management of Atlantic coastal fishery resources.

The Secretary of Commerce, in cooperation with the Secretary of Interior, must develop and implement a program to support the Atlantic States Marine Fisheries Commission in interstate fishery management. The program includes activities to support state cooperation in collection, management and analysis of fishery data; law enforcement; habitat conservation; fishery research; and fishery management planning.

Atlantic Salmon Convention Act of 1982, as amended (16 U.S.C. 3601-3608). Implements U .*S.* participation in the Convention for the Conservation of Salmon in the North Atlantic Ocean, signed at Reykjavik, Iceland, on March 2, 1982. Authorizes the Secretary of Commerce, in cooperation with the Secretary of the Interior and the Secretary of Transportation (for the U.S. Coast Guard), to promulgate regulations to carry out the purposes of the Convention. Defines qualifications for three Commissioners to represent the U.S. oil the Council and Commissions established under the Convention.

Atlantic Striped Bass Conservation Act (P. L. 98-613). This statute, approved October 31, 1984, created stand-by Federal authority to prohibit the take of coastal migratory striped bass in coastal and internal waters from North Carolina to Maine. Upon notification by the Atlantic States Marine Fisheries Commission (ASMFC) in July 1985 or thereafter that a State has not adopted regulatory measures necessary to comply with its Interstate Striped Bass Management Plan or, subsequently, is not enforcing those regulatory measures, the Secretary of Commerce must determine within 30 days whether a coastal State is in compliance with the Commission's plan. If the State is not in compliance, the Secretary shall impose, and enforce, a moratorium on fishing for striped bass within the coastal waters of that State. This Act also directs that the Secretaries of Commerce and the Interior review and report to Congress by April 30, 1985, on the adequacy of the Commission's plan to encourage effective interstate action toward the conservation and management of Atlantic striped bass; and conduct comprehensive annual surveys of Atlantic striped bass fisheries and publish the results in the *Federal Register.* These provisions expire April 30, 1985. In addition, the Act authorizes $200,000 in *FY* 1986 and FY 1987 for equal Department of Commerce matching grants to Maryland and Virginia for production of striped bass in existing hatcheries if the Secretary considers the State in full compliance with the ASMFC Plan.

Belloni Decision (302 F. Supp. 899 (1969); affirmed, 529 F. 2d 570 (197)). Two suits against Oregon and Washington acting under the Columbia River Compact ratified by Congress in 1918 (40 Stat. 515) namely *Sohappy v. Smith* and *U.S. v. Oregon* which concerned regulation of Indian and non-Indian commercial fishing above Bonneville Dam, were initiated in 1968. These cases were consolidated as *U* .S. *v. Oregon* and heard by Federal District Judge Robert Belloni. In his 1969 decision, Judge Belloni limited the power of the States of Oregon and Washington to regulate Indian treaty fishing, holding that such regulation must: be necessary for conservation; not discriminate actively or passively against Indians; and must meet special "appropriate" standards to protect the treaty fishery .He held that the States may use their police power to regulate Indian treaty fishing rights ". ..only to the extent necessary to prevent the exercise of that right in a manner that will imperil the continued existence of the fish resource. ...To prove necessity, the State must show there is a need to limit the taking of fish and that

the particular regulation sought to be imposed upon the exercise of the treaty right is necessary to the accomplishment of the needed limitation." These necessity limitations apply equally to regulations restricting gear and to those that restrict the time of harvesting. Judge Belloni also held that the States had an affirmative duty to protect the Indian fishery .Non-discrimination meant that the States' regulatory scheme as a whole must provide a fair share of fish to the tribes. "[T]he state cannot so manage the fishery that little or no harvestable portion of the run remains to reach the upper portions of streams where the historic Indian places are mostly located." In addition, the States' regulations must be "appropriate," so that "one must consider the interest to be protected or objective to be served. In the case of regulations affecting Indian treaty fishing rights, the protection of the right to take fish at the usual and accustomed places must be an objective of the States' regulatory policy co-equal with the conservation of fish runs for other users." Finally, Judge Belloni ordered the States to give the tribes appropriate notice and an opportunity "to participate meaningfully in the rule- making process." By determining that the tribes were entitled to take a fair share of the harvestable fish at their usual and accustomed grounds, *U.S. v. Oregon* contained the seeds of anew doctrine. In subsequent rulings, the courts ordered the States to seek the "least restrictive alternatives" to assure conservation, holding State regulations strictly accountable to *U .S .v. Oregon* standards. Most importantly, they defined the treaty "fair share" as 50 percent of all fish destined to return above Bonneville Dam.

Boldt Decision (384 F. Supp. 312 (1974); affirmed, 520 F. 2d 676 (1975); cert. denied, 423 U.S. 1086 (1976). Federal District Judge George Boldt's February 1974 decision on Phase I of *U.S. v. Washington* meant, in essence that treaties signed with the Indian tribes of Western Washington in 1854 and 1855 reserved to the tribes 50 percent of harvestable portions of certain runs of salmon and steelhead. That ruling was subsequently upheld, virtually in its entirety, by the Supreme Court. The question facing the Court in the first phase of the case was the meaning of a provision (or its equivalent) included in treaties negotiated between the Federal Government and the Indian tribes of western Washington in the mid-1850's. That provision read: "The right of taking fish, at all usual and accustomed grounds and stations, is further secured to said Indians, in common with all citizens of the territory." The Court decided that that phrase meant the Indian tribes within a broad geographic area in Western Washington had an enforceable right to 50 percent of the allowable salmon and steelhead catches within the case area. The "case area" includes all of the watersheds and marine fishing areas of Puget Sound, the Strait of Juan de Fuca and the coast of Washington from Grays Harbor north. The proportion of the harvest available to tribal members is based on a court-developed formula. Harvestable fish are defined to be , after deducting for spawning requirements, the total number of fish within the case area (under regulatory jurisdiction of the State of Washington) available for harvest by the treaty tribes. The Court also provided an adjustment to compensate the tribes for fish harvested enroute by non-treaty fishermen within Washington waters. The two issues separated for a later hearing as Phase II of *U.S. v. Washington* are whether the treaties provide the tribes with the ability to protect the salmon fishery habitat from "substantial and adverse impacts" and whether the treaty right includes fish reared in State hatcheries. In November 1982, a three-member panel of the U.S. Court of Appeals for the Ninth Circuit reviewed the District Court's 1980 *Boldt II* decision (694 F. 2d 1374 (1982» and disagreed with the District Court

on the environmental issue. In April 1983, however, the Ninth Circuit vacated that decision and decided to rehear the case before the entire Court (704 F. 2d 1141 (1983». Anew issue—non-treaty catch accounting (NTCA)-has evolved as central to the case and is presently being addressed by the Courts. With this decision, as successively with others like it, there is brought into new focus the dual trust responsibility borne by the Secretary of the Interior, namely, to protect in perpetuity both the treaty-secured, court-upheld fishing right itself, and the productivity of the fishery resources that are the subject of its exercise.

Central Valley Project, California (16 U.S.C 695d-695j). The Emergency Relief Appropriations Act (Chapter 48, April 8, 1935; 49 Stat. 115) authorized expenditures of funds for various types of public works projects, including water conservation and irrigation. The Central Valley Project (CVP), a series of dams, reservoirs and canals in the San Joaquin Valley of California, was first established under this authority. Public Law 674, enacted in 1954, declared use of water for fish and wildlife as a project purpose in addition to all other previously stated purposes. It also provided authority and conditions for delivery of water to the Grasslands areas of the San Joaquin Valley for waterfowl purposes as stipulated in the 1950 DOI report entitled "Waterfowl Conservation in the Lower San Joaquin Valley, Its Relationship to the Grasslands and the Central Valley Project." P.L. 102-575, signed October 30, 1992 (106 Stat. 4600) included provisions to protect, restore, and enhance fish and wildlife and their habitats in the Central Valley and Trinity River basins. Objectives include addressing the impacts of the CVP on fish and wildlife resources and achieving a "reasonable balance among competing" water uses. (For more detail, see the entry on P.L. 102-575, the Reclamation Projects Authorization and Adjustment Act of 1992, particularly Title XXXIV, the Central Valley Project Improvement Act.)

Chehalis River Fishery Resources Study — Public Law 101-452 (104 Stat. 1054, enacted October 24, 1990). Requires the U.S. Fish and Wildlife Service to undertake a study of the fishery resources and habitats and develop goals and short- and long-term recommendations. The study and recommendations are to be reported to Congress by October 1, 1992. Participation by the Chehalis Tribe and Quinault Indian Nation is provided, and participation by the State of Washington is authorized, on the condition that non-Federal and non-tribal participants pay, in the aggregate, 1/6 of the cost of the study. Appropriation of $2,500,000 is authorized to carry out the Act and requires that 1/5 of any amount appropriated shall be made available to the Chehalis Tribe and the Quinault Indian Nation to carry out their respective study obligations.

Colorado River Storage Project Act (43 U.S.C. 620-6200). Section 8 of this April 11, 1956, Act (43 USC 620g) authorizes and directs the Secretary of the Interior, in connection with the Colorado River Storage Project and participating projects, to investigate, plan, construct and operate facilities to mitigate losses of, and improve conditions for, fish and wildlife. Provides authority to acquire lands and to lease or convey lands and facilities to State and other agencies.

Connecticut River Basin Atlantic Salmon Compact Act (P .L. 98-138). The Act provides Congressional consent for the States of Connecticut, Massachusetts, New Hampshire, and Vermont to enter into a compact for restoration of the Atlantic salmon in the Connecticut River basin. Establishes a Commission composed of two representatives from each State and the Northeast Regional Directors of the FWS and NMFS. The duties and authorities of the Commission include recommending stocking programs, management procedures, and research; coordinating interstate management and re- search projects; promulgating regulations for Salmon fishing in the mainstem of the Connecticut River; forming a technical committee of fishery experts from each member State and Federal agency to act in an advisory capacity to the Commission.

Elwha River Ecosystem and Fisheries Restoration Act, PL102-495 (106 Stat. 3173). The Act provides for efforts to restore the fisheries and ecosystem of the Elwha River basin in Washington State. Secretary of the Interior is authorized to acquire the Elwha and Glines Canyon hydroelectric power projects for $29.5 million.

Klamath River Basin Fishery Resources Restoration Act, PL 99-552 (100 Stat. 3081, October 27, 1986), as amended by P.L. 100-580 (102 Stat. 2935, October 31, 1988) and P.L. 100-653 (102 Stat. 3829, November 14, 1988; 16 U.S.C. 460ss), requires the Secretary to formulate, establish, and implement a 20-year program to restore and maintain anadromous fish populations of the Klamath River basin. Provision is made for a Council that shall establish a comprehensive long-term plan and policy for management of the in-river and ocean harvest, and for a task force to assist the Secretary in formulating, coordinating, and implementing the program.

Emergency Striped Bass Study Act, as amended (16 U.S.C. 757g). The Act of November 16, 1979, directs the Secretary of Interior to cooperate with the States and other non-Federal interests in conducting studies of striped bass populations and the factors responsible for their decline. The Secretary is to submit annual reports to Congress concerning the progress and findings of the studies conducted. The required studies may be carried out by cooperators under terms of agreements with the Secretary or by the government directly. Appropriations to carry out the required studies were authorized for FY 1980 through *FY* 1982 with provisions for the Secretary to inform the Congress of the reasons why and for how long continuation of those studies are warranted. P .L. 97 -453 extended the striped bass study funding authorization for two years, ending September 30, 1984. P.L. 98-613 further extended the funding authorization for the study until September 30, 1986.

Fish-Rice Rotation Farming Program Act of March 15, 1958 (16 U.S.C. 778-778d). Authorizes the Secretary of the Interior to establish experimental stations for research and experimentation related to the culture of fish on a commercial basis in shallow reservoirs and flooded rice lands.

Fox Decision (471 F. Supp. 192 (1979)). Federal District Judge Noel Fox issued a decision in *U.S. v. Michigan* (WD Mich No. M26- 73 CA) on May 7, 1979 that sweepingly upheld the right of treaty tribes to fish by traditional means in the Great Lakes and connecting waters ceded by the Treaty of 1836 (7 Stat. 491). The decision was

based on a number of findings and conclusions among others: that the present-day treaty tribes are the political successors to those who were party to the 1836 Treaty; that the United States intended for Michigan Indians to be able to fish, then and in the future, for their livelihood; that nothing in the Treaties of 1855 (11 Stat. 621 *et seq.)* abrogated, extinguished, or otherwise diminished the fishing rights reserved by the Treaty of 1836; that the passage of time has not eroded and cannot erode rights guaranteed by treaties; and that treaty rights to fish in ceded waters, being distinct from rights and privileges held by non-Indians, may not be qualified or regulated by the State except as authorized by Congress The Court retains jurisdiction over this case, taking additional evidence, to making rulings and issuing orders, and otherwise implementing its decree.

Great Lakes Fish and Wildlife Restoration Act - Public Law 101-537 (104 Stat. 2370, 16 U.S.C. 941 note, enacted November 8, 1990). The Act requires a comprehensive study of Great Lakes Basin fishery resources, sets goals for the U.S. Fish and Wildlife Service in administering programs in the Great Lakes Basin, and requires the Service to establish related offices. The Act establishes goals for the U.S. Fish and Wildlife Service programs in the Great Lakes and requires the Service to undertake a number of activities specifically related to fishery resources.

Public Law 105-265, October 19, 1998, reauthorizes the 1990 law, and shifts emphasis from study of species and habitat restoration needs to implementation of restoration projects emphasizing the 32 study recommendations; authorizes $3.5 million for each fiscal year through 2004 for activities of the U.S. Fish and Wildlife Service's Great Lakes Coordination and Fishery Resources Offices; establishes a Committee to recommend projects for funding to the Director of the Fish and Wildlife Service; authorizes $4.5 million for each fiscal year through 2004 to fund restoration projects recommended by the Committee. Projects require a 25% non-federal match. The 2006 re-authorization doubled the funding authorization and made other significant changes in the Act.

Great Lakes Fishery Act of 1956 (16 U.S.C. 931-939c). Implements the Convention on Great Lakes Fisheries (6 U.S. T. 2836) between the United States and Canada covering Lake Ontario (including the Saint Lawrence River from Lake Ontario to the forty-fifth parallel of latitude), Lake Erie, Lake Huron (including Lake Saint Clair), Lake Michigan, and Lake Superior.

Klamath River Basin Fishery Restoration Act (16 U.S.C. 460ss, P.L. 99-552). Directs the Secretary of the Interior to formulate, establish and implement a 20-year program to restore and maintain anadromous fish populations of Klamath River Basin. The Act authorizes a Council and task force for long range planning.

Mississippi Interstate Cooperative Resource Agreement (H.R. 2939). The 1996 Agreement coordinates management of interjurisdicitonal fishery resources within the Mississippi River Basin..

Mitchell Act, as amended (16 U.S.C. 755-757). Authorizes the Secretary of Commerce to establish salmon-culture stations in the Columbia River Basin and to conduct investigations, engineering and biological surveys, and experiments as necessary for the conservation of fishery resources.

New England Fishery Resources Restoration Act of 1990 - (Section 111 of P.L 101-593; 104 Stat. 2960, 16 U.S.C. 777e-1). The purposes of this Act are to: ensure timely and effective implementation of restoration plans and programs for Atlantic salmon and other fishery resources in New England river systems, require a study of fish passage impediments and requirements on New England rivers and streams, and require an inventory of fish and wildlife habitat and other natural areas of New England river basins. The U.S. Fish and Wildlife Service is required to formulate, establish, revise, and implement cooperative programs to restore and maintain nationally significant interjurisdictional fishery resources in New England river systems, and submit annual reports to Congress on activities undertaken and accomplishments achieved, including a prognosis for the restoration of stocks and species involved.

Pacific Northwest Electric Power Planning and Conservation Act (16 U.S.C. 839). The purpose of this Act is, in part, to provide for participation of States, local governments, consumers, customers, and users (including Federal and State fish and wildlife agencies and appropriate Indian tribes) of electric power generated or transmitted by the Columbia River Federal Power System in the development of plans and programs for protecting, mitigating, and enhancing fish and wildlife resources and providing environmental quality. Another purpose is to ensure that customers of the Bonneville Power Administration (BPA) and their consumers continue to pay all costs necessary to produce, transmit, and conserve resources in meeting the region's electric power requirements. Subsection 4(a) (16 U.S.C. 839b(a» established the Pacific Northwest Electric Power and Conservation Planning Council (the Council) to promptly prepare and adopt (I) a regional conservation and electric power plan, and (2) a program to protect, mitigate, and enhance fish and wildlife, including related spawning grounds and habitat, of the Columbia River and its tributaries as a system (the Program). Subsection 4(h) (16 U.S.C. 839b(h» provides guidance for developing the Program. Specifically, that subsection requires that the Program be developed and subsequently amended on the basis of recommendations solicited from Federal agencies and the region's State fish and wildlife agencies and Indian tribes of measures to protect, mitigate, and enhance fish and wildlife and their habitats. Other interested or affected entities from the region may also submit such recommendations. The Council must adopt the Program and any subsequent amendments within one year after the receipt of such recommendations. The Fish and Wildlife Program adopted by the Council must be included in the Regional Conservation and Electric Power Plan (the Plan) required under Subsection 4(d) (16 U.S.C. 839b(d». The Administrator of BPA is directed to use the BPA Fund and other available authorities to protect, mitigate, and enhance fish and wildlife to the extent affected by the development and operation of any hydroelectric project of the Columbia River or its tributaries in a manner consistent with the Plan and its Fish and Wildlife Program. Such expenditures shall be in addition to, not in lieu of, other expenditures authorized or required from other entities under other agreements or provisions of law.

Pere Marquette River Amendment (P .L. 98-444). The Act of October 4, 1984, amended the Wild and Scenic Rivers Act to permit control of the "lamprey eel" in the Pere Marquette River, Michigan, by allowing the installation and operation of low dams and other control facilities in accordance with requirements prescribed by the Secretary of Agriculture for the protection water quality and the value of the river.

Salmon and Steelhead Conservation and Enhancement Act (16 U.S.C. 3301-3325). Title I of this Act approved December 22, 1980 (P .L. 96- 561) establishes Washington State and Columbia River conservation areas. It also directs the Secretary of Commerce to establish the Salmon and Steelhead Advisory Committee comprised of representatives from the States of Washington and Oregon, the Washington and Columbia River tribal coordinating bodies, the Pacific Fisheries Management Council and the National Marine Fisheries Service. The Commission is to prepare and submit to the Secretary and Congress a comprehensive report recommending a management structure for the more effective coordination of research, enhancement, management, and enforcement policies for salmon and steelhead. The Act also authorizes the Secretary of the Interior, in consultation with the Secretary of Commerce, to establish an enhancement grant program for each conservation area. Authorizes appropriations of $126.5 million, including $45 million for enhancement for Washington State, $25 million for enhancement for the Columbia River, $14 million for steelhead enhancement (to be divided equally between Washington and Columbia River conservation areas), $37. 5 million for the buy back program, and $5 million for developing fisheries port facilities in the State of Oregon.

State of Alaska v. Babbitt (Katie John 1 Decision), 72 F.3d 698 (9th Cir. Alaska, 1995). The court defines "public lands" subject to federal management in implementing Alaska National Interest Lands Conservation Act to preserve subsistence fishing and hunting by rural Alaskans.

Trinity River Basin Fish and Wildlife Restoration, 1984 (P.L. 98-541). The Secretary of the Interior is authorized to develop and implement a program to restore fish and Wildlife to levels existing before the construction of the Trinity River division of the central Valley Project A Task force is authorized to advise the Secretary of the Interior, and cost sharing is required, The Secretary of the Interior is required to consult with the Secretary of Commerce regarding management programs, and is required to detail expenditures to Congress.

Trinity River Fishery Restoration (P.L. 98-541). The Act of October 24, 1984, directs the Secretary of the Interior to formulate and implement a fish and wildlife ~ management program for the Trinity River to restore fish and wildlife populations to historic levels, including construction of fish restoration facilities and establishment of a monitoring program based upon the management program developed by the existing Trinity River Basin Fish and Wildlife Task Force; establishes a new Trinity River task force composed of 13 Federal, State and local governmental organizations to assist the Secretary in formulating and implementing the program; authorizes, after FY 1985 and until October 1, 1995, $33 million for construction to restore salmon, steelhead, and wildlife resources in the Trinity River Basin and $2.2 million annually for ten years for

facility O&M, fishery monitoring and management, and habitat manipulation practices; and establishes a cost-sharing formula that requires 15 percent of project costs be paid by State and local governments, 50 percent by users of water and power from the Trinity River diversion of the Central Valley project, and the balance (35 percent) by the Federal Government. However, no expenditures are permitted under this Act until the Grass Valley Creek debris darn is completed.

US vs. Michigan Consent Decree (Fox Decision). The Service must maintain lake trout production levels at 3 million lake trout stocked annually at the Jordan River (MI), Pendills Creek (MI), and Iron River (WI) NFHs. The fishing rights of the Chippewa and Ottawa Tribes in the 1836 ceded waters of the Upper Great Lakes was upheld in 1973 by federal court in the case US v Michigan. The 2000 Consent Decree, a new federal court order negotiated among the parties that replaces a 1985 court order, specifies how tribal fishing rights shall be implemented and fishery resources allocated between tribal and state fishers in the treaty ceded waters through the year 2020. As a party to the Consent Decree, the United State through the Service is required to provide expert technical support to the Solicitor and Department of Justice on dispute issues related to the Decree, biological expertise and technical assistance to Tribes and the State of Michigan on the allocation and management of shared fishery resources, enhance the number of lake trout stocked in Lakes Michigan and Huron, and evaluate the success of lake trout rehabilitation. Fiscal resources currently available to implement the Service's Great Lakes Fishery Program are inadequate to fulfill these responsibilities. Implement the 2001-2006 phase-in procedures to change from a quota management to effort based management for harvest and effort limits specified in the Decree, monitor sport and commercial harvest and recommend changes in fishing effort.

Voigt Decision (Lac Courte Oreilles v. Wisconsin) 700 F.2d 341 (CA Wis., 1983). Hunting, Fishing, and gathering rights were reserved and protected by treaties with the Chippewa and US Government.

Water Resources Development Act of 1976 (90 Stat. 2921). Section 102 authorizes and directs the implementation of the Lower Snake River Compensation Plan to mitigate for fish and wildlife losses resulting from four Corps of Engineers dams constructed on the lower Snake River.

Yakima Fishery Enhancement Project (P.L. 98-360, P.L. 98-381, P.L. 98-386). Several statutes enacted concurrently in the 98th Congress together provide additional authorization needed to implement the Yakima Fishery Enhancement Project. Section 109 of the Hoover Power Plant Act (P .L. 98-381, approved August 17, 1984) authorizes the Secretary of the Interior to design, construct, operate, and maintain fish passage facilities within the Yakima River Basin and to accept funds from any entity , public or private, for such purposes. The FY 1984 Supplemental Appropriation Act (P .L. 98-396, approved August 22, 1984; 98 Stat. 1379) authorizes credit to the Yakima Indian Nation, State of Washington or other public or private entity for the costs of any physical element constructed for the Yakima Enhancement Project approved by the Secretary of the Interior as integral to the Project; authorizes the Secretary to accept title to and operate and maintain any re-regulating dam or fish passage facility without

compensation; and provides that anadromous fish operation and maintenance costs that are in excess of present obligations shall be non-reimbursable and non-returnable. The FY 1985 Energy and Water Development Appropriations Act (P .L. 98-360, approved July 16, 1984) makes available $4,800,000 to expedite construction of fish passage facilities at two Bureau of Reclamation darns in the Yakima Basin.

Yukon River Salmon Act of 1995 (16 U.S.C. 5701, P.L. 104-43). The Act authorizes an agreement between the US and Canada to conserve salmon stocks from the Yukon River, however if the treaty terminates before the agreement, functions will be assumed by the Yukon River Salmon Commission.

Exhibit 5. Fisheries Program Aquatic "Trust" Species

Note: This species list has been compiled from a variety of FWS reports. It represents a comprehensive, yet not definitive listing of aquatic species that the Fisheries Program has an active interest in by virtue of more or more of the listed attributes.

Total Species	**611**	**Species held at NFH**	**128**
- Native Species	605	**FWS/Tribal Lands**	**350**
- IJ Species	196	**Tribal Trust Species**	**239**
- FMP Species	82	**Fish Species**	**467**
- ESA Listed Species	189	**Mollusk species**	**120**
Commerical/Recreational	**93**	**Other aquatic species**	**24**
Species stocked for Mitigation	**15**		

	Species	IJ	FMP	Mitigation	ESA Listed	NFH	Rec/Comm	FWS or Tribal Lands	Class	Other	Mged to FMP	Type
1	Aaiute sculpin	x							F			sculpin
2	Aholehole kai							x	F	T		kai
3	Aholehole mauka							x	F	T		mauka
4	Akupa sleeper							x	F	T		sleeper
5	Alabama heelsplitter				x				M			heelsplitter
6	Alabama lampmussel				x				M			lampmussel
7	Alabama moccasinshell				x				M			moccasinshell
9	Alabama shad	x	x				x	x	F	T		shad
10	Alabama sturgeon	x	x		x	x	x		F			sturgeon
11	Alaska pollock	x					x	x	F	T		blackfish
12	Alaskan brook lamprey							x	F	T		lamprey
13	Alewife	x	x				x		F		x	alewife
14	Alligator gar	x	x			x		x	F	T, H		gar
15	Alligator snapping turtle	x	x			x			R			turtle
16	Alvord chub	x						x	F			chub
17	Ama							x	F	T		ama
18	Amargosa pupfish	x						x	F			pupfish
19	Amber darter		x		x				F			darter
20	American brook lamprey	x							F			lamprey
21	American eel	x	x				x	x	F	T		eel
22	American paddlefish	x	x			x	x	x	F	T		paddlefish

	Species	IJ	FMP	Mitigation	ESA Listed	NFH	Rec/Comm	FWS or Tribal Lands	Class	Other	Mged to FMP	Type
23	American shad	x	x			x	x	x	F	T		shad
24	Apache trout	x			x	x	x	x	F	T		trout
25	Appalachian elktoe				x				M			elktoe
26	Appalachian monkeyface				x				M			monkeyface
27	Arctic char	x	x				x	x	F	T	x	char
28	Arctic cisco	x	x				x	x	F	T		cisco
29	Arctic grayling		x				x	x	F	T		grayling
30	Arctic lamprey	x						x	F	T		lamprey
31	Arkansas darter							x	F	T		darter
32	Arkansas fatmucket	x	x		x				M			fatmucket
33	Arkansas River shiner		x		x				F			shiner
34	Arroyo chub							x	F			chub
35	Ash Meadows pupfish				x				F			pupfish
36	Ash Meadows speckled dace				x				F			dace
37	Atlantic salmon	x	x		x	x	x	x	F	T		salmon
38	Atlantic sturgeon	x	x			x	x		F	S		sturgeon
39	Banded (pygmy) sculpin							x	F	T		sculpin
40	Banded darter							x	F	T		darter
41	Bantam sunfish						x	x	F	T		sunfish
42	Barrens topminnow	x	x			x			F			topminnow
43	Barton Springs salamander				x	x			A			salamander
44	Beautiful shinner				x	x		x	F			shiner
45	Bering cisco	x						x	F	T		cisco
46	Big Bend gambusia				x	x			F			gambusia
47	Big Spring spinedace				x				F			spinedace
48	Bigeye chub							x	F	T		chub
49	Bigeye shiner							x	F	T		shiner
50	Bigmouth buffalo							x	F	T		buffalo
51	Bigscale logperch							x	F	T		logperch
52	Birdwing pearlymussel				x				M			pearlymussel
53	Black buffalo							x	F	T		buffalo

	Species	IJ	FMP	Mitigation	ESA Listed	NFH	Rec/Comm	FWS or Tribal Lands	Class	Other	Mged to FMP	Type
54	Black bullhead							x	F	T, H		catfish
55	Black clubshell				x				M			clubshell
56	Black crappie					x		x	F	T		crappie
57	Black redhorse							x	F	T		redhorse
58	Black sandshell mussel	x				x			M			sandshell
59	Black sea bass	x							F			bass
60	Blackside dace				x	?			F			dace
61	Blackside darter							x	F	T, H		darter
62	Blackspot shiner							x	F	T		shiner
63	Blackspotted topminnow							x	F	T, H		topminnow
64	Blackstripe topminnow							x	F	T		topminnow
65	Blacktail shiner							x	F	T		shiner
66	Bloater	x	x					x	F			bloater
67	Blue catfish	x						x	F	T, H		catfish
68	Blue chub	x						x	F			chub
69	Blue shiner		x		x				F			shiner
70	Blue sucker	x	x					x	F	T		sucker
71	Blueback herring	x	x			x	x		F			herring
72	Bluegill	x	x				x	x	F	T	x	sunfish
73	Bluehead shiner							x	F	T		shiner
74	Bluehead sucker		x					x	F	T	x	sucker
75	Bluntnose darter							x	F	T		darter
76	Bluntnose minnow							x	F	T, H		minnow
77	Bluntnose shriner	x			x	x		x	F	T		shiner
78	Bonnethead shark	x				x	x		F			shark
79	Bonneville cutthroat trout	x	x				x	x	F			trout
80	Bonytail chub	x			x	x		x	F			chub
81	Boreal toad		x						A			toad
82	Boulder darter				x				F			darter
83	Bowfin	x					x	x	F	T		bowfin
84	Bridgelip sucker	x						x	F			sucker

	Species	IJ	FMP	Mitigation	ESA Listed	NFH	Rec/Comm	FWS or Tribal Lands	Class	Other	Mged to FMP	Type
85	Brindled madtom							x	F	T		madtom
86	Broad whitefish	x						x	F	T		whitefish
87	Brook floater					x			M			floater
88	Brook lamprey (incl Pit-Klamath)	x						x	F	T		lamprey
89	Brook silverside							x	F	T		silverside
90	Brook stickleback							x	F	T		stickleback
91	Brook trout	x	x	x		x	x	x	F	T		trout
92	Brown bullhead	x							F	H		catfish
93	Bull trout	x	x		x		x	x	F	T		trout
94	Bullhead minnow							x	F	T		minnow
95	Burbot	x	x				x	x	F	T		burbot
96	Cahaba shiner				x				F			shiner
97	California floater (papershell clam)							x	M	T		floater
98	California red-legged frog				x			x	A			frog
99	California roach							x	F			roach
100	Candy darter								F			darter
101	Cape Fear shiner				x				F			shiner
102	Cardinal shiner							x	F	T		shiner
103	Carmine shiner							x	F	T		shiner
104	Carolina darter				x				F			shiner
105	Catspaw (=purple) pearlymussel)				x				M			catspaw
106	Chain pickerel	x					x	x	F	T		pickerel
107	Channel catfish	x	x			x	x	x	F	T, H	x	catfish
108	Channel darter							x	F	T		darter
109	Chestnut lamprey							x	F	T		lamprey
110	Chihuahua chub				x	x			F			chub
111	Chinook salmon	x	x	x	x	x	x	x	F	T		salmon
112	Chipola slabshell mussel				x				M			slabshell
113	Chiricahua leopard frog								A	S		frog
114	Chiselmouth	x						x	F			chiselmouth
115	Chum salmon	x	x			x	x	x	F	T		salmon

	Species	IJ	FMP	Mitigation	ESA Listed	NFH	Rec/Comm	FWS or Tribal Lands	Class	Other	Mged to FMP	Type
116	Cisco	x					x	x	F			cisco
117	Clear Creek gambusia				x	x			F			gambusia
118	Clubshell	x			x				M			clubshell
119	Coast Range sculpin	x						x	F			Sculpin
120	Coastal cutthroat trout	x	x				x	x	F	T		trout
121	Cobia	x				x	x		F			cobia
122	Coho Salmon	x	x	x	x	x	x	x	F	T		salmon
123	Colorado pikeminnow	x			x	x			F			pikeminnow
124	Colorado River cutthroat trout	x	x				x		F			trout
125	Columbia River redband trout	x					x		F			trout
126	Comal Springs dryopid beetle				x	x			I			beetle
127	Comal Springs riffle beetle				x	x			I			beetle
128	Comanche Springs pupfish				x	x			F			pupfish
129	Common Arrowhead					x			P			arrowhead
130	Conasauga logperch				x				F			logperch
131	Coosa moccasinshell				x				M			moccasinshell
132	Cowhead Lake tui chub	x							F			chub
133	Cracking pearlymussel				x				M			pearlymussel
134	Creek chub	x						x	F	T, H		chub
135	Creek chubsucker	x						x	F	T		sucker
136	Creole darter							x	F	T		darter
137	Crystal darter		x			x		x	F	T		darter
138	Cui-ui				x			x	F	T		sucker
139	Cumberland bean mussel				x				M			bean mussel
140	Cumberland monkeyface		x		x				M			monkeyface
141	Cumberland pigtoe				x				M			pigtoe
142	Cumberlandian combshell				x				M			combshell
143	Curtis pearlymussel				x				M			pearlymussel
144	Cutthroat trout	x	x	x	x	x	x	x	F	T		trout
145	Cypress darter							x	F	T		darter
146	Dark pigtoe				x				M			pigtoe

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147	Deepwater sculpin	x							F			Sculpin
148	Deertoe					x			M			deertoe
149	Delta smelt				x	x		x	F			smelt
150	Desert dace				x			x	F			dace
151	Desert pupfish	x			x	x		x	F			pupfish
152	Desert sucker	x						x	F	T		sucker
153	Devil's Hole pupfish				x			x	F			pupfish
154	Devils River minnow				x	x			F			minnow
155	Dolly Varden	x	x				x	x	F	T		char
156	Dromedary pearlymussel								M			pearlymussel
157	Dusky darter							x	F	T		darter
158	Duskytail darter				x	x			F			darter
159	Dwarf wedgemussel				x	x			M			wedgemussel
160	Eastern blacknose dace								F	H		dace
161	Eastern elliptio					x			M			elliptio
162	Eastern oyster	x					x	x	M			oyster
163	Eastern pearlshell mussel					x			M	T		pearlshell mussel
164	Elephant-ear	x							M			elephant-ear
165	Emerald shiner							x	F	T		shiner
166	Etowah darter				x	x			F			darter
167	Eulachon	x	x					x	F	T		eulachon
168	Fanshell				x				M			fanshell
169	Fantail darter							x	F	T		darter
170	Fat pocketbook mussel	x			x	x			M			pocketbook
171	Fat three-ridge mussel				x	x			M			three-ridge mussel
172	Fathead minnow					x			F	H		minnow
173	Fatmucket					x			M			fatmucket
174	Finelined pocketbook				x				M			pocketbook
175	Finerayed pigtoe				x				M			pigtoe
176	Flannelmouth sucker	x						x	F	T		sucker

	Species	IJ	FMP	Mitigation	ESA Listed	NFH	Rec/Comm	FWS or Tribal Lands	Class	Other	Mged to FMP	Type
177	Flat pigtoe				x				M			pigtoe
178	Flathead catfish	x	x				x	x	F	T, H		catfish
179	Flathead chub	x						x	F			chub
180	Flathead minnow							x	F	T		minnow
181	Flier sunfish							x	F	T		sunfish
182	Florida gar						x		F			gar
183	Florida stone crab	x					x		C			crab
184	Fluted kidneyshell				x				M			kidneyshell
185	Foskett speckled dace				x				F			dace
186	Fountain darter				x	x			F			darter
187	Fourhorn sculpin							x	F			sculpin
188	Freckled (belly) madtom							x	F	T		madtom
189	Freshwater drum					x		x	F	T, H		drum
190	Ghost shiner							x	F	T		shiner
191	Gila chub				x				F			chub
192	Gila mountain sucker								F			sucker
193	Gila topminnow (incl. Yaqui)				x	x			F			topminnow
194	Gila trout				x	x	x		F			trout
195	Gizzard shad							x	F	T		shad
196	Golden redhorse							x	F	T		redhorse
197	Golden shiner					x		x	F	T		shiner
198	Golden topminnow							x	F	T		topminnow
199	Golden trout (incl.B10 Little Kern)	x	x		x			x	F			trout
200	Goldeneye							x	F	T, H		goldeneye
201	Goldline darter				x	x			F			darter
202	Goldstripe darter							x	F	T		darter
203	Goose Lake lamprey							x	F	T		lamprey
204	Gravel chub							x	F	T		chub
205	Gray redhorse							x	F	T		redhorse
206	Greater redhorse		x						F			redhorse
207	Green blossom pearlymussel				x				M			blossom

	Species	IJ	FMP	Mitigation	ESA Listed	NFH	Rec/Comm	FWS or Tribal Lands	Class	Other	Mged to FMP	Type
208	Green floater		x			x			M			floater
209	Green sturgeon	x					x	x	F	T		sturgeon
210	Green sunfish						x	x	F	T, H		sunfish
211	Greenback cutthroat trout	x		x	x	x	x		F			trout
212	Greenside darter							x	F	T		darter
213	Greenthroat darter							x	F	T		darter
214	Gulf moccasinshell				x				M			moccasinshell
215	Guadalupe bass		x				x		F			bass
216	Gulf sturgeon	x			x	x	x		F	T		sturgeon
217	Hardhead							x	F			hardhead
218	Harlequin darter							x	F	T		darter
219	Headwater catfish							x	F	T		catfish
220	Headwater chub							x	F	T		chub
221	Heavy pigtoe				x				M			pigtoe
222	Hellbender								A			hellbender
223	Hickory shad	x	x				x		F			shad
224	Higgins eye pearlymussel	x			x	x			M			pearlymussel
225	Hitch (incl. Clear Lake)							x	F			hitch
226	Horseshoe crab	x	x				x		C			crab
227	Houston toad				x				A			toad
228	Humpback chub	x			x	x		x	F	T		chub
229	Humpback whitefish	x						x	F	T		whitefish
230	Inconnu (sheefish)	x	x					x	F	T		inconnu
231	Inland chub							x	F			chub
232	Iowa darter							x	F	T		darter
233	Ironcolor shiner							x	F	T		shiner
234	James [River] spinymussel				x	x			M			spinymussel
235	Johnny darter							x	F	T		darter
236	June sucker				x	x			F			sucker
237	Kaku							x	F	T		kaku
238	Kiamichi shiner							x	F	T		shiner

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239	Kiyi Cisco	x						x	F			cisco
240	Klamath lamprey	x							F			lamprey
241	Klamath largescale sucker	x							F			sucker
242	Klamath smallscale sucker	x							F			sucker
243	Kootanai River white sturgeon				x		x		F			sturgeon
244	Lahontan cutthroat trout				x	x	x	x	F	T		trout
245	Lahontan redside	x							F			redside
246	Lai							x	F	T		lai
247	Lake chub (sucker)							x	F	T		chub
248	Lake herring						x	x	F	T		herring
249	Lake sturgeon	x	x			x	x	x	F	H, T		sturgeon
250	Lake trout	x	x	x		x	x	x	F	T		trout
251	Lake whitefish	x	x				x	x	F	T		whitefish
252	Landlocked Atlantic salmon	x	x			x	x		F			salmon
253	Largemouth bass	x	x			x	x	x	F	T, H		bass
254	Largescale sucker	x						x	F			sucker
255	Least chub		x						F			chub
256	Least cisco	x						x	F	T		cisco
257	Least darter							x	F	T		darter
258	Leon Springs pupfish				x	x			F			pupfish
259	Leopard dace							x	F			dace
260	Leopard darter				x	x			F			darter
261	Little Colorado River spinedace				x				F			spinedace
262	Little Colorado River sucker							x	F	T		sucker
263	Littlewing pearlymussel				x				M			pearlymussel
264	Loach minnow				x	x			F			minnow
265	Logperch							x	F	T, H		logperch
266	Longear sunfish	x					x	x	F	T		sunfish
267	Longfin dace							x	F	T		dace
268	Longfin smelt	x						x	F	T		smelt
269	Longjaw mudsucker	x							F			sucker

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270	Longnose dace	x	x					x	F			dace
271	Longnose darter							x	F	T		darter
272	Longnose gar	x					x	x	F	T, H		gar
273	Longnose sucker							x	F	T		sucker
274	Lost River sucker	x			x				F			sucker
275	Louisana pearlshell				x	x			M			pearlshell mussel
276	Louisana pigtoe							x	M	T		pigtoe
277	Lowland topminnow							x	F	T		topminnow
278	Malheur sculpin							x	F			sculpin
279	Marbled sculpin (incl Bigeye)	x						x	F			sculpin
280	Margined sculpin							x	F			sculpin
281	Maryland darter				x				F			darter
282	Menhaden	x							F			menhaden
283	Mexican stoneroller							x	F	T		stoneroller
284	Mexican tetra							x	F	T		tetra
285	Mimic shiner							x	F	T		shiner
286	Mississippi silvery minnow							x	F	T		minnow
287	Moapa dace				x			x	F			dace
288	Modoc sucker	x			x				F			sucker
289	Mohave tui chub								F			chub
290	Monkeyface pearlymussel	x							M			pearlymussel
291	Mooneye							x	F	T		mooneye
292	Mottled sculpin	x						x	F	T, H		sculpin
293	Mountain madtom							x	F	T		madtom
294	Mountain sucker							x	F			sucker
295	Mountain whitefish	x					x	x	F			whitefish
296	Mucket mussel	x				x			M			mucket
297	Mud darter							x	F	T		darter
298	Mudpuppy	x	x			x			A	H		mudpuppy
299	Muskellunge	x	x				x	x	F			pike
300	Neosho madtom				x				F			madtom

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301	Neosho mucket mussel				x				M	S		mucket
302	Niangua darter				x				F			darter
303	Ninespine stickleback							x	F			stickleback
304	Nooksack dace							x	F			dace
305	Northern brook lamprey	x							F			lamprey
306	Northern hog sucker							x	F	T		sucker
307	Northern pike	x	x	x		x	x	x	F	T		pike
308	Northern pikeminnow	x					x		F			pikeminnow
309	Northern Plains killifish							x	F	T		killifish
310	Northern redbelly dace								F	H		dace
311	Northern riffleshell				x	x			M			riffleshell
312	Northern studfish							x	F	T		studfish
313	Ochlockonee moccasinshell				x				M			moccasinshell
314	Ocmulgee shiner		x		x				F			shiner
315	Okaloosa darter				x				F			darter
316	Olympic mudminnow							x	F			mudminnow
317	Omilu							x	F	T		omilu
318	O'opu akupa							x	F	T		akupa
319	O'opu alamo'o							x	F	T		alamo'o
320	O'opu nakea goby							x	F	T		goby
321	O'opu naniha (Nahaina goby)							x	F	T		goby
322	O'opu nopill							x	F	T		nopill
323	Orangeacre mucket				x				M			mucket
324	Orangebelly darter							x	F	T		darter
325	Orangefoot pimpleback				x				M			pimpleback
326	Orangespotted sunfish							x	F	T		sunfish
327	Orangethroat darter							x	F	T		darter
328	Oregon chub				x			x	F			chub
329	Ouachita creekshell							x	M	T		creekshell
330	Ouachita kidneyshell							x	M	T		kidneyshell
331	Ouachita madtom								F			madtom

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332	Ouachita rock-pocketbook				x	x			M			pocketbook
333	Ouachita shiner							x	F	T		shiner
334	Oval pigtoe mussel				x				M			pigtoe
335	Ovate clubshell				x				M			clubshell
336	Owen's River pupfish				x				F			pupfish
337	Owens tui chub				x				F			chub
338	Oyster mussel				x	x			M			mussel
339	Ozark cavefish				x	x		x	F	T		cavefish
340	Ozark hellbender salamander	x	x			x			A			salamander
341	Ozark logperch							x	F	T		logperch
342	Ozark minnow							x	F	T		minnow
343	Ozark pigtoe							x	M	T		pigtoe
344	Ozark sculpin								F	H		sculpin
345	Pacific herring	x							F			herring
346	Pacific lamprey	x						x	F	T		lamprey
347	Pacific staghorn sculpin	x						x	F			sculpin
348	Pahranagat roundtail chub	x			x	x			F			chub
349	Pahrump poolfish	x			x				F			poolfish
350	Paiute cutthroat trout				x		x		F			trout
351	Paiute sculpin							x	F			sculpin
352	Pale liliput pearlymussel				x				M			pearlymussel
353	Pallid shiner							x	F	T		shiner
354	Pallid sturgeon	x	x		x	x	x		F			sturgeon
355	Pearl dace							x	F	T		dace
356	Peck's Cave amphipod				x	x			C			amphipod
357	Pecos bluntnose shiner							x	F			shiner
358	Pecos gambusia				x				F			gambusia
359	Pecos pupfish							x	F	T		pupfish
360	Peppered shiner							x	F	T		shiner
361	Pink mucket				x	x			M			mucket
362	Pink salmon	x	x				x	x	F	T		salmon

	Species	IJ	FMP	Mitigation	ESA Listed	NFH	Rec/Comm	FWS or Tribal Lands	Class	Other	Mged to FMP	Type
363	Pirate perch							x	F	T		perch
364	Pit roach							x	F	T		roach
365	Pit sculpin	x							F			sculpin
366	Plain pocketbook mussel					x			M			pocketbook
367	Plains killifish							x	F	T		killifish
368	Plains minnow							x	F	T		minnow
369	Pleistocene snail				x				M			snail
370	Pocketbook mussel				x				M			pocketbook
371	Pond smelt							x	F	T		smelt
372	Prairie chub							x	F	T		chub
373	Prickly sculpin	x						x	F			sculpin
374	Pugnose minnow							x	F	T		minnow
375	Purple bankclimber mussel				x	x			M			mussel
376	Purple bean				x				M			bean
377	Purple catspaw mussel				x				M			catspaw
378	Purple wartyback	x							M			wartyback
379	Pygmy madtom				x				F			madtom
380	Pygmy sculpin				x				F			sculpin
381	Pygmy whitefish							x	F	T		whitefish
382	Pyramid pigtoe							x	M	T		pigtoe
383	Quillback sucker							x	M	T		sucker
384	Rabbitsfoot							x	M	T		rabbitsfoot
385	Railroad Valley springfish				x				F			springfish
386	Rainbow darter								F	H		darter
387	Rainbow smelt	x	x					x	F	T		smelt
388	Rainbow trout	x	x	x	x	x	x	x	F	T		trout
389	Rainwater killifish							x	F	T		killifish
390	Rayed bean mussel				x				M			bean
391	Razorback sucker	x	x		x	x			F			sucker
392	Red drum	x	x			x	x		F			drum
393	Red River pupfish							x	F	T		pupfish

	Species	IJ	FMP	Mitigation	ESA Listed	NFH	Rec/Comm	FWS or Tribal Lands	Class	Other	Mged to FMP	Type
394	Red River shiner							x	F	T		shiner
395	Red shiner							x	F	T		shiner
396	Redbreast sunfish	x	x			x			F			sunfish
397	Redear sunfish	x	x			x		x	F	T		sunfish
398	Redfin darter							x	F	T		darter
399	Redfin pickerel							x	F	T		pickerel
400	Redfin shiner							x	F	T		shiner
401	Redside shiner	x						x	F			shiner
402	Redspot chub							x	F	T		chub
403	Redspot darter							x	F	T		darter
404	Redspotted sunfish							x	F	T		sunfish
405	Relict darter				x	x		x	F			darter
406	Relict leopard frog				x	x			A			frog
407	Reticulate sculpin	x						x	F			sculpin
408	Ribbon shiner							x	F	T		shiner
409	Riffle sculpin							x	F			sculpin
410	Ring pink				x				M			mussel
411	Rio Grande chub							x	F	T		chub
412	Rio Grande cutthroat trout					x	x		F	T		trout
413	Rio Grande shiner							x	F	T		shiner
414	Rio Grande silvery minnow				x	x			F			minnow
415	Rio Grande sucker							x	F	T		sucker
416	River carpsucker							x	F	T		sucker
417	River chub				x				F			chub
418	River darter							x	F	T		darter
419	River herring	x	x						F			herring
420	River lamprey	x						x	F	T		lamprey
421	River redhorse							x	F	T		redhorse
422	River shiner							x	F	T		shiner
423	Roanoke logperch				x				F			logperch
424	Robust redhorse sucker	x	x			x			F	H		sucker

	Species	IJ	FMP	Mitigation	ESA Listed	NFH	Rec/Comm	FWS or Tribal Lands	Class	Other	Mged to FMP	Type
425	Rock bass	x					x		F	H		bass
426	Rock Pocketbook	x				x			M			pocketbook
427	Rocky shiner							x	F	T		shiner
428	Rough pigtoe				x				M			pigtoe
429	Rough rabbitsfoot				x				M			rabbitsfoot
430	Round Pigtoe	x							M			pigtoe
431	Round whitefish	x						x	F	T		whitefish
432	Roundnose minnow							x	F	T		minnow
433	Roundtail chub	x			x			x	F	T		chub
434	Sacramento blackfish	x						x	F			blackfish
435	Sacramento perch	x						x	F			perch
436	Sacramento pikeminnow							x	F			pikeminnow
437	Sacramento sucker	x						x	F			sucker
438	Salamander mussel	x				x			M			mussel
439	Salish sucker							x	F			sucker
440	San Marcos salamander				x	x			A			salamander
441	Sand roller							x	F			sand roller
442	Sand shiner							x	F	T		shiner
443	Sandbank pocketbook							x	M	T		pocketbook
444	Santa Ana sucker				x			x	F			sucker
445	Sauger	x				x		x	F	T, H		sauger
446	Scaleshell mussel	x			x				M			mussel
447	Scaly sand darter							x	F	T		darter
448	Scioto madtom				x				F			madtom
449	Scup	x							F			scup
450	Shadow bass							x	F	T		bass
451	Sharpnose sculpin	x							F			sculpin
452	Sheepnose pearlymussel	x			x	x			M			pearlymussel
453	Shiner perch	x						x	F			perch
454	Shiny pigtoe				x				M			pigtoe
455	Shiny-rayed pocketbook				x	x			M			pocketbook

	Species	IJ	FMP	Mitigation	ESA Listed	NFH	Rec/Comm	FWS or Tribal Lands	Class	Other	Mged to FMP	Type
456	Shoal bass						x		F			bass
457	Shoal chub							x	F	T		chub
458	Shorthead redhorse	x	x						F			redhorse
459	Shorthead sculpin	x						x	F			sculpin
460	Shortjaw cisco	x						x	F			cisco
461	Shortnose gar						x	x	F	T, H		gar
462	Shortnose pike	x	x						F			pike
463	Shortnose sturgeon	x	x		x	x	x		F			sturgeon
464	Shortnose sucker	x			x			x	F			sucker
465	Shovelnose sturgeon	x				x	x	x	F	T, H		sturgeon
466	Silver chub							x	F	T		chub
467	Silverband shiner							x	F	T		shiner
468	Skipjack herring	x					x	x	F	T, H		herring
469	Slackwater darter				x				F			darter
470	Slender chub				x				F			chub
471	Slender madtom							x	F	T		madtom
472	Slender sculpin							x	F			sculpin
473	Slenderhead darter							x	F	T		darter
474	Slim minnow							x	F	T		minnow
475	Slimy sculpin	x	x					x	F			sculpin
476	Slough darter							x	F	T		darter
477	Slough sandshell	x							M			sandshell
478	Smallmouth bass	x	x			x	x	x	F	T, H		bass
479	Smallmouth buffalo	x						x	F	T		buffalo
480	Smoky madtom				x				F			madtom
481	Snail darter				x				F			darter
482	Snuffbox	x							M			snuffbox
483	Sockeye salmon	x	x		x	x	x	x	F	T		salmon
484	Sonora chub							x	F			chub
485	Sonora sucker							x	F	T		sucker
486	Southern acornshell				x				M			acornshell

	Species	IJ	FMP	Mitigation	ESA Listed	NFH	Rec/Comm	FWS or Tribal Lands	Class	Other	Mged to FMP	Type
487	Southern brook lamprey							x	F	T		lamprey
488	Southern clubshell				x				M			clubshell
489	Southern combshell				x				M			combshell
490	Southern hickorynut					x		x	M	T		hickorynut
491	Southern pigtoe				x				M			pigtoe
492	Southern redbelly dace							x	F	T, H		dace
493	Speckled chub							x	F	T		chub
494	Speckled dace	x						x	F	T		dace
495	Speckled darter							x	F	T		darter
496	Speckled pocketbook mussel				x				M			pocketbook
497	Spectaclecase mussel	x			x				M			spectaclecase mussel
498	Spikedace							x	F			spikedace
499	Spiny dogfish	x					x		F			shark
500	Splittail							x	F			splittail
501	Spoonhead sculpin	x						x	F	T		sculpin
502	Spotfin chub				x	x			F			chub
503	Spotfin shiner							x	F	T, H		shiner
504	Spotted bass						x	x	F	T		bass
505	Spotted gar							x	F	T		gar
506	Spotted sucker							x	F	T		sucker
507	Stargazing darter								F			darter
508	Starry flounder	x							F			flounder
509	Steelcolor shiner							x	F	T		shiner
510	Steelhead	x		x	x	x	x		F	T		trout
511	Stippled darter							x	F	T		darter
512	Stonecat							x	F	T		stonecat
513	Stoneroller (Central)							x	F	T		stoneroller
514	Stirrupshell				x				M			stirrupshell
515	Striped bass	x	x	x		x	x		F			bass
516	Striped mullet	x							F			mullet
517	Suckermouth minnow							x	F	T		minnow

	Species	IJ	FMP	Mitigation	ESA Listed	NFH	Rec/Comm	FWS or Tribal Lands	Class	Other	Mged to FMP	Type
518	Summer flounder	x							F			flounder
519	Surf smelt	x							F			smelt
520	Swamp darter							x	F	T		darter
521	Tadpole madtom							x	F	T		madtom
522	Tahoe sucker	x						x	F			sucker
523	Taillight shiner							x	F	T		shiner
524	Tan riffleshell				x	x			M			riffleshell
525	Tar River spinymussel				x				M			spinymussel
526	Tautog	x					x		F			tautog
527	Texas blind salamander				x	x			A			salamander
528	Texas fatmucket							x	M	T		fatmucket
529	Texas heelsplitter							x	M	T		heelsplitter
530	Texas hornshell							x	M	T		hornshell
531	Texas pigtoe							x	M	T		pigtoe
532	Texas salamander					x			A			salamander
533	Texas wild rice				x	x			P			rice
534	Threadfin shad						x	x	F	T		shad
535	Threehorn wartyback					x			M			wartyback
536	Threeridge					x			M			threeridge
537	Threespine stickleback	x						x	F			stickleback
538	Tidewater goby				x			x	F			goby
539	Tippecanoe darter								F			darter
540	Topeka shiner	x			x				F			shiner
541	Torrent sculpin							x	F			sculpin
542	Triangle pigtoe							x	M	T		pigtoe
543	Triangular kidneyshell				x				M			kidneyshell
544	Trout perch							x	F	T		perch
545	Tubercled blossom pearlymussel				x				M			blossom
546	Tule perch							x	F			perch
547	Tumbling Creek cavesnail				x				M			snail
548	Turgid blossom pearlymussel				x				M			blossom

	Species	IJ	FMP	Mitigation	ESA Listed	NFH	Rec/Comm	FWS or Tribal Lands	Class	Other	Mged to FMP	Type
549	Ulua							x	F	T		ulua
550	Umatilla dace							x	F			dace
551	Umpqua dace							x	F			dace
552	Umpqua Oregon chub				x				F			chub
553	Umpqua pikeminnow							x	F			pikeminnow
554	Utah chub	x						x	F			chub
555	Utah sucker	x							F			sucker
556	Vermillion darter				x				F			darter
557	Virgin River chub	x			x	x		x	F			chub
558	Virgin River spinedace	x							F			spinedace
559	Wall Canyon sucker							x	F			sucker
560	Walleye	x	x	x		x	x	x	F	T, H		walleye
561	Warm Springs pupfish								F			pupfish
562	Warmouth	x						x	F	T		warmouth
563	Warner sucker	x			x			x	F			sucker
564	Wartyback mussel	x							M			wartyback
565	Washboard	x				x			M			washboard
566	Water stargrass (2 species)					x			P			stargrass
567	Weakfish (Spotted seatrout)	x					x		F			weakfish
568	Wedgespot shiner							x	F	T		shiner
569	Weed shiner							x	F			shiner
570	Western brook lamprey	x						x	F	T		lamprey
571	Western floater							x	M			floater
572	Western mosquitofish							x	F	T		mosquitofish
573	Western pearlshell							x	M			pearlshell mussel
574	Western sand darter							x	F	T		darter
575	Westslope cutthroat trout	x		x		x	x	x	F	T		trout
576	White bass						x	x	F	T		bass
577	White catspaw pearlymussel				x				M			catspaw
578	White crappie						x	x	F	T, H		crappie
579	White perch						x	x	F			perch

	Species	IJ	FMP	Mitigation	ESA Listed	NFH	Rec/Comm	FWS or Tribal Lands	Class	Other	Mged to FMP	Type
580	White River sculpin							x	F			sculpin
581	White River spinedace				x			x	F			spinedace
582	White River springfish				x			x	F			springfish
583	White Sands pupfish							x	F	T		pupfish
584	White sturgeon	x	x		x		x	x	F	T		sturgeon
585	White sucker							x	F	T		sucker
586	White wartyback				x				M			wartyback
587	Willamette papershell							x	M			papershell
588	Winged floater							x	M			floater
589	Winged mapleleaf				x	x			M			mapleleaf
590	Winter flounder	x							F			flounder
591	Wobegone floater							x	M			floater
592	Woundfin	x			x	x			F			woundfin
593	Wyomin toad				x	x			A			toad
594	Yaqui catfish				x	x			F			catfish
595	Yaqui chub				x				F			chub
596	Yellow bass							x	F	T		bass
597	Yellow blossom pearlymussel				x				M			blossom
598	Yellow bullhead							x	F	T, H		catfish
599	Yellow perch	x	x			x	x	x	F			perch
600	Yellow sandshell					x			M			sandshell
601	Yellowfin madtom				x				F			madtom
602	Yellowstone cutthroat trout	x		x		x	x	x	F	T		trout
603	Yukon floater							x	M			floater
604	Zaitzevian riffle beetle					x			I			beetle
605	Zuni bluehead sucker							x	F	T		sucker
606	**Brown trout**	x	x	x			x		F	T		trout
607	**Common carp**						x	x	F			carp
608	**Grass carp**		x				x	x	F			carp
609	**Green crab**							x	C			crab
610	**Koi/gold fish**					x			F			carp

	Species	IJ	FMP	Mitigation	ESA Listed	NFH	Rec/Comm	FWS or Tribal Lands	Class	Other	Mged to FMP	Type
611	**Striped bass hybrid**			x		x	x		F			bass
612	**Sea Lamprey**	x	x						F			lamprey
	611	196	82	15	189	128	93	350			5	

Species: [A]mphibian, [C]rustacean, [F]ish, [I]nsect, [M]ollusk, [P]lant, & [R]eptile.

Species in **bold** are non-native or naturalized. Species in blue are listed by one or more FP lists but not FIS

*IJ Species = A freshwater, coastal, or marine species population(s) managed by two or more states, nations, or tribal governments because of their geographic distribution or migratory patterns.

Species names in () denote variation in name that is assumed to be same species

Other: H = known or potential host fish for mussel propagation; T = tribal trsut species; "S" is special interest such as a candidate species.

Exhibit 6. National Fish Hatchery System Summary Data

National Fish Hatchery (NFH)	Mit	STATE	Species Held (FY 2009)	Fish Dist. (#) FY 2006	Fish Dist. (lb.) FY 2006	Mitigation Source	Notes
Alchesay/Williams Creek NFH Complex		AZ	ApT, BkT, BrT, LM, RT	1,237,256	185,245		
Allegeny NFH		PA	LT	127,554	8,799		Lake Erie/Ontario lake trout restoration: broodstock, eggs & fish
Bears Bluff NFH		SC	AS,ASt, BbH, BhS, Cob, RD, SnS	307,872	455		
Berkshire NFH		MA	AtS, BkT, BrT, LT, RT	0	0		
Bo Ginn NFH		GA	N/A	NA	NA		Returning to FP operations in FY 2010 per MOA modification
Bozeman FTC		MT	BonyT, JS, Pallid, RT, WCT, WF, YCT, ZRB	17,852	747		
Carson NFH	*	WA	Chin	1,209,387	70,313	Bonneville Dam, Columbia River	
Chattahoochee Forest NFH	*	GA	BkT, ED, RT	1,101,332	130,719	Chattahoochee & Savannah River dams	
Coleman NFH	*	CA	Chin, DS, RT	14,958,463	372,686	Keswick/Shasta Dam, Sacramento River	
Craig Brook NFH		ME	AtS	3,433,141	14,876		
Creston NFH	*	MT	Cutt, RT, WCT	879,190	54,188	Hungry Horse Dam, Flathead River	
D.C. Booth Historic NFH		SD		0	0		Living fishery museum open to the public.
Dale Hollow NFH	*	TN	BkT, BrT, BTm, LT, RT, Sbass, SfC	1,809,427	302,421	Tennessee River dams, etc.	
Dexter NFH		NM	BonyT, BBG, BnS, BS, Ccat, CCG, Cchub, CPm, CSP, DP, DRM, GT, GTm, HC, LSP, PRC, RGCT, RGSM, RzS, VC, WF, WT, Ycf	678,121	5,874		
Dwight D. Eisenhower (Pittsford) NFH		VT	AtS, BkT, LT, LIAS	181,660	13,149		aka Pittsford NFH
Dworshak NFH	*	ID	Chin, Coho, RT, Steel	3,132,141	393,288	Lower Snake River dams	Assume RT listed are Steelhead
Eagle Creek NFH	*	OR	Coho, RT, Steel	1,637,558	122,233	Bonneville Dam, Columbia River	Assume RT listed are Winter Steelhead
Edenton NFH		NC	AS, BbH, BG, ReS, SBass	1,497,449	22,817		
Ennis NFH	*	MT	RT	551,012	50,592	Missouri & Henrys Fork Snake River dams	Provides eggs/broodstock to Dale Hollow & Wolf Creek NFHs, Hotchkiss, Wilow Beach & numerous SFHs
Entiat NFH	*	WA	Coho	383,565	20,465	Grand Coulee Dam, Columbia River	Leavenworth NFH Complex consists of Entiat, Leavenworth & Wintrop NFHs
Erwin NFH		TN	RT	29,019	37,399	multiple	Provides eggs/broodstock to Dale Hollow & Wolf Creek NFHs
Garrison Dam NFH	*	ND	BrT, Chin, Cutt, NP, Pallid, RT, Shov, Wall, YP	12,475,436	76,443	Missouri River system dams	
Gavins Point NFH	*	SD	BC, BG, FDrum, LmB, Pad, Pallid, RT, Wall, YP	7,768,930	9,068	Missouri River system dams	

National Fish Hatchery (NFH)	Mit	STATE	Species Held (FY 2009)	Fish Dist. (#) FY 2006	Fish Dist. (lb.) FY 2006	Mitigation Source	Notes
Genoa NFH		WI	BC, BG, BkT, BSand, Ccat, Dt, FhM, Fm, HEPm, LmB, LS, LT, MM, Mp, NP, PPb, RT, RPb, SalM, Sg, SnM, SmB, ThW, Tr, Wall, Wb, WMI, YP, YSs	6,659,645	26,709		Non-fish distribution #: 2,70,253 (398 lbs.)
Green Lake NFH		ME	AtS	1,004,300	119,489		
Greers Ferry NFH	*	AK	BkT, RT, Sbass	1,315,426	212,445	White & Little Red River dams, etc.	
Hagerman NFH	*	ID	RT, Steel	1,541,794	300,378	Lower Snake River dams	
Harrison Lake NFH		VA	AS, BbH, JRS, Sbass	7,948,796	3,006		
Hotchkiss NFH	*	CO	Cutt, RT	1,232,603	132,890	Colorado River system dams)	
Inks Dam NFH		TX	Ccat, CCG, LmB, Pad, Sbass, SbassH	295,345	50,937	Colorado River & Rio Grande rivers	
Iron River NFH		WI	BkT, LT	1,614,881	101,037		
Jackson NFH	*	WY	YCT	381,138	43,468	Shoshone and Snake River dams)	
Jones Hole NFH	*	UT	BrT, Cutt, RT, Sock	1,137,600	102,112	Colorado River system dams	
Jordan River NFH		MI	BkT, LT	3,022,833	185,535		
Kooskia NFH		ID	Chin, Coho, RT	637,333	27,750		
Lahontan NFH	*	NV	LCT	584,507	23,733	Truckee River dams	
Lamar NFH (FTC, FHC)		PA	ASt, AtS, BkT, RT	0	0		
Leadville NFH		CO	BonyT, Cutt, GCT, RT	83,954	48,793		
Leavenworth NFH	*	WA	Chin, Coho	1,005,500	52,880	Grand Coulee Dam, Columbia River	Leavenworth NFH Complex consists of Entiat, Leavenworth & Wintrop NFHs
Little White Salmon NFH	*	OR	Chin	4,979,078	120,724	Columbia River dams	
Livingston Stone NFH	*	CA	Chin	173,344	2,904	Keswick/Shasta Dam, Sacramento River	
Makah NFH		WA	Chin, Coho, RT, Sock, Steel	2,532,930	74,307		
Mammoth Springs NFH	*	AK	AG, BG, Ccat, FPb, LmB, LS, Ohb, ORP, PM, SHn, Pad, Sbass, SmB, Wall	979,595	903	White & Little Red River dams, etc.	Non-fish distribution #: 157 (1 lbs)
Mora NFH (& TC)		NM	GT	9,817	2,043		
Nashua		NH	AS, AtS, BF+D82	1,790,654	3,785		
Nathchitoches NFH		LA	AG, AST, BG, Ccat, GShin, LmB, LPs, Pad, ReS, Sbass, SBassH	1,732,229	9,217		
Neosho NFH	*	MO	Pallid, OCf, RT	329,019	94,992	Table Rock Dam, White River system	
Norfolk NFH	*	AK	BrT, Cutt, RT	1,873,718	516,682	Arkansas & White River dams, etc.	
North Attleboro NFH		MA	AS, AtS	667,756	408		
Orangeburg NFH		SC	AS, BG, LS, RbS, Sbass, SnS	5,925,877	5,063		
Ouray NFH		UT	HC, RzS	15,000	9,072		
Pendills/Sullivan Creek NFH		MI	LT	866,759	50,849		Complex of 2 NFHs, sometimes listed separately.

National Fish Hatchery (NFH)	Mit	STATE	Species Held (FY 2009)	Fish Dist. (#) FY 2006	Fish Dist. (lb.) FY 2006	Mitigation Source	Notes
Private John Allen NFH		MS	AG, BG, Ccat, GS, LmB, LS, Pad, ReS, Sbass, Wall	372,192	8,489		
Quilcene NFH		WA	Coho, Chum, RT	795,271	33,746		
Quinault NFH		WA	Chin, Chum, Coho, RT	2,324,660	86,915		
Richard Cronin NFH		MA	AtS	0	0		
San Marcos NFH (& TC)		TX	Arr, BSS, CSDB, CSRB, DRM, FD, LD, PCA, SMS, TBS, TS, TWR, WSg2	1,630	0		Non-fish distribution #: 77 (0 lbs)
Saratoga NFH		WY	BrT, LT, RT, Sock, WyT	21,303	7,457	multiple	Supplies eggs/broodstock to Jones Hole NFH and others for mitigation. Non fish distribution #: 5,198.
Spring Creek NFH	*	OR	Chin	15,239,053	146,475	Bonneville & John Day dams, Columbia River	
Tishomingo NFH	*	OK	AG, AST, Ccat, LD, LmB, Pad	143,661	31,197	Arkansas & Yazoo River dams	
Uvalde NFH		TX	BonyT, Ccat, CSP, FD, RzS, TWR	58,032	11,499		
Valley City NFH	*	ND	BC, BG, LmB, LS, NP, Wall, YP	3,776,780	2,503	Missouri River system dams	
Warm Springs NFH		OR	Chin	676,177	30,257		
Warm Springs NFH (FTC & FHC)		GA	AG, AIS, AS,Ast,DtD, FTr, GID, FhM, LS, Pall, PBc, RD, RRH, Sbass, SnS, SRPb	62,080	4,995		Holds several other mussel species.
Welaka NFH		FL	BG, Ccat, GS, LmB, Sbass, SBassH	570,632	31,409		
White River NFH		VT	AtS, LT	4,066,077	50,579		
White Sulphur Springs NFH		WV	BF, CD, DWm, GF, EE, Eps, JRM, MM, NRs, OM, RT, Tr, TRs	72,320	18,959	multiple	Supplies eggs to Dale Hollow, Neosho, Willow Beach & Wolf Creek NFHs. Non-fish distribution #: 4,591.
Willard NFH	*	WA	Chin, Coho	794,812	32,849	Bonneville Dam, Columbia River	
Willow Beach NFH		AZ	BonyT, HC, RT, RLF, RzS	195,066	106,289	Colorado River (Davis & Parker dams)	
Wintrop NFH	*	WA	Chin, Coho, RT	913,320	67,948	Grand Coulee Dam, Columbia River	Leavenworth NFH Complex consists of Entiat, Leavenworth & Wintrop NFHs.
Wolf Creek NFH	*	KY	BrT, BTm, RDart, RT, SfC	1,224,136	252,788	Cumberland & Kentucky River dams, etc.	
				135,064,998	5,138,242		

Notes: For FY 2006, a total of 50 fish species distributed (135.1 million/5.14 million lbs.) along with 10 non-fish species (2.71 million/399 lbs. some stations do not record wt for non-fish species).
Tehama-Colusa Fish Facility, CA (Red Bluff diversion, Sacramento River) mothballed.

Species	Abbr.	Species	Abbr.	Species	Abbr.
Alabama Sturgeon	AlS	Etowah Darter	ED	Red Drum	RD
Alligator Gar	AG	Fat Pocketbook	FPb	Redbreast Sunfish	RbS
Alligator snapping turtle	AST	Fat Threeridge	FTr	Redear Sunfish	ReS
American Shad	AS	Fathead Minnow	FhM	Relict Darter	RDart
Apache Trout	ApT	Fatmucket	Fm	Relict Leopard Frog	RLF
Arrowhead, common	Arr	Fountain Darter	FD	Rio Grande Cutthroat Trout	RGCT
Atlantic Salmon	AtS	Freshwater Drum	FDrum	Rio Grande Silvery Minnow	RGSM
Atlantic Sturgeon	ASt	Gila Topminnow	GTm	Robust Redhorse	RRh
Barrens Topminnow	BTm	Gila Trout	GT	Rock Pocketbook	RPb
Barton Springs Salamander	BSS	Golden Shiner	GShin	Salamander Mussel	SalM
Beautiful Shiner	BS	Goldline Darter	GlD	San Marcos Salamander	SMS
Big Bend Gambusia	BBG	Green Floater	GF	Sauger	Sg
Black Crappie	BC	Greenback Cutthroat	GCT	Sheepnose Mussel	SnM
Black Sandshell	BSand	Gulf Sturgeon	GS	Shiny-Rayed Pocketbook	SRPb
Blueback Herring	BbH	Higgins Eye Pearlymussel	HEPm	Shortnose Sturgeon	SnS
Bluegill	BG	Humpbacked Chub	HC	Shovelnose Sturgeon	Shov
Bluntnose Shiner	BnS	James River Spinymussel	JRS	Smallmouth Bass	SmB
Bonnethead Shark	BhS	June Sucker	JS	Sockeye Salmon	Sock
Bonytail Chub	BonyT	Lahontan Cutthroat	LCT	Southern Hickorynut	SHn
Brook Floater	BF	Lake Sturgeon	LS	Spotfin Chub	SfC
Brook Trout	BkT	Lake Trout	LT	Steelhead	Steel
Brown Trout	BrT	Land-locked Atlantic Salmon	LIAS	Striped Bass	SBass
Bull Trout	Bull	Largemouth Bass	LmB	Striped Bass-hybrid	SBassH
Channel Catfish	Ccat	Leon Springs Pupfish	LSP	Tan Riffleshell	TRs
Chihuahua Chub	Ccub	Leopard Darter	LD	Texas Blind Salamander	TBS
Chinook Salmon	Chin	Loach Minnow	LM	Texas Salamander	TS
Chum Salmon	Chum	Louisiana Pearlshell	LPs	Texas Wild Rice	TWR
Clear Creek Gambusia	CCG	Mucket Mussel	MM	Threehorn Wartyback	ThW
Cobia	Cob	Mudpuppy	Mp	Threeridge	Tr
Coho Salmon	Coho	Northern Pike	NP	Virgin (River) Chub	VC
Colorado Pikeminnow	CPm	Northern Riffleshell	NRs	Walleye	Wall
Comal Springs Dryopid Beetle	CSDB	Ouachita Rock Pocketbook	ORP	Washboard Mussel	Wb
Comal Springs Riffle Beetle	CSRB	Oyster Mussel	OM	Water Stargrass (2 sp)	WSg2
Comanche Springs Pupfish	CSP	Ozark Cavefish	OCf	Westslope Cutthroat Trout	WCT
Crystal Darter	CD	Ozark Hellbender	OHb	Winged Mapleleaf	WMl
Cutthroat Trout	Cutt	Paddlefish	Pad	Woundfin	WF
Deertoe	Dt	Pahranagut Roundtail Chub	PRC	Wyoming Toad	WyT
Delta Smelt	DS	Pallid Sturgeon	Pallid	Yaqui Catfish	YCf
Desert Pupfish	DP	Peck's Cave Amphipod	PCA	Yellow Perch	YP
Devils River Minnow	DRM	Pink Mucket	PM	Yellow Sandshell	YSs
Duskytail Darter	DtD	Plain Pocketbook	PPb	Yellowstone Cutthroat Trout	YCT
Dwarf Wedgemussel	DWm	Purple Bankclimber	PBc	Zaitzevian Riffle Beetle	ZRB
Eastern Elliptio	EE	Rainbow Trout	RT		
Eastern Pearlshell	EPs	Razorback Sucker	RzS		

Exhibit 7. Species Benefitting from FY 2009 Fisheries Projects

Species and Number of Projects benefitting each species conducted in FY 2009 (total of 170 species and 1,556 projects)

Species	Proj #	Species	Proj #	Species	Proj #	Species	Proj #
Alabama Shad	2	Colorado Pikeminnow*	21	Largemouth Bass	10	Robust Redhorse	3
Alabama Sturgeon*	1	Colo. River Cutthroat Trout	15	Least Chub	1	Roundtail Chub	1
Alewife	3	Comal Springs Dropid Beetle*	2	Leon Springs Pupfish*	1	San Marcos Salamander*	1
Alligator Gar	14	Comanche Springs Pupfish*	2	Leopard Darter*	5	Sauger	9
Alligator Snapping Turtle	2	Crystal Darter	3	Little Colorado Spinedace*	2	Sea Lamprey	1
American Eel	14	Cui-ui*	2	Loach Minnow*	1	Shiny-rayed Pocketbook*	4
American Paddlefish	14	Cumberland Bean Pearlymussel*	1	Longfin Dace	1	Shorthead Redhorse	1
American Shad	30	Cumberland monkeyface*	1	Lost River Sucker*	1	Shortjaw Cisco	1
Apache Trout*	10	Cutthroat Trout	4	Louisiana Pearlshell*	1	Shortnose Sturgeon*	11
Appalachian Elktoe*	1	Delta smelt*	6	Mottled Sculpin	1	Shovelnose Sturgeon	1
Arctic Cisco	1	Desert Pupfish*	2	Mountain Sucker	2	Smallmouth Bass	9
Arctic Grayling	4	Devils River Minnow*	4	Mountain Whitefish	1	Sockeye Salmon**	12+1
Arkansas River Shiner*	1	Dolly Varden	6	Mucket Mussel	1	Spotfin Chub*	2
Atlantic Salmon**	49+37	Duskytail Darter*	1	Neosho Mucket*	1	Stoneroller	1
Atlantic Sturgeon	9	Dwarf Wedgemussel*	1	Niangua Darter*	1	Striped Bass	28
Barrens Topminnow	1	Eastern Oyster	2	Northern Pike	2	Striped Bass Hybrid	1
Barton Springs Salamander*	1	Eastern Pearlshell	1	Northern Riffleshell*	4	Sturgeon Chub	1
Beautiful Shiner*	1	Fat Pocketbook*	3	Ochlockonee Moccasinshell*	3	Tan Riffleshell*	1
Bigeye Shiner	4	Fat Threeridge*	5	Ocmulgee Shiner*	1	Texas Blind Salamander*	1
Big Bend Gambusia*	1	Flannelmouth Sucker	1	Okaloosa Darter*	14	Texas Wild Rice*	4
Blackside Dace*	1	Fountain Darter*	4	Oval Pigtoe*	3	Threeridge	2
Blue Shiner*	1	Gila Chub*	1	Oyster Mussel*	1	Tidewater Goby*	1
Blue Sucker	1	Gila Topminnow*	1	Ozark Cavefish*	1	Topeka Shiner*	7
Blueback Herring	6	Gila Trout*	14	Pacific Lamprey	17	Virgin Chub*	1
Bluegill	1	Goldline Darter*	2	Pahranagut Roundtail Chub*	1	Virgin Spinedace	2
Bonneville Cutthroat Trout	13	Green Floater	1	Pallid Sturgeon*	68	Walleye	9
Bonytail Chub*	10	Green Sturgeon*	3	Peck's Cave Amphipod	1	Western Brook Lamprey	1
Boreal Toad	1	Greenback Cutthroat Trout*	2	Pecos Pupfish	1	Western Pearlshell	1

Species	Proj #	Species	Proj #	Species	Proj #	Species	Proj #
Broad Whitefish	3	Gulf Moccasinshell*	1	Pink Mucket*	3	Westslope Cutthroat Trout	13
Brook Floater	1	Gulf Sturgeon*	9	Preble's Meadow Jumping Mouse*	1	White Bass	1
Brook Trout	99	Higgins Eye*	3	Purple Bankclimber*	1	White Sturgeon*	2
Bull Trout*	57	Horseshoe Crab	1	Rainbow Smelt	1	Winged Mapleleaf*	2
Burbot	2	Humpback Chub*	6	Rainbow Trout/ Steelhead**	27 +55	Woundfin*	2
Channel Catfish	2	Humpback Whitefish	4	Razorback Sucker*	23	Wyoming Toad*	1
Chihuahua Chub*	1	Inconnu	8	Red Drum	13	Yaqui Catfish*	1
Chinook Salmon**	170 +122	James River Spinymussel*	2	Redbreast Sunfish	1	Yaqui Chub*	1
Clear Creek Gambusia*	1	June Sucker*	2	Relict Darter*	1	Yellowstone cutthroat trout	30
Chum Salmon	12	Lahontan Cutthroat Trout*	27	Relict Leopard Frog*	1	Zaitzevian Riffle Beetle	1
Clubshell*	1	Lake Sturgeon	26	Rio Grande Cutthroat Trout*	5		
Coastal Cutthroat Trout	7	Lake Trout	32	Rio Grande Silvery Minnow*	4		
Coho Salmon**	95+42	Lake Whitefish	2	Roanoke Logperch*	2		

NON-AQUATIC SPECIES	
Bighorn Sheep	1
Greater Sage Grouse	2
Grizzly Bear	2
Mule Deer	1
Peregrine Falcon*	1
Rocky Mountain Elk	2
Whooping Crane	7
Wood Stork*	1

* = listed species. **populations of species listed (non-listed+listed projects)

Exhibit 8. List of Tribes with Fisheries-Related Trust Responsibilities by FWS Region

Region 1 (25)

Coeur d'Alene Tribe

Colville Confederated Tribes

Confederated Tribes of the Umatilla Reservation

Federated Tribes of the Warm Springs Reservation

Fort Mojave Indian Tribe

Hoh Indian Tribe

Hoopa Valley Tribal Council

Jamestown S'Kallam Tribe

Kootenai Tribe of Idaho

Lower Elwha S'Klallam Tribe

Makah Tribes

Nez Perce Tribe

Point No Point Treaty Council

Port Gamble S'Klallam Tribe

Pyramid Lake Paiute Tribe

Quinault Indian Nation

Redding Rancheria

Shoshone Bannock Tribes

Shoshone-Paiute Tribe

Skokomish Tribe

Summit Lake Paiute Tribe

Walker River Paiute Tribe

Washoe Tribe of Nevada & California

Yakama Indian Nation

Yurok Tribe

Region 2 (82)

Absentee-Shawnee Tribe

Ak-Chin Indian Community

Alabama-Coushatta Tribes of Texas

Alabama-Quassarte Tribal Town

Apache Tribe

Caddo Indian Tribe

Chemehuevi Tribe

Cherokee Nation

Cheyenne-Arapaho Tribe

Chickasaw Nation

Choctaw Nation

Citizen Potawatomi Nation

Cocopah Tribe

Colorado River Indian Tribes

Comanche Tribe

Delaware Nation

Fort McDowell Yavapai-Apache Tribe

Fort Mojave Indian Tribe

Fort Sill Apache Tribe

Gila River Indian Tribe

Havasupai Tribe

Hopi Tribe

Hualapai Tribe

Iowa Tribe

Jicarilla Apache Tribe

Kaibab Band of Paiute Indians

Kaw Nation

Kialegee Tribal Town

Kickapoo Tribe

Kiowa Tribe

Mescalero Apache Tribe

Miami Tribe

Modoc Tribe

Muscogee (Creek) Nation

Navajo Nation

Osage Tribe

Otoe-Middouria Tribe

Ottawa Tribe

Pascua Yaqui Tribe

Pawnee Tribe

Peoria Tribe of Indians of Oklahoma

Ponca Tribe

Pueblo of Acoma

Pueblo of Cochiti

Pueblo of San Ildefonso

Pueblo of Isleta

Pueblo of Jemez

Pueblo of Laguna

Pueblo of Nambe

Pueblo of Picuris

Pueblo of Pojoaque

Region 2 (82), continued

Pueblo of San Felipe
Pueblo of San Ildefonso
Pueblo of San Juan
Pueblo of Sandia
Pueblo of Santa Ana
Pueblo of Santa Clara
Pueblo of Santo Domingo
Pueblo of Taos
Pueblo of Tesuque
Pueblo of Zia
Pueblo of Zuni
Quapaw Tribe
Quechan Tribe
Sac and Fox Nation
Salt River Pima-Maricopa Indian Tribe
San Carlos Apache Tribe
San Juan Southern Paiute Tribe
Seminole Nation of Oklahoma
Seneca-Cayuga Tribe
Shawnee Tribe
Thlopthlocco Tribal Town
Tohono O'odham Nation
Tonkawa Tribe
Tonto Apache Tribe
United Keetoowah Band of Cherokees
White Mountain Apache Tribe
Wichita and Affiliated Tribes
Wyandotte Tribe
Yavapai Apache Nation
Yavapai-Prescott Tribe
Ysleta Del Sur Pueblo

Region 3 (45)

Eastern Shawnee Tribe
Bad River Band of Lake Superior Tribe of Chippewa Indians
Bay Mills Indian Community of Michigan
Bois Forte (Nett Lake) Band of Lake Superior Chippewa Indians
Fond du Lac Band of Lake Superior Chippewa Indians
Forest County Potawatomi Community of Wisconsin
Grand Portage Band of Lake Superior Chippewa Indians
Grand Traverse Band of Ottawa & Chippewa Indians of Michigan
Gun Lake Tribe
Hannaville Indian Community of Michigan
Ho-Chunk Nation of Wisconsin
Huron Potawatomi Inc.
Keweenaw Bay Indian Community
Lac Courte Oreilles Band of Lake Superior Chippewa Indians
Lac du Flambeau Band of Lake Superior Chippewa Indians
Lac Vieux Desert Band of Lake Superior Chippewa Indians
L'Anse & Ontonagon Bands of Chippewa Indians
Leech Lake Band of Ojibwe Indians
Little River Band of Ottawa Indians
Little Traverse Bay Bands of Odawa Indians
Lower Sioux Mdewakanton Indian Community
Match-E-Be-Nash-She-Wish Band of Potawatomi Indians of Michigan
Mdewakanton, Sisseton, Wahpeton, & Yankton Sioux
Menominee Indian Tribe
Meskwaki Indians
Mille Lacs Band of Ojibwe Indians
Minnesota Chippewa Tribe
Minnesota Mdewakanton Sioux
Mole Lake Band of Chippewa Indians
Nottawaseppi Huron Band of Potawatomi
Oneida Tribe of Indians of Wisconsin
Pokagon Band of Potawatomi Indians of Michigan
Prairie Island Indian Community

Region 3 (45), continued

Red Cliff Band of Lake Superior Chippewa Indians

Red Lake Band of Chippewa Indians

Sac and Fox Tribe of the Mississippi

Saginaw Chippewa Indian Tribe of Michigan

Sault Ste. Marie Tribe of Chippewa Indians

Shakopee Mdewakanton Sioux

Sokaogon Chippewa Community of Wisconsin

St. Croix Chippewa Indians

Stockbridge Munsee Band of Mohican Indians

Upper Sioux Community of Minnesota

White Earth Chippewa Tribe

Region 4 (13)

Caddo Indians of Louisiana

Catawba Indian Nation

Chitimacha Tribe of Louisiana

Coushatta Tribe of Louisiana

Eastern Band of Cherokee Indians

Jena Band of Choctaw Indians

Miccosukee Tribe of Indians of Florida

Mississippi Band of Choctaw Indians

Poarch Creek Indians

Seminole South and Eastern Tribes, Inc.

Seminole Tribe of Florida

Tunica-Biloxi Indian Tribe of Louisiana

United South and Eastern Tribes, Inc.

Region 5 (15)

Aroostock Band of Micmac Indians

Cayuga Nation

Houlton Band of Maliseet Indians

Mashantucket Pequot Tribe

Mohegan Tribe of Indians

Narragansett Indian Tribe

Oneida Indian Nation

Onondaga Nation

Passamaquoddy Tribes

Penobscot Indian Nation

Seneca Nation of Indians

St. Regis Mohawk Tribe

Tonawanda Seneca Nation

Tuscarora Nation

Wampanoag Tribe of Gay Head (Aquinnah)

Region 6 (33)

Assiniboine-Sioux Tribe

Blackfeet Tribe

Cheyenne River Sioux Tribe

Chippewa-Cree Tribe

Confederated Salish and Kootenai Tribes

Crow Creek Sioux Tribe

Crow Tribe

Fort Belknap Gros Ventre & Assiniboine Tribes

Fort Peck Assiniboine and Sioux Tribes

Goshute Tribe

Iowa Tribe of Kansas and Nebraska

Kickapoo Tribe of Kansas

Lower Brule Sioux Tribe

Northern Cheyenne Tribe

Oglala Sioux Tribe

Omaha Tribe

Paiute Indian Tribe of Utah

Ponca Tribe of Nebraska

Prairie Bend Potawatomi National

Rosebud Sioux Tribe

Santee Sioux (Flandreau)

Sisseton-Wahpaton Sioux Tribe

Skull Valley Band of Goshutes

Southern Ute Indian Tribe

Spirit Lake National

Standing Rock Sioux Tribe

Three Affiliated Tribes (Arikara, Hidatsa, and Mandan)

Turtle Mountain Band of Chippewa

Ute Mountain Tribe

Ute Indian Tribe

Wind River Shoshone & Arapaho Tribes

Winnebago Tribe

Yankton Sioux Tribe

Following information assembled by FWS Fisheries Program utilizing FY 2001 total associated costs. According to Fisheries Program, this information remains the best information available infor the period FY 2005–2009. The costs for fish eggs from broodstock hatcheries are included in the costs for the station receiving those eggs.

Region 1 and 8 (CNO)

Field Station	Field Station's Authorization[1]	Field Station's Operating Authorities[2]	Responsible Agency[3]	Water Resource Development Project(s)[4]	Water Resource Development Project(s)'s Authorization[5]	Mitigation Total Costs[6]	% Reimbursed to FWS[7]
Coleman NFH Complex[8]	49 Stat. 115, 49 Stat. 1622, Rivers and Harbors Act, Reclamation laws, Central Valley Project Act	Central Valley Project, Fish and Wildlife Coordination Act, Fish and Wildlife Act of 1956, Central Valley Project Improvement Act, Endangered Species Act of 1973	Bureau of Reclamation	Keswick Dam and Shasta Dam	49 Stat. 115, 49 Stat. 1622, Rivers and Harbors Act, Reclamation laws, Central Valley Project Act	$2,667,000	100%
Dworshak NFH and Hagerman NFH[9, 10]	Flood Control Act of 1962, Water Resources Development Act (LSRCP), White Act	Water Resources Development Act of 1976, Fish and Wildlife Act of 1956, Pacific Northwest Electric Power and Conservation Act of 1985	Bonneville Power Administration	Lower Snake River Dams	Public Law 14, 70th Congress, 1945, Public Law 94-587	$13,255,642	100%
			Corps of Engineers	Dworshak Dam	Rivers and Harbors Act of 1962	$1,940,724	99%
*Lahontan NFH Complex[11]	Washoe Project Act, Fish and Wildlife Act of 1956, 75 Stat. 225	Washoe Project Act, Fish and Wildlife Act of 1956, Endangered Species Act of 1973	Bureau of Reclamation	Boca Dam[12], Derby Dam, Marble Bluff Dam, Prosser Dam, and Stampede Dam; Marble Bluff Fish Passage	Truckee Storage Project, Newlands Project, Washoe Project Act of 1956; Marble Bluff Fish Passage	$900,000	0%
			Bureau of Indian Affairs	Weber Dam	National Industrial Recovery Act	$914,195	0%
Leavenworth NFH Complex[13]	Mitchell Act, Mitchell Act (as amended) Columbia Basin Project Act	Mitchell Act, Mitchell Act (as amended), Endangered Species Act of 1973, Pacific Northwest Electric Power and Conservation Act of 1985, Columbia Basin Project, Pacific Salmon Treaty Act of 1985	Bureau of Reclamation	Grand Coulee Dam	Columbia Basin Project Act	$2,611,586	100%
Carson NFH, Eagle Creek NFH, Little White Salmon NFH, Spring Creek NFH, and Willard NFH	50 Stat. 220, 24 Stat. 523, 30 Stat. 612, Mitchell Act, Mitchell Act (amended), Fish and Wildlife Coordination Act, White Act	Mitchell Act, Mitchell Act (amended), Salmon and Steelhead Conservation and Enhancement Act of 1980	National Marine Fisheries Service	Bonneville Dam	Bonneville Project Act	$5,148,083	67%

Region 1 and 8 (CNO)

Field Station	Field Station's Authorization[1]	Field Station's Operating Authorities[2]	Responsible Agency[3]	Water Resource Development Project(s)[4]	Water Resource Development Project(s)'s Authorization[5]	Mitigation Total Costs[6]	% Reimbursed to FWS[7]
Little White Salmon NFH and Spring Creek NFH	24 Stat. 523, 30 Stat. 612, Mitchell Act, Mitchell Act (amended), White Act	Mitchell Act, Mitchell Act (amended), Salmon and Steelhead Conservation and Enhancement Act of 1980	Corps of Engineers	John Day Dam	Bonneville Project Act	$1,451,711	68%
Tehama-Colusa Fish Facility [14]	Central Valley Project Act, Central Valley Project Act Reauthorization, Fish and Wildlife Coordination Act	Fish and Wildlife Coordination Act	Bureau of Reclamation	Red Bluff Diversion Dam	Central Valley Project Act of October 26, 1937, Central Valley Project Act Reauthorization of October 17, 1940	$197,567	0%
					Region 1 TOTAL	**$29,086,508**	**85%**

Region 2

Field Station	Field Station's Authorization[1]	Field Station's Operating Authorities[2]	Responsible Agency[3]	Water Resource Development Project(s)[4]	Development Project(s)'s Authorizatio[5]	Mitigation Total Costs[6]	% Reimbursed to FWS[7]
*Tishomingo NFH	44 Stat. 1215, Colorado River Storage Act	Colorado River Storage Act	Corps of Engineers	Oolagah Dam	Flood Control Act of 1938, Rivers and Harbors Act of 1946	$24,071	0%
				Sardis Dam	Flood Control Act of 1962	$14,094	0%
					Region 2 TOTAL	**$38,165**	**0%**

Region 3

Field Station	Field Station's Authorization[1]	Field Station's Operating Authorities[2]	Responsible Agency[3]	Water Resource Development Project(s)[4]	Development Project(s)'s Authorizatio[5]	Mitigation Total Costs[6]	% Reimbursed to FWS[7]
*Neosho NFH[9]	25 Stat. 521, 25 Stat. 954, 26 Stat. 964	Endangered Species Act of 1973, Fish and Wildlife Act of 1956	Corps of Engineers	Table Rock Dam		$732,309	0%
					Region 3 TOTAL	**$732,309**	**0%**

Region 4

Field Station	Field Station's Authorization[1]	Field Station's Operating Authorities[2]	Responsible Agency[3]	Water Resource Development Project(s)[4]	Water Resource Development Project(s)'s Authorization[5]	Mitigation Total Costs[6]	% Reimbursed to FWS[7]
Chattahoochee Forest NFH[9]	Fish and Wildlife Coordination Act, Fish and Wildlife Act of 1956	Fish and Wildlife Coordination Act, Fish and Wildlife Act of 1956	Corps of Engineers	Buford Dam	Flood Control Act of 1944	$1,171,723	0%
				Hartwell Dam	Flood Control Act of 17 May 1950	$26,736	0%
			Tennessee Valley Authority	Blue Ridge Dam	Tennessee Valley Authority Act of 1935	$37,852	0%

Region 4

Field Station	Field Station's Authorization[1]	Field Station's Operating Authorities[2]	Responsible Agency[3]	Water Resource Development Project(s)[4]	Water Resource Development Project(s)'s Authorization[5]	Mitigation Total Costs[6]	% Reimbursed to FWS[7]
*Dale Hollow NFH[9]	Fish and Wildlife Coordination Act	Fish and Wildlife Coordination Act, Fish and Wildlife Act of 1956	Corps of Engineers	Buford Dam	Flood Control Act of 1944	$61,645	0%
				Center Hill Dam	Flood Control Act of 1938, Rivers and Harbors Act of 1946	$205,658	0%
				Dale Hollow Dam	Flood Control Act of 1938, Rivers and Harbors Act of 1946	$262,839	0%
				J. Percy Priest Dam	Flood Control Act of 1938, Rivers and Harbors Act of 1946	$637	0%
				Hartwell Dam	Flood Control Act of 17 May 1950	$22,655	0%
			Tennessee Valley Authority	Appalachia Dam	Tennessee Valley Authority Act of 1933	$175,578	0%
				Blue Ridge Dam	Tennessee Valley Authority Act of 1933	$1,270	0%
				Cherokee Dam	Tennessee Valley Authority Act of 1933	$47,369	0%
				Fort Patrick Henry Dam	Tennessee Valley Authority Act of 1933	$36,664	0%
				Normandy Dam	Tennessee Valley Authority Act of 1933	$66,258	0%
				Norris Dam	Tennessee Valley Authority Act of 1933	$116,201	0%
				South Holston Dam	Tennessee Valley Authority Act of 1933	$151,460	0%
				Tellico Dam	Tennessee Valley Authority Act of 1933	$157,514	0%
				Tims Ford Dam	Tennessee Valley Authority Act of 1933	$58,709	0%
				Watauga Dam	Tennessee Valley Authority Act of 1933	$90,167	0%
				Wilbur Dam	Tennessee Valley Authority Act of 1933	$101,799	0%
Greers Ferry NFH[9]	Fish and Wildlife Coordination Act, Fish and Wildlife Act of 1956	Fish and Wildlife Coordination Act, Fish and Wildlife Act of 1956	Corps of Engineers	Beaver Dam	Flood Control Act of 1943	$546	0%
				Blakely Mountain Dam	Flood Control Act of 1944	$181,625	0%
				Broken Bow Dam	Flood Control Act of 1946, 1958, and 1967	$65,952	0%
				Buford Dam	Flood Control Act of 1944	$6,945	0%
				Bull Shoals Dam	Flood Control Act of 1941	$94,591	0%
				Greers Ferry Dam	Flood Control Act of 1938 and 1954	$386,081	0%
				Hartwell Dam	Flood Control Act of 17 May 1950	$71	0%
				Narrows Dam	Flood Control Act of 1941	$20,465	0%
				Norfork Dam	Flood Control Act of 1938	$41,621	0%
				Tenkiller Dam	Flood Control Act of 1938	$91,729	0%
*Mammoth Spring NFH	32 Stat. 1107	Emergency Striped Bass Act, Atlantic Striped Bass Conservation Act (as amended), Anadromous Fish Conservation Act	Corps of Engineers	Bull Shoals Dam	Flood Control Act of 1941	$195,491	0%
				Norfork Dam	Flood Control Act of 1938	$12,997	0%

Region 4

Field Station	Field Station's Authorization[1]	Field Station's Operating Authorities[2]	Responsible Agency[3]	Water Resource Development Project(s)[4]	Water Resource Development Project(s)'s Authorization[5]	Mitigation Total Costs[6]	% Reimbursed to FWS[7]
*Norfork NFH[9]	Fish and Wildlife Coordination Act, 69 Stat. 460	Fish and Wildlife Coordination Act, Fish and Wildlife Act of 1956	Corps of Engineers	Beaver Dam	Flood Control Act of 1943	$120,959	0%
				Blakely Mountain Dam	Flood Control Act of 1944	$7,497	0%
				Broken Bow Dam	Flood Control Act of 1946, 1958, and 1967	$19,138	0%
				Buford Dam	Flood Control Act of 1944	-	-
				Bull Shoals Dam	Flood Control Act of 1941	$905,156	0%
				Greers Ferry Dam	Flood Control Act of 1938 and 1954	$45,704	0%
				Norfork Dam	Flood Control Act of 1938	$104,848	0%
				Tenkiller Dam	Flood Control Act of 1938	$1,730	0%
*Wolf Creek NFH[9]	Fish and Wildlife Coordination Act, 81 Stat. 67	Fish and Wildlife Coordination Act, Fish and Wildlife Act of 1956	Corps of Engineers	Barren Dam	Flood Control Act of 1965, Rivers and Harbors Act of 1946 (RHA)	$14,896	0%
				Buckhorn Dam	Flood Control Act of 1938, RHA	$9,778	0%
				Carr Creek Dam	Flood Control Act of 1938, RHA	$19,515	0%
				Cave Run Dam	Flood Control Act of 1965, RHA	$17,743	0%
				Dewey Dam	Flood Control Act of 1965, RHA	$9,318	0%
				Fishtrap Dam	Flood Control Act of 1965, RHA	$14,632	0%
				Grayson Dam	Flood Control Act of 1965; RHA	$14,144	0%
				Laurel Dam	Flood Control Act of 1938, RHA	$202,825	0%
				Martins Fork Dam	Flood Control Act of 1965, RHA	$9,447	0%
				Nolin Dam	Flood Control Act of 1965, RHA	$30,250	0%
				Paintsville Dam	Flood Control Act of 1965, RHA	$89,062	0%
				Rough River Dam	Flood Control Act of 1938, RHA	$13,127	0%
				Wolf Creek Dam	Flood Control Act of 1938, RHA	$371,657	0%
				Yatesville Dam	Flood Control Act of 1965, RHA	$5,568	0%
						$5,917,842	**0%**

Region 6

Field Station	Field Station's Authorization[1]	Field Station's Operating Authorities[2]	Responsible Agency[3]	Development Project(s)[4]	Development Project(s)'s Authorization[5]	Mitigation Total Costs[6]	% Reimbursed to FWS[7]
*Creston NFH	53 Stat. 1142, 58 Stat. 801	Endangered Species Act of 1973	Bonneville Power Administration	Hungry Horse Dam	P. L.58-329	$160,003	100%
*Ennis NFH	White Act	Fish and Wildlife Coordination Act, Salmon and Steelhead Conservation and Enhancement Act of 1980	Bureau of Reclamation	Canyon Ferry Dam and Yellowtail Dam	P. L.89-108	$37,312	0%
				Island Park Dam	Secretary of the Interior (April 24, 1904)	$4,476	0%
			Bureau of Indian Affairs	Wild Horse Dam		-	-
*Garrison Dam NFH[9]	Fish and Wildlife Coordination Act, 71 Stat. 264	Fish and Wildlife Coordination Act, Endangered Species Act of 1973	Bureau of Reclamation	Dickinson Dam	Flood Control Act of 1944, P. L.78-534	$3,771	0%
				Heart Butte Dam	Flood Control Act of 1944, P. L.78-534	$3,771	0%
				Jamestown Dam	FCA of 1944, P. L.78-534, P.L. 89-108	-	0%
				Snake Creek Pumping Sta - Garrison Diversion Unit	P. L.89-108	$2,012	0%
			Corps of Engineers	Baldhill Dam	Flood Control Act of 1944	$8,830	0%
				Bowman-Haley Dam	Flood Control Act of 1962	$17,660	0%
				Fort Peck Dam	Flood Control Act of 1944, P. L. 78-534	$8,830	0%
				Garrison Dam	Flood Control Act of 1944, P.L.78-534	$463,545	0%
				Homme Dam	Flood Control Act of 1944	-	-
				Pipestem Dam	Flood Control Act of 1965	$1,740	0%
*Gavins Point NFH	70 Stat. 263, Fish and Wildlife Act of 1956	Fish and Wildlife Coordination Act, Fish and Wildlife Act of 1956, Endangered Species Act of 1973	Corps of Engineers	Gavins Point Dam	Flood Control Act of 1944; PL 78-534	$26,965	0%

Region 6

Field Station	Field Station's Authorization[1]	Field Station's Operating Authorities[2]	Responsible Agency[3]	Development Project(s)[4]	Development Project(s)'s Authorization[5]	Mitigation Total Costs[6]	% Reimbursed to FWS[7]
*Hotchkiss NFH[9]	Colorado River Storage Project Act	Colorado River Storage Project Act, Fish and Wildlife Act of 1956	Bureau of Reclamation	Blue Mesa Dam	Colorado River Storage Project Act	-	-
				Crawford Dam	Colorado River Storage Project Act	-	-
				Heron Dam	Colorado River Storage Project Act	$200,754	0%
				Lemon Dam[15]	Colorado River Storage Project Act	$26,544	0%
				McPhee Dam	Colorado River Storage Project Act	$102,999	0%
				Navajo Dam	Colorado River Storage Project Act	$201,353	0%
				Silver Jack Dam	Colorado River Storage Project Act	$29,982	0%
*Jackson NFH	Palisades Dam and Reservoir Project Act	Palisades Dam and Reservoir Project Act, Fish and Wildlife Act of 1956	Bureau of Reclamation	Buffalo Bill Dam	Reclamation Act of 1902, Palisades Dam and Reservoir Project Act, Buffalo Bill Dam and Reservoir Mod. Act of 1982	$45,948	0%
				Grassy Lake Dam	Reclamation Act of 1902, Palisades Dam and Reservoir Project Act	$23,578	0%
				Jackson Lake Dam	Reclamation Act of 1902, Palisades Dam and Reservoir Project Act	$104,460	0%
				Palisades Dam	Reclamation Act of 1902, Palisades Dam and Reservoir Project Act	$315,863	0%
*Jones Hole NFH[9]	Colorado River Storage Project Act	Colorado River Storage Project Act, Fish and Wildlife Act of 1956	CUPA	Flaming Gorge Dam	Colorado River Storage Project Act, Central Utah Project Completion Act	$1,047,280	0%
				Jordanelle Dam	Colorado River Storage Project Act, Central Utah Project Completion Act	$14,506	0%
				Red Fleet Dam	Colorado River Storage Project Act, Central Utah Project Completion Act	$50,772	0%
				Steinaker Dam	Colorado River Storage Project Act	$94,291	0%

Region 6

Field Station	Field Station's Authorization[1]	Field Station's Operating Authorities[2]	Responsible Agency[3]	Development Project(s)[4]	Development Project(s)'s Authorization[5]	Mitigation Total Costs[6]	% Reimbursed to FWS[7]
*Valley City NFH	White Act	Endangered Species Act of 1973, Fish and Wildlife Coordination Act, Fish and Wildlife Act of 1956	Bureau of Reclamation	Dickinson Dam	Flood Control Act of 1944, Public Law 78-534	$27,550	0%
				Heart Butte Dam	Flood Control Act of 1944, PL 78-534	$68,880	0%
				Jamestown Dam	Flood Control Act of 1944, Public Law 78-534, Public Law 89-108	$15,541	0%
				Snake Creek Pumping Sta - Garrison Diversion Unit	Public Law 89-108	$166,655	0%
*Valley City NFH	White Act	Endangered Species Act of 1973, Fish and Wildlife Coordination Act, Fish and Wildlife Act of 1956	Corps of Engineers	Baldhill Dam	Flood Control Act of 1944	-	-
				Bowman-Haley Dam	Flood Control Act of 1944	-	-
				Fort Peck Dam	Flood Control Act of 1944, Public Law 78-534	$16,987	0%
				Garrison Dam	Flood Control Act of 1944, Public Law 78-534	$162,066	0%
				Homme Dam	Flood Control Act of 1944	$6,880	0%
				Pipestem Dam	Flood Control Act of 1965	-	-
			Department of Agriculture	Carlson-Tande Dam	Watershed Protection and Flood Prevention Act of 1954 (WPFPA)	-	-
				Fordville Dam	WPFPA	-	-
				Larimore Dam	WPFPA	-	-
				Matejeck Dam	WPFPA	-	-
				Renwick Dam	WPFPA	-	-
				Whitman Dam	WPFPA	-	-
					Region 6 GRAND TOTAL	**$3,461,803**	**5%**
Fish & Wildlife Service Grand Total						**$39,236,627**	**64%**

1 The authorities by which this field station(s) was created or constructed.
2 The authorities by which this field station(s) operates.
3 The Federal agency responsible for the Federal water resource development project which this field station(s) is conducting a mitigation program(s).
4 The Federal water resource development project which this field station(s) is conducting a mitigation program(s).
5 The authorities by which this Federal water resource development project was constructed.
6 The FY 2001 annual mitigation total associated costs are estimated station costs. These costs include operational costs, maintenance and construction costs (estimated at 3% of the facility's capital value, as per industry standard), Regional support costs, and indirect costs. These costs reflect full cost recovery and do not reflect current appropriation levels.
7 The level of reimbursement is the percentage of annual mitigation total associated costs recovered from the responsible agency by the Service.
8 The Coleman NFH Complex is composed of the Coleman NFH and Livingston Stone NFH.
9 Costs borne by broodstock stations (Ennis NFH, Erwin NFH, Saratoga NFH, and White Sulphur Springs NFH) are included in cost figures provided.
10 The COE directly pays for these costs at Dworshak NFH. BPA funds Hagerman NFH through the Lower Snake River Compensation Plan. Thus, these costs only depict the maintenance costs associated with Ennis NFH for its broodstock program associated with mitigating this project.
11 The Lahontan NFH Complex is composed of the Lahontan NFH, Marble Bluff Fish Research and Control Station, and Northern Nevada Fishery Resource Office.
12 The Washoe County Water Conservation District operates this dam under contract from the Bureau of Reclamation.
13 The Leavenworth NFH Complex is composed of the Entiat NFH, Leavenworth NFH, and Winthrop NFH.
14 The Tehama-Colusa Fish Facility is collocated with and a substation of the Red Buff Fish and Wildlife Office.
15 The Florida Water Conservancy District has a lease of power priviledge from the Bureau of Reclamation.
* Station is also involved in activities other than mitigating Federal water resource development projects.

Exhibit 10. Fisheries Program Field Station Staffing and Budgets

Region 1	Field Offices	FY 2009 FTE	FTEs/Res. Mgt. Budget	FTEs/ Reimbursables	Approved Org Chart (FTEs) [a/]	Budget-Related Vacancies (FY09) [b/]	Trend FY 2005–2009 [c/]	13xx Budget FY 2009 [d/]
Oregon	Portland	9.0	6.8	2.4	13.0	4.0	Stable	4,102,667
Washington	Carson NFH	7.0	0.1	6.9	7.0	0.0	Increasing	88,585
Idaho	Dworshak NFH Complex[1]	18.0	0.1	17.9	23.0	5.0	Decreasing	4,976
Oregon	Eagle Creek NFH	6.0	0.2	5.8	7.0	1.0	Decreasing	106,932
Washington	Entiat NFH	3.0	0.0	3.0	3.0	0.0	Stable	0
Idaho	Hagerman NFH	8.0	0.0	8.0	9.0	1.0	Stable	0
Idaho	Kooskia NFH	1.0	0.0	1.0	4.0	3.0	Decreasing	444,192
Washington	Leavenworth NFH	9.0	0.0	9.0	9.0	0.0	Stable	0
Washington	Leavenworth NFH Complex[2]	9.0	0.0	9.0	10.0	1.0	Stable	0
Washington	Little White Salmon NFH	9.0	0.0	9.0	9.0	0.0	Stable	117,493
Washington	Makah NFH	7.0	0.0	7.0	7.0	0.0	Increasing	766,312
Washington	Quilcene NFH	6.0	6.0	0.0	6.0	0.0	Increasing	635,335
Washington	Quinault NFH	6.0	6.0	0.0	7.0	1.0	Stable	815,246
Washington	Spring Creek NFH	10.0	0.3	9.7	12.0	2.0	Increasing	133,344
Oregon	Warm Springs NFH	5.0	5.0	0.0	6.0	1.0	Decreasing	702,618
Washington	Willard NFH (part of Little White Salmon NFH)	3.0	0.0	3.0	3.0	0.0	Stable	0
Washington	Wintrop NFH	6.0	0.0	6.0	6.0	0.0	Stable	0
Idaho	Idaho FHC	5.0	2.2	2.8	5.0	0.0	Stable	315,311
Washington	Lower Columbia River FHC	7.0	3.2	3.8	8.0	1.0	Stable	505,131
Washington	Olympia FHC	6.0	1.9	4.1	6.0	0.0	Stable	427,380
Washington	Abernathy FTC	26.0	16.0	10.0	31.0	5.0	Increasing	1,920,168
Idaho	Idaho FRO	13.0	3.0	10.0	14.0	1.0	Stable	770,593
Idaho	Lower Snake River Compensation Plan Office	6.0	0.0	6.0	6.0	0.0	Increasing	76,201
Washington	Columbia River FPO	47.0	34.9	12.1	63.0	16.0	Decreasing	4,709,067
Washington	Mid-Columbia FRO	22.0	6.1	15.9	23.0	1.0	Increasing	698,916
Hawaii	Pacific Islands FWO	1.0	1.0	0.0	1.0	0.0	Increasing	355,501
Washington	Western Washington FRO	26.0	14.5	11.6	32.0	6.0	Increasing	2,338,853
27		281.0	107.3	174.0	330.0	49.0		$20,034,821

[1]Dworkshak Complex includes Dworkshak & Kooskia NFHs; Dworshak NFH and Complex staff here only.

[2]Leavenworth Complex includes Leavenworth, Entiat, & Winthrop NFHs: includes Complex Manager and Deputy, Admin, and I&E Staff.

Region 2	Field Offices	Total FTEs	RMB FTEs	Reimbuse FTEs	Org Chart FTEs	Vacancies (FY09)	Trend FY 2005–2009	Budget FY 2009
New Mexico	Albuquerque	7.0	7.0	0.0	9.0	2.0	Stable	1,221,227
Arizona	Alchesay/Williams Creek NFH Complex	10.0	10.0	0.0	12.0	2.0	Stable	1,227,318
New Mexico	Dexter Complex (NFH, FHC, FTC)	12.0	12.0	0.0	19.0	7.0	Stable	1,727,783
Texas	Inks Dam NFH/Regional Distribution Unit	7.0	7.0	0.0	9.0	2.0	Stable	716,351
New Mexico	Mora NFH & FTC	5.0	5.0	0.0	7.0	0.0	Stable	637,390
Texas	San Marcos NFH & FTC	9.0	9.0	0.0	13.0	4.0	Stable	955,457
Oklahoma	Tishomingo NFH	7.0	7.0	0.0	8.0	1.0	Stable	829,943
Texas	Uvalde NFH	5.0	5.0	0.0	6.0	1.0	Stable	568,936
Arizona	Willow Beach NFH	6.0	6.0	0.0	9.0	3.0	Stable	793,827
Arizona	Arizona FWCO	9.0	7.0	2.0	16.0	7.0	Stable	732,164
Arizona	Flagstaff FWCO[3]	included in AZFWO						
New Mexico	New Mexico FWCO	6.0	4.0	2.0	15.0	11.0	Stable	803,985
Oklahoma	Oklahoma FWCO	1.0	1.0	0.0	4.0	3.0	Stable	231,022
Arizona	Parker FWCO[1]	included in AZFWO						
Texas	Texas FWCO	0.0	0.0	0.0	3.0	3.0	Stable	167,686
15		84.0	80.0	4.0	130.0	46.0		$10,613,089

[3] Flagstaff and Parker FWO satelites of Arizona FWO

Region 3	Field Offices	Total FTEs	RMB FTEs	Reimbuse FTEs	Org Chart FTEs	Vacancies (FY09)	Trend FY 2005–2009	Budget FY 2009
Minnesota	Fort Snelling	12.0	11.0	1.0	14.0	2.0	stable	3,855,026
Wisconsin	Genoa NFH	9.0	8.0	1.0	9.0	0.0	increasing	904,389
Wisconsin	Iron River NFH	6.0	6.0	0.0	8.0	2.0	stable	930,826
Michigan	Jordan River NFH	8.0	8.0	0.0	8.0	0.0	stable	1,002,859
Missouri	Neosho NFH	6.0	6.0	0.0	8.0	2.0	stable	621,116
Michigan	Pendills Creek/ Sullivan Creek NFH	6.0	6.0	0.0	8.0	2.0	stable	738,138
Wisconsin	LaCrosse FHC	7.0	7.0	0.0	8.0	1.0	stable	733,601
Michigan	Alpena FWCO	9.0	9.0	0.0	14.0	5.0	decreasing	581,675
Wisconsin	Ashland FWCO	6.0	6.0	0.0	8.0	2.0	decreasing	665,646
Illinois	Carterville FWCO	3.0	3.0	0.0	4.0	1.0	stable	268,948
Missouri	Columbia FWCO	16.0	1.0	15.0	27.0	11.0	stable	171,028
Wisconsin	Green Bay FWCO	8.0	8.0	0.0	11.0	3.0	stable	792,609
Wisconsin	LaCrosse FWCO	8.0	8.0	0.0	8.0	0.0	stable	759,137
Michigan	Ludington Biological Center FWCO	22.0	0.0	22.0	33.0	11.0	100% reimb	0
Michigan	Marquette Biological Station FWCO	51.0	0.0	51.0	86.0	35.0	100% reimb	0
15		177.0	87.0	90.0	254.0	77.0		$12,024,998

Region 4	Field Offices	Total FTEs	RMB FTEs	Reimbuse FTEs	Org Chart FTEs	Vacancies (FY09)	Trend FY 2005–2009	Budget FY 2009
Georgia	Atlanta	8.0	8.0	0.0	8.0	0.0	increasing	1,229,041
South Carolina	Bears Bluff NFH	5.0	5.0	0.0	5.0	0.0	stable	492,434
Georgia	Bo Ginn NFH [4]	0.5	0.5	0.0	4.0	3.5	increasing	
Georgia	Chattahoochee Forest NFH	5.6	5.6	0.0	7.8	2.2	stable	726,001
Tennessee	Dale Hollow NFH	8.0	8.0	0.0	10.0	2.0	stable	775,726
North Carolina	Edenton NFH	6.0	6.0	0.0	6.0	0.0	increasing	628,674
Tennessee	Erwin NFH	6.0	6.0	0.0	8.0	2.0	stable	599,948
Arkansas	Greers Ferry NFH	5.0	5.0	0.0	8.0	3.0	stable	558,086
Arkansas	Mammoth Springs NFH	5.0	5.0	0.0	7.0	2.0	stable	520,696
Louisiana	Nathchitoches NFH	5.0	5.0	0.0	7.0	2.0	decreasing	566,427
Arkansas	Norfolk NFH	9.0	9.0	0.0	11.0	2.0	stable	903,009
South Carolina	Orangeburg NFH	6.0	6.0	0.0	8.0	2.0	stable	645,880
Mississippi	Private John Allen NFH	5.0	5.0	0.0	6.0	1.0	increasing	456,027
Georgia	Warm Springs RFC (NFH, FHC, FTC)	18.0	18.0	0.0	22.0	4.0	increasing	1,876,873
Florida	Welaka NFH	6.0	6.0	0.0	7.0	1.0	stable	662,913
Kentucky	Wolf Creek NFH	7.4	7.4	0.0	10.0	2.6	increasing	507,380
Louisiana	Baton Rouge FWCO	3.0	3.0	0.0	4.0	1.0	increasing	271,841
Mississippi	Gulf Coast FRO [5]	1.0	1.0	0.0	2.0	1.0	stable	103,469
Mississippi	Lower Mississippi FRO	4.0	4.0	0.0	5.0	1.0	increasing	247,623
Florida	Panama City FWCO	8.0	4.0	4.0	9.0	2.0	stable	464,763
North Carolina	South Atlantic FWCO	1.0	1.0	0.0	2.0	1.0	increasing	165,633
Florida	South Florida FWCO	1.0	1.0	0.0	2.0	1.0	stable	134,035
South Carolina	Wadmalaw Island FWCO	1.0	1.0	0.0	2.0	1.0	increasing	100,000
23		124.5	120.5	4.0	160.8	37.3		$12,636,479

[4] Returning to FWS/FP operations in FY 2010 per MOA modification.

[5] Gulf Coast FRO is being moved from Ocean Springs MS to Dale Hollow TN in FY 2010.

R4 also covers salary of 1 administrative person under contract with Gulf Coast Fisheries Commission that is not reflected here.

Region 5	Field Offices	Total FTEs	RMB FTEs	Reimbuse FTEs	Org Chart FTEs	Vacancies (FY09)	Trend FY 2005–2009	Budget FY 2009
Massachusetts	Hadley	14.9	14.9	0.0	14.9	0.0	increasing	2,404,768
Pennsylvania	Allegeny NFH	2.9	2.9	0.0	7.0	4.1	decreasing	407,815
Massachusetts	Berkshire NFH	0.2	0.2	0.0	3.0	2.8	increasing	50,950
Maine	Craig Brook NFH	4.8	4.8	0.0	7.0	2.2	increasing	561,990
Vermont	Dwight D. Eisenhower NFH	3.0	3.0	0.0	7.0	4.0	increasing	387,944
Maine	Greenlake NFH	7.4	7.4	0.0	9.0	1.6	increasing	788,501
Virginia	Harrison Lake NFH	4.0	4.0	0.0	6.0	2.0	increasing	361,260
Pennsylvania	Lamar RFC (NFH, FHC, FHC)	17.1	15.1	2.0	29.0	11.9	increasing	1,793,337
New Hampshire	Nashua	3.2	3.2	0.0	6.0	2.8	increasing	644,615
Massachusetts	North Attleboro NFH	4.8	4.8	0.0	7.0	2.2	increasing	400,201
Massachusetts	Richard Cronin NFH	2.0	2.0	0.0	4.0	2.0	increasing	233,949
Vermont	White River NFH	7.7	7.7	0.0	10.0	2.3	increasing	998,318
West Virginia	White Sulphur NFH	7.5	6.0	1.5	8.0	0.5	increasing	715,182
West Virginia	Appalachian Partnership Coord Office	1.5	1.5	0.0	3.0	1.5	increasing	173,584
New Hampshire	Central New England FWCO	6.0	6.0	0.0	6.0	0.0	stable	437,369
Massachusetts	Connecticut River Coordinator	2.0	2.0	0.0	6.0	4.0	stable	196,614
Pennsylvania	Delaware River Coordinator	0.5	0.5	0.0	3.0	2.5	stable	4,000
Virginia	Gloucester FWCO	1.0	0.9	0.1	5.0	4.0	stable	89,613
New Hampshire	Laconia FWCO	0.0	0.0	0.0	4.0	4.0	stable	8,543
Vermont	Lake Champlain FWCO	10.7	10.7	0.0	14.0	3.3	increasing	1,068,773
New York	Lower Great Lakes FWRO	9.0	7.3	1.7	12.0	3.0	increasing	951,271
Maine	Maine CPLX	2.1	2.1	0.0	5.0	2.9	increasing	268,892
Maine	Maine FWCO	1.9	1.9	0.0	5.0	3.1	increasing	137,985
Maryland	Maryland FRO	9.7	7.8	1.9	9.7	0.0	increasing	852,815
Pennsylvania	Mid-Atlantic FWCO	1.0	0.9	0.1	2.0	1.0	stable	119,751
Massachusetts	Sunderland FWCO	0.0	0.0	0.0	6.0	6.0	stable	0
Virginia	Virginia FWCO	1.0	0.9	0.1	3.0	2.0	stable	124,957
West Virginia	West Virginia FWCO	0.0	0.0	0.0	4.0	4.0	stable	0
28		125.8	118.4	7.4	205.6	79.8	0	$14,182,997

Region 6	Field Offices	Total FTEs	RMB FTEs	Reimbuse FTEs	Org Chart FTEs	Vacancies (FY09)	Trend FY 2005–2009	Budget FY 2009
Colorado	Lakewood	7.0	7.0	0.0	8.0	1.0	Stable	
Montana	Creston NFH	6.0	6.0	0.0	6.0	0.0	Stable	448,070
South Dakota	D.C. Booth Historic NFH	8.0	8.0	0.0	8.0	0.0	Stable	380,633
Montana	Ennis NFH	7.0	7.0	0.0	7.0	0.0	Stable	542,516
North Dakota	Garrison Dam NFH	7.0	7.0	0.0	7.0	0.0	Stable	386,209
South Dakota	Gavins Point NFH	7.0	7.0	0.0	7.0	0.0	Stable	644,399
Colorado	Hotchkiss NFH	5.0	5.0	0.0	7.0	2.0	Stable	229,582
Wyoming	Jackson NFH	5.0	5.0	0.0	5.0	0.0	Stable	446,149
Utah	Jones Hole NFH	5.0	5.0	0.0	6.0	1.0	Stable	501,273
Colorado	Leadville NFH	4.0	4.0	0.0	5.0	1.0	Stable	437,327
Utah	Ouray NFH	4.0	4.0	0.0	5.0	1.0	Stable	502,680
Wyoming	Saratoga NFH	4.0	4.0	0.0	4.0	0.0	Stable	443,844
North Dakota	Valley City NFH	2.0	2.0	0.0	3.0	1.0	Stable	206,911
Montana	Bozeman FTC [6]	21.0	21.0	0.0	24.0	3.0	Stable	1,930,698
Montana	Bozeman FWCO	4.0	4.0	0.0	4.0	0.0	Stable	635,970
Colorado	Colorado FWCO	23.0	1.0	22.0	23.0	0.0	Stable	102,334
Colorado	Grand Junction/ Colorado River FWCO	9.0	0.1	8.9	9.0	0.0	Stable	9,950
South Dakota	Great Plains FWCO	7.0	7.0	0.0	8.0	1.0	Stable	238,099
Wyoming	Lander FWCO	4.0	4.0	0.0	5.0	1.0	Stable	758,176
North Dakota	Missouri River FWCO	6.0	6.0	0.0	11.0	5.0	Stable	315,000
Utah	Vernal/UT-CO FWCO	8.0	0.1	7.9	12.0	4.0	Stable	304,429
Montana	Yellowstone River Coordinator	3.0	3.0	0.0	5.0	2.0	Stable	379,961
22		156.0	117.2	38.8	179.0	23.0		$9,844,210

[6] Bozeman FTC houses AADAP, funded out of Region 9/Washington Office.

Region 7	Field Offices	Total FTEs	RMB FTEs	Reimbuse FTEs	Org Chart FTEs	Vacancies (FY09)	Trend FY 2005–2009	Budget FY 2009
Alaska	Anchorage	6.8	5.7	1.1	8.0	1.0	stable	1,199,731
Alaska	Conservation Genetics Lab	8.1	6.1	2.0	9.0	0.0	stable	994,814
Alaska	Anchorage FWCO	13.6	12.5	1.1	14.0	1.0	increased	2,253,169
Alaska	Juneau FWCO	0.8	0.4	0.4	2.0	0.0	decreased	151,000
Alaska	Fairbanks FWCO	22.0	19.4	2.6	20.0	1.0	stable	2,254,499
Alaska	Kenai FWCO	10.5	10.5	0.0	11.0	1.0	increased	1,928,174
6		61.8	54.6	7.2	64.0	4.0		$8,781,387
R7 RO-Anchorage costs include office and lease space for the entire Fisheries Program, including field offices ($552,573).								

Region 8	Field Offices	Total FTEs[7]	RMB FTEs	Reimbuse FTEs	Org Chart FTEs	Vacancies (FY09)	Trend FY 2005–2009	Budget FY 2009
California	Sacramento	10.0	3.3	6.7	10.0	0.0	Increased	281,560
California	Coleman NFH [8]	21.5	2.2	19.3	40.0	18.5	Increased	46,086
Nevada	Lahontan NFH [9]	12.8	10.6	2.2	24.0	11.2	Increased	1,381,892
California	Livingston Stone NFH (see Coleman NFH)	-	-	-	-	-	-	-
California	California/Nevada FHC	6.7	4.3	2.4	11.0	4.3	Stable	389,495
California	Arcata FWCO [10]	21.3	19.5	1.8	25.0	3.7	Stable	2,930,076
Nevada	Nevada FWCO [10]	0.4	0.1	0.3	0.4	0.0	Stable	62,000
California	Red Bluff FWCO [11]	34.0	1.6	32.4	90.0	56.0	Decreased	312,386
California	Sacramento/Bay-Delta FWCO [10, 12]	9.4	0.1	9.3	9.4	0.0	Stable	2,635
California	Stockton FWCO	43.3	4.3	39.0	66.0	22.7	Increased	1,157,678
California	Yreka FWCO [10]	5.3	5.3	0.0	5.3	0.0	Stable	1,116,867
11		164.8	51.3	113.4	281.1	116.4		$7,680,675

[7] Total FTEs include Terms/Temps and vacant positions from approved Org charts. Does not include seasonals nor STEP positions.

[8] Coleman Complex includes Coleman NFH and Livingston Stone NFH.

[9] Lahontan NFH Complex is administered through the Nevada FWCO. Reimbursable FTEs include Walker River Basin (4741) and Pyramid Lake Mgmt/Ops (8122).

[10] Arcata, Nevada, Sacramento, Bay-Delta, and Yreka FWCOs are Ecological Services field stations that provide support for Fisheries Programs.

[11] Red Bluff station includes funds for Tehama-Colusa Fish Facility.

[12] Sacramento/Bay-Delta FWCO has the Watershed Planning Branch and the Instream Flow and Energy Branch which does fisheries work and permitting.

Region 9	Field Offices	Total FTEs	RMB FTEs	Reimbuse FTEs	Org Chart FTEs	Vacancies (FY09)	Trend FY 2005–2009	Budget FY 2009
California	Washington/Arlington offices (HQ)	34.0	34.0	0.0	51.0	17.0	Decreased	$8,729,625

Region	Field Offices	Total FTEs	RMB FTEs	Reimbuse FTEs	Org Chart FTEs	Vacancies (FY09)	Trend FY 2005–2009	Budget FY 2009
27	Pacific Northwest	281.0	107.3	174.0	330.0	49.0		$20,034,821
15	Southwest	84.0	80.0	4.0	130.0	46.0		$10,613,089
15	Great Lakes	177.0	87.0	90.0	254.0	77.0		$12,024,998
23	Southeast	124.5	120.5	4.0	160.8	37.3		$12,636,479
28	Northeast	125.8	118.4	7.4	205.6	79.8		$14,182,997
22	Intermountain West	156.0	117.2	38.8	179.0	23.0		$9,844,210
6	Alaska	61.8	54.6	7.2	64.0	4.0		$8,781,387
11	California-Nevada	164.8	51.3	113.4	281.1	116.4		$7,680,675
1	Washington Office	34.0	34.0	0.0	51.0	17.0		$8,729,625
148		1,208.8	770.3	438.8	1,655.5	449.5	Decreased	$104,528,281

[a/] From current, approved station Organization Charts as of FY09. Includes Permanent, Term, Temporary, and Part-Time Staff. Excludes SCEP or STEP employees.

[b/] May also include recently-vacated positions that will be filled when funds are available, or seasonal temporary positions.

[c/] Represents changes in actual FTE usage between FY2009 and FY 2005. Reductions in 1 or less FTE reported as 'Stable' in offices with >10 FTE.

[d/] FWS Fisheries Program Resource Management (i.e. 13xx) funds only; excludes reimbursables. Excludes Recovery Act funding awards OFT'ed to facilities.

Region 5 Fisheries states that it has used vacancy management since about 1980's to mange the budget shortfalls. Multiple stations were essentially "mothballed" due to funding levels and the need to maintain a personnel threshold at other stations. Relative to FY 2005, the trend data, as of FY 2009, is basically decreased with the negative staffing numbers.

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