Citizen Update

National Marine Fisheries Service Findings: Fish Recovery Efforts Off to a Solid Start

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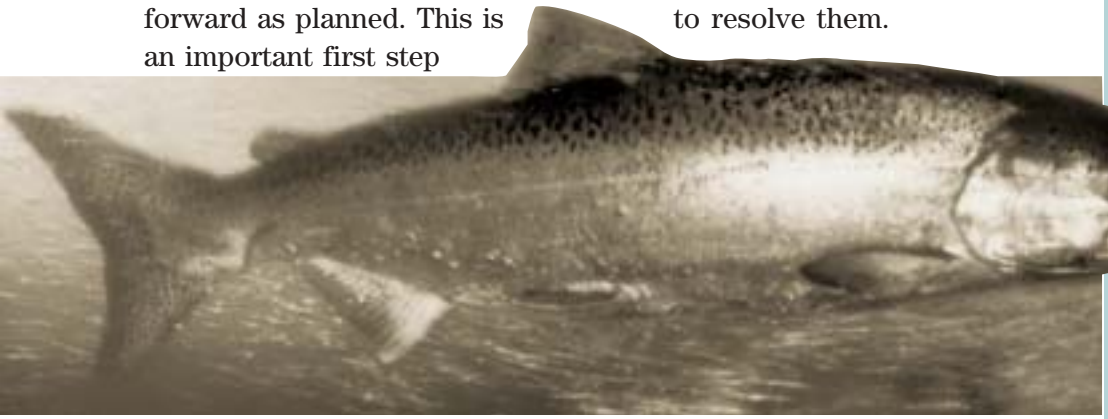
Despite many challenges in 2001, an ambitious 10-year fish recovery program in the Columbia River Basin is off to a satisfactory start, according to the National Marine Fisheries Service. While the second lowest water year on record and extended power emergencies forced some recovery actions to be modified, most efforts are moving forward as planned. This is an important first step forward in the region's commitment to boost survival of fish listed as threatened or endangered under the Endangered Species Act. Listed fish under NMFS' jurisdiction include Northwest salmon and steelhead.



In a findings report, "Findings Regarding Adequacy of the FCRPS Action Agencies' 2002 Annual Implementation Plan," issued in July 2002, NMFS concludes that actions taken in 2001 and planned in 2002 by key federal agencies to benefit listed fish are largely on track to meet initial goals, or benchmarks, set for 2003. Implementation in 2001 was not perfect, the report notes, but agency plans for 2002 correct many of the problems encountered in 2001. Where issues remain, the agencies are working together to resolve them.

This *Citizen Update* summarizes the National Marine Fisheries Services's 2002 findings report, which can be viewed in full on the Federal Caucus Web site at *www.salmonrecovery.gov*. A printed copy can be obtained by calling 1-888-921-4886 or by e-mailing *federalcaucus@bpa.gov*.

NMFS' report evaluates how well the Action Agencies' 2001 actions and 2002 Implementation Plan meet objectives set out in the *Basinwide Salmon Recovery Strategy* (All-H Paper)

Many federal agencies involved in Columbia Basin fish recovery efforts

NMFS' 2002 findings report primarily evaluates recovery actions and plans of the three federal Action Agencies: the Bonneville Power Administration, U.S. Army Corps of Engineers, and Bureau of Reclamation. Besides NMFS, other federal agencies participating in fish recovery efforts include:

- U.S. Fish & Wildlife Service
- Bureau of Land Management
- U.S. Forest Service
- Environmental Protection Agency
- Natural Resource Conservation Service
- Bureau of Indian Affairs
- National Park Service

A summary of the Action Agencies' progress report on 2001 actions is contained in the May 2002 *Citizen Update*. Highlights of 2001 actions taken by other federal agencies are included in this issue.

and NMFS' Biological Opinion. (See the May 2002 *Citizen Update* insert, *Coming up to Speed on Fish Recovery*, for more background on the All-H strategy and Biological Opinion.) Issued in December 2000 by NMFS, the opinion recommends "reasonable and prudent alternative" actions to be taken over the next 10 years in the hydro system and off-site in tributaries and adjacent lands, to avoid jeopardizing listed fish. Besides annual evaluations, the opinion sets interim "check-in" dates of 2003, 2005 and 2008 for more comprehensive evaluations of recovery efforts and fish survival. The ultimate goal by 2010 is to achieve specified survival objectives for listed fish in the Columbia River Basin.

The intent of NMFS' annual findings report is to ensure recovery efforts are staying on track to meet benchmarks at the future check-ins. Where the federal agencies' collective efforts fall short of expectations, NMFS makes recommendations for getting back on course.

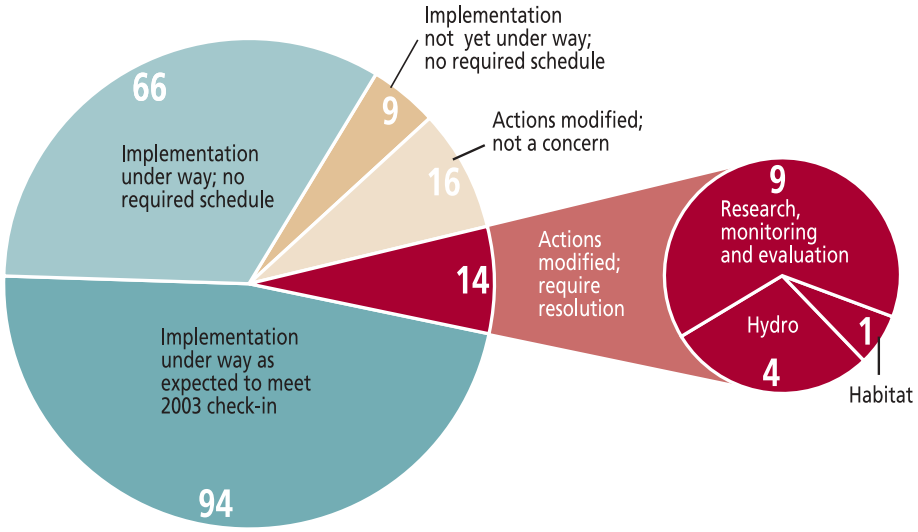
The findings report focuses on implementation plans and actions of the three Action Agencies with responsibilities for the Federal Columbia River Power System – U.S. Army Corps of Engineers, Bureau of Reclamation and Bonneville Power Administration. These measures are evaluated in the context of comprehensive recovery efforts throughout the basin by many federal and state agencies. Together, these agencies are pursuing hundreds of projects, from large-scale hydro operation improvements in the Columbia and Snake rivers to a series of smaller – but collectively important – habitat restoration projects in dozens of streams.

Summary of Findings

In its findings report, NMFS determines that the vast majority of measures taken in 2001 and proposed for 2002 appear likely to meet 2003 benchmarks. The 2003 check-in focuses on whether a sufficient number of actions are proceeding on schedule. Evaluations of effectiveness of those actions will not occur until 2005 and 2008 check-ins, and are not addressed by the 2002 findings report.

Figure 1 shows NMFS' cumulative findings. NMFS considered each action to fall into one of five categories, based on current status or 2002 plans for implementation. Each category is explained in the key.

Figure 1: Fish Recovery Findings



Based on Action Agencies' 2001 progress and 2002 plan.

Key for Figure 1 and Table 1

- Dark green measures have been completed or are considered to be proceeding "as expected" to meet 2003 requirements.
- Light green measures are under way, but have no identified expectations for 2003. These are measures being implemented to meet final 2010 benchmarks. Because this is so early in the ten-year process, NMFS is not yet evaluating whether these measures are on track, only acknowledging whether they are under way or not.
- Measures coded dark tan are not yet under way, but have no specific schedule and are not a concern for meeting 2003 check-in criteria.
- Measures coded light tan have a modified schedule or scope (usually a justified delay) but are not a concern for meeting 2003 check-in criteria.
- Measures coded red are not under way to NMFS' satisfaction and are being addressed to put them back on track. These reflect measures with modified schedule or scope (including delays) requiring adjustments and resolution to meet 2003 or future benchmarks.

Table 1: Current Status of Fish Recovery Actions

The number of actions called for in the NMFS Biological Opinion appear directly after the circle. ♦Diamonds indicate actions that were affected by low water in 2001 and energy emergencies (usually, they could not be fully implemented), but are back on track for 2002.

Procedural Measures	NMFS Findings				
Recovery Plans	12		1		

Develop and implement one- and five-year plans to address recovery actions. Requires individual plans for hydro system actions, habitat projects, etc., as well as plans integrating these actions.

Hydropower System Measures	NMFS Findings				
Water Management	15	3	4	3	

♦Meet river flow objectives; coordinate flow and spill operations for fish. ♦Operate federal and non-federal reservoirs to meet flow, refill and flood control objectives. Evaluate, adjust and conserve water available for salmon flows. Address other Columbia Basin project effects on fish.

Juvenile Fish Transportation	10	3	1		

♦Current and near-term actions, including maximized transportation during summer migration and extended barge use (reduced trucking) in lower Snake dams and at McNary Dam. Studies focused specifically on transportation. Future actions, including an adult fish tag detection system and transportation improvements.

Juvenile Fish Passage	11	30	3	2	

♦Implement annual spill program. ♦Improve spill capability, including transmission system improvements and turbine operations for optimal survival. Specific studies at individual dams and systemwide. ♦Configuration studies at Bonneville, John Day and Lower Monumental dams.

Reservoir Passage	3	3	1		

Control fish and avian predators. Predation studies.

Adult Fish Passage	5	17	1		

Studies and measures addressing factors that affect adult migrants. Fishway and auxiliary water supply improvements.

Water Quality	4	8	1	1	1

Total dissolved gas reduction studies and measures, including use of spillway deflectors. Water temperature improvement studies.

Fish Passage Facilities	3		2		

Operations and maintenance measures. Advance planning for alternative actions.

Habitat Measures	NMFS Findings				
Improvements and Studies	6	1	7	1	

Tributary and mainstem habitat protection and improvements, including projects in priority subbasins. Habitat studies, planning and improvements in the Columbia River estuary.

Harvest Measures	NMFS Findings				
Selective Fishing Methods	5				

Develop or expand use of selective fishing methods. Address effects of selective fishing methods on fishery management systems (develop new procedures, databases, etc.). Develop credit system for harvest reforms.

Hatchery Measures	NMFS Findings				
Plans and Improvements	9		1		

Develop/implement hatchery management plans, a comprehensive fish marking strategy, and safety net programs.

Research, Monitoring and Evaluation Measures	NMFS Findings				
Studies and Data Management	11	1			9

Define/evaluate listed fish populations in basin to develop effective recovery goals. Develop a basinwide fish population and environmental status monitoring program. Monitor effectiveness of actions taken. Develop a common data management system for fish populations, water quality and habitat information. Implement other specific research/monitoring actions outlined in Biological Opinion.

Overall, NMFS is satisfied that 176 of 199 required actions, or 88 percent, are moving forward adequately or are on track for future implementation to meet required objectives.

Another nine actions are not yet under way, but have no required timeline. The remaining 14 actions have been modified (primarily delayed) and present challenges for meeting mid-point objectives, according to the findings report. Most (nine) of these actions are related to fish studies considered important for future progress evaluations. NMFS is committed to working with the appropriate federal agencies to resolve these challenges.

General Analysis of Progress in 2001

As noted by NMFS, poor river conditions caused by the low runoff in 2001 and power emergencies played a major role in the Action Agencies' operations of the hydro system last year, affecting several recovery projects. In particular, spill for fish passage had to be limited to meet emergency energy needs and address low water conditions. Emergency needs and the low runoff also affected juvenile fish transportation, which was maximized in the lower Snake River as provided for in the Biological Opinions.

In-river survival of juvenile fish was poor for all endangered species in 2001 compared to normal water years. However, the estimated total system survival (including transported fish) for Snake River chinook was within the range of NMFS performance standards. Juvenile system survival for Mid- and Upper Columbia River chinook was somewhat lower than the performance standards, while system survival estimates for Snake and Columbia River steelhead were substantially lower than the performance standards.

Overall, NMFS is satisfied that 176 of 199 required actions, or 88 percent, are moving forward adequately or are on track for future implementation to meet required objectives.

Total 2001 adult returns at Snake and Columbia River dams, including both hatchery and wild fish, were among the highest on record. While there is indication that the ocean may be returning to more productive conditions than the past couple of decades, it is too soon to determine if this is a short- or long-term trend. In addition, preliminary analysis of adult fish migrating through the dams indicates a high survival rate.

Implementation successes

Despite Mother Nature's curve ball and the power markets' instability, the Action Agencies and other federal agencies accomplished numerous on-the-ground projects and studies. In its findings report, NMFS particularly noted the following: significant developments in new fish passage technologies at dams; many habitat improvements ranging from physical work (plantings or culvert installation) to purchasing and protecting sensitive lands; funding selective fishing projects (such as nets that are less likely to catch or harm listed fish); funding projects at hatcheries; and initiating many important hydropower system studies. (See the May 2002 *Citizen Update* for more information on 2001 accomplishments.)

Implementation challenges

Some significant challenges still lie ahead for the region's fish recovery efforts. Among issues flagged as "needing resolution" by NMFS in its findings report were:

RM&E responsibilities

Nine actions that call for Research, Monitoring and Evaluation (RM&E) projects, including a fish population and "environmental status" monitoring program, and studies addressing hatchery fish, habitat

actions and fish use of the Columbia River estuary and plume, have slipped behind schedule. Implementation of RM&E measures is critical because they provide the means to evaluate biological performance and ultimately determine whether the other actions have been successful. (You need the appropriate yardstick to measure something.) The implementation lag has occurred for three reasons:

1. NMFS, the Action Agencies, and other federal agencies are still working together to identify respective responsibilities for these particular actions;
2. Some federal funds for these actions are not yet available; and
3. Some projects are most appropriately funded through a "solicitation for proposals" planned later in 2002.

Hydropower system: VarQ

Variable flow flood control (VarQ) can provide significant additional water during the fish passage season in years of normal and below normal runoff. Implementation of VarQ was delayed at Libby Dam by the need to prepare an environmental impact statement to address potential adverse impacts. If not implemented before the 2003 passage season, NMFS is asking the Corps to identify other actions to compensate for the lost water volume. VarQ was implemented on schedule in 2001 at Hungry Horse Dam following a determination that additional fish passage water could be provided without significant adverse impacts.

Habitat: Long-term riparian improvements

Efforts to secure long-term or permanent protection of 100 miles of riparian buffers – sensitive wetlands along streams that may provide habitat for listed fish – each year could fall short. BPA is stepping up coordination with agricultural incentive programs to put this measure back on track.

Other federal agencies working to implement the Biological Opinion and All-H Strategy in 2001 encountered some difficulties of their own, NMFS notes. Similar to the RM&E issue above, lack of an explicit allocation of responsibilities between the Action Agencies and other federal agencies delayed some activities. Lack of federal funding and a delay in finalizing a key ecosystem management program also postponed some habitat improvements.

Continuing commitment

The agencies understand they must continue to be vigilant in proceeding with the scope and schedule of actions called for in the Biological Opinions.

NMFS, the Action Agencies, and the other federal agencies have pledged to continue working together to help resolve impediments affecting the fish recovery program and to support continued actions to stay on track.

Highlights of Fish Recovery Efforts by Other Federal Agencies in 2001

Columbia River Basin fish recovery efforts kept a steady pace in this startup year for implementing the basinwide salmon recovery strategy. Following are highlights of actions taken by five federal agencies:

- U.S. Forest Service (USFS)
- Bureau of Land Management (BLM)
- U.S. Fish & Wildlife Service (USFWS)
- Environmental Protection Agency (EPA)
- Natural Resources Conservation Service (NRCS)

Highlights of 2001 recovery actions taken by the three federal Action Agencies are covered in the May 2002 *Citizen Update*.

In general, actions taken in 2001 by these agencies addressed habitat and water quality protection, and hatchery and harvest management. Guided by the recovery strategy and other goals for protecting resident fish, the agencies worked together and with other regional parties to complement and build on each other's efforts whenever possible.

Actions to protect habitat and water quality

Federal land improvements

Because federal land management agencies (BLM and USFS) together manage about 60 percent of Columbia River Basin habitat lands, their role in protecting habitat is vital to the recovery plan. In 2001, these agencies focused on protecting and maintaining habitat through programs that address salmon, steelhead, bull trout and sturgeon. Besides acquiring additional habitat through purchases or land exchanges, the agencies, in consultation with NMFS and USFWS, worked to restore high quality habitat and reconnect spawning and rearing habitat in several watersheds. Restoration activities included replacement and installation of culverts, road improvements or removal, and in-stream replacement of boulders and woody debris.

Other tributary and estuary habitat improvements

NRCS and its conservation partners helped 4,200 farmers and ranchers conserve their soil, water and other natural resources while protecting water quality and enhancing wildlife habitat on some 668,000 acres of private land throughout the basin. USFWS provided funds and technical aid for habitat restoration on private lands, fish screens and other passage improvements at water diversions, and efforts to reduce avian predation in the Columbia River estuary. NMFS provided technical aid to many federal agencies on tributary flow and passage issues and provided guidance for subbasin and estuary planning.

Dissolved gas and temperature standards

EPA worked with states, tribes and other partners to establish Total Maximum Daily Loads as a technical foundation for dissolved gas and temperature water quality improvement plans for the Columbia and Snake rivers.

Actions to limit harvest impacts

Fishing strategies and assessments

In fiscal year 2001/2002, USFWS worked closely with tribes and other Columbia River harvest managers to evaluate the effects of fishing strategies that benefit listed fish. USFWS staff also worked closely with other fishery managers to develop and use harvest assessment tools to improve management.

Abundance-driven fishery plans

NMFS worked through several forums to ensure that harvest management remains consistent with the All-H approach. Resulting fishery plans were driven by the abundance and status of affected natural fish. NMFS also approved an innovative selective fishery plan for management and evaluation of Willamette spring chinook fisheries that will help recover that species while allowing greater access to hatchery-produced fish.

Actions to improve hatchery management

Hatchery and Genetic Management Plans

USFWS and NMFS helped create guidelines for developing Hatchery and Genetic Management Plans. These provide a standard approach for developing information about artificial production programs, a vital step in assessing their efficacy.

Safety Net Artificial Production Program

In 2001, NMFS also worked with USFWS and BPA to establish a Safety Net Artificial Production Program to identify and manage hatchery interventions where needed to address rapidly declining populations.

Salmon Supplementation Study

USFWS participated in a study in which hatchery-raised Snake River fall chinook salmon were released into the wild. Through evaluation of marked fish, the agency determined differences in performance between juveniles released from three different sites. The information collected will be used to adjust future release strategies and help accelerate recovery of these listed fish.

Production facility reforms

In partnership with Columbia Basin tribes, a special hand-made feed was developed by the USFWS to "recondition" steelhead kelts (steelhead that have spawned) in an effort to increase post-spawning survival of listed steelhead. At the Little Salmon National Fish Hatchery, the agency began rebuilding rearing facilities to imitate a more natural environment, which is expected to improve fish survival and hatchery returns.

Actions to bolster research, monitoring and evaluation

Results-based tracking

In 2001, NMFS continued to work on a comprehensive research, monitoring and evaluation program to provide for results-based tracking and reporting of implementation actions. The first major pilot study is planned for the John Day basin in 2003.

Long-term planning

USFS and BLM collaboratively worked on developing monitoring programs, data management systems, watershed plans and more comprehensive restoration plans to guide long-term improvements on land under each agency's jurisdiction.

The tribes and states of Oregon, Washington and Idaho also pursued many planning and on-the-ground projects to aid fish recovery in 2001. While the magnitude of benefits from these initiatives cannot yet be estimated, their cumulative impact certainly improves conditions for listed species. State and tribal actions are discussed in more detail in NMFS' 2002 findings report.

The full text of 2001 progress reports by individual agencies is posted on the following Web site: *http://www.salmonrecovery.gov/index.shtm.*