Citizen Update

Highlights of Three Agencies' Endangered Species Recovery Efforts for 2001

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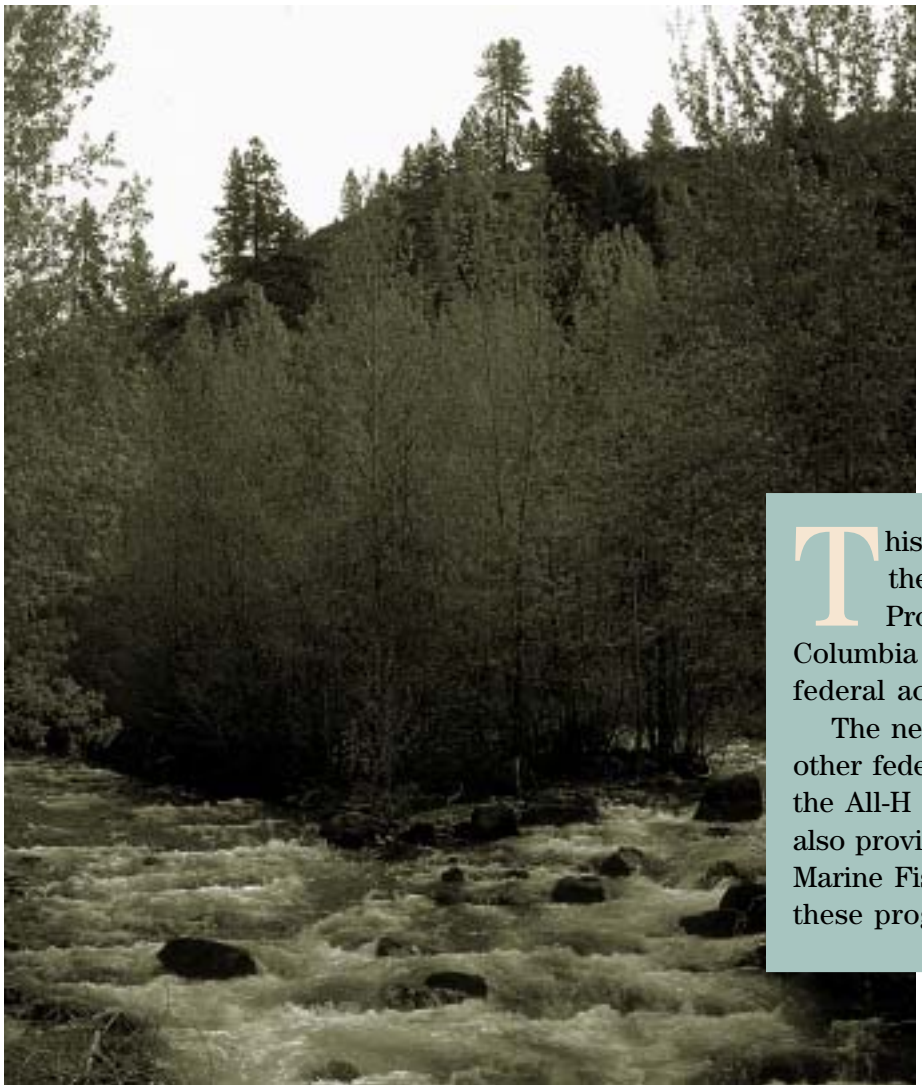
Overall, efforts by three federal agencies to help recover Columbia River Basin fish are on track and expected to meet 2003 benchmarks. That's the message in the *Endangered Species Act 2001 Progress Report for the Federal Columbia River Power System* released this month by the Bonneville Power Administration, the U.S. Army Corps of Engineers, and the Bureau of Reclamation. These agencies operate and maintain the federal system of dams on the Columbia and Snake rivers for multiple uses.

In December 2000, the National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife Service (USFWS) issued Biological Opinions for Federal Columbia River Power System operations. In response, the Action Agencies initiated planning activities and completed many on-the-ground actions that benefit endangered salmon, steelhead, bull trout, and sturgeon. See "Coming up to speed" in this update for more information.



In 2001 the Action Agencies began new projects to improve spawning and rearing habitat for fish.

This *Citizen Update* is a summary of the Endangered Species Act 2001 Progress Report for the Federal Columbia River Power System by the three federal action agencies.

The next update will cover progress by other federal agencies in 2001 in support of the All-H salmon recovery strategy. It will also provide a summary of the National Marine Fisheries Service response to all of these progress reports.

Although hydropower operations and juvenile fish survival were affected by last year's drought conditions and the declaration of power emergencies, and although schedules for some actions have slipped, the vast majority of actions in the 2000 Biological Opinions were implemented as anticipated.

This *Citizen Update* summarizes the Action Agencies' first progress report, which details and documents Biological Opinion implementation measures taken in 2001.

In 2001, the Action Agencies made modifications to *hydropower* system operations, improvements to Columbia River tributary and estuary *habitat*, changes to *hatchery* operations, and modifications to the ways fish were caught, or *harvested*. They also continued ongoing efforts to support fish recovery, such as improvements to fish passage at the dams and hatchery and habitat improvements. Many other projects were funded by BPA and implemented by states, tribes, and a variety of regional stakeholders through the Northwest Power Planning Council's Fish and Wildlife Program to supplement these efforts.

The Action Agencies also prepared a scientifically based five-year implementation plan for 2002 through 2006 and a more detailed annual implementation plan for 2002. NMFS reviewed these plans and reports and will provide an annual "findings letter" to the Action Agencies. Actions in the 2002 plan are well underway.

Figure 1: Action Agencies' strategies to achieve Biological Opinion performance standards

A. Hydropower system

Strategy 1: Configure dam facilities to enhance juvenile and adult passage and survival.

Strategy 2: Manage water to enhance juvenile and adult fish survival.

Strategy 3: Operate and maintain fish passage facilities to enhance fish survival.

B. Habitat

Strategy 1: Protect and enhance tributary habitat.

Strategy 2: Improve mainstem habitat on an experimental basis.

Strategy 3: Protect and enhance estuary habitat.

C. Hatcheries

Strategy 1: Implement a safety-net program as an interim measure to avoid extinction.

Strategy 2: Reduce potentially harmful effects of artificial production to aid recovery through hatchery reforms.

Strategy 3: Contribute to the development and implementation of a comprehensive marking plan.

D. Harvest

Strategy 1: Develop fishing techniques to enable fisheries to target non-listed fish while reducing harvest-related mortality on ESA-listed species.

Strategy 2: Improve harvest management assessments, decisions and evaluations.

Strategy 3: Support sustainable fisheries for the meaningful exercise of tribal fishing rights and non-tribal fishing opportunities consistent with the recovery effort.

Strategy 4: Fishery effort reduction programs

E. Resident fish

Strategy 1: Promote the reproduction and recruitment of Kootenai River white sturgeon.

Strategy 2: Determine the impacts of the Federal Columbia River Power System on bull trout and mitigate for those impacts.

F. Research, monitoring, and evaluation

Strategy 1: Status monitoring.

Strategy 2: Effectiveness monitoring and research.

Strategy 3: Critical uncertainties research.

Comprehensive progress evaluations are planned for 2003, 2005, and 2008.

The 2001 ESA progress report represents the beginning of a 10-year commitment to further the recovery of listed fish and meet the performance standards described in the NMFS Biological Opinion. Over time, the biological benefits of this work will be realized as environmental conditions in the basin improve and fish populations increase. Implementation efforts in 2002 will build on 2001 and earlier actions, with the added benefits of coordinated implementation planning and the knowledge gained from experience.

Summary of 2001 recovery actions

In 2001, the Corps, Reclamation, and BPA stepped up ongoing efforts to recover fish populations. The agencies coordinated activities with the Northwest Power Planning Council's Fish and Wildlife Program as well as with others such as the Lower Columbia River Estuary Partnership.

Many new projects focused on the "All-H" conceptual approach to salmon recovery. In their one- and five-year plans, the Action Agencies established key strategies, listed in Figure 1, for all four areas over the fish's lifecycle — hydropower, habitat, hatcheries, and harvest (the All-Hs). These strategies encompass many individual projects. Highlights of these projects are provided below. The complete list of projects initiated and/or accomplished in 2001 is described in the 2001 Progress Report.

Hydropower system actions

Water management

Decisions in 2001 were especially difficult because of the low water and power emergencies. Water levels in the system were much lower than in a normal year so river flows for juvenile fish migration fell short of flow objectives in the NMFS Biological Opinion. However, sufficient water was released from the Federal Columbia River Power System dams to help chum salmon establish redds (or nests) in the fall and to protect those redds until most young fish emerged in

Setting the stage for 2001 for hydropower operations

Low snow pack and water runoff in the Columbia River Basin produced extremely low water levels in 2001. This second-worst water year in the basin's record created a poor environment for migrating fish and set the stage for difficult decisions about how to operate a regional hydropower system.

Throughout 2001, the West Coast experienced very unstable power markets and power shortages. While California's energy deregulation efforts deteriorated, the West Coast's lack of sufficient electrical generation and transmission facilities sharply shifted the balance between supply and demand. Over only a few months' time, wholesale energy prices skyrocketed to nearly ten times those of the previous year.

Very early in the year, when the Action Agencies first recognized the challenges of the coming low water year, they coordinated with other federal agencies and with states, tribal partners, utilities, and others to develop a regional response to manage the threat of low water and power emergency conditions. Creative measures helped keep water in the rivers and streams to benefit fish and produce power. BPA and other regional utilities bought back contracted power from customers to reduce the demand on the hydropower system, made arrangements with irrigators to reduce their use of water, and promoted energy conservation. The people of the region responded with voluntary reductions of energy use, thereby reducing the impacts of these power emergencies on ESA-listed fish.

Despite these efforts, regional power supply projections fell to levels that resulted in emergency declarations and curtailment of some of the Biological Opinion's flow and spill measures.

the spring. Water releases also aided the nonlisted fall chinook in the Hanford Reach on the Columbia River and below Bonneville Dam. Although spill amounts for fish passage were less than expected due to constraints from the power emergencies, the Action Agencies optimized the limited amount of available spill to benefit juvenile fish.

Juvenile fish passage

- Fish passage systems continued to operate at all eight dams on the lower Columbia and Snake rivers throughout the migration season, providing safer, nonturbine routes for juvenile fish to migrate past dams.
- To help young fish migrate during this low water year, the Corps maximized use of juvenile fish transportation in the Snake River, as called for in the NMFS Biological Opinion during low flow years. Fish were also collected in the McNary Dam bypass systems and barged to release points below Bonneville Dam, the lowermost dam in the Federal Columbia River Power System.
- Spring and summer spills for fish, although limited, were targeted to optimize juvenile fish passage benefits. Limited spring spill at Bonneville Dam and John Day Dam was timed to coincide with the peak passage of spring wild juvenile migrants.
- The Corps made a number of improvements at the dams including:
  - installation of additional flow deflectors to reduce water quality impacts during spill at the dams;
  - design of a new bypass component at Bonneville Dam expected to increase juvenile survival;
  - modification of fish release pipes to improve fish passage at McNary Dam; and
  - installation of a removable spillway weir at Lower Granite Dam to continue testing for more effective and efficient spillway passage.

Adult fish passage

The Action Agencies also implemented actions to help adult fish move past dams as they returned to their spawning grounds. Existing fish ladders at all eight mainstem dams allow adult fish to successfully navigate the dams.

- At Ice Harbor Dam on the Snake River, construction began to upgrade adult fish passage facilities to increase their reliability.
- The agencies installed and tested an adult passive integrated transponder (PIT tag) detection system at Bonneville Dam. This system will provide critical information and allow researchers to track how well the fish are doing.

Water quality

To improve the environment for salmon, cool water stored in the Dworshak Reservoir in Idaho was released to lower the water temperature in the lower Snake River. In addition, the Action Agencies coordinated with other federal agencies to develop screening criteria for water quality monitoring stations.

Habitat actions

In addition to ongoing recovery efforts, the Action Agencies have begun new actions to improve fish habitat in the Columbia River Basin.

Tributary habitat actions

In the tributaries, more than 100 continuing and new projects for habitat improvement were conducted throughout 14 watersheds, or subbasins. Two high priorities were to increase water in streams and to reduce barriers to fish passage.

- BPA and Reclamation funded efforts to increase flows during critical fish migration periods in Idaho in the Lemhi River, in Oregon in the Upper Main and Middle Fork of the John Day River and in the Deschutes River, and in Washington in the Yakima, Methow, and Walla Walla rivers.
- The Action Agencies initiated many projects to remove barriers to fish passage. For example, Reclamation worked with landowners to eliminate or redesign several

Coming up to speed on fish recovery

This section provides general background information for readers new to fish recovery issues or wishing some review. To find additional information on fish recovery in the Columbia River Basin, see the resources listed on the last page of this insert.

Salmon have been an icon for the culture, history, and quality of life in the Northwest for generations. The U.S. Army Corps of Engineers and the Bureau of Reclamation have been engaged in programs on behalf of fish since the dams were first built. Efforts include fish ladders, bypass systems, hatchery construction, and transportation strategies to reduce the impacts of the dams. They have also made major changes to dam operating strategies in collaboration with state, tribal, and other federal advisors. Seasonal reservoir storage operations have been changed to improve flows for spring and summer juvenile fish migration. Reservoir drafts at several headwater projects have been reduced to improve conditions for resident fish. Fish passage spills and reduced reservoir levels are provided at Corps dams to improve salmon and steelhead migration conditions.

Since 1982, BPA, in conjunction with the Northwest Power Planning Council, has been implementing a fish and wildlife program to lessen the impact of the construction and operation of the federal dams on the Columbia and Snake rivers and to maintain the vital link between salmon and the natural environment.

The **Endangered Species Act (ESA)** became a major factor for the operation and configuration of the federal hydropower system on the Columbia and Snake rivers in 1991/1992 with the listing of three Snake River salmon populations. Now, 12 salmon and steelhead populations throughout the Columbia River Basin are listed as threatened or endangered along with two freshwater fish (bull trout and Kootenai River white sturgeon) and several species of freshwater snails.

Guiding the recovery effort

With the ESA listings, many federal agencies in the region are now involved in fish recovery efforts because the agencies have a responsibility to assure that their actions do not jeopardize the listed species.

The **regulatory agencies** are the **National Marine Fisheries Service (NMFS)** and the **U.S. Fish and Wildlife Service (USFWS)**. They have the authority to enforce the Endan-

gered Species Act. NMFS has authority over anadromous fish such as salmon and steelhead that are born in fresh water, migrate to the ocean to mature, and return to fresh water to spawn. The USFWS has authority over resident fish such as the bull trout and the Kootenai River white sturgeon that live out their lives in fresh water.

The **Action Agencies** operate and maintain the Federal Columbia River Power System on the Columbia and Snake rivers. They are the:

- Bonneville Power Administration
- Bureau of Reclamation
- U.S. Army Corps of Engineers

The Corps and Reclamation operate and maintain the dams while BPA transmits and sells the electric power generated by the dams.

Other federal agencies with specific authorities and responsibilities for fish recovery include the **Environmental Protection Agency**, the **Bureau of Land Management**, the **U.S. Forest Service**, **National Park Service**, the **Bureau of Indian Affairs**, and the **Natural Resources Conservation Service**. All these agencies work together under the Federal Caucus to coordinate fish recovery efforts.

The **Northwest Power Planning Council** is a four-state entity with broad authority to develop a program to protect, mitigate, and enhance fish and wildlife that have been affected by federal hydroelectric development in the Columbia River Basin. The council's original 1982 program and its successors have led to a wide variety of projects benefiting salmon and other fish and wildlife species. Fish and wildlife managers around the region, Indian tribes, local governments, watershed groups, and stakeholders, along with other state and federal land and water resource managers, coordinate many efforts with the council to further fish and wildlife recovery and protection.

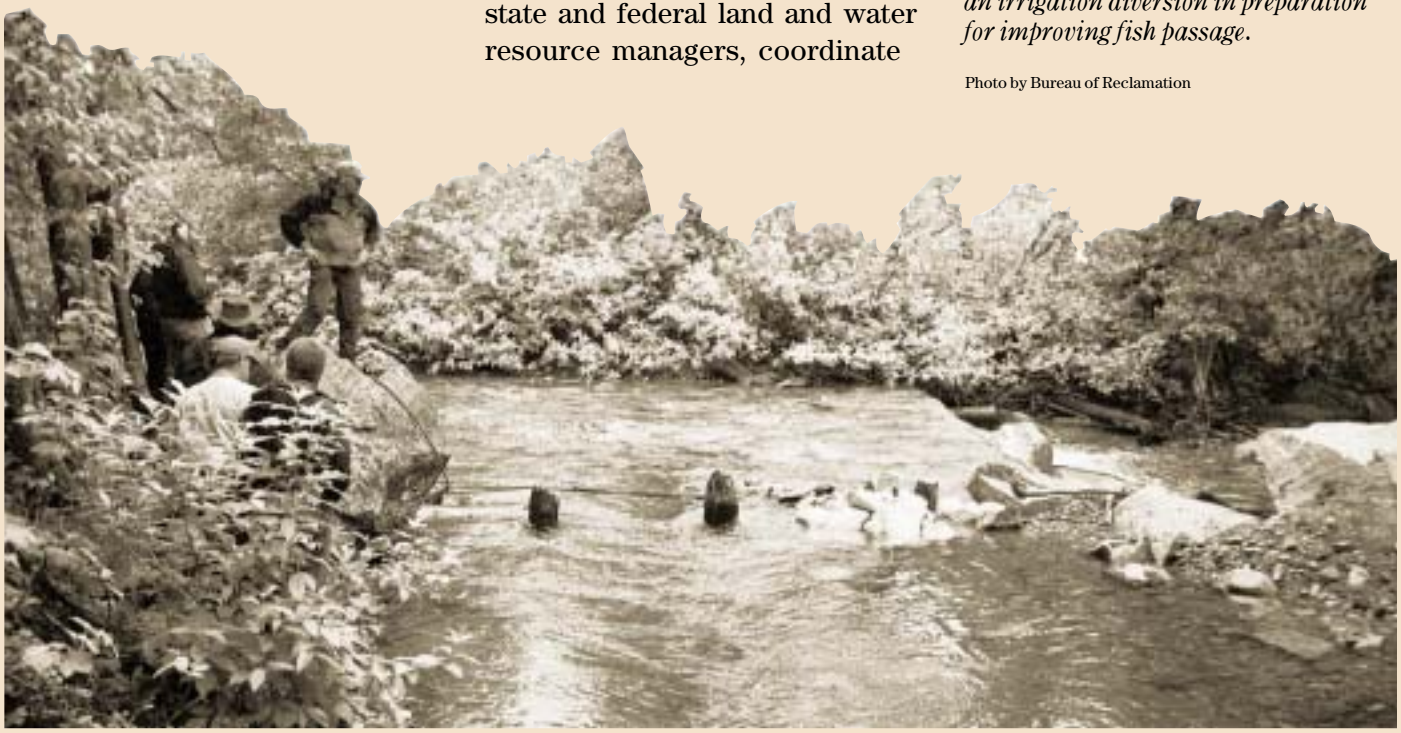
A fish recovery glossary

All federal agencies are required by the ESA to prepare **biological assessments** to determine if their actions may affect a listed species or its habitat.

If the biological assessment determines that the proposed action may adversely affect a listed species or its habitat, then the agency must formally consult with NMFS or the USFWS. After consultation, the appropriate service issues a **Biological Opinion** to indicate whether the proposed action will **jeopardize** a listed species. If a jeopardy opinion is issued, the service may recommend a **reasonable and prudent alternative** to the proposed

Bureau of Reclamation employees study an irrigation diversion in preparation for improving fish passage.

Photo by Bureau of Reclamation



action that the action agency is encouraged to undertake. This alternative is the service's suggestion to the agency to avoid jeopardizing the continued existence of a listed species.

The **All-H** conceptual approach to salmon recovery addresses human activities that can affect fish recovery in four areas over the fish's life cycle. Species recovery requires efforts in all these areas across the Columbia Basin:

- The **habitat** that supports fish spawning, rearing, and migration.
- The **hydropower** system through which the fish migrate.
- The **harvest** practices that affect which and how many fish are caught.
- The **hatchery** practices that determine how artificial propagation is used.

Milestones in the fish recovery effort

The **Final Basinwide Salmon Recovery Strategy** is the document that lays out the Federal Caucus' integrated (All-H) approach and options to species recovery. Between 1999-2000, the draft paper and approach were the focus of a series of public discussions throughout the region and Alaska. Over 9,000 people participated in these public comment meetings, and 60,000 written comments contributed to the development of the final All-H paper. Both the draft and final All-H papers played a crucial role in the preparation of the Biological Opinions. In December 2000, the All-H paper, in its final form after public review and comment, became the Federal Caucus' conceptual plan for recovering listed species in the Columbia River Basin.

The **NMFS and USFWS 2000 Biological Opinions** for the Federal Columbia River Power System include recommendations to the Action Agencies on how they could avoid jeopardizing the listed species. The NMFS Biological Opinion sets population growth rates for ESA-listed fish and performance standards for the hydropower system to achieve by 2010. In 2003, NMFS will evaluate how well the Action Agencies are implementing the Biological Opinion recommendations. In 2005 and 2008, NMFS will evaluate the benefits to fish from these recovery efforts.

Together, the Biological Opinions and the Final Basinwide Salmon Recovery Strategy guide federal efforts to recover listed fish in the Columbia River Basin.

Where we are now and where we are going

The Federal Columbia River Power System Action Agencies began developing a plan to implement the Biological Opin-

The Columbia River Basin

The Action Agencies implement projects throughout the Columbia River Basin to recover threatened and endangered fish.

ions as soon as they were final. Each fiscal year (which runs from October 1 through September 30), the agencies will produce three documents that explain what they are doing to implement the Biological Opinions and what they have accomplished.

The **five-year implementation plan** is the broad plan that lays out the actions the agencies plan to take over a five-year period. This provides a context and continuity for the one-year plans and an opportunity for regional input and involvement. These plans will be updated annually to reflect any new activities and necessary course corrections.

The **annual implementation plan** presents the detailed actions the agencies will take in the upcoming fiscal year. A 2001 plan was not developed since the Biological Opinions were not finalized by NMFS until December 2000, several months after the fiscal year began in October 2000. The 2002 Annual Implementation Plan was published in October 2001.

A **progress report** will be issued each fiscal year to describe the previous year's accomplishments.

These actions are coordinated and integrated with the Northwest Power Planning Council's fish and wildlife mitigation efforts, which include state and tribal partners. Together, these programs offer significant opportunities to create a unified action plan for fish and wildlife recovery in the Northwest. The combination of the implementation plans and progress reports allow the agencies to adjust their management strategies in response to new information and results.

For more information

For more information on the All-H salmon recovery strategy, the Action Agencies, other Federal Caucus agencies, or Columbia River Basin fish and wildlife recovery, visit *www.salmonrecovery.gov*. You can also find previous *Citizen Updates* and Internet links for related activities and documents including the NMFS and U.S. Fish and Wildlife Service Biological Opinions.

You can call toll free, 888-921-4886, or send e-mail to *federalcaucus@bpa.gov*.

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Oregon Department of Fish and Wildlife, Washington Department of Fish and Wildlife, and Pacific States Marine Fisheries Commission employees survey chum and chinook populations near Ives Island in the Columbia River below Bonneville Dam.

Photo by Bonneville Power Administration

irrigation diversions to keep migrating fish out of irrigation systems. BPA funded and Reclamation designed fish screens that were installed at the LaFortune/Powell and Wilson Creek/Bull Ditch diversions in the Yakima River Basin.

- Reclamation initiated fish passage and diversion screening projects in four subbasins identified as high-priority by the NMFS Biological Opinion: the Upper John Day, Middle Fork John Day, Lemhi, and Methow subbasins.
- The Action Agencies acquired or protected productive nonfederally owned habitat including Oxbow Ranch, Ames Creek, and Wagner Ranch projects in the John Day subbasin.

Mainstem habitat actions

- The Action Agencies began assessing the effectiveness of protecting chum and fall chinook in the Columbia River downstream of Bonneville Dam with pumping projects and habitat improvements.
- Working with the fishing industry and private anglers to improve conditions for ESA-listed fish, the agencies stepped up promotions to increase the catch of northern pikeminnow. See Predator Control box.

Estuary habitat actions

- In 2001, groundwork was laid for an ecosystem approach to salmon recovery in the Columbia River estuary. The Corps and BPA worked with the Lower Columbia River Estuary Partnership to identify the full array of habitat improvement and research needs in the estuary. For example, planning began on an important estuary project to restore 30 acres of aquatic, riparian, and floodplain habitat along the lower Skipanon River in Oregon. Research is underway to identify where and how salmon use the estuary for feeding and rearing and to gain other critical information.

Hatchery actions

- In 2001, the Action Agencies continued efforts to mark hatchery fish in order to differentiate them from wild fish. The ability to differentiate helps scientists evaluate and correct hatchery practices that might be harmful to ESA-listed fish.
- The Action Agencies initiated a Safety Net Artificial Propagation Program to determine which stocks are at high risk of extinction and develop and implement a plan for hatchery intervention.
- BPA continued to fund state, tribal, and U.S. Fish and Wildlife Service programs for captive brood stock rearing of threatened Salmon, Grande Ronde, and Tucannon river spring/summer chinook salmon populations and endangered Snake River (Redfish Lake) sockeye salmon. Positive results are being realized as adult salmon from these programs are returning.
- Development of three Hatchery and Genetic Management Plans began in 2001. These plans are intended to improve

Predator control aids salmon recovery

Young salmon are a food source for many predators. Since 1990, BPA has paid an incentive to individuals for each northern pikeminnow they catch. Pikeminnow, formerly called squawfish, consume an estimated 10 million young salmon per year. In 2001, an estimated 240,000 pikeminnow were caught, including roughly 40,000 attributed to an increased incentive. These 40,000 pikeminnow equate to about 2.8 million young salmon not eaten throughout the average six- to eight-year lifespan of the pikeminnow.

Caspian terns also consume juvenile salmon. To attract a Caspian tern colony away from Rice Island, the Corps improved habitat on East Sand Island further downstream in the Columbia River estuary where salmon are a smaller part of their diet. This effort saved about 5.9 million young salmon from the birds.

the operations and management of hatcheries to reduce potential harm to endangered fish stocks. The Action Agencies submitted proposals to fund nearly a dozen more plans through the Northwest Power Planning Council's provincial review and BPA's funding processes.

Harvest actions

- The Action Agencies started programs to evaluate the ability of tangle-tooth and floating trap nets to aid the revival and release of wild fish incidentally caught in the same nets as hatchery fish. Another program, aimed at tribal commercial fisheries, promoted the exchange of existing gill nets for larger-mesh nets that will not trap larger listed steelhead.
- The Action Agencies began a study above Bonneville Dam to determine if there are significant numbers of lost fishing nets in the Columbia River and if they pose a threat to adult salmon.

Resident fish actions

The U.S. Fish and Wildlife Service's Biological Opinion covers two ESA-listed "resident" fish — bull trout and Kootenai River white sturgeon. Resident fish occupy the headwater reaches of streams and rivers and are generally considered nonmigratory. Actions taken this year include:

- Kootenai River white sturgeon were aided through a conservation aquaculture program and projects to monitor sturgeon spawning and juvenile survival.
- Water releases were provided from the reservoirs behind Hungry Horse and Libby dams in Montana to improve conditions for bull trout.

Research, monitoring, and evaluation actions

Several 2001 projects involved monitoring the effectiveness of programs to benefit ESA-listed fish. Monitoring projects help assess the conditions and trends of adult and juvenile fish populations and key environmental conditions that can affect them. Research and studies improve the scientific understanding of how various management actions affect fish survival.

Fish survival in 2001

Each year the action agencies track the number of anadromous fish returning as adults. In addition, they track the survival rates of juveniles as they migrate through the hydropower system. The Action Agencies' progress report provides a more detailed explanation of how these fish survival figures were calculated. Figure 2 illustrates estimated adult and juvenile fish survival for 2001. The lower inset box in Figure 2 shows 2001 estimated total system survival results and how they stack up against NMFS performance standards.

Adult returns

Adult fish returned in near-record numbers last year on their way upstream to spawn. A combination of factors contributed to these large returns. First, favorable conditions in rivers and streams in 1998 and 1999 provided a supportive environment as juveniles developed and migrated downstream. Second, ocean conditions where these fish matured were also favorable. Together with the benefits of several decades of recovery efforts (such as improved passageways at the dams and in streams) these factors resulted in high returns.

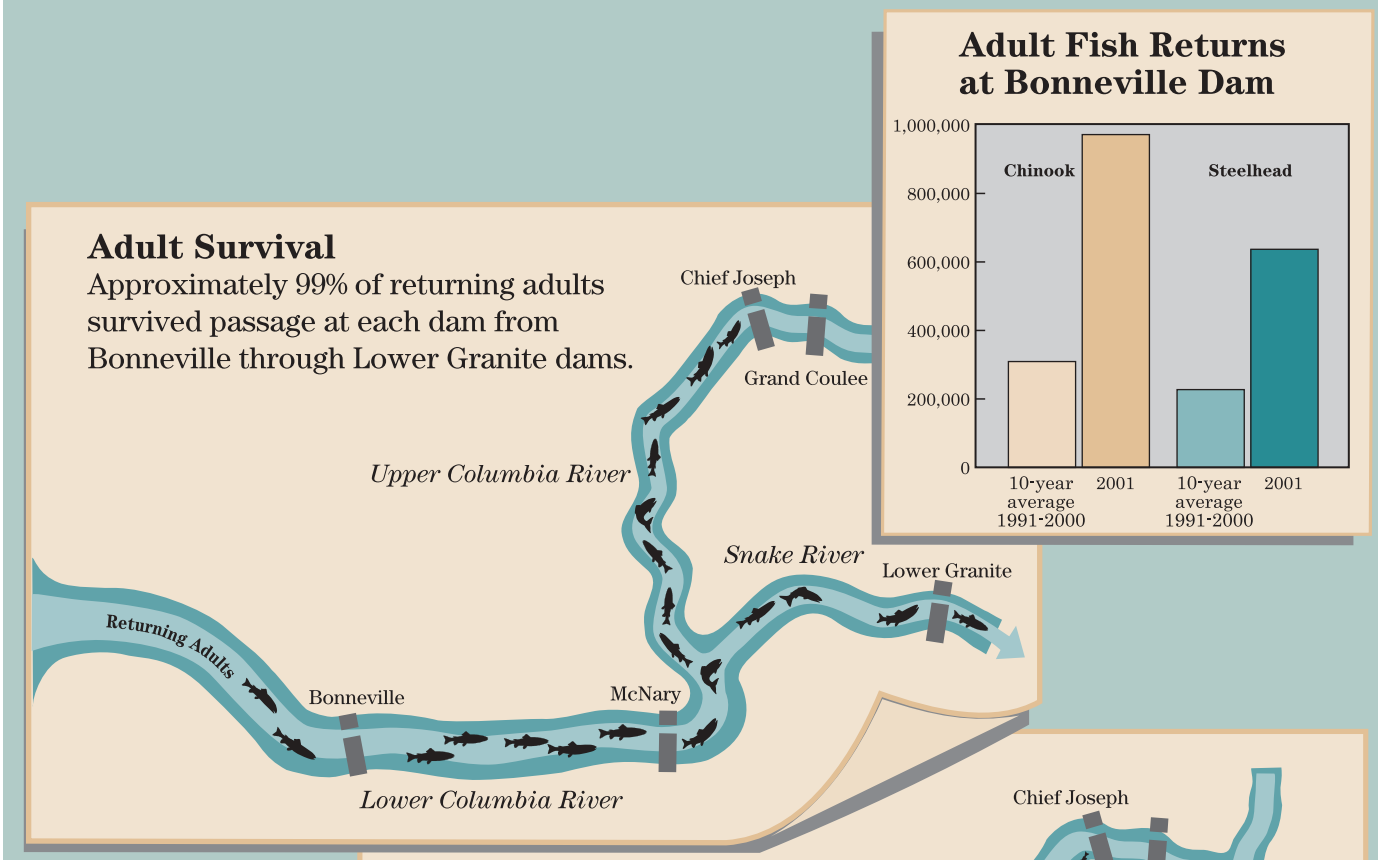
Adult fish survival

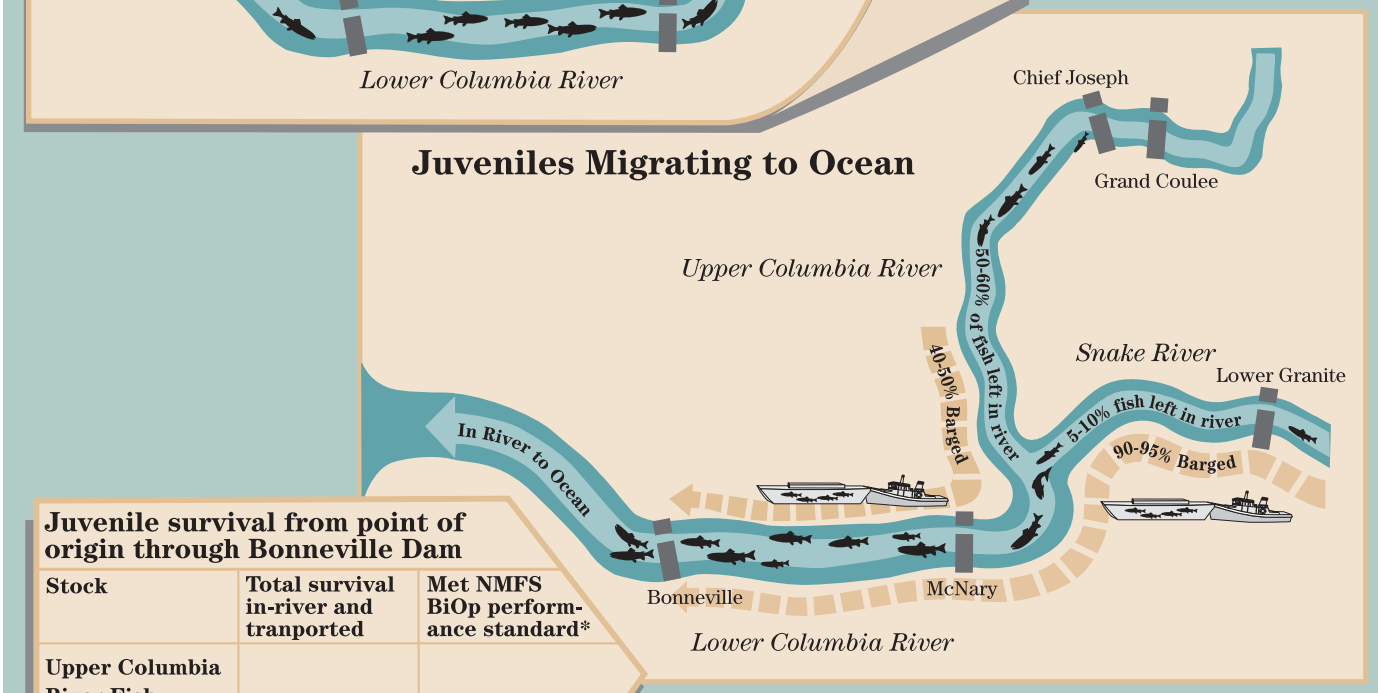
Between Bonneville and Lower Granite dams, survival was among the highest on record. On average, 99 percent of returning adults successfully passed at each dam.

Juvenile fish survival

Juvenile fish migrating downstream in 2001 had two options for reaching the river below Bonneville Dam: transportation by barge or staying in the river. Of Snake River fish, 90 percent to 95 percent were transported as recommended by the NMFS Biological Opinion for years with low flows. Approximately 40 percent to 50 percent of the Upper Columbia fish were also transported. The NMFS Biological Opinion identifies performance standards for both fish migrating in-river and the total system survival, which includes both in-river and transported fish.

Figure 2: Estimated fish survival in 2001





Juvenile survival from point of origin through Bonneville Dam

Stock	Total survival in-river and tranported	Met NMFS BiOp perform-ance standard*
Upper Columbia River Fish		
Chinook	45.8%-49.1%	Close
Steelhead	18.2%-19.5%	No
Snake River Fish		
Chinook	58.2%-67.4%	Yes
Steelhead	45.4% 52.6%	Yes

** See Progress Report for detailed information on performance standards.*

Total system survival

The estimated total system survival for Snake River spring migrants was within the range of the NMFS performance standard, while the results for Columbia River chinook were somewhat lower than the performance standards. Survival estimates for Columbia River steelhead were substantially lower than the performance standard range. These fish may have lost their urge to migrate in the low water conditions and remained behind in lower river reservoirs or upstream tributaries. See Figure 2 for 2001 estimated total system survival and Biological Opinion performance standards.

In-river survival

The estimated survival of juvenile fish that migrated through the rivers in the Federal Columbia River Power System in 2001 was relatively poor compared to recent years with higher river flows and more spill. In-river survival from Lower Granite Dam to below Bonneville Dam was the lowest recorded in the past nine years for both Snake River spring chinook and steelhead. Although the NMFS in-river performance standards were missed, low survival through the hydropower system during low flow conditions was not unexpected. Predation was also a factor. For example, predation by Caspian terns downstream of Lower Monumental Dam accounted for an estimated 14 percent loss of migrating steelhead. See Predation Control box on page 5.

Conclusions and variances from this first year of implementation

Overall, the implementation of the Biological Opinions is on track and expected to meet 2003 benchmarks. Although some difficulties were experienced in 2001, the Action Agencies took hundreds of steps to further fish survival, including planning efforts and extensive "on-the-ground" projects. However, some actions were not implemented last year as expected. Key variances noted in 2001 include:

- delaying development of a removable spillway weir at John Day Dam while researchers evaluate survival of juvenile fish emerging below the dam;
- delaying the implementation of operational alternatives at Libby Dam while environmental analysis is completed;
- delaying the proposal of an instream flow methodology to aid in water acquisition; and
- delaying the completion of a comprehensive strategy for marking hatchery fish to allow regional coordination.

In 2002, the Action Agencies plan to continue overall implementation of fish measures and to address these changes to ensure they stay on track to meet Biological Opinion expectations.

For more information

For more information on the All-H salmon recovery strategy, the Action Agencies, other Federal Caucus agencies, or Columbia River Basin fish and wildlife recovery, visit *www.salmonrecovery.gov*. You can also find previous *Citizen Updates* and Internet links for related activities and documents including the NMFS and U.S. Fish and Wildlife Service Biological Opinions.

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