

SECTION 1

INTRODUCTION: COLUMBIA RIVER, SALMON AND STEELHEAD AND THE NORTHWEST POWER ACT

OVERVIEW

Ever since the Northwest Power Act was passed in 1980, the Columbia River Basin's fish and wildlife have been the subject of increasing attention, not just from groups that are dependent on the river or its fish, but from the public at large. A major goal of the Act is to address the impacts that the region's hydroelectric dams have had on fish and wildlife. During the past decade, significant efforts and money have been spent to protect and rebuild the affected populations.

But those efforts have not been enough to rescue some species. Some of the region's salmon and steelhead runs have been declining at alarming rates, so alarming that, for the past two years, certain populations have been the focus of regional, as well as national attention.

The critical condition of these fish was graphically illustrated in 1991, when only seven sockeye salmon were spotted making the 900-mile run inland from the Pacific Ocean to their spawning grounds in Idaho's Redfish Lake. Of the four known to have made it to the lake, only one was a female. In mid-November 1991, to no one's surprise, the National Marine Fisheries Service officially declared Snake River sockeye salmon an endangered species.

In April 1992, the National Marine Fisheries Service designated Snake River spring/summer and fall chinook as threatened species. These declarations triggered a set of actions required under the federal Endangered Species Act of 1973. One of these actions is the development of recovery plans.

The Endangered Species Act sends a clear message that the region must redouble its efforts to protect its fish, especially those that spawn naturally in rivers rather than in hatcheries. The Northwest Power Planning Council's concern is not just for those runs that have been placed on the national endangered species list, but for all weak salmon runs in the Columbia Basin.

Fortunately, the Northwest did not lose time debating whether Snake River sockeye and the other listed runs—spring, summer and fall chinook—are in fact threatened or endangered. Building on its decades of experience with salmon, the Northwest began developing its own regional plan nearly two years ago for those species that are most critically depleted. These include wild and naturally spawning runs, particularly those that make the long journeys to and from the Snake River. The actions the region is undertaking are expected to benefit other salmon and steelhead populations basin-wide. The Council hopes that the National Marine Fisheries Service will find this amended fish and wildlife program useful in preparing recovery plans for Snake River sockeye and chinook.

Important groundwork for the regional plan was laid in a Salmon Summit convened in late 1990 by the region's Governors and Senator Mark Hatfield. The summit, made up of the user, policy and interest groups connected with the Columbia Basin's waterways, came up with critical short-term measures that were implemented in 1991 to stem further decline. Those measures bought the region time. From there, development of a regional salmon rebuilding plan moved to the arena of the Northwest Power Planning Council, the interstate body that has provided a regional forum for the past 10 years through its Columbia River Basin Fish and Wildlife Program. The Council, whose members are appointed by the Governors of Idaho, Montana, Oregon and Washington, develops its program under the Northwest Power Act.

Just as the endangered species petitions for Snake River salmon underscored the critical condition of some Columbia Basin salmon runs, the petitions also highlighted the need to address impacts on salmon at every stage of their life cycle. After the Salmon Summit, the Governors asked the Council to expand its focus to ad-

dress all activities that impact salmon, not just the hydroelectric system.

The Council took up where the Salmon Summit left off in the spring of 1991 by initiating a process to amend its fish and wildlife program in four phases. The first three phases, which are compiled in this document, constitute a salmon rebuilding strategy. It is aimed not only at rebuilding the three stocks proposed for listing under the Endangered Species Act, but also at aiding all weak salmon stocks. The fourth phase of the amendment process will address resident fish and wildlife. After completion of phase four, the Council will integrate all amendments into the existing Columbia River Basin Fish and Wildlife Program.

Together, the first three phases provide the region with a comprehensive rebuilding strategy, and one that will not be static. The Council intends this strategy to be adapted as needed and as new information becomes available. Not only has the Council provided flexibility to make changes as appropriate, it has designed the strategy to add to the region's knowledge of salmon and steelhead.

Such a plan, developed with regional input, is an essential guide for the National Marine Fisheries Service. Without it, the federal government or courts would be left to impose a plan of their own. A regional plan, based on extensive input from all the basin's interest groups as well as Northwest citizens, has the advantage of reflecting the unique values, perspective and interests of the region.

But this document represents much more than a guide to recovery actions. It is the first truly comprehensive strategy for salmon and steelhead in the Columbia River Basin. It is a long-range plan to amend river operations, increase salmon productivity, repair salmon habitat and refine salmon harvests. It is designed to balance competing river uses, while strengthening and rebuilding salmon and steelhead runs throughout the basin. The Council's aim is to make future Endangered Species Act petitions unnecessary, and ultimately to produce healthy and harvestable populations of fish.

The program calls for an aggressive implementation schedule. When asked to comment on drafts of these amendments, some people suggested that implementation dates the Council initially proposed were so ambitious as to be unrealistic. We have adjusted several dates to reflect what we believe is a realistic but ambitious schedule. This reflects the Council's sense, which we believe is widely shared in the region, that extraordinary efforts are needed to minimize delays in implementation. However, the Council recognizes and respects fiscal constraints on various implementing agencies, and welcomes further comment on any deadlines.

THE NORTHWEST POWER ACT AND THE FISH AND WILDLIFE PROGRAM

The Northwest Power Act placed great emphasis on the fish and wildlife of the Columbia River Basin. That emphasis is made clear in the language of the Act. For example, the Act states that one of its goals is:

"to protect, mitigate and enhance the fish and wildlife, including related spawning grounds and habitat, of the Columbia River and its tributaries, particularly anadromous fish, which are of significant importance to the social and economic well-being of the Pacific Northwest and the Nation and which are dependent on suitable environmental conditions substantially obtainable from the management and operation of the Federal Columbia River Power System and other power generating facilities on the Columbia River and its tributaries."

No single approach will bring about the changes needed to achieve this vision. Mainstem survival improvements, salmon habitat and production measures, and harvest regulations all must work toward rebuilding healthy fish runs. Drawing a blueprint for these changes ultimately requires a judicious consideration of all the standards of the Northwest Power Act. Within this framework, however, several points deserve emphasis.

In developing the Columbia River Basin Fish and Wildlife Program, the Council must deal with the Columbia River and its tributaries as a system. This system touches a broad range of human activities—hydropower production, navigation, flood control, agriculture, recreation and many other land and water development activities. Opportunities for improved coordination and cooperation, as well as for increased conflict, are enormous. Building a fish and wildlife program that properly accounts for these activities requires the broadest possible involvement of the public and affected interests.

While the fish and wildlife program must "protect, mitigate and enhance fish and wildlife affected by the development, operation and management" of Columbia River Basin hydropower facilities, it must do so in a way that ensures the region "an adequate, efficient, economical and reliable power supply." The Council has called for aggressive exploration of structural changes to the hydropower system, such as reservoir drawdown strategies, as well as non-structural changes, such as innovations in system operations, seasonal exchanges, water use efficiencies, and the like. These non-structural innovations in particular will require careful integration when planning for the power system, fish and wildlife,

and water use to ensure that the needs of salmon, power and other users are addressed.

The region's fish and wildlife agencies and Indian tribes (often described collectively in this program as the "fishery managers") play a special role in the program. When considering major amendments, the Council must begin by inviting the fishery managers to submit recommendations. The program must complement the agencies' and tribes' existing and future activities, and also must be consistent with the legal rights of the tribes. When the Council receives conflicting recommendations for fish and wildlife measures, it must resolve inconsistencies, "giving due weight to the recommendations, expertise, and legal rights and responsibilities" of these fishery managers. Under these provisions, the Council cannot rubber stamp the recommendations of the tribes and fish and wildlife agencies, but neither can the Council take on the role of a super fish and wildlife agency.

In considering fish and wildlife recommendations, the Act requires the Council to rely on the best available scientific knowledge. This does not mean that the region can expect perfect knowledge before taking action. Action must be based on the best knowledge available at the time. Because that knowledge often is incomplete, future salmon research should focus on critical uncertainties. The region must take pains to monitor actions and make adjustments where advisable. Monitoring and evaluation may be expensive, and results may be slow, but success over the long term may depend on the region's willingness to take these steps.

Where equally effective means of achieving the same sound biological objective exist, the Council chooses the alternative with the lower economic cost. There should be no misunderstanding of this common sense requirement: where a less costly way will achieve a given biological objective, the region should take it. However, Congress provided little room for cost comparisons where two alternatives would not achieve the same sound biological objective. Instead, Congress indicated that economic considerations are subordinate to biological objectives in this section of the Northwest Power Act. Elsewhere in the Act, the Council is obligated to ensure the region an adequate, efficient, economical and reliable power supply.

Improved salmon survival in the rivers must play a central role in this program. The Northwest Power Act specifically recognizes that salmon depend on "suitable environmental conditions substantially obtainable from the management and operation" of power generating facilities of the Columbia River Basin. The Council is directed to adopt measures to "provide flows of sufficient quality and quantity between such facilities to improve production, migration and survival of such fish as necessary to meet sound biological objectives."

The Northwest Power Act requires federal implementing agencies to manage and operate hydropower facilities to provide "equitable treatment for fish and wildlife with the other purposes for which such system and facilities are managed and operated." Therefore, the Council's determinations regarding salmon survival in the main bodies of the Columbia and Snake rivers, where the major federal dams are located, aim to meet the needs of salmon with a level of certainty comparable to that accorded the other operational purposes. With these considerations in mind, the Council has adopted immediate mainstem survival measures, and it has called for an ambitious series of additional steps to improve fish passage survival. The Council regards these measures as a serious commitment that the region must keep.

In some instances, measures designed to benefit one fish species or population can inadvertently harm others. For example, measures to help juvenile fish migrate to the ocean sometimes can harm adult fish migrating upriver from the ocean to spawn. River operations to benefit salmon can harm resident fish populations in areas blocked to salmon. The Council intends that actions designed to help salmon pose no appreciable risk to biological diversity among or within fish populations, including resident fish.

COUNCIL AUTHORITY AND OVERSIGHT

The Council recognizes that its statutory authority is limited. Under Section 4(h) of the Northwest Power Act, the Council is given broad authority to develop fish and wildlife measures for implementation by Bonneville and other federal agencies. This authority is not comprehensive, and the Council has no defined statutory authority over actions within the jurisdiction of states or the Indian tribes. However, the Council believes that only through a comprehensive, regionwide approach will the salmon and steelhead stocks of the Columbia Basin achieve a successful recovery.

The Council has not attempted to distinguish between those measures where the Council believes it has direct authority and those measures where that authority belongs to others. Such distinctions may generate lucrative arguments among lawyers, but they will not help the fish.

In those areas where the Council has authority, this plan must be implemented by the appropriate agencies. In those areas where the Council lacks explicit authority, the plan is a strong recommendation. The Council urges implementation of even advisory measures on the grounds they make sense and could forestall more stringent measures that could be imposed from outside the region.

These amendments, therefore, include measures that the Council believes are essential parts of a comprehensive plan, not merely those over which the Council has direct authority. To avoid disputes over questions of authority, these amendments simply name those entities that need to take an action, and state the action.

The fact that some measures are, in a technical sense, advisory does not mean that the Council intends them to be taken lightly or treated as optional actions. The region needs to act with a single will if it is to rebuild an important natural resource, the Northwest's salmon and steelhead runs. The Council will work aggressively to promote implementation of this program.

The Council is calling on the parties identified as implementors of these measures to report to the Council on their progress. If the measures are not being implemented, the parties should explain why. For its part, the Council is committed to monitoring and evaluating implementation of this program much more aggressively than in the past. It will do so through audits, shared regionally and with the National Marine Fisheries Service, and through oversight activities associated with Council meetings.

Many of the entities responsible for implementing these provisions have already expressed support and willingness to proceed with implementation. Surmounting obstacles to implementation will be the primary responsibility of the implementing agencies. The Council offers its help, but it is not primarily a regulator or implementor. In the coming years, the Council will be much more an oversight agency, to ensure that problems in implementation receive the benefit of broad regional attention.

These amendments are intended to supplement the 1987 Columbia River Basin Fish and Wildlife Program, except in those circumstances where the provisions of these amendments plainly supersede provisions of the 1987 program. Where the provisions of these amendments add additional measures, or subtract from or conflict with the provisions of the 1987 program, these amendments are intended to override the provisions of the 1987 program. With completion of phase four, the Council intends to have a new integrated and internally consistent Columbia River Basin Fish and Wildlife Program.

Ultimately, the successful recovery of salmon and steelhead stocks depends less on legal authority than on cooperation. Only through the committed and enthusiastic participation of all affected parties will a full recovery be achieved.

HISTORICAL PERSPECTIVE

Lessons of the Past Decade

The Columbia River Basin Fish and Wildlife Program is not quite 10 years old, about the age of two generations of salmon. Unfortunately, the problems for the basin's fish have been more than a century in the making. Human activities ranging from fishing to agriculture to power production took a toll, and so did natural events such as drought, floods and ocean conditions. If a decade has not been enough time to arrest the salmon's decline, it has been time to teach the region some important lessons. Any approach to fisheries recovery will require contributions from all who benefit from the river. And a rebuilding plan must be comprehensive. Piecemeal efforts simply have not been effective.

The challenge is best illustrated by the salmon's extensive environment, an environment created by migratory habits that recognize no governmental boundaries. Salmon hatch in inland headwaters and travel downstream to mature in the ocean. Depending on the species, after three to five years, they return to the river. Thanks to an extraordinary homing instinct, they make their way to their home tributary where they will spawn and die. This wide-ranging environment, sometimes encompassing thousands of miles, became the arena for salmon recovery efforts in the 1980s.

During that decade, for the first time, the region looked at a coordinated approach involving the salmon's habitat; their passage down the rivers, particularly the mainstems of the Columbia and Snake; their harvest; and their production (both natural and artificially aided). This coordination echoes pleas to take an ecosystem approach to recovery under the Endangered Species Act, and it remains the foundation for a recovery plan in the 1990s.

While the foundation laid in the past decade for a systemwide approach was sound, the focus of the 1980s proved too narrow. The fish and wildlife program's interim goal was to double runs, but not at the expense of genetic diversity. Overall runs ranged between about 1.5 million and 4 million in the 1980s. However, some weaker runs continued to decline, thereby threatening genetic diversity and fitness. It became more apparent that the diversity of the runs, not just the number of fish, was an important consideration.

Despite some gains made in the early 1980s, overall salmon and steelhead populations are about a fifth of their pre-development run size, and only about 20 percent of the remaining fish spawn in the rivers. (See Figure 1.) Most wild and naturally spawning stocks are declining, and some, such as the Snake River spring, summer and fall chinook and sockeye, have declined persistently to critical levels. (See Figures 2, 3, 4 and 5.)

There are some promising exceptions to the general decline in wild and naturally spawning stocks. Some stocks, such as upriver bright fall chinook that spawn in the Hanford Reach of the Columbia, have increased during the last 10 years.

Expanded Focus

The endangered species petitions dramatically underscored the need to make preserving diversity of salmon runs a higher priority. This renewed focus also affected the Council's own role. Previously, the Council's fish and wildlife program had addressed primarily the effects of the hydropower system on salmon and steelhead.

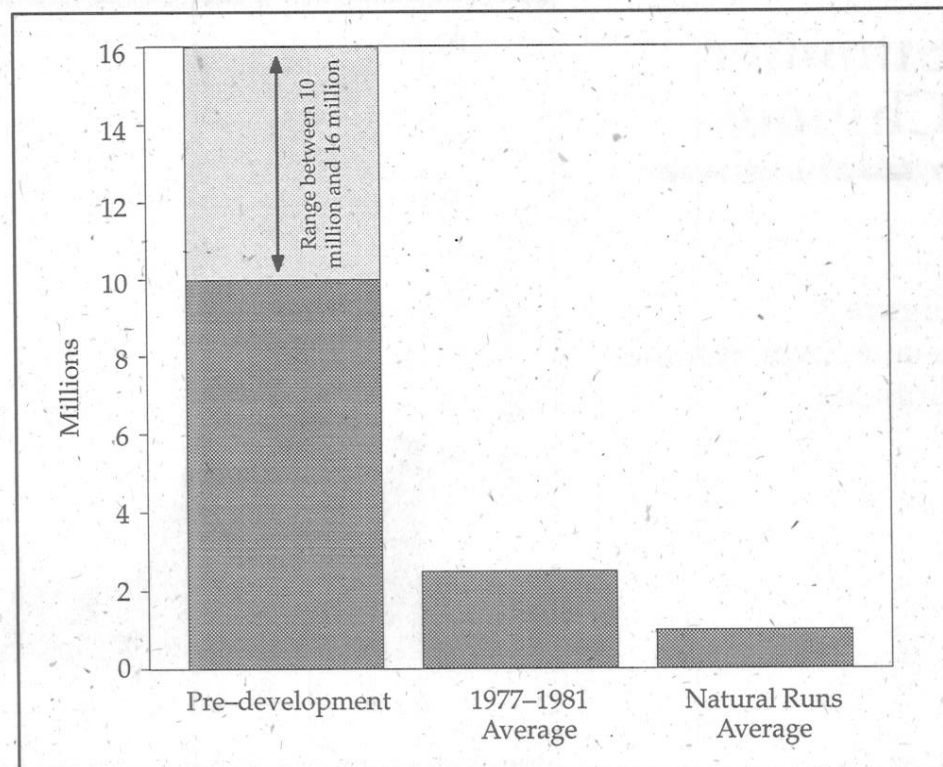
With the endangered species listings, it became clear that a realistic recovery effort had to be broader, involving all the river uses: power production, flood control, agriculture, navigation, water supply, recreation, land development practices and fishing. When the Northwest Governors, Congressional delegation and the National Marine Fisheries Service looked to the Council to come up with a comprehensive recovery plan, they also asked the Council to assume this broader role. The Council has done so. It developed an integrated plan that seeks contributions from all river users.

Phased Recovery Effort

The Council began instituting a regional salmon rebuilding plan through amendments to its Columbia River Basin Fish and Wildlife Program in 1991. Because of the size of the task and because some measures needed immediate implementation, the Council divided its effort into three phases. Phase one, completed in August 1991, included high priority production and habitat measures. Phase two, completed in December 1991, dealt with salmon survival in the rivers and harvest of fish. Phase three, completed in September 1992, dealt with salmon habitat and production. These three phases comprise the Council's salmon rebuilding strategy. Phase four of the amendment process will address resident fish—those that do not swim to the ocean—and wildlife.

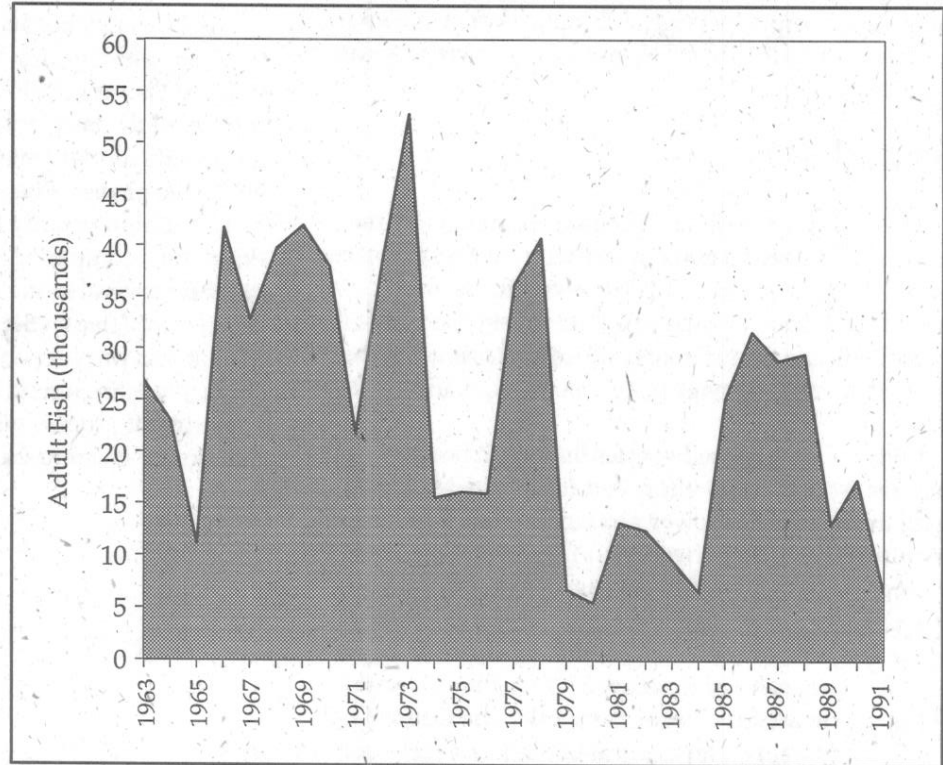
Salmon Runs

Figure 1
Columbia River Basin
Salmon Runs—An
Historical Perspective



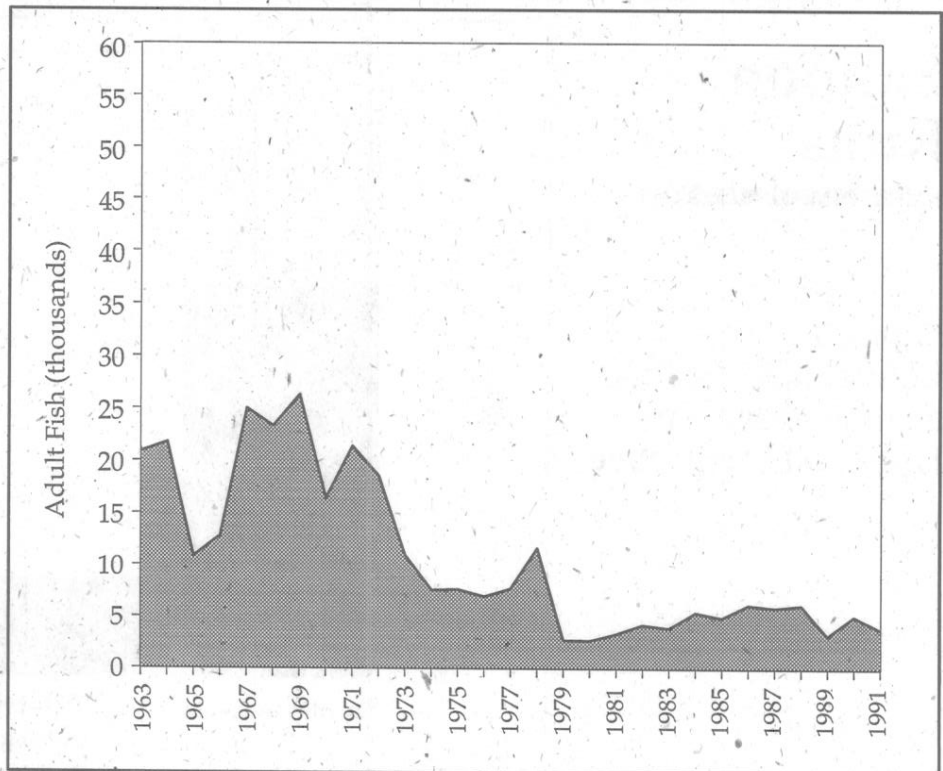
Spring Chinook

Figure 2
Snake River Spring Chinook



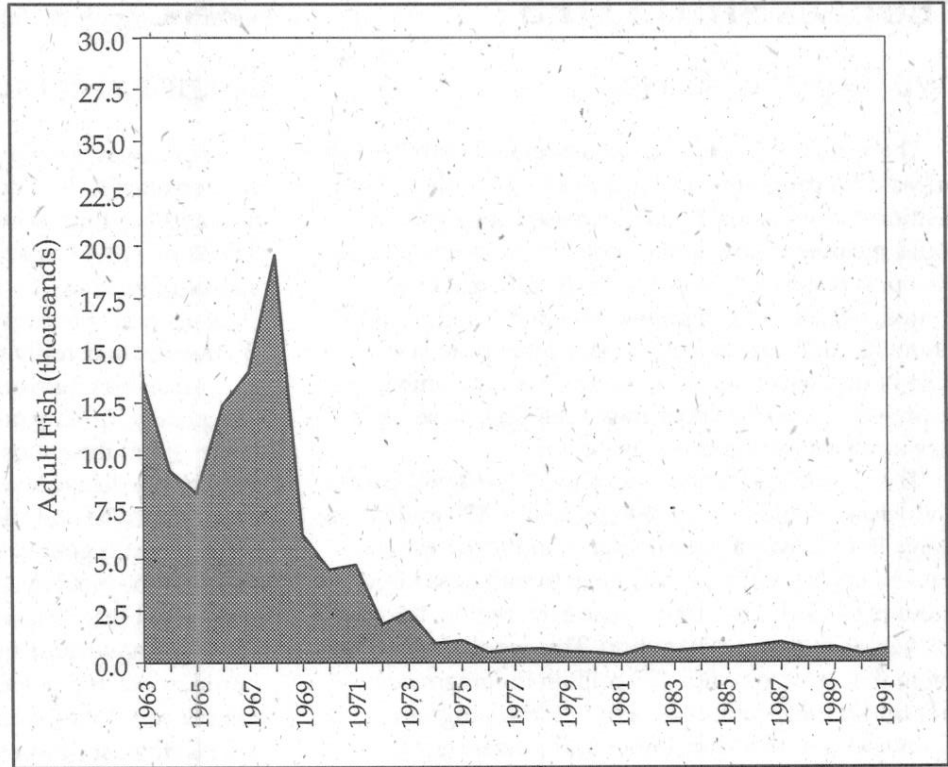
Summer Chinook

Figure 3
Snake River Summer Chinook



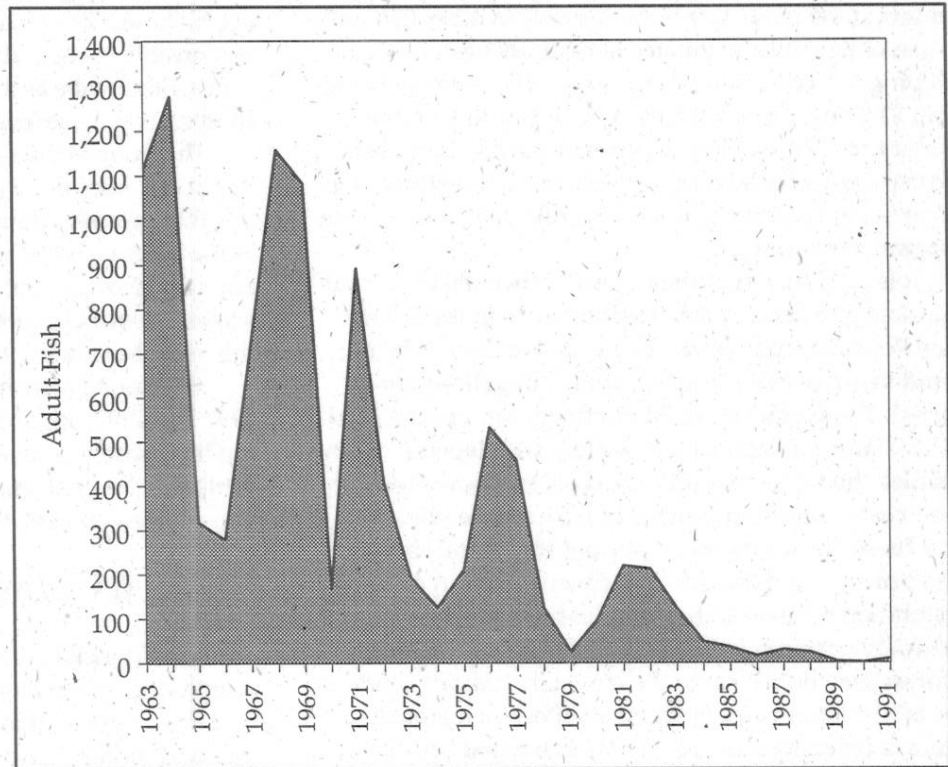
Fall Chinook

Figure 4
Snake River Fall Chinook



Sockeye

Figure 5
Snake River Sockeye



(Note: Figure 5 is on a different scale than Figures 2, 3 and 4.)

COSTS AND RESPONSIBILITIES

Two Types of Costs

There are two types of costs associated with the fish and wildlife program—lost revenues and outlays. The additional storage to provide increased spring flows would mean that power operators would have to forego some power generation at the dams during winter months, reduce sales of power outside the region, and potentially make some additional power purchases. Some of the costs referred to in this draft document are for projects, as well as flow measures, and these costs were updated during this rulemaking.

The Council estimates the value of lost hydropower production would average \$40 million to \$70 million annually. For the worst-case scenario, in the lowest water years when the region would have to purchase large amounts of electricity from outside the region, the cost could be as high as \$170 million. This would be in addition to the approximately \$55 million in foregone revenues under the existing fish and wildlife program.

In addition to lost revenues and power purchases, the Council estimates direct costs of the measures to be about \$30 million in 1992 and \$36 million in 1993. These costs are added to approximately \$90 million in Bonneville annual outlays to fund the current program and to repay the U.S. Treasury for the costs of screens and fish ladders at the mainstem dams, as well as other fish mitigation obligations. Estimates of total 1993 fish and wildlife program costs (including lost power revenues) range from \$180 million to \$210 million, depending on the amount of revenues lost to increase flows. These costs are expected to escalate as bypass screens are funded by Congress and added to the Bonneville debt, and as other program costs rise.

It is estimated that the impact of the total costs could translate into about a 4-percent increase in the Bonneville Power Administration's wholesale rates, which could increase as additional capital obligations are incurred. The impact on retail electricity rates is expected to be somewhat less, and ultimately will depend on how utilities choose to pass on their costs and how much of their costs stem from purchases from Bonneville.

These are substantial costs, but the region should also bear in mind the cost of inaction. Without effective restoration measures, the region stands to lose wild and naturally spawning salmon stocks whose genetic resources may be critical to the long-term sustainability of the Snake River runs. Without an effective regional program, a federally administered Endangered Species Act process could impose substantially more onerous costs on irrigators, electric utilities, navigators, fishing communities and others who use the Columbia River and its

resources. While the Council has not sought to put a dollar value on this outcome, no one should mistake the value of a determined, long-term regional salmon program.

Regional Funding and Staffing

Because it is a regional program to rebuild weak salmon stocks, the Council's program calls for participation and funding by state and federal entities and others. The Bonneville Power Administration is the major source of funding for actions in this program, but many state agencies have requested additional funding from Bonneville to comply with the Council's measures.

All levels of government must bear responsibility for adequately funding and staffing salmon rebuilding measures or run the almost certain risk that the recovery effort will be delayed, with potentially disastrous results. The Council has developed a regional program that in some respects goes well beyond the Council's authorities, and the Northwest's Governors have pledged to implement this program.

Until now, most salmon rebuilding costs have been borne by electric power consumers through the Bonneville Power Administration pursuant to the provisions of the Northwest Power Act. To the extent that measures—including off-site measures and programs—respond to the impacts on salmon by the region's hydroelectric system, these costs are appropriate. But salmon runs were diminished, and rebuilding measures are required, because of a variety of other causes. The costs of responding to these other causes should be shared by all responsible parties. The Council will work with the states, Bonneville and other federal agencies to clarify funding responsibilities.

The Council intends to make cost-effectiveness an important part of the program. A successful program is one that provides permanent restoration of salmon runs at the lowest cost. Such a program cannot be restricted to any one life stage, but must comprehensively include all stages. Short term, least-cost calculations are not part of this plan, but aiming for long-run success is.

The Council has reviewed the measures adopted in 1991 and 1992, and made preliminary judgments regarding their cost-effectiveness. Those judgments are reflected in the final amendments. In phase four of the amendment process, the Council will continue this work.

Council Commitments

The Council is committed to a stringent program of monitoring and evaluating progress to ensure that the region's investment in salmon pays off. Rebuilding targets and performance standards are being instituted to provide explicit means of measuring progress. The Council will modify or eliminate activities that do not

provide sufficient progress toward stated goals and objectives, and will consider other actions.

In comments on drafts of this plan, several parties have raised concerns about the effects that drafting upriver storage reservoirs for salmon flows could have on resident fish and wildlife in headwater areas. The Council does not intend to address the environmental problems of salmon by indiscriminately shifting environmental problems to upriver areas. It is committed to avoiding such impacts as much as possible, and to monitoring and evaluating them should they occur. These impacts will be addressed further in phase four. These amendments are not intended to modify or supersede the provisions of Section 903(b)(1) and (2) of the 1987 Fish and Wildlife Program.

Other comment received in public review of this program made it clear that the region is divided over the scientific merits of some major measures to rebuild fish populations. Two issues that remain intensely debated are the relationship of increased flows to fish survival and the proper role of supplementing wild and naturally spawning fish populations with hatchery-reared fish. Both will be examined closely under the Council's program.

The Council also strongly believes that the region must work to improve its understanding of the interdependence among fish, wildlife and human activities, such as power system operations, harvest, water use and land management. Relatively minor changes in any one of these can appear to have minor impacts on salmon. Taken together, they can have significant cumulative impacts.

The Council is obligated to base its decisions on the best available scientific knowledge. But in some cases, even the best data is sketchy. The Northwest Power Act and the Endangered Species Act processes make it clear that salmon stocks cannot wait for complete resolution of the debate. The Council has chosen to act now, recognizing that the actions can be modified as new information is available.

Other Responsibilities

The Council is an interstate compact. Its members are appointed by the Governors of the Northwest states. The Council is not a federal agency. Its program is developed under the Northwest Power Act, not the National Environmental Policy Act nor the Endangered Species Act. However, most of the program's specific measures are implemented by federal agencies.

To facilitate federal implementation, the Council explores environmental impacts of its proposals as fully as possible within its amendment process. Federal agencies are encouraged to make use of the Council's evaluation so that the region can act promptly to protect salmon and steelhead while complying fully with National Environ-

mental Policy Act and Endangered Species Act requirements. The Council commits itself to working with the federal agencies to integrate the Council's processes with the National Environmental Policy Act and Endangered Species Act processes.

The Council recognizes that the decline of the salmon runs, particularly the Snake River fall chinook, poses special problems for Indian tribes to whom the U.S. government has special responsibilities. The Council's program must be consistent with the rights of these tribes. The Council is committed to meeting its own responsibilities and to helping the federal agencies meet theirs, while addressing the problems of weak stocks.

SUMMARY

If the language of the 1990s' salmon rebuilding program is more subdued than the rhetoric of the 1980s', it is at least more clear-eyed. The region knows a lot more. It understands more. It has better tools and, despite continuing controversy, broader cooperation. The enormous scope of the recovery effort is clearer. It will take a lot longer and a lot more effort to rebuild a healthy and diverse salmon and steelhead population throughout the Columbia Basin. In fact, it will take a persistent effort into the next century just to save some of the runs.

This is not a grim assessment. It is a realistic one. The amendments are not a panacea, but a valuable foundation for the effort that is yet to be completed. At the same time, the region cannot lose sight of the fact that multi-purpose development of the Columbia River system has produced huge benefits. These benefits need not be lost if all beneficiaries of the basin's waterways approach this rebuilding effort with a willingness to contribute. A regionwide cooperative effort is clearly preferable to federal or legal intervention that could lead to extensive and expensive conflict, litigation and economic disruption. Balance is a key word. The Council's overall intent is to have balance so that all uses of the river remain viable.