Citizen Update

Conservation of Columbia Basin Fish

Implementation of the All-H Strategy and Biological Opinions in 2001

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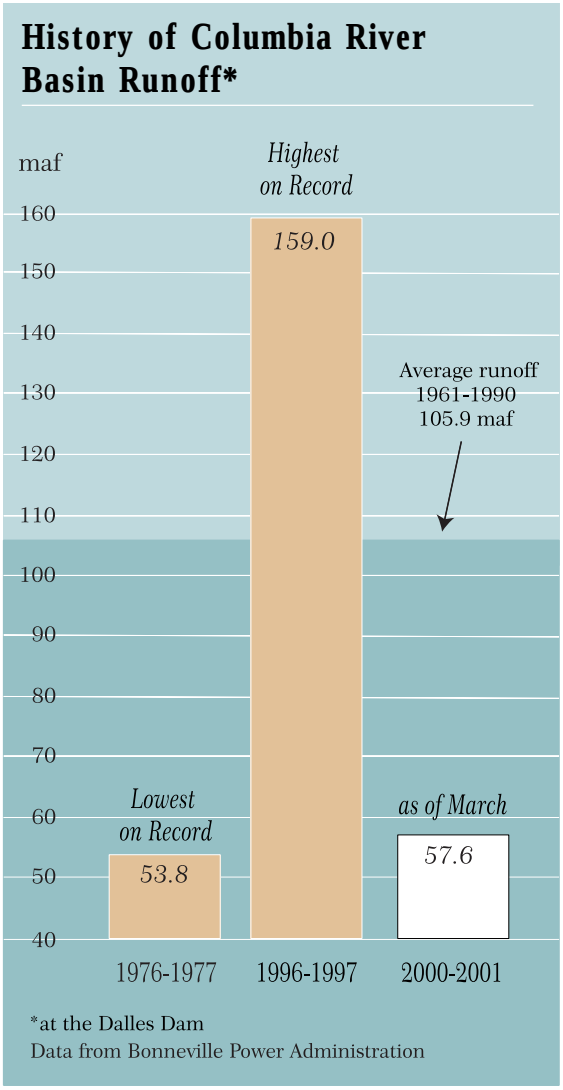
A publication of the Federal Caucus, Columbia River Fish and Wildlife Recovery

This issue of *Citizen Update* continues the Federal Caucus' commitment to keep the region informed about progress on fish recovery in the Columbia River Basin. In December 2000, the Federal Caucus issued its long-term strategy through a series of related documents, including the All-H Salmon Recovery Strategy and two biological opinions on salmon, steelhead and resident fish species. Previous issues of the *Update* describe these documents. (See page 7 for information on how to order these and other documents.) The Caucus agencies continue to work together to coordinate actions across hydro system, habitat, hatchery and harvest – All-H – efforts to improve the sur-vival of fish throughout their life cycle.

This *Citizen Update* describes fish recovery and hydro operations in the drought and implementation of the recovery strategies in 2001 – which is turning out to be a year of extraordinary circumstances: one of the lowest water years on record with unprecedented increases in the cost of electric power. It explains what the operators of the Federal Columbia River Power System (FCRPS) and others in the region are doing to cope with the current emergency situation. It also provides a status report of long-term fish recovery efforts, especially in the areas of habitat, hatcheries and harvest, even though these topics are not getting headlines.



This year's runoff is shaping up to be the second lowest on record.

2001 Drought: An Extraordinary Challenge

This year, two significant influences on the FCRPS converged in ways no one could have predicted: a drought and a power crisis.

Water Management

First, drought conditions are squeezing the normally wet Northwest and Western Canada this spring and summer, and potentially into next winter. The drier it gets, the greater the consequences will be for the region. Weather forecasters say we are in the second driest winter since 1895, with snowpack in the Columbia River Basin about half of normal.

The Northwest's river system depends on runoff from snowmelt to provide water for fish migration and spawning in spring and summer and fuel for the region's hydroelectric generators, and other purposes (see box on page 7). Runoff varies from year to year depending on weather. The Columbia River Basin averages about 105.2 million acre feet (maf) of runoff, the historical record ranges widely, from a low of 53.8 maf to a high of 159 maf. (An acre-foot is a volume of water an acre in area one foot deep, about 327,000 gallons.) Runoff in the spring usually fills the headwater storage reservoirs on the Columbia River. Water is then released at various times in the year when it is needed for flood control, generating electricity, or boosting water flows to help young fish migrate downstream to the ocean, and finally to provide storage space for the next year's runoff that might otherwise cause flooding downstream. However, each fish species has unique needs, and hydro operations vary seasonally according to which species is migrating in the river. For example, spring and summer flows aid summer juvenile migrants from the upper Columbia and Snake rivers. In spring and summer, water can be "spilled" at a dam to divert juvenile fish from turbine areas and to aid passage through the spillway. Fall and winter flows provide important habitat for mainstem spawning chum and fall chinook.

One important factor in water management is how much water can be stored in reservoirs. The more storage capacity available, the more flexibility operators have in deciding what amounts to release at different times of year. The Columbia River Basin has limited storage – on average, enough to store only 30 percent of the runoff. In contrast, dams on the Missouri and Colorado river systems can hold two to three times the annual runoff, so in a bad year they can use that vast storage to meet their operational needs.

The NMFS 2000 Biological Opinion anticipates variations in weather from year to year. The biological opinion seeks improved fish survival over a ten-year timeframe, but recognizes that due to natural variations in water conditions, not all expectations can be met every year. It also outlines

The Federal Caucus

The Federal Caucus agencies are:

- National Marine Fisheries Service (NMFS)
- U.S. Fish and Wildlife Service (USFWS)
- U.S. Army Corps of Engineers (Corps)
- U.S. Bureau of Reclamation (Reclamation)
- Bonneville Power Administration (BPA)
- U.S. Forest Service (USFS)
- Bureau of Land Management (BLM)
- Environmental Protection Agency (EPA)
- Bureau of Indian Affairs (BIA)

The Caucus agencies all have natural resource responsibilities under the Endangered Species Act, but with differing authorities and jurisdictions. The Caucus was formed in 1998 to ensure a unified, coordinated approach to protecting listed species throughout the Columbia River Basin.

Federal Agencies' Criteria and Priorities for 2001

The federal agencies agreed on criteria and priorities for declaring a power system emergency. The criteria are: insufficient electrical generation to meet near-term demand in the Northwest; no greater than 5 percent probability of load loss in the next 12 months; and no greater than 20 percent probability that BPA's financial reserves would fall to $0 or less (after meeting expected financial obligations) for any of the next 12 months.

At the same time, the federal agencies vary operations as little as possible from the non-emergency recommendations of the biological opinions. When deviations must occur, the agencies will try to minimize harmful effects on fish. The principles also include a list of specific priorities for fishery operations from January through August 2001, including spill, flows and fish transportation.

The Federal Caucus released a dam operations plan to the region on April 13. It was developed using the criteria as guidance and lays out a plan for how the FCRPS will be operated during spring and summer 2001.

Mountain Snowpack

This map uses estimated water equivalents of snowpack as of April 1, 2001 in relation to the average snowpack for this date.

Data from United States Department of Agriculture, Natural Resources Conservation Service

provisions for declaring emergencies in cases of unforeseeable power system, flood control or other circumstances. This year, because of the drought and the Pacific Northwest energy crisis, emergency provisions have been invoked.

Power Generation in 2001

The West Coast power market does not have sufficient generation and transmission infrastructure to meet demand, which poses health, safety and economic consequences. This is evidenced by the blackouts experienced in California and the increase in West Coast wholesale power prices. Since the Northwest relies on hydropower for nearly three-quarters of its energy, the region's power supply is heavily influenced by weather. Above-average water conditions in recent years have insulated Northwest utilities from these effects. However, beginning in November 2000, below-average streamflows in the region contributed to a power shortage and a sharp escalation in power prices. This poor precipitation and streamflow projection continued through March, resulting in one of the lowest runoffs in the 70-year record. These poor water conditions have exacerbated the West Coast's generation and transmission inadequacies, resulting in wholesale electricity prices ten times the historical average. Historically in a dry year, BPA would have been able to purchase power in the marketplace to meet its power obligations. This year, with supplies tight and prices sky-high, BPA may not be able to purchase power and remain solvent. Low water, a tight wholesale power market, and skyrocketing prices make for a devastating situation. As a result, BPA declared power emergencies in January and February and again in early April. Fish operations – spilling water over the dams to assist juvenile salmon migrating to the ocean – scheduled to commence in early April were not initiated.

Managing Tradeoffs: Balancing Human and Fish Needs

With these challenges in mind, the federal agencies worked together to develop a set of criteria and priorities for operating the hydro system. Over the last two months, BPA, the Corps, Reclamation, NMFS, USFWS and EPA worked with the region to develop a set of criteria to define what constitutes a power system emergency, and to provide priorities for how the hydro system should be operated if an emergency occurs. The criteria recognize the difficulty the drought poses for meeting the objectives of the system's multipurpose operation. They also acknowledge the need for emergency FCRPS operations that deviate from the targets in the biological opinions. They lay out priorities for flow and spill for fish.

The regional federal executives have called the region's states and tribes to join them in weighing the critical options and trade-offs deemed necessary by the low-water year and energy crisis. Representatives from states and tribes have participated in various technical, policy and executive teams to ensure full consideration of a broad range of options, choices and potential consequences.

Using these principles as guidance a 2001 Hydro Operating Plan was written to describe more specifically how the Columbia River system would

Deciding Hydro System Operations

The group of managers advising the operating agencies on dam and reservoir operations to optimize conditions for salmon is called the Technical Management Team (TMT). The TMT includes representatives from NMFS, USFWS, Reclamation, the Corps, BPA, states and some tribes. The TMT now meets bi-weekly to implement biological operations based on real-time information. The TMT then weighs water management options, benefits and trade-offs after considering current water conditions, fish movements and other factors. Policy matters may be forwarded to the Implementation Team, made up of senior managers from the states, tribes and federal agencies. The final decision on hydro operation and fish recovery rests ultimately with the federal agencies. Given the urgency of the problems this year, the highest regional executive levels of all the agencies – state, tribal and federal – are more engaged in short-term decisionmaking.

be operated. Comments were taken on the draft plan and input was sought on specific decisions, such as covering the redds at Vernita Bar and fish transportation at McNary Dam. (See page 7 for Web links to obtain a copy of the Principles and the Operating Plan.)

Why the Pressure for Power Generation?

California's power shortages have turned the West Coast wholesale electricity market upside down with unusually high prices. BPA normally imports approximately 2,000 megawatts from California in the winter in exchange for comparable exports to California in the summer. This year, instead of being a source of power for the Northwest, California is seeking to buy electricity from the Northwest and from anywhere else it can find it. Since supplies are short, California is willing to pay very high prices, which drives up prices across the connected West Coast power grid.

In the past, wholesale Northwest electricity prices rarely exceeded $30 a megawatt-hour, but today prices range around $300 to $400. At one point this past January, prices climbed to more than $1,000 a megawatt-hour. This price problem, the tight energy supply, and the severe drought caused BPA to declare power system emergencies three times this winter when it couldn't purchase enough power to meet demand. In order to keep the lights on and maintain health and safety, federal operators agreed to store some of the water in the reservoirs for power instead of using it for the spring fish migration.

Hydro system operators and fish managers are analyzing how the limited supply of water in the reservoirs can be managed while balancing the needs of power this spring and the needs for power next fall and winter; between human needs (power, irrigation, recreation) and fish; and between various species of fish. BPA and the other federal agencies have joined the region's governors to call on utility customers and Northwest citizens to reduce power demand and encourage conservation throughout the region. BPA has also taken steps to reduce power demands on the hydro system, including purchasing power in the market to buy back power from utility customers, irrigators and the aluminum industries. A solicitation is being issued for fish recovery projects BPA could fund to off-set the impacts of the power emergencies.

A Call to Action

With power supplies tight, conservation becomes even more critical. BPA is partnering with utilities around the region to urge businesses and individuals to conserve energy and water. BPA is also arranging to "buy back" the energy that would otherwise be used by certain energy-intensive agricultural operations. This effectively provides an incentive to farmers to turn off some high-lift irrigation pumps. This conserves power and creates an opportunity to

Flows for Chum Salmon

Throughout the fall, dam operators held flows in the river at certain minimum levels to provide spawning habitat for chum salmon below Bonneville Dam. In early January, spawning was complete and minimum flow was provided during incubation of the egg nests called "redds," to keep them watered. The biological opinion calls for this type of operation, but recognizes that under poor water conditions there will always be a trade-off between fall chum operation and meeting refill targets (target pool elevations for refilling reservoirs for the various water needs). The biological opinion leans toward abandoning the chum operation in favor of meeting refill if a choice must be made. Given the power situation this year, in early January the federal agencies decided to pursue an operation that combined chum and power needs for mutual benefit. For the period covered by the emergency, it was acknowledged that levels equal to or higher than the minimum flow required for chum would be needed to meet federal power load obligations. Therefore, as BPA benefited from the power operation, the chum also benefited from higher water levels in the river. Despite this combined power and chum operation, BPA declared two multi-day power emergencies in January and February because of insufficient power on the wholesale market to meet federal load obligations.

increase in-river flows for migrating fish. When we all conserve, it means less water is used for power generation, which means more water in the river to help fish.

You can save money, water and save fish too. Watch for the Energy Star® label when you purchase new appliances or light bulbs. Many Northwest utilities are offering their customers money-saving coupons for compact fluorescent light bulbs. These bulbs are four times more energy efficient than regular incandescent bulbs and last ten times as long. Call your local utility and ask for more ideas to save electricity.

The Good News

Returns of spring chinook are the second highest since record keeping began in 1938, with some 350,000 fish expected. While most of these are hatchery fish, conditions that have contributed to their healthy numbers have benefited wild salmon too. Some of these conditions are natural occurrences – several good water years and improved ocean conditions. Others are the result of intentional changes over the past several years that are now paying important dividends: structural improvements at dams; improved water operations in spring and summer to lower water temperature that help young fish headed to sea; limited salmon and steelhead harvests; improved hatchery practices to produce more vigorous fish adapted to local conditions; and restored habitat throughout the Columbia River Basin.

Extraordinary steps have already been taken for salmon. The majority of incubating chum eggs below Bonneville Dam was protected earlier this year by precisely timed water releases. And the Basin's most productive wild salmon population – fall chinook at Vernita Bar in the Hanford Reach – is being protected at least until the end of April with life-sustaining flows. As the region's federal agencies struggle with low water this year, some salmon-protection efforts will be reduced or curtailed. But other efforts will continue as the federal agencies, and the region, strive to safeguard and restore salmon. One bad water year does not mean the struggle or the commitment to save salmon is lost.

Long-Term Fish Recovery Work Moving Forward

The difficult water and power situation this year hasn't prevented the Federal Caucus agencies from making progress on efforts aimed at long-term recovery of fish and wildlife listed under the Endangered Species Act (ESA). In May, the three action agencies implementing the biological opinions (the Corps, Reclamation, and BPA) will release for regional discussion an implementation plan for the FCRPS that sets priorities and performance standards to protect and aid in the recovery of ESA-listed salmon, steelhead, bull trout and Kootenai River white sturgeon.

The plan, prescribed by the NMFS and USFWS biological opinions, is a five-year blueprint that provides a framework for the actions of the three agencies to improve all aspects of the salmon lifecycle. This "All-H" approach recognizes that upgrading the region's dams and hydropower operations is only part of recovering fish runs at risk in the basin. Just as important are improvements beyond the hydropower, including protection and enhancement of fish and wildlife habitat; reforming hatcheries and creating "safety net" hatcheries for species in peril; and developing new approaches to reduce the impacts of harvest on ESA-listed fish.

The implementation plan will include: goals and performance standards needed to achieve recovery; strategies and prioritization criteria for carrying out specific projects; and provisions for research, monitoring and evaluation. An independent panel of scientists will review the plan for its scientific validity later this year. Watch for *Citizens Update #7* for details, and monitor the *www.salmonrecovery.gov* Web site for the draft implementation plan.

High Priority Projects to Jump-Start Recovery

The action agencies are also beginning a new set of actions to give an immediate boost to threatened and endangered fish. BPA is considering a slate of

high-priority projects to be funded this year that will provide on-the-ground benefits for ESA-listed species right away. In March, the Northwest Power Planning Council (Council) recommended 17 projects to BPA. The projects include efforts to restore streamside fish habitat, acquire land and water rights to protect ESA-listed species and install fish screens. The Corps will address a spectrum of habitat improvements in the Columbia River estuary in concert with local, state and federal agencies. Reclamation will be working with landowners to eliminate or redesign a number of irrigation diversions on tributaries. BPA also continues to fund implementation of a large number of projects that are designed to benefit ESA-listed species through the Council's Columbia River Basin Fish and Wildlife Program. Other federal agencies continue a range of fish and wildlife recovery efforts, with an emphasis on habitat improvements.

Research, Monitoring and Evaluation

As called for in the biological opinions, specific actions and their environmental and biological responses will be tracked through monitoring and evaluation of projects. Progress will be tracked according to performance standards. This year, scientists will collect data using a well-developed system of PIT-tags to yield information on fish survival under low-water conditions. Scientists can then study how salmon survival might be affected by the drought and recommend changes in system operations. (Monitoring results and progress reports will be accessible through the *www.salmonrecovery.gov* Web site and additional *Citizen Updates*.)

Further Information and Contacts

For more information on the All-H Salmon Recovery Strategy, the Federal Caucus, or Columbia River Basin fish and wildlife recovery, please visit the Federal Caucus Web site at *www.salmonrecovery.gov*. A copy of the Operating Principles, the 2001 Operating Plan, or previous issues of the *Citizen Update* are also available at this site. Internet links for related activities and documents are also listed including the NMFS and USFWS biological opinions. For the most up-to-date information on snowpack, visit the NRCS Web site at: *ftp://ftp.wcc.nrcs.usda.gov/support/snow/snowpack_maps/columbia_river/wy2001/cusn0104a.gif*.

You can call the Federal Caucus toll free at 1-888-921-4886. The e-mail address is *federalcaucus@bpa.gov*. The mailing address is:

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Multiple Purposes of the Federal Columbia River Power System

The 14 federal hydro system dams on the Columbia and Snake rivers are linked in a complex system. Storage projects such as Libby, Hungry Horse, Grand Coulee and Dworshak allow operators to regulate the river flow to serve many purposes, such as fish recovery, flood control, navigation, hydropower, fish and wildlife habitat, irrigation, recreation, water supply and water quality. Other projects have limited storage and were developed primarily for navigation and hydropower.

The operation of Grand Coulee, for example, demonstrates the complexity of operating a multi-purpose system. Grand Coulee serves as a vital component of the FCRPS to control spring runoff and prevent flooding. Its vast storage capability provides important flows for both fish and power. Water stored in Grand Coulee also serves the irrigation needs of many farmers in the Columbia Basin Project. Summer fishing and recreation opportunities depend on high reservoir levels, including houseboat enterprises operated by the Colville Tribe and numerous campgrounds managed by the National Park Service. A ferry at Inchelium provides daily transportation to school children and workers. To reconcile these many purposes and sometimes competing demands, the Bureau of Reclamation, Grand Coulee's operating agency, must operate within existing laws and authorities, and work closely with states, tribes and local communities affected by reservoir operations.