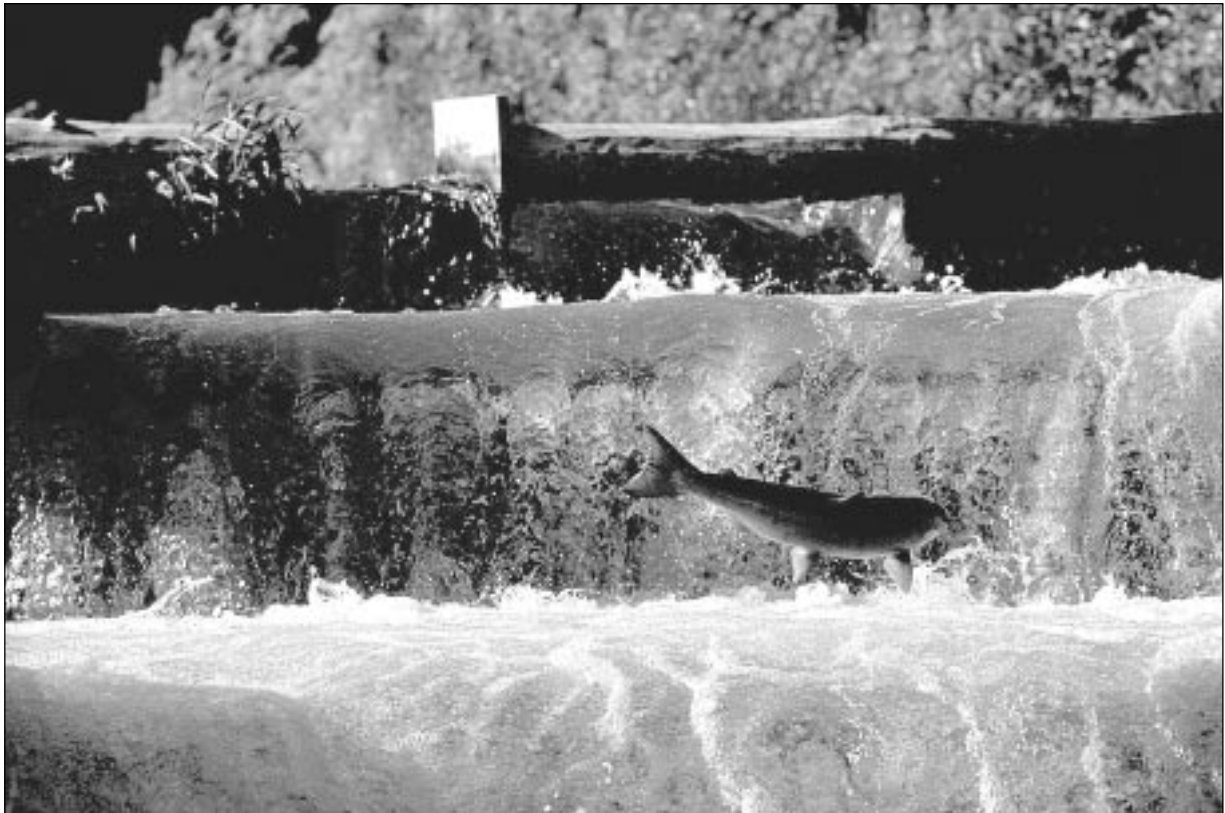


Endangered Species Act 2002 Implementation Plan for the Federal Columbia River Power System



US Army Corps
of Engineers
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Appendix

Overview of the 1-Year Implementation Plan

1.0

Pursuant to the Endangered Species Act (ESA), the National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS) issued new *Biological Opinions* (BiOps) for the Federal Columbia River Power System (FCRPS), the complex of dams and reservoirs operated by three Action Agencies: the U.S. Army Corps of Engineers (Corps), the U.S. Bureau of Reclamation (Reclamation), and the Bonneville Power Administration (BPA).

The BiOps are a guide to implementation by the Action Agencies of measures to protect and to further the recovery of endangered salmon, steelhead, bull trout, and sturgeon in the Columbia River Basin. They provide a flexible framework of performance standards and objectives for the FCRPS and other conservation measures over the 10-year period from 2000 to 2010.

Planning for these conservation measures occurs at two levels: a series of rolling 5-year implementation plans, and a corresponding annual series of 1-year implementation plans. *Five-year implementation plans* provide the conceptual foundation and the management framework for coordinating actions to further recovery over a 5-year period. *One-year implementation plans* summarize specific measures and provide detail on the *who, how, what, where, and when*.

The first 5-year plan, *Endangered Species Act Implementation Plan (2002–2006) for the Federal Columbia River Power System (2002–2006 5-Year Plan)*, was published as a draft in July 2001 and circulated for review. The Action Agencies are currently discussing the 2002–2006 5-Year Plan with States, Tribes, and Columbia Basin stakeholders throughout the region. As these discussions progress, changes can be applied to this and subsequent implementation plans.

This *Endangered Species Act 2002 Annual Implementation Plan for the Federal Columbia River Power System (2002 1-Year Plan)* is divided into four main parts: Part 1.0 establishes the *relationships* among the parties and processes involved in supporting the basin's endangered fish populations, as well as the relationships among the plans; Part 2.0 provides details on what *measures* are planned; Part 3.0 summarizes expected modifications from the BiOps. The Appendix, the fourth part, presents further details on the planned measures in tabular form for easy reference.

Both the 5-year plans and the 1-year plans address measures to be undertaken by the Action Agencies *only*, with a primary focus on *endangered fish*. In contrast, the Federal Caucus' Basinwide Recovery Strategy (commonly known as the All-H strategy)

addresses actions by *all* federal agencies. Consequently, this 2002 1-Year Plan implements part of the Basinwide Strategy. The Federal Caucus is

currently discussing how to track implementation progress by other agencies.

A. The 2002–2006 5-Year Plan and its Relation to this 2002 1-Year Implementation Plan

A Tiered Approach

As noted above, the 1-year implementation plans are not stand-alone documents: they are intended to fit under the conceptual foundation and guiding framework of the rolling 5-year implementation plans, summarizing specific measures and providing detail on the who, how, what, where, and when. This 2002 1-Year Plan summarizes the specific measures to be taken this year to comprehensively meet the biological requirements of listed fish species across all aspects of the salmon life cycle. This Plan provides more detail on the actual “deliverables” to be implemented under this first year of the 5-year plan.

However, because of timing limitations, this 2002 1-Year Plan does not include all the considerations from our ongoing regional discussions. Next year’s 1-year implementation plan should remedy any shortcomings. The Action Agencies also acknowledge that some gaps remain in this Plan: comprehensive coverage is not provided for all reasonable and prudent alternatives (RPA) actions as noted in the BiOps. Those RPA actions not implemented this year will be addressed in the future, based on the priorities described in the 5-year implementation plan.

The 2002 1-Year Plan is the first of the series to be completed between now and 2010. Their format and context will evolve to reflect any refinements in management strategies, based on the results of actual progress in achieving fish benefits. In addition, each year, the Action Agencies will prepare a Progress Report on the implemented measures and resulting performance, a step that will allow for additional regional discussion of the path(s) that should be followed.

Our goal is to arrive at a “unified plan” — a set of common understandings and actions that enjoy a wide base of regional support and commitment. The Action Agencies believe that there is much common ground between the 2002–2006 5-Year Plan and the various regional recommendations and programs for salmon recovery, such as the *Recommendations for the Protection and Restoration of Fish in The Columbia River Basin* by the Governors of the four Northwestern States, the Northwest Power Planning Council’s

(Council) 2000 Columbia River Basin Fish and Wildlife Program, Technical Recovery Teams (TRTs), and Lower Columbia River Estuary Program (LCREP).

Building a Comprehensive Approach

This 1-Year Plan provides a profile of our overall approach to implementing the strategies and substrategies and a general description of the types of projects that will be initiated or are already underway. Not every RPA action has a corresponding project or measure in this Plan. While some of the projects may not respond directly to an RPA action, the Action Agencies intend to include relevant projects to benefit ESA-listed fish in the overall Plan to coordinate ongoing and new projects.

Many of the RPA objectives require that coordination take place with outside parties and their respective programs, processes, and plans e.g., Council Fish and Wildlife Program, subbasin planning process, states (watershed assessments, estuary planning, and agency programs), and tribes (tribal resource management plans). As these regional processes are fully developed and implemented the Action Agencies expect to have a mature and “coherent strategy” to achieve the RPA objectives.

For our implementation of the BiOps and the Basinwide Recovery Strategy, we have created strategies under each category to help focus our efforts. For example, Habitat strategies focus on water quality, water quantity, watershed health, and passage. We do, however, acknowledge that it is the synergistic relationships among these categories and strategies that will generate the overall survival improvements. All of the Federal, state, tribal, and local government entities will influence aspects of these improvements by applying their areas of expertise to the recovery efforts. When we evaluate potential improvement within the context of one category (or the actions of only one agency), we cannot capture the overall improvements taking place. For example, to merely count the number of projects or actions or the amount of funding an Action Agency is providing for water quality in a certain subbasin does not account for the measures to improve water quality already taking place by Federal, state, and local agencies.

B. The 1-Year and 5-Year Implementation Plans — Key Changes

Key Commitments and Improved Measures

The Action Agencies have undertaken measures to address survival of endangered fish populations before: in response to BiOps issued for FCRPS Operations in 1995 and 1998. With these new 1-year and 5-year implementation plans, the Action Agencies document an increased commitment and improved measures to improve fish survival. Examples of these increased commitments include the following:

Performance Standards — Development and use of performance standards (population, biological, environmental, and programmatic) to provide accountability for results.

Priority Setting — This 2002 1-Year Plan, in combination with the 2002–2006 5-Year Plan, includes strategies that reflect specific, targeted priorities. Priority criteria are included in the 2002–2006 5-Year Plan.

Scientific Framework — A scientific framework for tracking progress over time, with 3-, 5-, and 8-year check-ins.

Unified Approach — Greater coordination with regional programs, particularly the Council's Fish and Wildlife Program and the Lower Columbia River Estuary Program (LCREP), to provide a "unified plan."

Aggressive Hydrosystem Measures — Aggressive hydrosystem measures, focused on effectiveness, with a goal of achieving significant progress towards a 5–10% improvement in survival.

Major New Habitat Initiatives — Major new short- and long-term habitat initiatives to improve ecosystem conditions in Columbia River tributaries, estuary, and mainstem.

Hatchery Reforms — Reform of hatchery programs based on genetic management, and expanded use of safety net propagation programs to prevent extinction.

Selective Harvest — Encouragement of more selective harvest techniques.

Resident Fish — Expanded protections for listed resident fish.

Research, Monitoring and Evaluation (RM&E) — Establishment of a comprehensive RM&E program for performance, including status and effectiveness monitoring and assessment of critical uncertainties.

Integration with Regional Processes and Programs

A key difference in implementation of the 2000 BiOps is the emphasis on integrating the 1- and 5-year implementation plans with the Council's Fish and Wildlife Program, as well as with other regional processes, including other tribal, state, and Federal programs.

Although time and schedule constraints have regrettably not permitted early circulation of this first 1-year implementation plan, the Action Agencies' intend to produce each subsequent 1-year implementation plan early enough in the preceding fiscal year so that the plan may inform regional planning processes. The results of those processes are, in turn, to inform the final 1-year implementation plan, which will be released at the beginning of the fiscal year. This is one key path toward the regional goal of a unified plan.

For this 2002 1-Year Plan, the Action Agencies feel it important to report the details of our implementation intentions, even though its timing does not allow for inclusion of all the regional discussion intended for future 1-year plans, so that the region might be fully informed. Additional details are provided below on the planned integration of efforts and programs

The Council's Fish and Wildlife Program

We expect especially strong links between this 2002 1-Year Plan and the Council's Fish and Wildlife Program. The Action Agencies, especially BPA, will work closely with NMFS, USFWS, and the Council to assure development of sub-basin assessments and planning. This coordination will expand and refine our knowledge of environmental conditions throughout the basin and lay the groundwork for successful implementation of habitat enhancement projects.

This year, and in future years, BPA plans to use the Council's Provincial Review process to solicit project proposals to address BiOp actions. This review process will include scientific review by the Independent Scientific Review Panel (ISRP), public review, and Council recommendations. Using the Provincial Review process will ensure that new projects to appear in future 1-year implementation plans are coordinated with the Council process, and will foster the development of a single, unified plan. In the event that the solicitations under the Provincial Review do not result in proposals that address

priorities identified in the 1-year plan, BPA may explore emergency funding mechanisms with the Council to minimize any lost opportunities that may exist. Further, particularly in cases where the Provincial Review schedule is not timely relative to specific priority needs under the implementation plan, BPA may consider targeted solicitations to ensure adequate progress on high-priority actions. Targeted solicitation, if any, would be coordinated with the Council, NMFS, and USFWS.

RM&E also offers another area of expected regional coordination. The RM&E component of the implementation plans will help answer critical science questions and gauge program effectiveness. It will also help establish a regional database for Columbia Basin fish and wildlife.

Through sharing information, goals, and strategies; coordinating through the regional forum; and integrating the Council's Fish and Wildlife Program and subbasin planning, the 1-Year implementation plans forge a more cohesive and disciplined approach to avoiding jeopardy and improving recovery of listed fish species within the region.

NMFS Regional Implementation Forum for Hydropower

The Action Agencies have developed and will implement the hydrosystem portions of each 1-year implementation plan in coordination with the various teams of the NMFS Regional Forum: the Implementation Team, the Technical Management Team (TMT), the Dissolved Gas Team (DGT), and the System Configuration Team (SCT). We will also coordinate the Fish Passage Operation and Maintenance Team. These groups provide an opportunity for the region to share information and coordinate at the technical and policy levels.

The Action Agencies will participate in the Council's mainstem rulemaking process in order to share information and coordinate the hydrosystem measures in the Council's Fish and Wildlife Program with the 1-year implementation plans.

Lower Columbia River Estuary Program

The Lower Columbia River Estuary Program (LCREP) developed a *Lower Columbia River Comprehensive Conservation and Management Plan* to address the preservation and enhancement of the estuary's biological and human communities. We are working with LCREP and using the Management Plan as the basis for an estuary recovery initiative that addresses the needs of ESA-listed populations.

C. Tribal Trust and Treaty Rights and These Implementation Plans

The 13 Columbia Basin tribes are sovereign governments with management authority within their reservation boundaries. Treaties and Executive Orders have established a unique relationship between the Federal government and the Columbia Basin tribes.

The Action Agencies recognize that actions and projects included in this 2002 1-Year Implementation Plan may have both direct and indirect impacts on tribal resources. The Action Agencies will fulfill their obligations by working directly with the tribes to seek a mutually acceptable approach to tribal involvement. Options include, among others, formal policy consultations, technical consultations, government-to-government consultations, and information-sharing.

Actions and projects described in the Plan may affect reservoir levels, operations, and transmission facilities, and all these, in turn, may have potential impacts on broadly defined cultural resources. Several

statutes, including the National Historic Preservation Act (NHPA), Native American Graves Protection and Repatriation Act (NAGPRA), the Archaeological Resources Protection Act (ARPA), policies and executive orders establish the framework for protection of these cultural resources. Programs for compliance with the NHPA and other cultural resources obligations are linked to the actions and measures included in this 2002 1-Year Plan.

Offsite mitigation may include actions and measures that call for cultural resources evaluations. As an integral part of the National Environmental Policy Act (NEPA) compliance process cultural resource evaluations will be conducted to identify potential impacts. BPA will consult with affected tribes and State Historic Preservation Offices (SHPOs) to identify potential impacts and, if warranted, will develop cultural resources treatment plans to address those impacts.

D. 2002: A Year of Transition

The 1- and 5-year implementation plans are dynamic, and will change over time as our information, experience, and ability to implement actions improves. This is the first 1-year implementation plan issued since the release of the BiOps in December 2000. This plan represents a start, not the culmination of our planning efforts. Below are five areas where future change is already anticipated.

Appropriations

Because the federal budget and Congressional appropriation cycle is a 2-year process, the Corps and the Reclamation have had limited opportunity to adjust funding in FY02 in response to the December 2000 BiOp actions.

Subbasin and Recovery Planning

This Plan does not have the benefit of completed Council sub-basin assessments, Provincial Reviews, or guidance from the recovery planning of established Technical Recovery Teams (TRTs). The Action Agencies are confident that, with more time and the information generated by these processes, and with additional scientific and public review, successive 1-year implementation plans will lead to greater accountability and effectiveness of action.

Water Conditions and Power Supply

As the NMFS BiOp anticipated, not all of the operations called for in the BiOp can be fully implemented under all conditions. For instance, near record drought conditions prevented implementation of some flow and spill measures in 2001. Another significant factor in 2001 was a newly deregulated power market. Electric energy prices rose to unprecedented levels, limiting options to respond to the drought. In the midst of these trying conditions, the Action Agencies began to implement the NMFS and USFWS 2000 BiOps. We expect that, in 2002, as the region considers lessons learned from 2001, those lessons would be reflected in seasonal updates of the water management plan. Adverse effects from 2001 may extend into 2002.

Priority Setting

The 2002-2006 5-Year Plan establishes criteria for setting priorities. In the 2002 1-Year Plan, we have relied on priority setting by strategy and substrategy as our primary tool. Working under time limitations, we have made partial use of the priority criteria for individual projects within each strategy/substrategy. In addition, we are still considering further revisions to the category-specific (Hydrosystem, Habitat, Hatcheries, Harvest, Resident Fish, and RM&E) criteria based on input we expect to receive on the draft 2002-2006 5-Year Plan.

Lead Times

Finally, in 2002, we are beginning a number of projects with specific lead times. Therefore, some of the actions we are beginning now will not be fully implemented until 2003 or beyond.

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2002 1-Year Implementation Plan

2.0

Major Categories

The following sections summarize the measures that the Action Agencies plan to take for the following categories: Hydrosystem, Habitat, Hatcheries, Harvest, Resident Fish, and RM&E.

Strategies and Substrategies — Within each of the six categories, these measures are organized within the Strategies and Substrategies described in the 2002–2006 5-Year Plan.

Tables — An expansive list of measures that the Action Agencies will implement in 2002 is provided in the form of Tables in the Appendix; these will be linked to our data tracking system. The data system will allow us to report, track, and query relevant information in a variety of ways. Included in the Appendix are tables listing the 2002 Action Agency measures by Category, Strategy, and Substrategy.

Gaps — The Action Agencies use Strategies and Substrategies to focus their efforts on measures that are expected to achieve the identified Performance Standards. We recognize that some BiOp actions are not targeted this year. However, the Action Agencies plan to make maximum use of complementary efforts and the Council's rolling Provincial Review planning process to fill these identified gaps. The Action Agencies may solicit specific proposals to address actions that remain untargeted.

Adaptive Management or Modifications — Because our approach is flexible and based on performance, adjustments in specific actions called for in the BiOps are expected. In this section, we describe changes to actions based on biological objectives, regional processes, and scheduling and budget constraints.

Detailed Work Plans — Finally, in some cases detailed project work plans have also been developed. In these cases (e.g., the Hydrosystem Appendix), they have been included on the Salmon Recovery Web Site (<http://www.salmonrecovery.gov>).

A. Hydrosystem



HydroSystem Strategy 1 **Configure Dam Facilities** **to Enhance Juvenile** **and Adult Fish Passage** **and Survival**

2002 Priorities

Configuration measures, such as fish passage studies and modifications, are funded through Congressional appropriations for the Columbia River Fish Mitigation (CRFM) Project. The Administration's proposed CRFM budget for Fiscal Year 2002 (FY02) is \$81 million.

The Action Agencies have developed priorities for the FY02 CRFM program through coordination with the System Configuration Team (SCT). Research priorities for CRFM and the Operations & Maintenance (O&M) program were also coordinated with Studies Review Work Group (SRWG). General concurrence has been reached within the SCT on priorities for a \$81–83 million program, based on current cost estimates. Adjustments in the program's scope may be necessary as estimates are firmed up and the actual appropriation level is known.

Several new permanent facilities modifications to improve facilities for juvenile and adult migrants are anticipated to begin in FY02. In addition, investigations will continue to identify project-specific passage efficiencies and survival, and to develop and test alternative improvements to passage facilities. We will continue to emphasize advancing information regarding critical uncertainties for juvenile and adult passage survival. Based on recommendations from SCT, we expect to have funding to work on 68 configuration projects in FY02. Actions and measures judged to have the highest likelihood of helping to achieve the performance standards were given highest priority.

HydroSystem Substrategy 1.1 **Mainstem juvenile passage enhancement**

We expect to begin building a surface bypass system for the second powerhouse at Bonneville (the corner collector) in FY02, with completion by FY04. Priorities for 2002 include ongoing investigations and testing of improvements to existing juvenile bypass and collection facilities at several projects and testing of prototype surface bypass systems at The Dalles and Lower Granite projects. Investigations for extended length bypass screens will begin for the Lower Monumental project and will continue at John Day.

A number of other ongoing measures to complete modifications to bypass systems at various dams will be completed. We plan to continue to develop surface bypass concepts for select projects where project-specific conditions are conducive, biological performance is favorable, and construction and operation are cost-effective.

NMFS RPA Action reference: 53, 59–81, 94–101, and 146

HydroSystem Substrategy 1.2 **Mainstem adult passage enhancement**

Priorities for 2002 include construction contracts for improvements in function and reliability of fish-ladder auxiliary water-supply systems and ongoing investigation of fallback problems at Bonneville and Snake River dams, and preparation of designs.

NMFS RPA Action reference: 50, 93, 106, 108, 110–116, 119, 120, 122–124, and 127–129

HydroSystem Substrategy 1.3 **Measures that address temperature** **and dissolved gas**

Priorities for action in 2002 focus on dissolved gas. Additional spillway deflectors will be built at Bonneville and McNary dams, spillway improvements at Snake River projects (including evaluation of divider walls) will continue to be developed, and spill survival issues will be investigated at The Dalles. With regard to temperature, investigations of ladder temperature effects on adult passage will continue at Snake River projects and John Day, and a new study will be initiated to investigate McNary forebay temperature effects on juvenile passage facilities.

NMFS BiOp RPA Action 5 calls for the preparation of 1- and 5-Year Water Quality Plans. This posed an organizational problem to the Action Agencies: water management operations, configuration changes at the dams, and O&M actions planned for 2002 often have a dual purpose (they are designed to improve the survival of listed species as well as water quality). The Action Agencies have chosen to structure discussion around the configuration, water management, and O&M substrategies, rather than to develop a separate substrategy for water quality. However water-quality actions planned for 2002 have been grouped in tabular format in response to requests for a 1-year water quality plan. Table 2, termed *List of Water Quality Actions to Avoid Jeopardy*, is included in the Appendix.

The Action Agencies, other federal agencies, states, and tribes have undertaken a comprehensive water-quality planning effort to address water quality in the mainstem Columbia and Snake rivers. The goal is to develop the Columbia/Snake River Mainstem System Water Quality Plan as described in Appendix B of the NMFS 2000 Biological Opinion.

NMFS RPA Action reference: 5, 130, 134, 135, 138, and 140-142

Hydrosystem Substrategy 1.4

Project configuration RM&E

For juvenile fish, priority evaluations for 2002 include continuation of the delayed-mortality and multiple-bypass studies and ongoing spill and project survival studies at the lower Columbia River projects and Ice Harbor. Estuary studies, initiated in FY01, will be continued and expanded. For adult fish, research will continue on passage through the system and spawning success, including development of information on accounted losses.

NMFS RPA Action reference: 47, 82, 83, 104, 107, 109, 115, 118, 186, 189, and 195-197

Hydrosystem Strategy 2

Manage Water to Enhance Juvenile and Adult Fish Survival

2002 Priorities

The Action Agencies' goal is to implement water management measures consistent with other project purposes and available water supply. These measures include flow objectives for juvenile fish migration, reservoir operations to help meet flow objectives, spill for juvenile fish passage, juvenile fish transportation, and other aspects of water management.

Each year, the Action Agencies manage a varying amount of natural flow that enters the FCRPS as runoff from precipitation and melting snowpack. This water is used to meet multiple purposes, including irrigation, flood control, power production, fish recovery, navigation, and recreation. The Action Agencies expect to implement most of the water-management measures for fish survival in the BiOps under most water conditions. Where conflicts occur between BiOp measures, the Action Agencies plan to resolve them using the priorities recommended in the BiOps. Some detail on these priorities is discussed in the following substrategy discussions. Additional detail will be available in the annual water management plan.

The 1-year implementation plan and the water-management plan are prepared when little is known about the actual water supply conditions to be experienced in an upcoming year. Therefore, the Action Agencies will develop detailed seasonal updates (fall/winter and spring/summer) to the water-management plan to better reflect priorities based on actual and anticipated water conditions. The implementation of water-management measures is accomplished through in-season operations coordinated through the TMT.

Hydrosystem Substrategy 2.1

Reservoir operations to enhance fish survival

The Action Agencies will implement several independent FCRPS project operations to benefit fish at or near a given project or its reservoir. Reservoirs are to be operated to meet project minimum outflows, to reduce outflow fluctuations to avoid stranding resident fish, to reduce cross-sectional area to speed juvenile passage, and to make specific temperature releases to improve water temperatures for fish. These operations are generally the highest priority and not likely to change from the BiOp recommendations. The Action Agencies will consider and coordinate any potential changes through the TMT process.

NMFS RPA Action reference: 20, 58

FWS Reasonable and Prudent Measure (RPM) reference: 8.1.a, f1, f2, f3, f4, f5, f20, f23, f43, f65, and 10.A.1

Hydrosystem Substrategy 2.2

System flow management to enhance fish survival

The Action Agencies will coordinate releases of water from the FCRPS storage projects for system purposes to provide mainstem flow augmentation and improve system water quality.

The Action Agencies have reviewed the strategies and other recommendations in the BiOps and developed the following priorities (in order) for flow management:

- Operate storage reservoir (Hungry Horse, Libby, Dworshak, and Albeni Falls) to meet criteria for bull trout and sturgeon.
- Refill the storage projects by June 30th to provide summer flow augmentation.
- Operate storage projects to be at their April 10 flood-control elevation to increase flows for spring flow management.
- Provide fall and winter flows for chum spawning.

In an operating year that begins on October 1, flow needs are not encountered in the same order as the priorities, i.e., the first decision to be made is for chum spawning flows, which have a lower priority than summer flows. Therefore, chronologically, the Action Agencies will attempt to operate during the year as follows:

- **The initial objective** will be to operate the storage reservoirs (Dworshak, Hungry Horse, Libby, Albeni Falls, and Grand Coulee) to be at flood-control levels by early April. This level varies by runoff forecast. The ability to reach early April flood-control levels will be affected by how much water was released for flood control, power generation, and fishery flows to support both chum and Hanford reach spawning. There may be years when chum and Hanford Reach flows may need to be reduced in order to be at the early April flood-control levels.
- **The next objective** is to refill the storage reservoirs by about June 30 to maximize available storage of water for the benefit of summer migrants. The June 30 refill would have priority over spring (April, May, June) flow objectives, although there would be an attempt to meet the spring targets and other fish needs.
- **The final objective** is the management of available storage to augment summer (July, August) flows to achieve flow objectives and for water temperature control. The storage reservoirs will be drafted to their specified August 31 draft limits to augment summer flows. These limits would have a higher priority over the summer flow objectives in order to meet other project uses and reserve water in storage for 2003.

The Action Agencies will balance these fish measures with other system uses, including power production, flood control, irrigation, navigation, and recreation. The Action Agencies will seek and coordinate a balance through the TMT process.

NMFS RPA Action reference: 14, 15, 16, 18, 19, 21, 23, and 32

Hydrosystem Substrategy 2.3 **Spill operations for project passage**

This substrategy includes spills at certain FCRPS projects, depending on runoff conditions, to provide a better project passage for juvenile fish, while avoiding high dissolved-gas supersaturation levels or adult fallback problems. Four general areas contribute to establishment of spill priorities:

- 1) **Juvenile fish transportation** — Spill is provided at both transport and non-transport projects to “spread-the-risk” between transportation and in-river migration under normal or better spring runoff conditions. Spill is provided only at non-transport projects to enable maximum transportation under low flow conditions and during the summer migration. Also, see (4), below.
- 2) **Dissolved gas management** — Spill for fish passage is provided up to specific levels at each project, not to exceed established dissolved gas levels (either the 110% standard, or as modified to 120%). Additionally, spill is managed on a system basis according to a spill priority list to distribute spill across the region in high runoff conditions to prevent dissolved gas supersaturation “hotspots.”
- 3) **Adult salmon fallback** — Spill for fish passage is also limited at select projects to reduce fallback of adult fish over the spillway.
- 4) **Passage survival research** — Spill-related research priorities include evaluation of passage survival, spill effectiveness in relation to spill levels and duration, the effect of spill on juvenile fish retention in forebays and tailraces, and the effect of spill on adult fallback. In some cases, normal spill operations may be modified to support such research.

NMFS RPA Action reference: 5, 40, 41, 42, 43, and 54

Hydrosystem Substrategy 2.4 **Juvenile fish transport actions to enhance fish survival**

This substrategy includes actions to collect juvenile fish at some FCRPS projects, while providing a balance between transported and in-river juvenile fish migration. Priority for juvenile fish transportation varies, depending on runoff and river flow levels. Under normal and above-normal spring flow conditions, transportation is prioritized at Snake River projects. Based on analysis presented in the BiOp, this would leave approximately 30% to 40% of Snake River juvenile fish to migrate in-river, with the remainder transported to below Bonneville Dam. Research would continue to better determine transportation benefits across a range of hydraulic conditions, including delayed transportation mortality (“D”). Generally, in-river migration is prioritized for Columbia River stocks during the spring, pending results of future research on the effectiveness of McNary transportation. However, in very low flow conditions such as those observed in 2001, transportation may be prioritized at

McNary as well. Transportation of fall Chinook is prioritized at all four transport projects under all flow conditions.

Priority transportation research includes an assessment of McNary transport during the spring, and transportation of fall Chinook.

NMFS RPA Action reference: 40, 41 and 43

Hydrosystem Substrategy 2.5

Other actions to enhance water management

This substrategy includes water-management-related measures to improve fish survival such as studies, water-quality measures, and water-conservation improvements. Measures such as Variable Discharge Flood Control Procedure (VARQ) flood control and Banks Lake Drawdown are being studied to determine whether project operations can be modified to improve fish migration flows and still have acceptable impacts on other uses. In addition to routine monitoring, we are developing total dissolved gas (TDG) and temperature models to further improve decisionmaking on water-management actions. Reclamation will complete ESA consultations on several of its tributary projects below Chief Joseph Dam, a step that should contribute to increased fish survival. Other measures may result in improved fish survival in Columbia and Snake River tributaries as a result of an ESA emphasis on existing programs such as Reclamation's water-conservation program, its continued efforts to resolve unauthorized water use, and Columbia Basin Irrigation Project activities.

VARQ flood control modifications — An environmental impact statement (EIS) is being prepared and is scheduled to be completed in 2004. EIS activities in 2002 include public scoping meetings, hydrologic study, and initial development of the Draft EIS.

Reclamation water-conservation improvements — Reclamation annually funds conservation projects selected from numerous proposals received from irrigation districts, canal companies, and others. FY02 project selection criteria have a new ESA emphasis that will give higher priority to proposals with potential to benefit ESA-listed fish species.

Reclamation report on unauthorized water use — Reclamation will prepare this report by December 2002 and continue its work to resolve specific issues with its districts and their water users.

Reclamation ESA consultations on tributary projects below Chief Joseph Dam — Consultations are in progress and scheduled to be completed in 2002 for the Crooked River, Deschutes, Arnold, Umatilla, Yakima, and Tualatin projects.

Reclamation assessment of effects of operating Banks Lake 10 feet from full pool during August — Reclamation is preparing an EIS for this action. The EIS is scheduled to be released in time to allow a decision before August 2002.

Water acquisitions from Reclamation's Upper Snake River Projects — Reclamation, NMFS, and others are participating in settlement discussions under the Snake River Basin Adjudication. Implementation of flow augmentation in 2002 will involve a possible settlement, another ESA consultation on the Upper Snake River projects, and authorizing legislation from Idaho. In the interim, Reclamation will seek to continue to provide 427 thousand acre-feet of water from storage in the Upper Snake River for the benefit of summer migrants. The actual amount of water available from Reclamation storage for 2002 flow augmentation will be determined following settlement and consultation discussions.

Other Reclamation measures — On the Columbia Basin Project, Reclamation will identify and evaluate salmon attraction problems in the wasteways and drains, initiate water quality monitoring and evaluation of return flows, and complete (in 2002) the construction of screens at the Burbank No. 2 and 3 pumps.

NMFS RPA Action reference: 17, 19, 20, 22, 24, 25, 26, 27, 28, 29, 30, 31, 32, 35, 36, 37, 38, 39, 131, 132, 133, 143, and 198

FWS RPM reference: 8.1.a. f1, f2, f6, f7, f8, f9, f10, f11, f12, f14, f16, f22, f24, f26, f29, f61, and f68

Hydrosystem Strategy 3

Operate and Maintain Fish Passage Facilities to Enhance Fish Survival

2002 Priorities

In addition to routine activities, there are two major O&M thrusts in 2002: (1) to increase emphasis on the accumulated backlog of deferred maintenance on fish facilities; and (2) to identify, prioritize, and begin to acquire spare parts for critical passage equipment.

Hydrosystem Substrategy 3.1

Operation of FCRPS fish facilities

The Fish Passage Operations and Maintenance Coordination Team annually develops operational priorities and summarizes them in the Fish Passage Plan. That Plan is implemented at Corps projects by project personnel and others involved with river operations. Examples of routine O&M functions that will be implemented in 2002 are: (1) operating fish-

passage facilities, including such activities as daily inspections, fish counting, and minor facility maintenance; (2) operating juvenile fish transportation barges and trucks; and (3) debris control.

NMFS RPA Action reference: 40, 44, 91, 144, 146, 191

Hydrosystem Substrategy 3.2 **Routine maintenance on fish and wildlife facilities**

Corps staff routinely conduct a number of maintenance measures to ensure that the fish-passage facilities function as intended. Examples: maintenance of fish-passage facilities such as fish screens, juvenile bypass systems, and fish ladders.

NMFS RPA Action reference: 40, 93, 114, 144, and 191

Hydrosystem Substrategy 3.3 **Non-Routine maintenance on fish and wildlife facilities**

A number of maintenance actions occur irregularly, e.g., rehabilitation of fish counting stations, replacement of fish pumps, overhaul of fish bypass equipment, and acquisition of new fish barges. Non-routine O&M actions planned in 2002 have both a system-wide and a project-specific applications.

Examples of non-routine system-wide O&M actions include (1) acquiring fish facility spare parts, and (2) developing preventative maintenance programs. Examples of non-routine project actions include (1) replacing the adult fishway entrances and hoists at Ice Harbor Dam; (2) maintaining the submersible traveling screens at Bonneville Dam and (3) repairing the Bradford Island/Cascade Island ladder system at Bonneville Dam.

NMFS RPA Action reference: 44, 50, 91, 93, 101, 117, 120, 125, 126, 129, 144, 145, 146, and 191

Hydrosystem Substrategy 3.4 **Operations RM&E**

Monitoring and evaluation of FCRPS fish facilities is intended either to reveal how well the facilities are operating or to discover ways to improve their performance. Examples of O&M-funded RM&E include evaluation of juvenile fish transportation and evaluation of adult passage at dams. Priorities in 2002 include evaluation of spring McNary transportation, of fall Chinook transportation, and of adult passage, including unaccounted losses.

NMFS RPA Action reference: 45, 46, 47, 49, 52, 93, 109, 114, 139, 185, 186, 189, 195, and 199

Hydrosystem Substrategy 3.5 **Transmission reinforcements in support of spill**

Several transmission-system improvements are being evaluated to remove constraints to the full implementation of flow recommendations contained in the BiOp.

In 2000, BPA's Transmission Business Line began planning for the Schultz-Wautoma 500-kV line (formerly called "Schultz-Hanford"). Priorities currently include going through the Western Systems Coordinating Council (WSCC) Regional Planning Process (a necessary process to determine whether other parties are affected by or are interested in participating in the project); this step should be concluded in early FY02. Surveying for design purposes will continue, as will any remaining environmental field studies. Cultural-resource field studies will be conducted in early FY02. The Draft EIS is scheduled to go out for public review in early 2002. The Record of Decision for this project is expected in September of 2002.

The Grand Coulee-Bell 500-kV Transmission Line Project (formerly known as "West of Hatwai") has been identified as the preferred alternative to relieve the transmission system constraints to full implementation of flow recommendations. This project is presently going through the WSCC Regional Planning Process and should be completed in early FY02. New environmental and cultural surveys will be conducted in 2002. A draft EIS is scheduled for release in early 2002.

BPA's Transmission Business Line is currently preparing EISs and developing new transmission facilities to integrate the energy from a number of planned energy resources in the Pacific Northwest. Examples of one such facility is a new 75-mile 500-kV transmission line from McNary Dam to John Day Dam to integrate the new Wallula and Starbuck generating projects. Both of these generation projects are north of the North of John Day Cutplane and should provide some relief of the congestion along this cutplane.

NMFS RPA Action reference: 55, 56, and 57

B. Habitat



2002 Priorities

The habitat portion of this 2002 1-Year Plan corresponds to the NMFS BiOp by emphasizing a mix of both short- and longer-term mix of projects — to improve survival in priority areas in the short term, and to support subbasin planning and watershed assessment activities important to our long-term effort. In 2002, the Action Agencies will have over 200 projects underway to improve different facets of the habitats upon which the stocks listed in the FCRPS BiOps depend.

In light of the number and diversity of the habitat projects, this 2002 1-Year Plan provides a profile of our overall approach to implementing the strategies and substrategies, how they address specific RPA actions, and a general description of the types of projects that will be initiated or are already underway. Major thrusts for 2002 include the following:

- In tributary rivers and streams, well over 100 miles of riparian habitat will be protected, enhanced, or restored.
- In the estuary, over 2000 acres of habitat will be protected, enhanced, or restored.
- Efforts will be underway in 29 subbasins for planning and habitat assessment,
- We will work with the regulatory agencies and TRTs to develop habitat measures that address de-listing criteria to support recovery planning.
- Continuing implementation of specific projects in some high priority subbasins and initiating new programs in additional high priority subbasins.

This 2002 1-Year Plan captures the benefit of many ongoing Council Fish and Wildlife Program projects that address specific actions identified under the RPA actions set forth in the NMFS BiOp. The Council designated these projects as priority projects for ESA responsibilities, after they had undergone ISRP review. The 2002 1-Year Plan also contains actions ongoing or being initiated by the Corps and Reclamation for tributary, mainstem, and estuary habitat improvements. Finally, this Plan also contains still-to-be-completed new projects approved under the BPA High Priority, Innovative, and Action Plan solicitations in 2001.

Since each of the Action Agencies must approach habitat improvement under different statutory

authorities and processes, each agency's programs or projects are identified separately in this 1-Year Implementation Plan. In addition, the projects proposed for accomplishment within the habitat strategies should be considered in the context of the BiOp which links the Action Agency's efforts to the overall Basinwide Recovery Strategy. On-going actions by other federal agencies, the States, Tribes, local entities, and individuals will all contribute to a concerted effort for habitat improvements. For the purposes of this 1-Year Implementation Plan, the Action Agencies have not attempted to link the programs and projects of all involved parties into a habitat plan. Although desirable, that linkage will not be possible until we can nest the actions of all parties within the context of the Council's subbasin plans.

New Project Initiatives — BPA issued three solicitations in 2001 to identify projects to ameliorate the affects of power emergencies, to provide immediate benefits for listed fish, and to encourage innovation. Most of these projects will be implemented and completed in 2002.

The Action Plan Initiative — The Action Plan for Fish in Response to the Power System Emergency was founded on the goal of providing immediate benefits to fish and wildlife affected by the 2001 power emergency response. This solicitation was over and above the mitigation and recovery actions BPA had planned to implement under the ESA and Northwest Power Act. It was designed to identify only those shorter-term actions that could be initiated in 2001 to help fish affected by the power system emergency. Under this initiative, projects were begun to implement the following substrategies: Water Quantity (9 projects); Passage and Diversion Improvements (7 projects); Watershed Health (3 projects); and Subbasin Planning and Assessment (1 project).

The High Priority Project Initiative — The High Priority project solicitation was intended to be a one-time funding commitment resulting in immediate, on-the-ground benefits. The intent was to give habitat actions a jumpstart. Although this initiative solicited proposals outside of the Council's Provincial Review process, the projects had to meet specific criteria that the Council adopted in its recent program amendments. Under this initiative, projects were begun to implement the following substrategies: Water Quantity (1 project); Passage and Diversion Improvements (5 projects); and Watershed Health (10 projects).

The Innovative Project Initiative — The purpose of innovative projects is to explore new methods and technologies and new applications for existing methods and technologies designed to directly benefit fish and wildlife. An innovative project is one that (a) relies primarily on a method or technology that has not previously been used in a fish and wildlife project in the Pacific Northwest; or (b) although used in other projects, has not previously been used in an application of this kind. Under this initiative, projects were begun to implement the following substrategies: Subbasin Planning and Assessment (2 projects) and Watershed Health (4 projects).

Gaps in Coverage of RPA Actions — While this initial 2002 1-Year Plan for Habitat does not contain projects addressing every substrategy in every subbasin, overall coverage of the substrategies is high. In the tributaries, all five substrategies are being implemented. In the Columbia River estuary, all substrategies, except for Passage and Diversion Improvements, are being implemented in 2002. In the mainstem, projects are being implemented in 2002 under Watershed Health and the Subbasin Planning and Assessment substrategies. Research efforts under the latter substrategy will indicate whether the initiation of projects under the remaining substrategies would be appropriate for the mainstem. Within a year or two, we anticipate that projects will be underway, implementing the full array of substrategies that have been determined appropriate to each subbasin. This determination will be based on the Provincial Review cycle and what we learn from experience.

Upcoming Provincial Reviews — This 2002 1-Year Plan is intended to maximize use of the Council planning process, including public input. New projects to address gaps in the 2002 1-Year Plan coverage of the RPA actions will be identified as part of the Council's "rolling" Provincial Reviews, and, where necessary, through complementary efforts of the Action Agencies for specific substrategies. For example, in response to the Columbia Plateau Provincial Review, the Council received 102 proposals for projects beyond those summarized later in this section. In November 2001, five more provinces (Columbia Cascade, Middle Snake, Lower Columbia, Columbia River Estuary, and the Upper Snake) will begin Provincial Reviews, generating additional projects. Over the course of 2002, the states, tribes, and other constituents will therefore enjoy multiple points of entry into the project planning process. These opportunities ensure that the implementation process will be interactive rather

than static. Constituents can also look ahead and strategically plan how they want to enter the process.

Many of the projects that the Council will be recommending for BPA funding in 2002 will not be identified until well into the fiscal year. To address these developments, we plan to make periodic updates to our tables and the data tracking system (and available on the website) to incorporate the new projects into the 2002 1-Year Plan, the Implementation Plan database, and the Implementation Plan website. While it is important to keep the pool of projects underpinning each 1-year implementation plan up to date, it is absolutely essential that the Action Agencies, NMFS and USFWS, and the Council remain flexible enough to allow the 2002 1-Year Plan to evolve over the course of the year towards tighter linkage with, and full coverage of, the substrategies.

The wealth of projects being proposed through the Provincial Review process necessarily implies that priorities will have to be applied to decide which projects to implement in any given year. Because of the timing of this BiOp (December 2000) and the subsequent timing of the 2002 1-Year Implementation Plan, specific prioritization criteria could not be entirely employed for this 1-Year Plan. Instead, we applied more general strategies that were derived from a series of more specific targeted priorities in the 2002–2006 5-Year Plan.

Adaptive Management — What we learn from our experience will play a key role in the selection of future projects. For example, a project that is initially unique to a subbasin, if successful, may be subsequently replicated throughout that subbasin, or throughout many subbasins. Furthermore, our ability to mount a focused and comprehensive effort basinwide will increase as the subbasin plans are completed, and the Provincial Review process moves forward, and the elements of the Basinwide Recovery Strategy are implemented by other participating members of the Federal Caucus. Further, adaptive management principles will be employed on site-specific cases to accommodate the interests, needs, and contributions of the states, tribes, and local entities to this effort.

Habitat Strategy 1

Protect and Enhance Tributary Habitat

In the tributaries, the Action Agencies are initiating projects in priority subbasins that implement the substrategies to improve Water Quantity, Water Quality, Passage Diversion Improvements, Watershed Health, and Subbasin Planning and Assessment.

Habitat Substrategy 1.1

Water quantity

Establish a water brokerage — Over time, a water brokerage will oversee projects basinwide. In 2002, however, this substrategy will be implemented with six water acquisition projects in the Columbia Gorge Province, one each in the Big White Salmon, Columbia Gorge, Fifteenmile, Hood, Little White, and Wind subbasins.

BPA has begun these experiments and will submit a report evaluating their success at the end of 5 years. These projects increase tributary flows through water acquisitions and improvements at diversions.

In 2002, BPA and NMFS will build a regional structure for flow improvements. We will establish a non-profit entity to (a) coordinate water and habitat objectives generally, (b) develop a competitive process to supply water to increase flows, (c) process water solicitations and complete transactions, and (d) implement operations planning. The water brokerage will test the effectiveness of various transactional strategies for increasing tributary flows.

Proposals to develop other innovative strategies for water acquisition, and to address the need for an in-stream flow protocol, will be sought in the upcoming provincial reviews.

Restore flows — In 2002, Reclamation will implement this strategy in the Methow Subbasin of the Columbia Cascade Province, in the Lemhi Subbasin of the Mountain Snake province, in the Upper John Day and Middle Fork John Day subbasins in the Columbia Plateau Province.

Working with local and state entities, Reclamation will identify opportunities and initiate programs to acquire water (through short-term leases or water purchases) to improve streamflows for fish migration, spawning, and rearing in the Methow, Lemhi, Upper John Day, and Middle Fork John Day subbasins. Hydrologic evaluations, which were initiated in 2001 to identify water resources, will be completed. Cooperative arrangements with state agencies or other parties to protect acquired water resources from downstream diversion under state water law will continue. To facilitate these cooperative arrangements and to work directly with local interests, Reclamation will establish liaison offices in each subbasin by October 2001. Programmatic NEPA studies to evaluate the impacts of the program that were initiated in FY01 will continue and will be near completion by the end of FY02.

In mid-2002, Reclamation will prepare to initiate similar programs in the Wenatchee subbasin in Washington, the McKenzie subbasin in Oregon, and the upper Salmon subbasin in Idaho. Reclamation will initiate NEPA compliance efforts, hydrologic analyses (if needed), and prepare to establish liaison offices in each subbasin. If possible, considering local conditions and available funding, Reclamation will identify and implement early action streamflow improvement efforts in each subbasin.

NMFS RPA Action reference: 149 and 150

Habitat Substrategy 1.2

Water quality

Coordinate offsite habitat enhancement measures to improve water quality — In the Blue Mountain Province, one project will be implemented in the Grande Ronde Subbasin. In the Columbia Plateau province, two projects will be implemented in the Yakima Subbasin.

These projects improve water quality by supporting development of state or tribal total maximum daily loads (TMDLs). The Action Agencies will share technical expertise and training with other entities and leverage funds through cooperative projects and agreements. The Action Agencies will participate as appropriate in TMDL coordination and consultation meetings, and will coordinate TMDL work with the states in the Subbasin Plans.

NMFS RPA Action reference: 152

Habitat Substrategy 1.3

Passage and diversion improvements

Screen diversions, and remove obstructions to passage — Reclamation will initiate programs to improve habitat in priority subbasins by restoring streamflows, screening diversions, and removing obstructions to passage in the Lemhi, Methow, and upper & Middle Forks John Day. In 2002, Reclamation will initiate a strategy to enter Entiat, McKenzie and upper Salmon subbasins including evaluating resource needs, initiating NEPA compliance efforts, requesting funding for FY03, identifying funding needs for FY04, and working to secure congressional authorization to fund project construction. Reclamation has adequate authority to provide technical assistance including engineering designs, but lacks authority to fund project construction; consequently, Reclamation has been actively pursuing alternative means to acquire the needed authority from the Congress. BPA will expand on measures under the Council's Fish and Wildlife Program to complement Reclamation's actions.

- **Reclamation Projects**

Reclamation will implement this substrategy in the Columbia Cascade Province in the Methow Subbasin, in the Mountain Snake Province in the Lemhi Subbasin, and in the Columbia Plateau Province in the Upper John Day and Middle Fork John Day subbasins.

First, Reclamation will provide technical assistance (including engineering design, environmental compliance, and assistance with obtaining permits) to landowners to screen diversions to NMFS and USFWS criteria and modify instream diversion structures to facilitate migration.

Major projects proposed for technical assistance in the Lemhi include a BPA construction-funded initiative (L-6/S14 exchange) being managed by the Upper Salmon Watershed Project. In addition, Reclamation is cooperating with the Idaho State Office of Species Conservation to provide technical assistance to landowners for instream diversion structures in the lower reaches of the Lemhi River and reconnection of Hawley Creek to the Lemhi River.

Major projects proposed for technical assistance in the upper John Day Basin subbasin and Middle Fork John Day subbasin include several screening and push-up dam replacement projects related to the Oxbow Ranch in cooperation with the Warm Springs Tribes, and a diversion dam consolidation project on Beech Creek.

In the Methow subbasin, technical assistance will be provided at Twisp Valley Water and Power Diversion Dam and Barkely Diversion Dam to facilitate fish passage at these structures.

Data collection, including survey work, will continue in all subbasins. In all subbasins, opportunities to improve passage conditions will be considered on a case-by-case basis during the year and will be undertaken as available funding permits. As noted previously, Reclamation will establish offices in each subbasin, complete related programmatic NEPA studies, and pursue programmatic Section 7 ESA consultations with NMFS and USFWS.

Also during 2002, Reclamation will evaluate workload needs and establish proposals for initiation of similar programs in the McKenzie (Lower Columbia Province), Wenatchee (Columbia Cascade Province), and Upper Salmon (Mountain Snake Province) subbasins during FY03. In all cases, Reclamation will prioritize potential projects

using any available subbasin plans developed under the Council's Provincial Review Process and research, monitoring, and evaluation plans established under this BiOp.

- **BPA Projects**

BPA will implement seven projects in the Columbia Plateau Province in the John Day (1 project), Walla Walla (4), and Yakima (2) subbasins. In the Middle Snake Province, one project will be implemented in the Boise Subbasin. In the Mountain Columbia Province, two projects will be implemented in the Flathead Subbasin. In the Mountain Snake Province, one project will be implemented in the Clearwater and one in the Salmon subbasins.

BPA will be replacing pushup dams between Wall Creek and Kimberly in the North Fork of the John Day by installing site-specific permanent pumping stations at six locations. BPA will determine fish-passage, rearing, and spawning habitat conditions through four projects in the Walla Walla Subbasin. BPA will restore and re-establish access to productive off-channel rearing habitats and protect and reconnect floodplains associated with the mainstem Yakima and Natches rivers. BPA will re-establish passage into tributary habitats that have artificial barriers near their confluence with the Yakima River. BPA will enhance passage of juvenile and adult salmon in Idaho's anadromous fish corridors by consolidating and screening diversions. In the Upper Salmon River, BPA will implement fish-passage restoration projects, including fishways, diversion headgates, and improved water distribution. BPA will also implement fish-passage improvements pertaining to the Hungry Horse mitigation effort.

- **Corps Projects**

The Corps has requested funding to continue a General Investigation study for the Walla Walla River to gather baseline information and develop alternatives for obtaining increased instream flows and other habitat enhancements. The Corps will also continue to use existing authorities for ongoing cost-shared ecosystem restoration projects, and work with interested parties to identify potential new projects. For example, in the Walla Walla subbasin, the Milton-Freewater project will restore 10 acres of floodplain; in the Grand Ronde subbasin, two projects will restore 2 ½ miles of the Grande Ronde River, and nearly a mile of Ladd Creek. In the Umatilla subbasin, a ½ mile stretch of East Birch Creek will be enhanced. Work will

begin in a 12 mile stretch of the Salmon River, in Challis Idaho for restoring natural channel and geomorphic function. The Corps will continue to explore ways to leverage resources with others to support subbasin planning and restoration actions.

NMFS RPA Action reference: 149

Habitat Substrategy 1.4

Watershed health

Negotiate and fund long-term protection for 100 miles of riparian buffers — BPA Projects. In the Blue Mountain Province, there will be one project in the Grand Ronde Subbasin. There will be eight projects in the Columbia Plateau province; one each in the John Day, Umatilla, Walla Walla, and Yakima subbasins; and two each in the Snake Lower and Tucannon subbasins. In the Middle Snake Province, there is one project in the Boise Subbasin. In the Mountain Snake Province, there are two projects in the Clearwater Subbasin and one project in the Salmon Subbasin. In the Lower Columbia Province, there are four projects in the Willamette Subbasin.

Under the Council's Fish and Wildlife Program, BPA is directly funding 17 projects that protect over 100 miles of riparian habitat. These include riparian fencing, planting, and instream work in the Grand Ronde Basin and the Middle Fork and mainstem John Day River. Another project includes stream-bank stabilization, pool development, and riparian planting at 11 sites along the Tucannon River. Another applies various upland-vegetation and soil-erosion practices to reduce sediment delivery in Pataha Creek. Another improves spawning and rearing habitat for steelhead in Umatilla Basin streams by constructing riparian fencing and instream structures. Another project will protect riparian and wetland habitats in the Lower Yakima Valley. In the Clearwater Subbasin, BPA will re-establish riparian communities to provide bank stabilization, restore cover, and reduce temperatures in lower Red River Meadow. BPA will also be protecting and enhancing critical riparian areas of the Mill Creek Watershed (Clearwater Subbasin) to provide quality habitat for Chinook salmon, west slope cutthroat trout, steelhead trout, and bull trout.

BPA will work with NMFS and the Council to expand this program.

Protect currently productive non-federal habitat at risk of being degraded — BPA will implement a total of 27 projects. In the Blue Mountain Province, three projects will be in the Grand Ronde Subbasin. In the Columbia Gorge Province, there will be one project the Big White Salmon, Columbia Gorge, Fifteenmile,

Hood, Little White, and Wind Subbasins. In the Columbia Plateau Province, there will be six projects in the John Day, and one project in Umatilla, Walla Walla, and Yakima Subbasins. In the Mountain Snake Province, there are four projects each in the Clearwater and Salmon Subbasins. In the Upper Snake Province, there is one project in the Snake Upper Subbasin.

To improve watershed health, BPA has placed a high priority on protecting productive non-federal habitat by acquisitions and easements. For example, BPA will acquire approximately 4,300 acres of land, 25 cubic-feet-per-second (cfs) water, and 13 miles of river habitat in the upper Middle Fork and upper mainstem of the John Day River. BPA will acquire the Wagner Ranch to provide a contiguous corridor of habitat along the lower mainstem John Day River.

BPA projects also identify geographical locations on non-federal lands, where such habitats are at risk of being degraded, and protect them. For example, BPA will restore spawning and rearing habitat for winter steelhead in the Fifteen-mile Creek Subbasin. BPA will implement habitat enhancements on private properties in the North Fork of the John Day Subbasin. BPA will protect and restore the North Lochsa Face watershed by alleviating sediment input from road sources. BPA will enhance and restore fish habitat in priority stream segments on a 12-mile stretch of the Salmon River, and will seek to expand this program through the Provincial Review process.

NMFS RPA reference: 150 and 153

Habitat Substrategy 1.5

Subbasin planning and assessment

Support development of subbasin assessments and plans — BPA will implement a total of 20 projects that support subbasin assessment and planning efforts. In the Blue Mountain Province, there will be one project in the Asotin and two in the Grand Ronde Subbasins. In the Columbia Gorge Province, there will be one each in the Big White Salmon, Columbia Gorge, Fifteenmile, Hood, Klickitat, Little White, and Wind subbasins. In the Columbia Plateau Province, there will be one project in each in the Deschutes, John Day, Palouse, and Yakima subbasins and two in the Umatilla Subbasin. In the Mountain Snake Province, there will be three projects in the Clearwater and one project in the Salmon subbasins.

The Basinwide Strategy recommends targeting habitat actions by means of subbasin assessment and planning through the Council and through watershed assessment and planning at the local level with

federal assistance. The Action Agencies are already working with the Council to ensure that subbasin plans are completed by 2006. The Basinwide Strategy recommended the formation of a Federal Habitat Team to establish effective working relationships with state, tribal, and other non-federal entities. The Federal Habitat Team has been convened and has provided Council staff with comments on the Technical Guidelines for Subbasin Planning. The Action Agencies will continue to provide a share of technical support for subbasin assessments and plans.

Under this substrategy, BPA will coordinate, plan, and implement habitat restoration for Chinook and steelhead in the Grand Ronde Subbasin by supporting the development of a Grand Ronde Watershed Model. As part of this plan, BPA will support the Wallowa Basin Planning Project, including the study of in stream flow of the Lostine River. BPA will also support development and implementation of the Wy-Kan-Ush-Mi Wa-Kish-Wit Watershed Plan. BPA will support watershed planning and education in the Umatilla Subbasin, as well as development of a watershed program for Newsome Creek on the South Fork of the Clearwater River. BPA is working with the Idaho Soil Conservation Commission and the Nez Perce Tribe to develop and implement better watershed practices.

NMFS RPA Action reference: 154

Habitat Strategy 2

Improve Mainstem Habitat on an Experimental Basis

The NMFS BiOp and Basinwide Strategy call for an experimental program to identify ways to increase spawning and rearing habitat in the mainstem of the Columbia and Snake rivers. In the mainstem, the Action Agencies will initiate projects that implement substrategies to improve Watershed Health and Subbasin Planning and Assessment.

Habitat Substrategy 2.1 Watershed health

Identify research needs; develop improvement plans; and, initiate improvements in three mainstem reaches — The activities under this substrategy will be carried out in the Columbia Gorge Province in the Big White Salmon, Columbia Gorge, Fifteenmile, Hood, Little White, and Wind subbasins; in the Columbia Plateau Province in the Columbia Lower Middle Subbasin; and, in the Lower Columbia Province in the Columbia Lower, Sandy, and Washougal subbasins.

The Action Agencies plan to improve mainstem habitat by increasing habitat diversity, complexity, and productivity. In 2002, we plan to sponsor a workshop on research needs and then initiate a research program that identifies mainstem habitat sampling reaches and identifies survey conditions. Specifically, under this substrategy we will collect baseline data to address uncertainties; identify cause-and-effect relationships; identify potential restoration sites; and report results annually.

Improve and restore tributary and mainstem habitat for Columbia River chum salmon — This project will improve tributary and mainstem chum habitat by protecting tributary and mainstem habitats through purchase, easement, and restoration projects. It will develop and implement an effective habitat improvement plan to protect, restore, and/or create potential spawning habitat in this and adjacent tributaries through purchase, easement, or other means. It will also monitor habitat improvements and continue to transplant adults from Ives Island.

Project locations for this substrategy are still to be determined.

NMFS RPA Action reference: 155 and 157

Habitat Substrategy 2.2

Subbasin planning and assessment

Improve spawning conditions for chum salmon in the Ives Island area — In the Columbia Gorge Province, this project will occur in the Big White Salmon, Columbia Gorge, Fifteen-mile, Hood, Little White, and Wind subbasins. In the Columbia Plateau Province, the focus will be on the Columbia Lower Middle Subbasin; and, in the Lower Columbia Province, in the Columbia Lower, Sandy and Washougal subbasins.

BPA is working with the Oregon Department of Fish and Wildlife (ODFW) to determine whether Chinook and chum salmon spawning populations exist below each of the four mainstem Columbia River dams.

NMFS RPA Action reference: 156

Habitat Strategy 3

Protect and Enhance Estuary Habitat

In the estuary, the Action Agencies will initiate projects that implement the substrategies to improve Water Quantity, Water Quality, Watershed Health, and Subbasin Planning and Assessment. This strategy is consistent with the Northwest Governors' recommendation to implement the Lower Columbia River National Estuary Program (LCREP), the Basinwide Strategy, and the Council's Fish and Wildlife Program.

In the estuary, the Action Agencies will work with LCREP to conduct assessments and move forward with habitat acquisition and improvement projects.

Habitat Substrategy 3.1 **Water quantity**

Fund an estuary monitoring and research program; and, develop a conceptual model of the relationship between estuarine conditions and salmon population structure and resilience — This substrategy will be implemented in the Columbia River Estuary Province in the Columbia Estuary, Grays, and Elochoman subbasins. This ongoing effort is part of a coordinated estuary, plume, and near-shore ocean research and monitoring program. Participants include NMFS, Oregon Health and Science University/Oregon Graduate Institute, Oregon State University (OSU), the University of Washington (UW), ODFW, and Department of Fisheries and Oceans, Canada.

These ongoing project(s) are designed to address the following items: continue funding of the conceptual model development and work to evaluate the role of the plume in supporting juvenile salmon growth and survival during their first year of life in oceanic life. Characterize and enhance the understanding of: (a) tidal, seasonal, and inter-annual variability of the circulation, hydraulic residence times, and physical properties below Bonneville Dam; (b) extent and properties of plume, and (c) physical properties of the nearshore ocean environment north and south of the plume.

Develop a compliance monitoring program — This substrategy will be implemented in the Columbia River Estuary Province in the Columbia Estuary, Grays, Elochoman, Cowlitz, Kalama, Lewis, Lower Columbia, Washougal, and Sandy Subbasins.

NMFS RPA Action reference: 158 to 163, but in particular 158, 161, 162, and 163

Habitat Substrategy 3.2 **Water quality**

Protect and enhance 10,000 acres of tidal wetlands and other key habitat over ten years — This substrategy will be implemented in the Columbia River Estuary Province in the Columbia Estuary, Grays, Elochoman, Cowlitz, Kalama, Lewis, Lower Columbia, Washougal, and Sandy subbasins.

The Corps and BPA have begun a 10-year program to protect/enhance tidal wetlands and other key estuary habitats, rebuilding productivity for listed salmon populations. The Corps expects to continue in FY02 (subject to funding) with a “general

investigation” study of the Columbia River from river mile 0 to 145. The Corps and BPA are currently working with LCREP and others to identify and initiate estuary habitat enhancement/protection projects for FY02 that will provide clear benefits for listed fish as a comprehensive restoration plan is developed. What we learn from these projects will inform research and actions for estuary restoration. Projects may include acquisition, restoration of wetlands, dike removal, identification of suitable existing habitat that lacks connection for salmon use during migration and rearing, and others.

NMFS RPA Action reference: 160

Habitat Substrategy 3.3 **Watershed health**

Develop criteria for estuarine habitat restoration — This substrategy will be implemented in the Columbia River Estuary Province in the Columbia Estuary, Grays, Elochoman, Cowlitz, Kalama, Lewis, Lower Columbia, Washougal, and Sandy subbasins.

In 2002, the Action Agencies will continue to fund research projects in the estuary identified by the NMFS Science Center and others on salmonid use of the estuary, relevant estuary characteristics, and salmon survival through the estuary. The Corps and BPA will continue to work with NMFS and others in a reasonable, planned, and focused approach to identify and fund research needs to ensure effective progress in the estuary. Proposals for estuary research in FY02 are currently in the review process under the Corps’ Anadromous Fish Evaluation Program. Successful proposals would be prioritized (through the regional System Configuration Team process) and funded under Columbia River Fish Mitigation projects.

NMFS RPA Action reference: 158

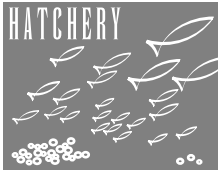
Habitat Substrategy 3.4 **Subbasin planning and assessment**

Develop a plan to meet habitat needs of salmon and steelhead in the estuary — This substrategy will be implemented in the Columbia River Estuary Province in the Columbia Estuary, Grays, Elochoman, Cowlitz, Kalama, Lewis, Lower Columbia, Washougal, and Sandy subbasins.

The Action Agencies will continue to work with the Lower Columbia River Estuary Program and the Council to link LCREP and Subbasin Planning approaches. The Council has agreed to provide funding to LCREP to undertake the Provincial Review for the Lower Columbia Estuary.

NMFS RPA Action reference: 159

C. Hatcheries



2002 Priorities

Hatchery action priorities include: implementation of a safety net hatchery program for up to ten critically depressed ESA listed salmon and steelhead populations; the development of new or revised Hatchery Genetic Management Plans (HGMPs) to identify potential hatchery reforms to benefit listed fish; and, development of a comprehensive marking plan through collaboration with the regional fishery managers. Other artificial production activities that contribute to tribal and state fisheries, including ongoing programs and potentially new programs that improve harvest opportunities while not adversely affecting the listed evolutionarily significant units (ESUs), will continue to be supported. Research efforts, covered in another section of this plan, will emphasize those activities that contribute to increasing our understanding of the effects of hatchery programs on natural production and the potential role of hatchery programs in recovery efforts.

Reclamation's priorities for the Leavenworth National Fish Hatchery Complex for 2002 will be to ensure that the draft HGMPs are finalized, and that a process is developed to implement the plans as soon as practical. Because of the multi-year life cycle of spring/summer salmon raised there, the HGMPs will likely require several years to be incorporated into the hatchery complex's routine operation.

Hatchery Strategy 1

Implement a Safety-Net Program as an Interim Measure to Avoid Extinction

The safety-net program is intended to prevent further decline in the status of the most at-risk ESA-listed species, to buy time for other recovery measures to take effect. The program would intervene with artificial production for severely depressed and declining populations when, and only when, such strategy is determined, using a prescribed four-step analytical process, to be necessary, effective, and feasible. We will also continue, in coordination with NMFS and the Council, to support existing supplementation and captive broodstock projects intended to conserve listed species.

We initiated the Safety Net Artificial Production Program (SNAPP) in 2001 by working with NMFS and the USFWS to scope out the program and

determine how best to implement the program over the next few years. The scoping effort resulted in BPA funding a Safety Net Coordinator to facilitate the four-step planning process for the Safety Net Program. The SNAPP Coordinator convened an oversight group comprised of the relevant parties (states, tribes, NMFS, USFWS) to provide oversight and help implement the program. That group determined that the initial list of safety net populations identified in NMFS RPA Action 175 should receive additional scrutiny, an action that may result in changes being recommended to this list. Although well underway, this process is not expected to be completed in 2001, and the original list of 10 critically depressed salmon and steelhead populations listed in NMFS RPA Action 175 may change. Nevertheless, the four-step process for the new population list should be completed early in 2002. If safety-net analysis determines that intervention with artificial production is warranted, an HGMP for the preferred artificial propagation option will be developed during step four of the process.

NMFS RPA Action reference: 175

Using the NMFS-approved HGMPs as a guide, we will provide funding to begin implementing and to sustain any required high-priority safety-net projects in 2002. The Action Agencies will provide appropriate funding to support such projects, using the Provincial Review process or other appropriate processes, such as targeted solicitations or direct procurements if necessary (due to scheduling constraints, for example).

NMFS RPA Action reference: 177

In addition to the program described above, the Action Agencies will fund the completion of updated HGMPs for safety-net projects for Tucannon River and Grand Ronde spring Chinook programs to inform implementation of facility modifications necessary to accommodate those programs.

NMFS RPA Action reference: 176

In 2002, the Action Agencies will begin work on identifying mechanisms to quickly fund the planning and implementation of additional safety-net projects that may be required in the future, and for which the Provincial Review process may not be timely. The Action Agencies will work with NMFS to develop an approach, starting with a "white paper" that scopes out the issue and identifies possible approaches.

NMFS RPA Action reference: 178

Hatchery Strategy 2

Reduce Potentially Harmful Effects of Artificial Production to Aid Recovery Through Hatchery Reform

In 2002, the Action Agencies will begin supporting the development or updating of HGMPs to identify opportunities to reduce potentially harmful hatchery practices and/or aid recovery through hatchery reforms. This HGMP planning process will allow us to determine whether a hatchery or facility can contribute to recovery of listed species through the modification of existing practices or facilities. This year, the Action Agencies will contribute to the development of HGMPs for Lower Snake River Compensation Program (LSRCP) and Upper Columbia facilities (e.g., Grand Coulee mitigation hatchery programs).

For facilities owned, operated, or funded by the Action Agencies, we plan to begin implementing hatchery reforms that may already be specified by existing HGMPs or hatchery BiOps. Although we expect to make some progress in 2002, most improvement to hatchery practices and facilities will probably occur in years 3–5 of the BiOp.

Hatchery reform activities resulting from NMFS-approved HGMPs and BiOps may take many forms, including but not limited to changes in broodstock selection, hatchery rearing practices, and release strategies. We expect that these reforms will lead to increased protection of listed species, thereby contributing to recovery.

The Action Agencies will support hatchery programs designed to conserve certain populations of salmon for broodstock purposes. Salmon reared in some hatchery programs contain valuable genetic information and, in some cases, unique strains. Long-term survival of these important broodstocks requires the use of the best genetic management methods; we will continue to support these programs as guided by HGMPs.

Hatchery Substrategy 2.1 Develop HGMPs

Priorities for 2002 include development and approval of HGMPs for federally funded salmon and steelhead hatchery facilities in the Mountain Snake and Blue Mountain provinces, most of which are operated pursuant to the LSRCP. These hatcheries affect the Snake River salmon and steelhead ESUs, and potentially other ESUs as well. HGMPs for Grand Coulee Mitigation hatcheries in the Columbia Cascade Province, which affect Upper Columbia ESUs, will also

be developed for NMFS approval in 2002. An approach will be identified in late in 2001 or early in 2002 that addresses how HGMPs will be developed for the federally funded hatchery facilities in the Columbia Plateau, Columbia Gorge, and any other provinces that affect listed fish, in compliance with the schedule outlined in the RPA. Particularly because the rolling Provincial Review will not recur in time for consideration of proposals to develop HGMPs for facilities in several provinces, the Action Agencies will identify alternative approaches that ensure the required HGMPs are developed on schedule. This may involve targeted solicitations, if necessary, or other funding mechanisms or processes.

NMFS RPA Action reference: 169

Hatchery Strategy 3

Contribute to the Development and Implementation of a Comprehensive Marking Plan

Common to many hatchery RM&E programs is the need to identify the origins of fish taken in the fisheries and/or observed on the spawning grounds or at counting sites. To meet those needs, a comprehensive marking strategy for all salmon and steelhead artificial production programs in the Basin will be developed. Among other considerations, the marking strategy must reflect sampling programs, and vice-versa.

The Action Agencies, working with NMFS and the USFWS, undertook initial scoping discussions in 2001 to identify how such a plan could be developed most effectively, and what the plan would need to address. The next step in the process they identified involves convening a broader, more inclusive group in late 2001 representing or linked to all the relevant fisheries entities in the Basin, and even some beyond the Basin due to the implications of marking to fisheries and assessment programs of parties outside the Basin. Priorities for 2002 include working with this broader marking-strategy oversight group, which involves NMFS, USFWS, state, and tribal fish managers and fish commissions, and linkages to Pacific Salmon Treaty participants, to complete the marking plan and begin its implementation.

This effort will begin with the development of a list of clearly defined objectives to be served by marking. An initial list of marking objectives could include, but need not necessarily be limited to, the following:

- a. Enabling population or stock-specific exploitation rate estimates, either directly or through the use of index groups;
- b. Assessing and/or monitoring ocean and in-river distribution;

- c. Monitoring and evaluating the extent of straying;
- d. Assessing and monitoring the status of natural populations;
- e. Assessing and monitoring the extent of hatchery/wild fish interactions;
- f. Enabling mark-selective fisheries;
- g. Assessing and monitoring hatchery contributions, including various rearing and release strategies, and other controlled treatments; and,
- h. Other RM&E purposes.

Marking objectives should, to the extent possible, encompass the views of all of the parties whose participation in the process of developing the plan is important to its ultimate acceptance and implementation. Once this prioritized list of marking objectives is developed, the next step will be to develop specific marking strategies in light of these objectives and to apply them to all of the artificial production facilities in the Basin, taking into account associated sampling programs (and, where necessary, identifying and implementing changes to the sampling programs). The overall effort to develop the plan will likely require the procurement of professional analytical/consulting services to be guided by a subset of the marking strategy oversight group. The Action Agencies will provide funding in 2001 and 2002 for such services as may be necessary.

For logistical and other reasons, completion of the marking strategy will not occur "by the end of 2001,"

D. Harvest



2002 Priorities

The Action Agencies recognize the potential for immediate benefits to listed species from harvest reform measures while enabling continued harvest by tribal and non-tribal fisheries. The harvest strategies seek to improve adult life-stage survival through measures the Action Agencies can facilitate that will directly or indirectly further reduce the take of listed species in the near-term and will advance harvest reforms, such as developing and enabling selective fisheries, for application over the longer term. Efforts will be undertaken in 2002 to improve the efficacy of harvest management by improving the information upon which harvest management decisions are made. These efforts will contribute to offsite mitigation goals for FCRPS impacts by providing important adult life-

necessitating a change in the schedule specified in the RPA. Because we believe the plan can be completed early enough in 2002 to guide necessary marking programs beginning in mid- to late 2002, this delay should not have a substantial material effect on the success of the RPA over the longer term.

NMFS RPA Action reference: 174

Hatchery Strategy 4 Artificial Production in Support of Tribal and Other Harvest, Consistent with the Needs of Listed Fish

2002 Priorities

Some of the loss of fishery opportunities due to the FCRPS is now made up and will continue to be made up through hatchery production for the foreseeable future. As partial mitigation for the loss of these fishery opportunities, we will focus on providing meaningful harvest opportunities by means of fishery augmentation utilizing hatchery production. This should be done under guidance of NMFS-approved HGMPs to ensure that artificial production does not unacceptably impede recovery of ESA-listed species or ESUs. Until new/revised HGMPs are completed, the Action Agencies will continue to fund hatchery projects in 2002 when such projects are operated in conformity with the ESA.

stage survival improvements that will contribute to long-term recovery goals and harvest opportunities.

Harvest Strategy 1 Develop Fishing Techniques to Enable Fisheries to Target Non-listed Fish While Reducing Harvest-Related Mortality on ESA-Listed Species

2002 Priorities

Priorities in 2002 include (1) continuation of ongoing projects to develop and evaluate selective fisheries; and (2) working with tribal, State, and Federal representatives to identify and begin developing other opportunities to improve survival of listed species and other weak stocks in ways that are mutually beneficial to the parties.

NMFS RPA Action reference: 164, 165, 166, 167

Harvest Substrategy 1.1 **Gear efficacy testing and fishery integration** **on the mainstem Columbia/Snake rivers**

In FY01, BPA funded studies through the High Priority solicitation to test the feasibility and effectiveness of tooth-tangle net and trawl gear and to evaluate their potential to reduce take of ESA-listed salmonids in the non-Treaty spring and fall fisheries below Bonneville Dam. In addition, funding was provided previously to deploy and evaluate large-mesh gill nets in the tribal fishery (the Tribal Gillnet Exchange Program) in Zone 6. The use and evaluation of that gear were continued in FY01 during the tribes' fall season fishery.

In addition to continuing both of these evaluations in 2002, the Action Agencies will seek new opportunities to test selective gear such as fish wheels, traps and weed-line modifications on set-nets (intended to avoid steelhead during Chinook fisheries) in areas above Bonneville Dam during spring and fall commercial fisheries. This will be accomplished by convening a core group of the relevant fishery managers, or appropriate subsets of the fishery managers (e.g., tribal managers for Zone 6 fisheries) to identify promising opportunities, identify development and implementation options, and recommend appropriate implementation and evaluation details. The Action Agencies will use the Provincial Review process of the Council's Fish and Wildlife Program as the basis for solicitation and review of proposals that address the subject harvest-related RPAs. Specifically, the Action Agencies, in coordination with NMFS, will provide criteria for consideration by potential project sponsors submitting proposals to the upcoming mainstem/system-wide review later this year. This will help to ensure that proposals are consistent with identified needs and priorities.

NMFS RPA Action reference: 164

Harvest Substrategy 1.2 **Research to address incidental mortality** **in selective fisheries**

For 2002, the Action Agencies will continue the 2001 effort to evaluate the impacts of capture and release from tooth-net and trawl gear on immediate and short-term mortality of spring Chinook in the non-treaty fisheries below Bonneville Dam. Additionally, any new gear-efficacy tests identified and implemented per NMFS RPA Action 167, above, will include a component to evaluate incidental mortalities of the gear or methods. These evaluations must feed into a broader, more comprehensive assessment of the impact of all fisheries, selective and non-selective,

on the spawning success of ESA-listed stocks. Toward this end, the Action Agencies will work with NMFS and the relevant fishery managers as necessary to develop a prioritized list of fishery and gear types, whether existing or new, for which mortality impact assessments should be conducted in future years. Building on this work, the Action Agencies will facilitate an effort to develop at least preliminary study designs and plans as necessary to implement the highest priority studies relevant to Columbia Basin listed fish beginning in late 2002 or 2003. The Action Agencies will use the Provincial Review process of the Council's Fish and Wildlife Program as the basis for solicitation and review of proposals that address the subject harvest-related RPAs. Specifically, the Action Agencies, in coordination with NMFS, will provide criteria for consideration by potential project sponsors submitting proposals to the upcoming mainstem/system-wide review later this year. This will help to ensure that proposals are consistent with identified needs and priorities.

NMFS RPA Action reference: 167

Harvest Substrategy 1.3 **Develop mechanism for crediting harvest reforms**

In 2002, the Action Agencies will begin to work on developing mechanisms for estimating the effects of harvest management reforms, such as selective fisheries, on the survival of listed fish, as well as effects on catch in fisheries of both listed and non-listed fish. This will be accomplished by convening a small oversight group comprised of federal, state, and tribal representatives to identify possible approaches on at least a conceptual level. The oversight group may recommend that promising approaches be further developed, possibly using a professional services contract funded by the Action Agencies and/or development of a "white paper" to scope out the issue and identify possible approach options. The goal will be to develop appropriate accounting approaches that could be applied in connection with implementing selective fisheries and/or other harvest management reforms.

NMFS RPA Action reference: 168

Harvest Strategy 2 **Improve Harvest Management Assessments,** **Decisions, and Evaluations**

The Action Agencies will lend coordination assistance and provide appropriate resources through cost-sharing mechanisms to help improve the methods and analytical procedures used to estimate fishery and stock-specific parameters in support of more

effective harvest management. Improved estimates of escapement and other critical population data that are critical for effective harvest management will occur through support of projects directed at identifying and addressing important data gaps. In some cases, specific field studies and analytical work may be necessary to address the gaps and ultimately provide the increased resolution required to manage and monitor fisheries in the context of listed populations.

2002 Priorities

In 2002, the Action Agencies will begin work in assessing unaccounted loss of migrating adult salmon in the Columbia mainstem by providing funding for at least one field study. This study will attempt to locate, mark and assess the feasibility of removal of lost fishing nets within fishery management zone 6. Additional research needs, in coordination with appropriate federal, state and tribal management entities, will be identified through existing or newly formed, ad hoc steering committees convened and/or facilitated by the Action Agencies for this purpose. Areas of focus will likely include data collection and assessment methods.

Harvest Substrategy 2.1

Improved escapement assessments and other critical population-specific data to support conservation-based harvest management

The priority in 2002 will be to work with NMFS and other relevant fishery managers and scientists to develop a prioritized list of harvest management information needs that can be addressed through future projects and that hold promise of reducing the impacts of harvest management error or information gaps on listed fish. Areas of focus will include improvement in catch sampling programs and escapement estimation, development of improved population discrimination techniques, and the development of new harvest management models to improve the efficacy of pre-season and in-season harvest management. Planning will be undertaken in 2002 for the kinds of projects needed to effectively and efficiently address the prioritized needs. These planning activities will occur in coordination with appropriate federal, state and tribal management entities, and will be carried out through existing or newly formed ad hoc steering committees convened and/or facilitated by the Action Agencies for this purpose. In addition, the Action Agencies will use the Provincial Review process of the Council's Fish and Wildlife Program as the basis for solicitation and

review of proposals that address this harvest-related RPA. Specifically, the Action Agencies, in coordination with NMFS, will provide criteria for consideration by potential project sponsors submitting proposals to the upcoming mainstem/system-wide review later this year. This will help to ensure that proposals are consistent with identified needs and priorities.

NMFS RPA Action reference: 166

Harvest Substrategy 2.2

Alternative modeling systems that work in the context of selective fisheries

In 2002, the Action Agencies will work with NMFS and other relevant harvest managers and scientists to identify and begin work on critical uncertainties and information gaps associated with the increasing trend toward the use of selective fisheries, particularly mark-selective fisheries. Because marking, mark-selective fisheries, and associated data collection systems can affect fisheries coast-wide, the Action Agencies will establish linkages (i.e., contacts with key personnel) with the Pacific Salmon Commission's Selective Fishery Evaluation Committee and the Pacific Salmon Marine Fisheries Commission (PSMFC). These linkages will be used to ensure appropriate coordination between activities undertaken by groups outside the Basin to address the information needs. The Action Agencies will contribute to the overall effort by supporting projects identified through these linkages: these projects might include, for example, supporting statistical analysis or other professional services focused on specific and relevant issues identified through these linkages. The Action Agencies will use the Provincial Review process of the Council's Fish and Wildlife Program as the basis for solicitation and review of proposals that address this subject harvest-related RPA. Specifically, the Action Agencies, in coordination with NMFS, will provide criteria for consideration by potential project sponsors submitting proposals to the upcoming mainstem/system-wide review later this year. This will help to ensure that proposals are consistent with identified needs and priorities.

NMFS RPA Action reference: 165

Harvest Substrategy 2.3

Identify sources of unaccounted harvest-related mortality

For 2001 and 2002, a feasibility study has been funded through BPA's Action Plan solicitation to respond to the 2001 Power Emergency to determine the existence and impact, above Bonneville Dam,

of lost fishing nets. The lost nets may cause some degree of unaccounted mortality on adult fish in the mainstem. The study will use sonar technology in a phased approach to locate nets, and assess the feasibility of removal.

The Action Agencies will pursue additional analysis to determine and/or further refine estimates of incidental mortalities from fishing gear and handling. The Action Agencies will rely largely on the Council's Provincial Review process to seek development and consideration of proposals to address high priority research to identify potential sources of unaccounted harvest-related mortality.

NMFS RPA Action reference: 167

Harvest Strategy 3

Support Sustainable Fisheries for the Meaningful Exercise of Tribal Fishing Rights and Non-tribal Fishing Opportunities Consistent with the Recovery Effort

Harvest Substrategy 3.1

Value-added projects

The priority for 2002 will be to identify economic development strategies designed to enhance fishery values, which may include the purchase of fishing capacity when that approach can provide significant reduction in mortality of listed species in a cost-effective and mutually beneficial manner. Such strategies will be identified and developed through formal and informal discussions with the relevant states and tribes.

NMFS conservation recommendation reference: 11.13

Harvest Substrategy 3.2

Potential alternative/terminal fishing locations

Priorities for 2002 include inventory, through appropriate scoping activities, of possible terminal/alternate fishing locations that provide potential for reduction in ESA impacts from mainstem fisheries. Preliminary sites include, but may not be limited to, the Little White Salmon and Klickitat rivers, and Eagle Creek. The Action Agencies will facilitate a process to prioritize and select potential sites for further development. In addition, continued additional hatchery production and terminal fishing opportunities in the Lower Columbia estuary will occur for coho and Chinook at Youngs Bay, Deep River, Tongue Point, South Channel, Prairie Channel, Steamboat Slough and Coal Creek Slough sites.

NMFS conservation recommendation reference: 11.12

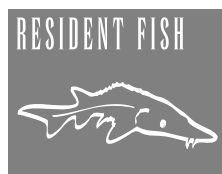
Harvest Strategy 4

Fishery Effort Reduction Programs

In 2002, the Action Agencies will continue to pursue opportunities for reducing harvest impacts on listed species. These may include agreements that reimburse commercial harvesters for not fishing, thus creating increased abundance that can be passed through other fisheries to the spawning grounds. Scoping activities will occur in fisheries that offer the best potential for ESA benefits to accrue to Columbia basin spawning grounds.

NMFS conservation recommendation reference: 11.13

E. Resident Fish



Resident Fish Strategy 1

Promote the Reproduction and Recruitment of Kootenai River White Sturgeon (KWS)

The USFWS BiOp determined that the FCRPS jeopardizes the Kootenai River White Sturgeon, which has produced extremely few natural progeny since 1974, when Libby Dam was completed upstream. Our strategy is to improve the population's ability to produce juveniles and to help ensure that those progeny grow and ultimately mature.

Resident Fish Substrategy 1.1

Conditions below Libby Dam that facilitate KWS natural reproduction and juvenile survival

Under this substrategy, we will identify the factors limiting natural production and survival to age 1 of juvenile KWS and, to the extent possible, manage the Kootenai River to overcome those limits. In 2002 we will provide ways to pass seasonally appropriate water flows and temperatures at Libby Dam and evaluate the effects of those flows on KWS reproduction and on dikes and human uses of the Kootenai River floodplain from Bonners Ferry, ID, to Kootenay Lake, BC. As studies identify other

ecological limits (e.g., water quality, habitat types, predation/competition), in subsequent years we will define and implement actions to improve those conditions, in cooperation with the KWS Recovery Team and local resource managers.

FWS action reference: 8.1.a-g; 8.2.a.1-4, 7, 8, 9; 8.2.b, c, d; 8.3.a, c, d-j; 8.4.b

Resident Fish Substrategy 1.2 **Kootenai River white sturgeon** **conservation hatchery program**

Until the KWS population is able to sustain itself through natural production, we will continue producing families of juveniles in a conservation hatchery program and releasing them to rear naturally and ultimately to recruit (in 15 to 25 years) into the spawning population. This program, begun in 1991, will be continuously monitored, improved, and guided by policies developed by and through the KWS Recovery Team.

FWS action reference: 8.4. a, b

Resident Fish Strategy 2 **Determine the Impacts of the FCRPS** **on Bull Trout and Mitigate for Those Impacts**

So little is known about the nature and magnitude of the FCRPS impacts on bull trout that much of our early effort in 2002 will focus on monitoring and evaluation. Results will determine whether mitigation would be appropriate and to define the performance standards that might be applied to mitigation efforts.

Resident Fish Substrategy 2.1 **Determine the extent to which bull trout use** **and are affected by FCRPS dams and reservoirs**

In 2002, we will continue counting bull trout that pass through monitoring facilities at mainstem dams and implement a study of bull trout use of lower Snake River reservoirs. We will continue studying bull trout distribution and use of Dworshak Reservoir, and begin bull-trout passage studies at some FCRPS dams, based on priorities set in 2001 (per FWS Action 11.5).

FWS action reference: 10.8; 10.A.2.2; 10.A.3.2; 11.2, 3, 5, 6; 11.A.2.1.a-g; 11.A.3.1.a-d, f; 11.A.3.2.a; 11.6

Resident Fish Substrategy 2.2 **Operate and modify FCRPS dams to protect,** **provide, and reconnect bull trout habitats**

Where there already is a relatively clear link between the FCRPS and the welfare of bull trout, we will continue to implement protective measures. For example, in 2002 we will manage winter elevations in Lake Pend Oreille (regulated by Albeni Falls Dam) to help promote a healthier forage base of kokanee for bull trout in the lake. We will also manage flows from Hungry Horse and Libby dams to minimize downstream effects on bull trout.

FWS action reference: 8.1.g; 10.A.1.1, 2; 10.A.2.2, 4; 11.4; 11.A.1.1.a-c; 11.A.1.2.a; 11.A.1.4.a, b, d; 11.A.2.2.a-c; 11.A.2.3.a; 11.A.3.1.e

Resident Fish Substrategy 2.3 **Performance standards for bull trout**

In cooperation with the USFWS, in 2002 we will develop ways to gauge how well the FCRPS is mitigating its impacts on bull trout.

FWS action reference: 11.1

F. Research, Monitoring, and Evaluation (RM&E)



The RM&E projects in this 1-Year Plan are the first steps in a multi-year effort to develop and track information needed for the planning, prioritization, and adaptive management of mitigation actions. These projects target the information that will be needed for annual progress reporting and longer-term check-in evaluations. Top priorities for 2002 include (1) the development of a comprehensive RM&E plan, (2) development of a Data Support System plan, (3) the initiation of several RM&E pilot studies for population status and action effectiveness research, (4) the development of an

initial set of research studies addressing critical uncertainties in ESU population assessments, and (5) the development of an action compliance and implementation monitoring plan.

A limited number of specific RM&E projects have been identified for the year 2002 at this time, since most projects and a comprehensive plan for RM&E are currently under development. The Action Agencies are working with NMFS to further develop and identify agreed-upon longer-term products, interim steps, and initial actions needed for development of an RM&E plan, projects, and supporting data system. This work will include the identification of appropriate funding

levels and coordination relative to the RM&E work and the responsibilities of other regional state and federal entities.

For RM&E the strategy categories are as follows: (1) Status Monitoring, (2) Effectiveness Monitoring and Research, and (3) Critical Uncertainties Research. Substrategy groupings are simply the geographic zone to which the actions and projects apply to and/or take place within. These geographic zones are the tributary habitat, the hydropower corridor, the estuary/ocean, and the system level. Therefore, for the Status Monitoring strategy, the substrategies are the status of fish populations and the environment in the tributary habitat-, hydropower corridor-, estuary/ocean-, and system-level zones. Similarly, for the Effectiveness Monitoring and Research strategy, the substrategies are the effectiveness of tributary habitat-, hydropower corridor-, estuary/ocean-, and system-level mitigation actions. For the Critical Uncertainties Research strategy, the substrategies are the critical uncertainties in the tributary habitat-, hydropower corridor-, estuary/ocean-, and the system-level zones.

RPA projects and associated RPA actions are listed in the Appendix, under the appropriate strategy and substrategies as identified above. This tabular list also includes the project deliverables/expectations, the Action Agency lead, and Project ID number if assigned.

RM&E Strategy 1

Status Monitoring

Under this strategy in 2002, the Action Agencies will work to assist NMFS, the Council, and other federal, state, and tribal efforts to track the status of fish populations and their environment relative to required performance standards. Projects under this strategy are associated with RPA actions that provide or support status information such as adult and juvenile fish abundance, distribution, and survival, or environmental conditions that have been identified as key measures of fish performance. This work will require the identification of appropriate funding levels and coordination relative to the responsibilities of other regional state and federal entities.

RM&E Substrategy 1.1

Status of fish populations and the environment at the system level

Under this substrategy, the Action Agencies will work with other regional entities and provide technical assistance and cost sharing with NMFS for: (1) TRT Recovery Planning for Columbia Basin ESUs, (2) development of a regionally coordinated RM&E plan

(including data-collection protocols), (3) development of a regionally coordinated plan for aerial and satellite imagery data, (4) continued development of new fish-detection and -tagging techniques, and (5) development of a regionally coordinated plan for implementation of a data-support system.

NMFS RPA Action reference: 179, 180, 181, 193, 198

RM&E Substrategy 1.2

Status of fish populations and the environment in the tributary habitat zone

Under this substrategy, the Action Agencies will work with NMFS and other regional entities to: (1) develop status monitoring sampling designs as one component of an RM&E pilot study in the John Day, and (2) monitor emergence, growth, migration timing, and survival of Snake River fall Chinook.

NMFS RPA Action reference: 180, 190

RM&E Substrategy 1.3

Status of fish populations and the environment in the hydrosystem corridor zone

Under this status substrategy, the Action Agencies will provide adult and juvenile migration monitoring at dams and install adult pit-tag detectors at Bonneville and McNary dams.

NMFS RPA Action reference: 191, 192

RM&E Substrategy 1.4

Status of fish populations and the environment in the estuary and ocean zone

Under this substrategy, the Action Agencies will evaluate the relationships between estuary, plume, and near-shore ocean conditions and juvenile salmon growth and survival.

NMFS RPA Action reference: 196, 197

RM&E Strategy 2

Effectiveness Monitoring and Research

This strategy focuses on identifying the physical and biological responses to certain categories of management actions. Projects under this strategy are associated with RPA actions that provide or support information on the benefits of hydrosystem and offsite mitigation actions.

RM&E Substrategy 2.1

Effectiveness of mitigation actions at the system level

Under this substrategy, the Action Agencies will work with NMFS and the TRTs for identification and preliminary development of tier-3 effectiveness

studies for each major early-action category. This work will include the following : (1) the development of performance measures for each action category, (2) a review of baseline data across ESUs for identification of opportunities for statistically robust studies, (3) statistical design guidelines for studies, and (4) short-term surrogate measures for effects of actions. Additional opportunities for RM&E on hatchery effects are also being pursued in 2002 through the Provincial Review process, safety-net projects, and reform hatchery projects.

NMFS RPA Action reference: 183, 184

RM&E Substrategy 2.2 **Effectiveness of tributary habitat actions**

Under this substrategy, the Action Agencies will work with NMFS and the Council to develop and initiate tier-3 effectiveness studies as part of the John Day pilot study. These studies will address the effects of diversion dam removal, water augmentation, flood irrigation removal, and diversion screen installations. Additional pilot studies in tributaries to the Upper Columbia and the Snake rivers will also be initiated in 2002 for further development and implementation in 2003.

NMFS RPA Action reference: 183

RM&E Substrategy 2.3 **Effectiveness of hydrosystem corridor actions**

Under this substrategy, the Action Agencies will implement several projects to evaluate the effect of mitigation actions in the hydrosystem corridor. These projects include evaluation of: (1) the Northern Pikeminnow Program, (2) adult salmonid survival and passage in relation to hydrosystem operations and bypass facilities, and (3) juvenile salmonid survival and passage in relation to hydrosystem operations and bypass facilities.

NMFS RPA Action reference: 82, 83, 100, 107, and 183

RM&E Substrategy 2.4 **Effectiveness of estuary and ocean actions**

Under this substrategy, in 2002 the Action Agencies will implement two projects targeted at effectiveness research and monitoring in the estuary and ocean. These projects are (1) to evaluate the Caspian Tern relocation project, and (2) to initiate the development of a physical model of the lower Columbia River and plume.

NMFS RPA Action reference: 102, and 194

RM&E Strategy 3 **Critical Uncertainties Research**

This strategy resolves key uncertainties and issues related to the assessment methods and data required for the evaluation of future population performance and needed survival improvements. Projects under this category are associated with RPA actions that address large, systematic research needs and improvements in analytical methods required for more robust and confident assessments of population extinction risks, probabilities of recovery, and needed survival improvements for each ESU.

Further development of the Critical Uncertainties Research components and projects for a comprehensive RM&E plan will include participating with NMFS, the Council, and other regional entities in the following key steps in 2002:

- Identify key critical uncertainties that need research.
- Develop requests for proposals (RFP) and qualifications (RFQ) for research projects for at least three of the top-priority critical uncertainties.
- Develop a schedule for peer review of research proposals.

RM&E Substrategy 3.1 **Critical uncertainties at the system level**

Under this substrategy, the Action Agencies will work with NMFS in 2002 to develop a Request for Proposals (RFP) and/or Request for Qualifications (RFQ) to address the research required by RPA Action 182 to determine the reproductive success of the naturally spawning hatchery fish relative to wild spawners. In addition, as part of the need to address the critical uncertainty of delayed mortality, the Action Agencies will implement a project to evaluate the feasibility of estimating survival below Bonneville Dam and through the estuary using acoustic tags.

NMFS RPA Action reference: 182, and 195

RM&E Substrategy 3.2 **Critical uncertainties at the tributary-habitat level**

For this substrategy, no critical uncertainties projects have been identified for development in 2002. Projects dealing with the uncertainty regarding the effects of habitat management actions are included above, under the strategy of Effectiveness Monitoring and Research.

RM&E Substrategy 3.3
Critical uncertainties
at the hydrosystem corridor level

For this substrategy, the Action Agencies will implement projects in 2002 addressing the critical uncertainties of in-river juvenile migration survival, the relative survival difference of in-river versus transported fish, and delayed mortality related hydrosystem passage. In addition, there will be a project implemented addressing the uncertainty of different dam passage histories relative to health and delayed mortality.

NMFS RPA Action reference: 185, 186, and 189

RM&E Substrategy 3.4
Critical uncertainties
at the estuary and ocean level

For this substrategy, the Action Agencies will implement projects in 2002 addressing the critical uncertainty of delayed mortality mechanisms relative to the effect of the timing of ocean entry. A primary component of this research will be a feasibility study for the tracking of salmon in the ocean.

NMFS RPA Action reference: 187

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Adaptive Management or Modifications from the Biological Opinions for 2002

3.0

The 1- and 5-year implementation plans reflect a dynamic framework for achieving the BiOp performance standards over time. As research is completed and lessons are learned from each year, the Action Agencies may propose modifications to RPAs in order to achieve performance standards.

The Action Agencies' Annual Progress report will summarize lessons learned each year. Proposed modifications will maintain comparable survival benefits to the original RPA(s). Modifications will be reflected in future 1- and 5- year implementation plans.

A. Hydrosystem Adaptive Management or Modifications



Lower Monumental Spring Spill (NMFS RPA Action 54) — Lower Monumental spring spill provisions cannot be provided this year because the Lower Monumental stilling basin repair

project is scheduled to begin construction in May 2002 (Juvenile Passage Project 1799). Construction activities for this repair project are expected to prevent spilling at Lower Monumental for part or all of the 2002 juvenile passage season.

John Day Spill Evaluations (NMFS RPA Action 71) — Due to drought conditions and the power emergency, the Corps was not able to implement the 24-hour spill evaluation in 2001.

The Corps is planning to evaluate 24-hour spill in 2002. Research results will be considered, in consultation with NMFS through the annual

planning process, to determine implementation of daytime spill to further improve juvenile fish survival as needed for its contribution to the performance standard.

It is noted, that the Action Agencies believe that ultimate project spill and operations will need to include consideration of configuration improvements (removable spillway weirs (RSW)/skeleton bays, and extended length screens) currently under evaluation (reference RPA Actions 72, 73 and 98).

John Day Spillway (NMFS RPA Action 72) — The Corps delayed development of RSW at John Day in 2001, at the request of a Fish Facility Design and Review Work Group (FFDRWG) sub-group working at physical hydraulic models at the Waterway Experimental Station (WES). That group made its recommendation based on recently identified concerns relating to tailrace juvenile egress survival.

The current plan is to begin tests in 2002 to evaluate juvenile egress at spill levels lower than that currently prescribed. Two seasons of evaluations are anticipated to be required, which will delay RSW prototype installation and testing. The direction of the RSW/skeleton bay program will continue be discussed over the course of 2002 and as data from the egress tests becomes available.

Lower Monumental (NMFS RPA 99) — By January 2003, the Action Agencies were asked to develop an analysis that compares the relative passage survival benefits of replacing existing standard-length intake screens with extended-length screens at the Lower Monumental Dam powerhouse turbines to an RSW surface-bypass system.

The analysis will not be completed by January 2003, for several reasons. Evaluation of the RSW at Lower Granite did not proceed as scheduled in 2001, and will now be completed in 2002. At least 2 years of evaluation of the RSW at Granite are necessary before we can be confident that the information is of value to the analysis at Lower Monumental. This requirement will defer completion of the Lower Monumental passage analysis until January 2004. The erosion repair will proceed in 2002, and should be completed so that fish spill can be provided in 2003. Spill passage efficiency and spillway survival under the NMFS BiOp spill plan are important considerations in the analysis of Lower Monumental passage alternatives; this information will not be available until after the spill program in 2003. Hence, the earliest the analysis can be completed is likely by January 2004. See Capital Plan discussion above.

System Flood Control Review (NMFS RPA 35) — The BiOp identifies the need for a feasibility analysis of modified system flood control by September 2005, and requests a draft feasibility study plan within 6 months of receiving funding. The Portland District completed an Initial Appraisal report in July 2001

and is under internal Corps review. In the report the Portland District recommends initiation of a two-phase evaluation process. Initiation of the reconnaissance phase is subject to the availability of funds.

Chief Joseph Dam Gas Abatement (NMFS RPA 136) — This BiOp Action requires the Corps to develop and construct spillway deflectors at Chief Joseph Dam to reduce FCRPS total dissolved gas. Implementation of this project has three phases: (1) prepare and submit to the Corps Division/HQ, a feasibility-level General Reevaluation Report (GRR) of study alternatives, (2) Planning, Engineering and Design (PED), and (3) construction/implementation.

In spring 2000, the Corps completed the GRR and recommended installation of flow deflectors. The next steps are to complete engineering and design and initiate construction. This project is subject to the availability of funds.

VARQ at Libby (USFWS 8.1.b and 8.1.d) — The Corps currently plans to implement VARQ as indicated in its Record of Consultation and Statement of Decision (ROCASOD), which states the Corps' intent to proceed with an EIS. The Corps is currently on track for completing the EIS with the following schedule laid out in the ROCASOD:

- Scoping and hydraulic/hydrologic/flood control studies in FY01-02.
- Fishery and other impact analyses, publication of a draft EIS with public review in 2003, and finalization to be concluded in FY04.

The Corps plans to operate Libby to meet sturgeon flow requirements as defined in the Corps letter to the USFWS dated December 19, 2000 and identified in the USFWS BiOp. The Corps plans to operate Libby to meet bull trout minimum flow objectives in the summer and salmon flows will be provided through the in-season management process.

B. Habitat Adaptive Management or Modifications



Reclamation High Priority Subbasins (NMFS RPA Action 149) — Reclamation's approach to accomplish the streamflow, screening, and barrier projects in high-priority subbasins follows

the intent of the RPA, but will rely on the planning processes for subbasin assessment and plans as established under the Council's rolling Provincial Review. As indicated in the 2002-2006 5-Year Plan, Reclamation will initiate programs in at least three

subbasins per year for 5 years, until a total of 16 subbasins identified in the Basinwide Recovery Strategy are being addressed. However, since subbasin assessments and plans will not be completed under the Council's process during the first few years of this effort, Reclamation will rely on other indicators of problem areas to establish priorities for project selection in the subbasins. Indicators of problem areas include the following: barriers that are currently accessible but block additional access to upstream spawning and rearing areas, unscreened diversions

in areas that are currently accessible to fish, and streamflow areas that are clearly dewatered to the extent that they provide barriers to passage. Once the Council's subbasin plans are available, Reclamation will adopt those plans for development of project selection criteria.

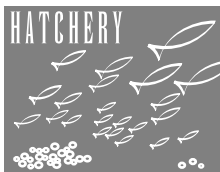
Reclamation believes this approach will be most efficient to avoid duplication of planning efforts and, instead, focus available resources on on-the-ground improvements to clear problem areas. Reclamation's progress is highly dependent upon relationships established with willing landowners in each subbasin. Those relationships will be better facilitated if Reclamation works with the Council under its assessment program, rather than by undertaking any independent analysis that may appear to be duplicative or intrusive to local interests.

Long Term Habitat Protection (NMFS RPA Action 153) — The Action Agencies support the Council's subbasin planning process. BPA will maximize use of the Council processes to seek proposals to address long-term riparian protection. However, BPA may initiate targeted solicitations and explore other means to achieve these actions in coordination with the Council, NMFS, and USFWS if necessary.

Water Strategy (NMFS RPA Action 151) — RPA Action 151 describes a potential mechanism (a water brokerage) for experimenting with transactional strategies for securing tributary flow and, where feasible, address water quality. BPA plans to establish regional and local water entities in coordination with a related initiative in the Council's 2000 Amended Fish and Wildlife Program. However, because the ultimate biological goal is to increase tributary flows that benefit listed ESU's, Bonneville is including actual tributary water transactions as implementation of this RPA.

Ongoing Projects (NMFS RPA Actions 149, 154) — The Action Agencies have chosen to include in their 5-year and 1-year implementation plan projects that are ongoing and that contribute to improvements to habitat for listed fish. While these may not match exactly with RPA actions for habitat, it is important to us to include them in our plans because they need to be considered in the overall approach. These projects support our strategies and substrategies for habitat improvement.

C. Hatchery Adaptive Management or Modifications



HGMP Development (NMFS RPA Action 169) — Because the Council's rolling Provincial Review will not recur in time for consideration of proposals to develop HGMPs for facilities in several provinces, notably the Columbia Plateau and Columbia Gorge, the Action Agencies will identify alternative approaches to ensure that the required HGMPs are developed on schedule. This may involve targeted solicitations, if necessary, or other funding mechanisms or processes.

Fish Marking (NMFS RPA Action 174) — For logistical and other reasons, completion of the comprehensive marking strategy will not occur "by the end of 2001," requiring a change in the schedule specified in the RPA. Because the Action Agencies believe the plan can be completed early enough in 2002 to guide necessary marking programs beginning in mid- to late 2002, they believe that this delay will not have a substantial material effect on the success of the RPA over the longer term.

Safety Net Hatchery Program (NMFS RPA Action 175) — The experience to date in trying to implement RPA Action 175 suggests that two modifications of the RPA are necessary; these are presented for NMFS' consideration.

- First, the list of initial populations that should be subjected to the safety net analyses may change.
- Second, the four-step planning process will not be completed for the initial list of populations "by the end of 2001," as specified in the RPA.

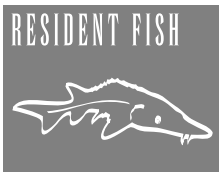
The Action Agencies believe the revised list of initial SNAPP populations will result in a materially better implementation of the SNAPP program than that envisioned in the RPA. The short delay in completing the planning phase for the initial populations (required by revisiting the initial list) should not negatively affect the program, particularly in light of the fact that 2001 has turned out to be a favorable return year for Snake Basin salmon and steelhead relative to abundance levels in recent previous years.

D. Harvest Adaptive Management or Modifications



No variances from the Harvest RPA Actions are noted at this time.

E. Resident Fish Adaptive Management or Modifications



VARQ at Libby (USFWS 8.1.b and 8.1.d) — See the explanation under Section 3.0, A, Hydrosystem Adaptive Management or Modifications.

Libby Spill Test (USFWS 8.2.a.1, 3, and 7) — The spill test at Libby could not be conducted in 2001 due to lack of water and has been rescheduled for 2002. Therefore, schedules for the following dependent actions have been slipped.

8.2.a.1 The spill test was planned for FY01, but very low water conditions prevented Lake Koocanusa from reaching spill elevations, making it impossible to conduct a spill test. The spill test is planned for June 2002 as part of the VARQ EIS, assuming that there is adequate water and completion of appropriate NEPA analysis for the spill test itself.

8.2.a.3 This action cannot be executed in FY02. Regular use of the spillway depends on (1) the spill test to be conducted in spring 2002 to determine TDG percent as a function of varying spill, and (2) on the integrity of the spillway itself. Assuming that the spill test results in TDG values not considered harmful to aquatic biota, the spillway may then need to undergo extensive surface repair and reinforcement. The earliest this work is expected to be completed is FY04.

Future use of the spillway affected by the channel capacity study, VARQ, and the various seepage studies in Bonners Ferry, any one of which could result in restricted use of the spillway. An alternative to spillway use identified in the BiOp is the installation of an additional turbine. However, this too would require several years to complete (probably not until FY06) and an extension of the BiOp date is requested.

8.2.a.7 This action requests that the Corps determine whether it is feasible to use the spillway at Libby Dam to provide an additional flow of 5000 cfs by December 30, 2001. Because the spill test has now been deferred for two consecutive years, we will not be able to determine whether we can use the spillway for an additional 5000 cfs increment until spring of 2002. Therefore, the spillway, which would require extensive repairs/rebuilding or an additional turbine, would not be available for routine use until the repairs are completed, likely not before 2004. Therefore, we will not be able to implement the use either of the spillway or an additional turbine before 2006.

Temperature Modeling (USFWS 10.7) — Temperature Modeling is to include Libby and Hungry Horse Dams. Note that modeling the Snake River for water temperature has no link to Hungry Horse and Libby projects.

We have verbal confirmation from the USFWS that the inclusion of Libby and Hungry Horse in this RPA was an error. However, as it is in the BiOp, it remains a requirement. Through this 2002 1-Year Plan, the Action Agencies request the USFWS to formally acknowledge in writing (i.e., in a findings letter) that the reference to Libby and Hungry Horse is in error, and formally delete the reference in the BiOp to Libby and Hungry Horse dams under Snake River temperature control.

Bull Trout Studies (USFWS 11.A.2.1.c) — The Action Agencies intend to pursue this action, but will seek clarification both on the scope of the studies for which bull trout observations will be reported and on the reporting process. For example, the action does not specify its geographic scope, although it is in the Terms and Conditions for the Lower Columbia River.

F. RM&E Adaptive Management or Modifications



No variances from the RM&E RPA Actions are noted at this time.

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4.0 Conclusion

Next year, the Action Agencies will prepare a 2002 Implementation Plan Progress Report to assess key accomplishments and performance resulting from our implementation of this Plan. The 2002 Progress Report

will also introduce the next set of 1- and 5-year implementation plans. We welcome the opportunity to work with the region, report our results, and rebuild the endangered fish runs of the Columbia Basin.

Acronyms

APR	Artificial Production Review
ARPA	Archeological Resources Protection Act
Basinwide Strategy	The Conservation of Columbia Basin Fish: Final Basinwide Salmon Recovery Strategy (All-H Paper)
BiOp	Biological Opinion
BPA	Bonneville Power Administration
cfs	cubic feet per second
Corps	U.S. Army Corps of Engineers
Council	Pacific Northwest Power Planning Council
CRFM	Columbia River Fish Mitigation (Project)
D	delayed transportation mortality
DGT	Dissolved Gas Team
EIS	environmental impact statement
ESA	Endangered Species Act
ESUs	evolutionarily significant units
FCRPS	Federal Columbia River Power System
FFDRWG	Fish Facility Design and Review Work Group
FY	Fiscal Year
H	[any one of the four focuses beginning with H: Hydrosystem, Habitat, Hatcheries, Harvest]
HGMPs	Hatchery Genetic Management Plans
ISRP	Independent Scientific Review Panel
KWS	Kootenai River white sturgeon
LCREP	Lower Columbia River Estuary Program
LSRCP	Lower Snake River Compensation Plan
NAGPRA	Native American Graves Protection and Repatriation Act
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
O&M	Operations and Maintenance
ODFW	Oregon Department of Fish and Wildlife
OSU	Oregon State University
PSMFC	Pacific Salmon Marine Fisheries Commission
Reclamation	Bureau of Reclamation
RFP	Request for Proposals
RFQ	Request for Qualifications
RM&E	Research, Monitoring, and Evaluation
RPA	Reasonable and Prudent Alternative
RPM	Reasonable and Prudent Measure
RSW	removable spillway weir
SCT	System Configuration Team
SFEC	Selective Fishery Evaluation Committee
SHPO	State Historic Preservation Office
SNAPP	Safety Net Artificial Production Program
SRWG	Studies Review Work Group
TDG	total dissolved gas
TMDL	total maximum daily load
TMT	Technical Management Team
TRT	Technical Recovery Team
USFWS	U.S. Fish and Wildlife Service
UW	University of Washington
VARQ	Variable Discharge Flood Control Procedure
WSSC	Western Systems Coordinating Council