



Citizen Update

# Conservation of Columbia Basin Fish

Endangered Species Act Implementation Plan: A Blueprint for Columbia Basin Fish

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The responsibility for recovering populations of fish listed as threatened or endangered under the Endangered Species Act (ESA) is broad and diverse.

In December 2000, the Federal Caucus, a group of nine agencies, released its long-term “All-H” strategy for endangered fish recovery in the Pacific Northwest. Key elements of this strategy are the 2000 Biological Opinions issued by National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (FWS). Those

Biological Opinions recommend actions for the three federal “action” agencies that operate the network of federal dams and reservoirs on the Columbia and Snake rivers to avoid further harm to fish. The Action Agencies are the Bonneville Power Administration (BPA), the U.S. Army Corps of Engineers (Corps) and the U.S. Bureau of Reclamation

(Reclamation). The NMFS Biological Opinion follows the All-H approach by relying on a combination of hydro system improvements and other enhancements in the hatchery, habitat and harvest life stages of salmon and steelhead.

To implement the Biological Opinions in a timely and coordinated way, the Action Agencies have been drafting an Implementation Plan since the Biological Opinions were finalized. The plan will guide actions for the agencies to meet their responsibilities under the Endangered Species Act.

It provides a blueprint to coordinate actions from both the NMFS and FWS Biological Opinions.

This *Citizen Update* offers an executive summary of the Action Agencies’ draft Implementation Plan and proposed actions for the years 2002

through 2006. The Action Agencies will use this and future issues of the *Citizen Update* to keep the



*Ladders help fish overcome barriers on their migration upstream to spawning grounds.*



region informed of progress toward implementation of the Biological Opinions. The full Federal Caucus (which includes the Action Agencies) will also continue to report progress on the All-H strategy.

The draft Implementation Plan will be finalized in Fall 2001. Each year the Action Agencies will update the five-year actions. In addition, a more detailed annual action plan and a progress report will be issued. Anyone interested in learning more should monitor the [http://www.salmonrecovery.gov/Biops\\_implementation.shtml](http://www.salmonrecovery.gov/Biops_implementation.shtml) Web site. The Web site describes highlights of the full draft, and the full text is available for printing or downloading.



*Extended-length screens, like this one at McNary Dam, guide more fish away from turbine intakes.*

## Goals and Performance Standards

The goals of the Implementation Plan are simple yet daunting: to assist in meeting recovery standards for Columbia Basin salmon, steelhead, bull trout, sturgeon and other aquatic species affected by the Federal Columbia River Power System (FCRPS); to conserve critical habitats on which the listed species depend; and, when integrated with the Northwest Power Planning Council's Fish and Wildlife Program, to balance recovery efforts with the needs of other fish, wildlife and humans; and to honor the traditional cultural resources of the Columbia Basin tribes.

As broad as the goals are, they are monitored by tangible measurements called performance standards. The standards are specified targets, or numbers, that are necessary for population survival. Performance standards are assigned at various levels, or tiers, to track the consequences of specific actions. Tier 1 performance standards, or population level performance standards, assign targets for the population growth rate that are necessary to avoid extinction. Tier 2 performance standards track improvements, in particular, life

## Examples of Potential Performance Standards

### Tier 4 Management Actions

- number of surface bypasses built
- number of riparian zones fenced
- number of barriers removed

### Tier 3 Performance Standards (Physical/Environmental Conditions)

- number of healthy habitat units secured
- improved measurement of temperature, stream flows, total dissolved gas (TDG)

### Tier 3 Performance Standards (Biological)

- percent of egg-fry survival
- percent of dam survival
- distribution/habitat use

### Tier 2 Performance Standards (Life-Stage Survival)

- percent of egg-to-smolt survival
- percent of migrant survival

### Tier 1 Performance Standards (Population Responses)

- population growth rate
- abundance estimates

stages of salmon and steelhead. For example, improvements in dam passage should result in survival improvements during the juvenile and adult life stages. Tier 3 performance standards measure physical or biological responses of a particular action or set of actions, such as change in stream temperature. Tier 4 or “programmatic standards” measures whether an action was fully implemented. For example, if one plants trees along a riparian habitat (Tier 4), then one might expect the shade provided by the trees to lower the stream temperature and improve water quality (a Tier 3 measure).



*Healthy tributaries provide important habitat for spawning and rearing.*

temperature and improve water quality (a Tier 3 measure).



*Biologists collect data to assess environmental conditions.*

NMFS anticipates that achieving these performance standards may take ten years or more. NMFS will check in on the Action Agencies each year by reviewing the agencies’ plan for implementing the Biological Opinion and their progress reports. After three, five and eight years, NMFS will assess whether the Action Agencies are on track for achieving performance standards.

## How Will We Know the Actions Are Working? – Research, Monitoring and Evaluation (RM&E)

To carefully track actions and their consequences, the Action Agencies are developing a program of research, monitoring and evaluation (RM&E). Scientific research will help the Action Agencies assess the needs of each species. Monitoring will allow the Action Agencies to track results and measure the physical and biological responses. Evaluation will help align field results with research and scientific data.

### Monitoring

There are three types of monitoring:

- **Status Monitoring** assesses the status of fish and their environment over time. Status monitoring is not designed to assess effects of management actions on fish and their environment, rather they simply track trends over time.
- **Effectiveness Monitoring** assesses the effects of management actions on fish and their environment. Here the purpose is to use valid studies to assess the success of management actions.
- **Research** explores areas of critical uncertainty (e.g., delayed mortality, reproductive success of wild and hatchery fish, stray rates of wild fish).



## From Strategy to Action

### Hydro Strategies

The objective of the hydropower strategy is to increase the survival of listed fish at FCRPS dams and reservoirs. More specifically, the primary strategies are to:

- Improve project configuration and operations to increase adult and juvenile survival at dams;
- Improve juvenile survival in reservoirs;
- Improve adult survival; and
- Improve water quality.

In addition, a number of related strategies are to:

- Seek opportunities to acquire additional water for improving fish survival;
- Transport juvenile fish where opportunities for improved survival exist;
- Manage available storage to improve survival in reservoirs and rivers;
- Protect bull trout and sturgeon from adverse effects of salmon operations through flows and ramping rates; and
- Consider and address effects on cultural resources.

### Habitat Strategies

The objective of the habitat strategy is to improve life-stage survival by protecting and enhancing the structure and function of the aquatic ecosystem so it functions properly. Efforts will focus on the estuary, mainstem and tributary habitats on non-federal lands.

There are three key strategies:

- Protect existing high-quality habitat;
- Enhance degraded habitat; and
- Prevent further degradation of tributary and estuary habitat and water quality.

These objectives will be met through sub-basin assessments and projects that promote improvement in:

- Water quantity;
- Water quality;
- Passage and diversion improvements;
- Watershed health;
- Mainstem habitat; and
- Estuary improvement.

#### Example: Configuration Projects

When fish pass through dams, they may go through turbines, spillways, bypass systems or are transported around the dam via barges. Configuration projects focus on altering the shape and operation of fish passage options to improve survival. Examples of configuration projects include modifying fish ladders for adults and modifying spillways to improve water quality. Each year, the Army Corps of Engineers completes numerous engineering projects to improve juvenile and adult survival.

#### Example: Tributary and Estuary Projects

There are many potential actions to improve fish habitat in spawning and rearing areas, as well as in the Columbia River estuary. For example, in streams and tributaries, screens can be positioned at irrigation ditches so that juvenile fish are not diverted from streams when water is diverted for irrigation. The Bureau of Reclamation is working with appropriate parties to design fish screens and other improvements so that by next year construction can begin in targeted sub-basins.

In the Columbia River estuary, the Corps and BPA are coordinating with the Lower Columbia River Estuary Program to identify near-term actions that will benefit listed fish, while research and planning efforts help to lay out a long-term plan. Near-term actions might include improving tidal wetlands and shallow-water habitat.



## Hatchery Strategies

The objective of the hatchery strategy is to reduce or eliminate adverse genetic, ecological and management effects of artificial production on natural production, while retaining and enhancing the potential of hatcheries to contribute to basin-wide objectives in conservation and recovery.

The hatchery strategy has three parts:

- Reduce potentially harmful hatchery practices;
- Use a safety net program on an interim basis to avoid extinction while other recovery actions take place; and
- Use hatcheries in a variety of ways and places to aid recovery and address harvest mandates.

## Harvest Strategies

The Action Agencies do not have a primary role in harvest management. General strategies for harvest reflected in the All-H Paper are to prevent over-harvest, provide for sustainable fisheries, increase harvest selectivity and increase escapement rates.

The harvest strategy has three areas of emphasis:

- Develop selective fisheries to reduce harvest-related mortality on ESA-listed species;
- Support research to improve harvest management assessments, decisions and evaluations; and
- Support sustainable fisheries for the meaningful exercise of tribal fishing rights and non-tribal fishing opportunities consistent with the recovery effort.

### Example: Hatchery Genetic Management Plans

In order to reform hatcheries, the Action Agencies will produce a series of Hatchery Genetic Management Plans, or HGMPs. The HGMPs will include population assessments and identifications of biological needs. The draft Action Plan for 2002-2006 lays out a schedule and work plan for completing HGMPs. Upon completion and approval by NMFS, the Action Agencies will begin to implement the recommendations.

### Example: Testing Selective Gear

In order to improve the selectivity of in-river commercial harvest, the Action Agencies will test new gear for its effectiveness in catching fish alive so that they may be sorted. Wild fish can then be returned to the river unharmed, while the commercial harvest can continue for targeted species.

## Getting to Priorities

In order to assure that efforts are focused on the specific needs of the listed species, the Action Agencies propose to apply the following criteria to proposed projects:

1. Does the action provide measurable survival benefits that are immediate or significant?
2. Does the action affect stocks that the science analysis shows need the most survival improvements?
3. Can the action provide broad ecological benefits to multiple life stages, species, stocks or Evolutionarily Significant Units (ESUs)?
4. Does the action reduce critical uncertainties or provide information needed to support adaptive management, accountability or crediting?
5. Does the action support efficient and feasible implementation?
6. Does the action build on or complement ongoing, beneficial actions?



Each level of performance standards requires its own unique aspect of monitoring. To measure Tier 1 progress, population monitoring assesses annual population growth. At Tier 2, life-stage survival monitoring describes egg-to-smolt survival, juvenile migration survival, estuary and ocean survival, and adult migration survival. At



*Screening irrigation diversions prevents fish from taking fatal water routes.*

Tier 3, biological monitoring assesses environmental factors such as reproductive success, habitat use, genetic variability, and fish conditions, health and growth. Physical/ environmental

monitoring assesses attributes associated with properly functioning condition, resource availability, temperatures, total dissolved gases, and distribution and abundance of competitors and predators. Finally, at Tier 4, compliance monitoring assesses whether management actions have been implemented properly and maintained.

## From Strategy to Action

To achieve performance standards in a ten-year time frame, the Action Agencies grounded the Implementation Plan in a science-based framework. Performance standards will set the goals, and research, monitoring and evaluation will track progress. The draft Implementation Plan describes strategies which explain how the Action Agencies intend to achieve the performance standards across the hydro system, habitat, hatcheries and harvest.

The Biological Opinions contain more than 200 specific actions for addressing needs for listed species at the dams, in spawning and rearing habitats, at the hatcheries and in managing harvest. Since as a practical matter the Action Agencies would not be able to address all of these actions immediately, they have developed criteria for prioritizing actions. These criteria will help effectively translate strategies into on-the-ground projects. (See green box on page 5.)

The draft Implementation Plan also presents a series of tables that summarize specific actions and projects being considered for the 2002-2006 time frame. The tables summarize specific project information and will be described in greater detail

in the 2002 Annual Plan. A draft of the initial 2002 Annual Plan is anticipated for mid-summer. These tables are available at [http://www.salmonrecovery.gov/Biops\\_implementation.shtml](http://www.salmonrecovery.gov/Biops_implementation.shtml).



*Biologists monitor returning fish runs.*



## Regional Coordination

The draft Implementation Plan will inform other parties about the federal ESA obligations and specific actions to achieve performance standards established in the Biological Opinions. The Action Agencies will work closely with regional partners,



*A new outfall at Bonneville Dam for juvenile fish moves them two miles downstream to an exit that is less hospitable to predators.*

such as the Northwest Power Planning Council (NPPC), states, tribes and other federal agencies to coordinate planning and implementation. The Action Agencies will work through the teams of the Regional Forum to address hydro

system operations, configuration and water quality issues. Habitat and hatchery actions will be integrated through the NPPC's fish and wildlife program. New habitat and hatchery actions will undergo environmental review and compliance with cultural resources requirements. The Action Agencies hope that by coordinating actions with other regional entities, it will be possible to leverage partnerships and resources.

Fish recovery in the Columbia Basin challenges everyone, across all jurisdictions, landscapes and views, to work together.

## How to Get Involved

If you would like to follow the implementation of the NMFS and FWS Biological Opinions, please log on to [http://www.salmonrecovery.gov/Biops\\_implementation.shtml](http://www.salmonrecovery.gov/Biops_implementation.shtml) to learn more about specific projects that may take place in your watershed.

## How to Get More Information

For more information on the All-H Salmon Recovery Strategy, the Federal Caucus, the Action Agencies' draft Implementation Plan, or Columbia River Basin fish and wildlife recovery, please visit the Federal Caucus Web site at [www.salmonrecovery.gov](http://www.salmonrecovery.gov). This Web site also includes information about annual implementation issues, including the 2001 FCRPS Operations Plan. You can also find previous issues of *Citizen Updates*, internet links for related activities and documents including the NMFS and FWS Biological Opinions.

You can call the Federal Caucus toll free at 1-888-921-4886, or e-mail them at [federalcaucus@bpa.gov](mailto:federalcaucus@bpa.gov).

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