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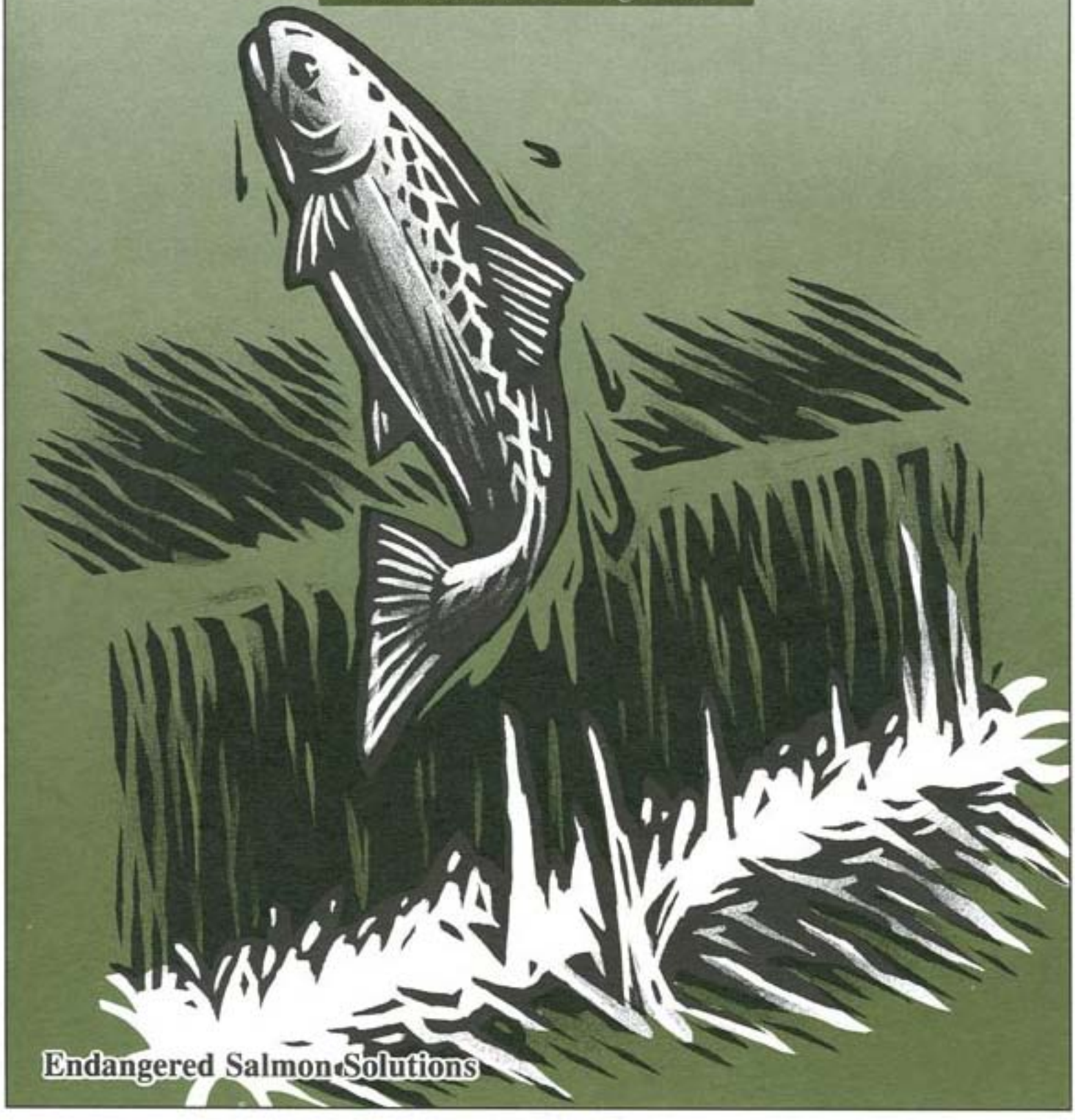


Endangered Salmon Solutions

CONTENTS

This issue's cover illustration is by Larry Milam.

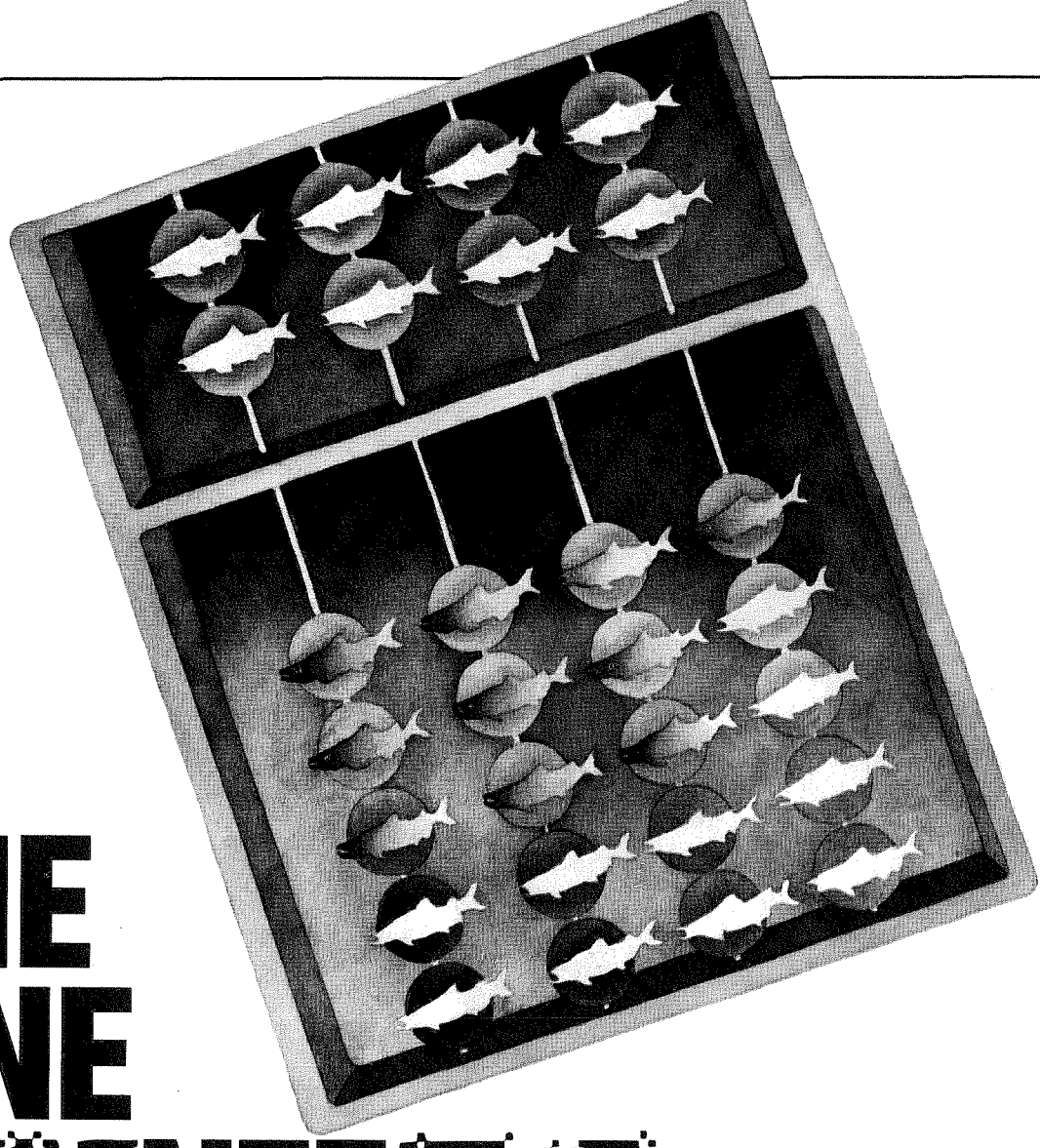
from the CHAIR

We were honored in August by Rollie Schmitten, regional director of the National Marine Fisheries Service, who spoke at our monthly Council meeting in Oregon. Schmitten's agency is responsible for enforcing the Endangered Species Act where ocean or ocean-migrating creatures are concerned. In his comments at the meeting, Schmitten suggested that the Council "may be the last hope for a regional solution" to the recovery of our critically depleted salmon stocks. He applauded our public decision-making process, noting: "If all water users participate, there is less chance that the solution will have to be litigated." See story on page 29.

This spring, when we made the decision to plunge into the region's most contentious waters in an effort to save our salmon, we knew we were taking on a long and very difficult task. On August 9, the deadline we set for submitting recommendations to amend the Columbia River Basin Fish and Wildlife Program in this regard, we were deluged by about 1,500 pages of suggestions. We are now waist-deep in this process and making our way through the recommendations.

On page 13, we are presenting a sample of the debate we have been hearing across the region. We present it largely because too few people can attend our meetings to hear this type of dialogue in person. It should help explain why the decisions we must make are rarely easy ones, and why we consider public involvement so critical to our process. The more minds we can bring together on these issues the better.

Jim Kolle



THE GENE COUNTERS

by Carlotta Collette

Keeping an inventory of genetic traits to build salmon runs.

"From the most narrow possible point of view, it is in the best interests of mankind to minimize the losses of genetic variations. The reason is simple: they are potential resources. They are keys to puzzles that we cannot yet solve and may provide answers to questions that we have not yet learned to ask."

—From House Resolution 37, a forerunner of the Endangered Species Act.

The room is large and cold. The cold comes in along the floor under doors that face each other across the room, blocking out the view of Oregon woods in January. Neither the furnace nor the frequently fed wood stove seems to influence the interior climate. Any heat these devices have generated has climbed steadily to the peak of the A-framed ceiling, where it hovers well above the heads of the more than 30 seated scientists intent on stretching their understanding of salmon genetics while protecting their feet from frostbite.

This is the second time these people have met in the Pacific Northwest, brought together by the Northwest Power Planning Council to provide guidance on one of the more complex ques-

Northwest Power Planning Council file illustration by Elsa Warnick

tions the Council must answer: how to protect the genetic diversity of salmon in the Columbia River Basin while attempting to double salmon runs.

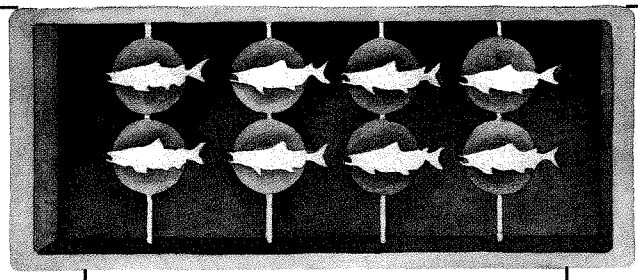
Over the next three days, these fisheries scholars and managers will refine their sense of the relationship between genetics and increasing fish numbers. They will begin to reorient fisheries practices that have been largely unquestioned for nearly a hundred years.

The fundamentals

Biologists maintain that it is imperative to conserve genetic diversity—in the case of salmon, this is the variation among stocks from different streams or within the same stream—because diversity reflects a multitude of distinct survival "skills" the fish have evolved over time. Because no particular strain of salmon has all the necessary traits, any one or all of the stocks may be necessary for the species' future survival.

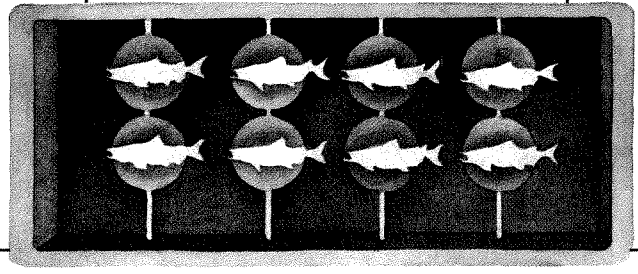
For example, native salmon from the John Day River in central Oregon have adapted over centuries to water that heats up considerably in the summer months. Salmon in cooler drainages have not required that tolerance for heat, but such adaptability may be important in the future. Some salmon will also be more resistant to certain diseases than others. By preserving a broad spectrum of healthy genetic characteristics, the region secures its options for sustaining future salmon and steelhead runs.

Salmon produced in hatcheries are the offspring of only a limited range of brood stock. Furthermore, the fish continue to adapt within the hatchery environment, acquiring traits necessary for hatchery survival, while losing traits they, and their whole species, may need to exist in the wild.



Diversity reflects a multitude of distinct survival "skills" the fish have evolved over time.

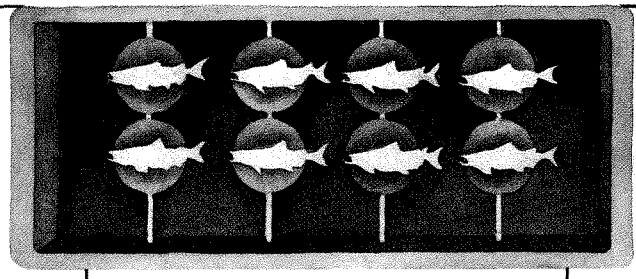
In the watershed of the Columbia River, where more than three-quarters of the salmon and steelhead are produced in hatcheries, and more than 90 percent of the native salmon have disappeared, the genetic diversity of salmon and steelhead has already been severely compromised. The question the geneticists must try to answer is: How can the region rebuild its salmon resource with less than 10 percent of the native genetic building blocks?



The Council acknowledged the critical nature of this situation in its Columbia River Basin Fish and Wildlife Program, where it mandated that actions taken to increase the basin's salmon populations must be balanced by consideration of the genetic consequences of those actions. Unfortunately, to date, almost no one can predict with certainty what the genetic consequences of fisheries actions in the Columbia River Basin might be. Which is why these shivering scientists have gathered in the Oregon mountains under the auspices of the Council.

In their first meeting, in December 1989, the group concurred on key principles and began to describe a process that could guide actions taken to increase populations of salmon and steelhead in the Columbia Basin (see "Perpetual Productivity" box). They also agreed that for sustainable salmon production it is essential to "maintain genetic resources of salmon and steelhead in native, naturalized and artificially propagated populations with no avoidable and irreversible losses of genetic diversity resulting from management interventions or inactions." In other words, don't worsen the odds of rebuilding the runs by further weakening the foundation.

In this second workshop, members of the group will begin compiling strategies to carry out



the mandate they adopted in their first session. Rick Applegate, director of the Council's fish and wildlife division, opens the workshop by reminding the scientists of the challenge they face. "This is the best group of people we can pull together on this issue," he explains. "If you can't help us, frankly, I don't think we can solve this thing."

The challenge has been handed to the right people. These are some of the most respected salmon geneticists in the business. With them are many of the Northwest's most knowledgeable fisheries managers. Nothing quite like this convergence has occurred elsewhere in the fisheries community.

For the geneticists, this gathering is both a natural extension of their independent work and the unique chance to share their notions with the people who actually produce the fish. The salmon hatchery and harvest managers, on the other hand, can use this time to both challenge the academicians, and gain exposure to and have influence on the state of the science they may eventually implement.

The workshop narrows the gap between the two groups. It also brings together members of the fishery community from across the Northwest, an event that is crucial if the entire basin is to coordinate its effort in a unified approach to this salmon reconstruction.

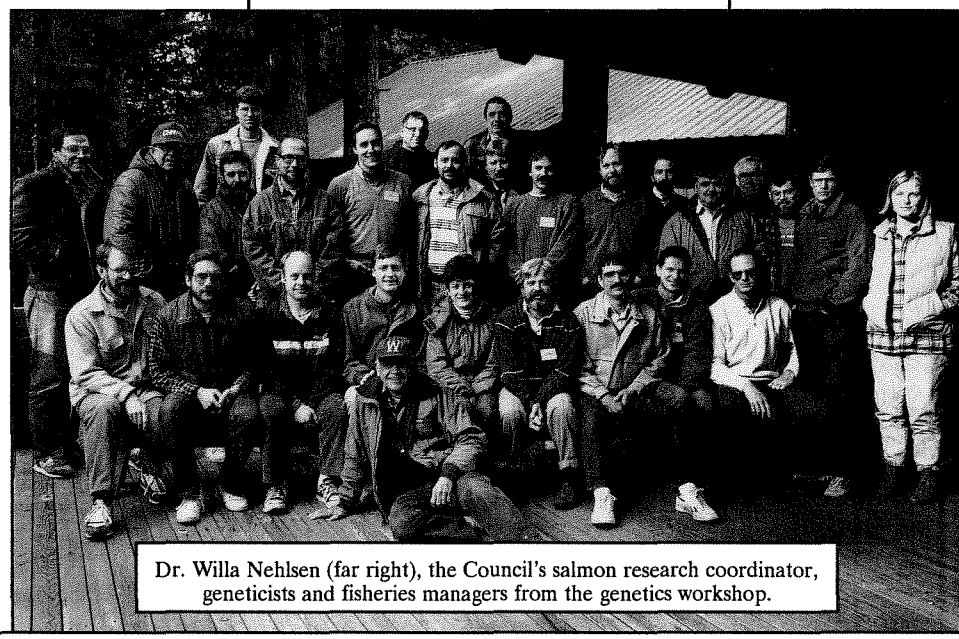
The approach the group is advancing is also unique. It is the first time that conservation biology, a science designed to preserve critical animal populations, is being applied on such a grand scale. Conservation biology is the study of plants and animals, their habitat and interactions with other species, and the roles humans play in those interactions. Conservation biologists attempt to determine what it will take to preserve and promote various species so they can sustain themselves long into the future.

One important task of conservation biologists, explains Dr. Willa Nehlsen, the Council's salmon and steelhead research coordinator who has pulled together this group, is establishing how large a population is necessary for long-term survival. The task is complicated by the need to know how many males and females are actually reproducing effectively in a given population.

"Conservation biologists agreed some time ago on what is known as the '50/500' rule," she says. The rule states that 50 effectively reproducing parents are needed to sustain a population for the short term—about 10 generations—and 500 effectively reproducing parents will be required for a population to survive over the long term—or 100 generations.

"In captivity, where biologists can be confident about the number of fertile animals of each sex that are present, this rule has been demonstrated to work fairly well. But testing it in the wild is another matter," she adds. "It is especially difficult with a population that is both wild and under severe harvest pressures, as are the salmon and steelhead of the Columbia River Basin."

This is where the fisheries experts the Council has called together are breaking new ground. Almost no one has attempted to apply the principles of conservation biology to a broadly disseminated, genetically diverse population in the wild. Salmon add complication to the formula, also, because the progeny of any one mating pair may re-

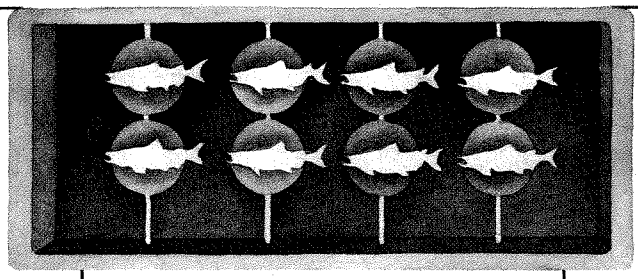


Dr. Willa Nehlsen (far right), the Council's salmon research coordinator, geneticists and fisheries managers from the genetics workshop.

Photo by Carlotta Collette

turn up the Columbia to spawn over a period of four or more years. They have overlapping generations.

Moreover, not only are the odds slim for any young surviving both the ocean and river harvests, and the gauntlet of dams, but the scientists would be hard-pressed to tell which young of which parents *do* survive.



In the January workshop, the group started by trying to determine how fine a level of distinction they needed to make among the many salmon populations. "The question we had to look at first," explains Dr. Nehlsen, "was, do we need fish from every creek or only from every major tributary? For purposes of the Endangered Species Act, the National Marine Fisheries Service (the federal agency responsible for applying the Act where ocean-migrating or ocean-resident species are concerned) said that a 'species' is an 'evolutionarily significant unit'," Nehlsen relates. "But we're not sure what that means in terms of the future of salmon species. To have a thriving resource that will be productive into perpetuity and support harvest, it may be necessary to conserve more than evolutionarily significant units."

What to do with what we know

Given that, at least so far, not even the nation's best geneticists can say with precision which and how many salmon need to be saved to protect genetic diversity, what fishery management practices can best minimize risks while optimizing the productivity of native salmon? When the scientists and managers ask this question of each other, the room begins to heat up. Cold feet are forgotten in the glow of warm arguments.

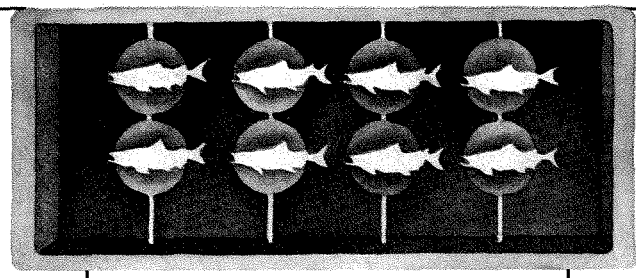
There is easy agreement that existing habitat must be repaired, and passage to it opened, so more wild fish can seek refuge and spawn there. There is even a proposal to create "refuge streams" of pristine reaches where no hatchery fish seem to

PERPETUAL

Genetic concerns are not new to the Northwest Power Planning Council's Columbia River Basin Fish and Wildlife Program. The program never has been oriented strictly on pumping out quantities of new fish. The quality of the fish has always been a concern because quality is key to sustainability.

Geneticists and fishery managers who have been working with the Council to develop ways to incorporate genetic considerations into program activities have agreed on six broad genetics principles, half of which were first expressed in the fish and wildlife program. (These principles are described in more detail in *Principles for Genetic Conservation and Production Quality*, which was prepared for the Council by Dr. Larry Riggs.)

1. *The conservation of genetic and biological diversity is essential for meeting long-term production goals.* By keeping the broadest possible spectrum of inherited traits, fisheries managers are storing resources that will likely be needed in the future. Without diversity, future populations of salmon and steelhead are in jeopardy; a single disease or environmental catastrophe, for example, could eliminate entire runs of fish.
2. *To increase production, a mix of production measures must be effectively integrated with passage and harvest measures.* This principle surfaced in the fish and wildlife program in 1987. The theory is simple; it does little good to merely produce large numbers of fish unless their survival during migration past the Columbia Basin's dams, and in both ocean and river harvests, is ensured.



have strayed. These refuges could then be guarded as havens for the wild stocks that populate them.

Where all or most of the wild salmon are gone from river reaches, but the habitat remains and could be "reseeded," a strategy known as "supplementation" has been practiced, with mixed results. Supplementation relies on hatchery–reared fish that are released into the wild. The hope is that these fish return as adults to the wild environment and reproduce there.

But the geneticists are only half joking when they describe hatchery fish as "fat, lazy and stupid." Hatchery fish have not had to struggle for food; they are so concentrated in huge concrete ponds that struggle would probably be fatal anyway; and they are released when the hatchery manager deems appropriate, not when their biological clocks tell them to head out for the ocean. Their survival in the wild is questionable. More important, however, is the effect their survival might have on native fish in that habitat. The scientists describe it as a form of "genetic pollution."

These are fighting words to hatchery managers. The image of their brood as "manifesting inappropriate social behavior and high anxiety" does not make them feel like proud parents. On the other hand, they are among the first to ask for help. If there are ways to fix hatcheries so they become a bigger part of the cure and less a part of the problem, the managers are open to hearing about it. They want better information and more sophisticated tools to help them do their jobs.

That is the purpose of the workshop. For supplementation to work, say the geneticists, the hatchery fish must be genetically similar to the original wild fish in that habitat. They must carry the survival traits those original fish carried. If there are any native fish still extant in a river reach targeted for supplementation, and there is little risk of losing the run

PRODUCTIVITY

3. *All management activities (harvest, passage, habitat and production) affect genetic resources.* Perhaps the best example of this principle in action is the loss of genetically unique stocks because of dam blockages that eliminated large areas of formerly available habitat. Whole runs of salmon have also been decimated by commercial catches.
4. *Genetic risks must be assessed.* This principle also comes from the Council's existing fish and wildlife program. Because there is so much fishery management activity in the basin, it is almost inevitable that genetic resources will be affected. Thus it is important to determine what those effects might be before actions are taken.
5. *Irreversible losses of genetic resources and genetic diversity must be avoided.* There is so little left, the basin can't afford to lose any of its genetic inventory.
6. *Adaptive management should guide action and improve knowledge.* Adaptive management is most simply described as "learning by doing." Because there remain so many questions about the effects of various actions to save the salmon, fishery managers are urged to treat their actions as delicate experiments. Each step should be monitored and adapted as more information is learned. This cautious approach allows for action as long as it is closely watched. ■

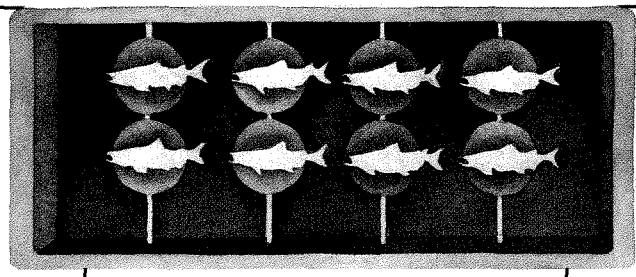
—CC

to extinction if even a few are extracted for hatchery reproduction, these fish should be used as brood stock.

If no native fish are available, the workshop participants identified a hierarchy of other stocks to select among, always focusing on attempting to closely match the traits of the native stocks. (In most cases, the loss of the original wild stocks in that habitat was caused by human intervention—dams, overfishing, etc.,—not by an inability to survive in the wild habitat. The workshop participants urged that these destructive elements should be corrected as much as possible before the habitat is reseeded.)

Workshop participants also detailed hatchery procedures that would guard genetic diversity in every step of the breeding process, from egg fertilization through rearing to release into the wild. The rearing and release strategies, in particular, attempt to match timing, feeding, acclimation and other conditions that would be present in the wild habitat with wild stock. Such strategies help improve the survival of hatchery fish after their release and improve the ability of hatchery fish to coexist with (rather than displace) wild fish in the stream.

Since even short stays in hatchery environments can mean the loss of survival skills, an effort must be made to imitate natural conditions as much as possible. For example, most hatchery ponds lack any of the cover a natural stream would have. As a result, hatchery fish often become accustomed to and unwary of humans over head.



Hatchery rearing and release strategies should match timing, feeding, acclimation and other conditions that would be present in the wild habitat with wild stock.

When they are released to the wild, these fish lack hiding and other predator-evasion skills wild fish would have come by naturally. Simply placing boards or other cover across portions of hatchery ponds would provide sheltered areas where young fish can hide.

Adaptive management

In 1987, the Council introduced a new concept in its Columbia River Basin Fish and Wildlife Program: adaptive management. Adaptive management is one of those too-big terms for an almost, but not quite, obvious concept. The notion captured in adaptive management is simply: if you're walking in the dark, watch your step and be prepared to change your course.

The fact is, even with the best minds at work on the fishery quandary, answers to major questions are still somewhere off in the future. But urgency requires action now. Consequently, actions should be carefully conducted as experiments designed to provide pieces of the overall puzzle.

Workshop participants concurred in their appreciation for the adaptive management approach. There was consensus that every step taken to rebuild salmon populations should be monitored and evaluated for its effectiveness. If one step fails to provide needed results, the next most appropriate action should be tried.

The next step in the genetics workshop is a reunion this fall. Dr. Nehlsen describes their work as "about three-quarters completed." This fall's gathering will feature more of the region's fishery managers so an even broader "real world" perspective can be incorporated in the refinement of the proposals already brought out by the group. The link between theory and practice must be fortified if the Northwest's salmon are to benefit. ■

by John Harrison

Northwest energy all-stars huddle, then score for conservation.

IT was a most unusual gathering.

Seated at the same table were the chief executive officer of a large utility company, the consumer advocate for the state attorney general and a representative of a coalition of environmental groups. Gathered at a meeting of the Northwest Power Planning Council in Tacoma in June, they smiled and complimented each other on their collaborative process, which resulted in a most unusual electricity rate proposal.

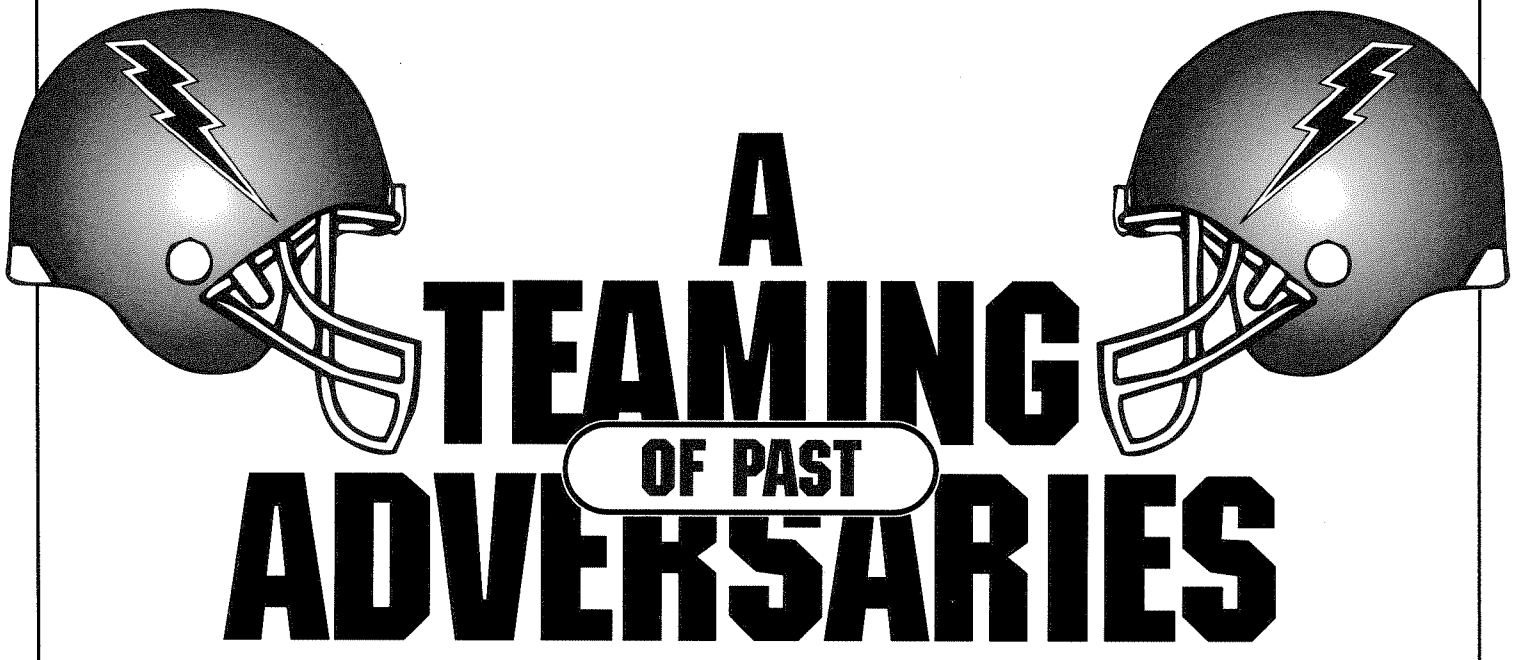
What's unusual is that:

- The utility will sell less electricity in the future.
- The consumer advocate will support higher utility profits for certain activities.
- The environmental group supports the utility's acquisition of a new generating resource.

Now, those are changes. And the parties who negotiated this rate proposal for Puget Sound Power and Light Company of Bellevue, Washington, say these are changes for the better. Here's why:

- Rate cases historically were contentious, often litigious. This time, parties who may have been litigants in the past were collaborators. Their effort led to a better mutual understanding and a rate proposal acceptable to all sides.
- Puget Power will attempt to meet one-fourth of its load growth in 1992 through conservation. That reduces the chance that the company will have to build an expensive new power plant to meet its future demand. The company would be allowed to take additional profit if it meets its conservation acquisition goal, and a little additional if the goal is exceeded.
- Rates would go up to pay for the new conservation measures, but not as much as they would to pay for a new power plant. Overall, customer bills would be lower with conservation than with a new power plant. So it's a better deal for Puget's customers.
- Conservation is the most environmentally responsible form of new electricity generation, in addition to being low-cost.

The collaborative process began in July 1990, in response to a question raised formally, and publicly, by the Washington Utilities and Transportation Com-



mission (WUTC), which regulates investor-owned utilities in the state. The question took the form of a Notice of Inquiry, issued by the Commission on May 9, 1990. In effect, the Commission raised an issue in Washington state that dated to a 1988 policy statement by the National Association of Regulatory Utility Commissioners: "Ratemaking practices should align utilities' pursuit of profits with least-cost planning."

In its Notice of Inquiry, the Commission sought to determine whether existing regulation adequately aligned utilities' pursuit of profits with least-cost planning. The Commission also sought to comply with the Washington Legislature's mandate to consider policies to improve energy efficiency.

At the time, the philosophical collision of least-cost planning and regulation that encouraged power sales rather than savings was attracting attention elsewhere in the Northwest, as well.

The Northwest Power Planning Council, for example, raised the question in an issue paper in March 1989, concluding that revenues lost as the result of conservation are "generally lost forever, since rates are not set to recover past losses of allowed return or to recoup past excess returns." The Council, too, sought public comments and proposed solutions.

The utility responds

About two months after the Washington Commission issued its Notice of Inquiry, Puget Power convened a meeting of interested parties to discuss a conservation rate proposal. Included in this collaborative process were representatives of the utility, the Northwest Conservation Act Coalition, which represents several regional and national environmental advocacy groups, and the state attorney general's office, among others.

"In developing our response to the Notice of Inquiry, we suggested that we do an experiment," said Gary Swofford, Puget Power's vice president of divisions and customer services. "We thought that if we could go jointly to the WUTC, and show a collaborative process, that the WUTC might let us go ahead with an experimental rate

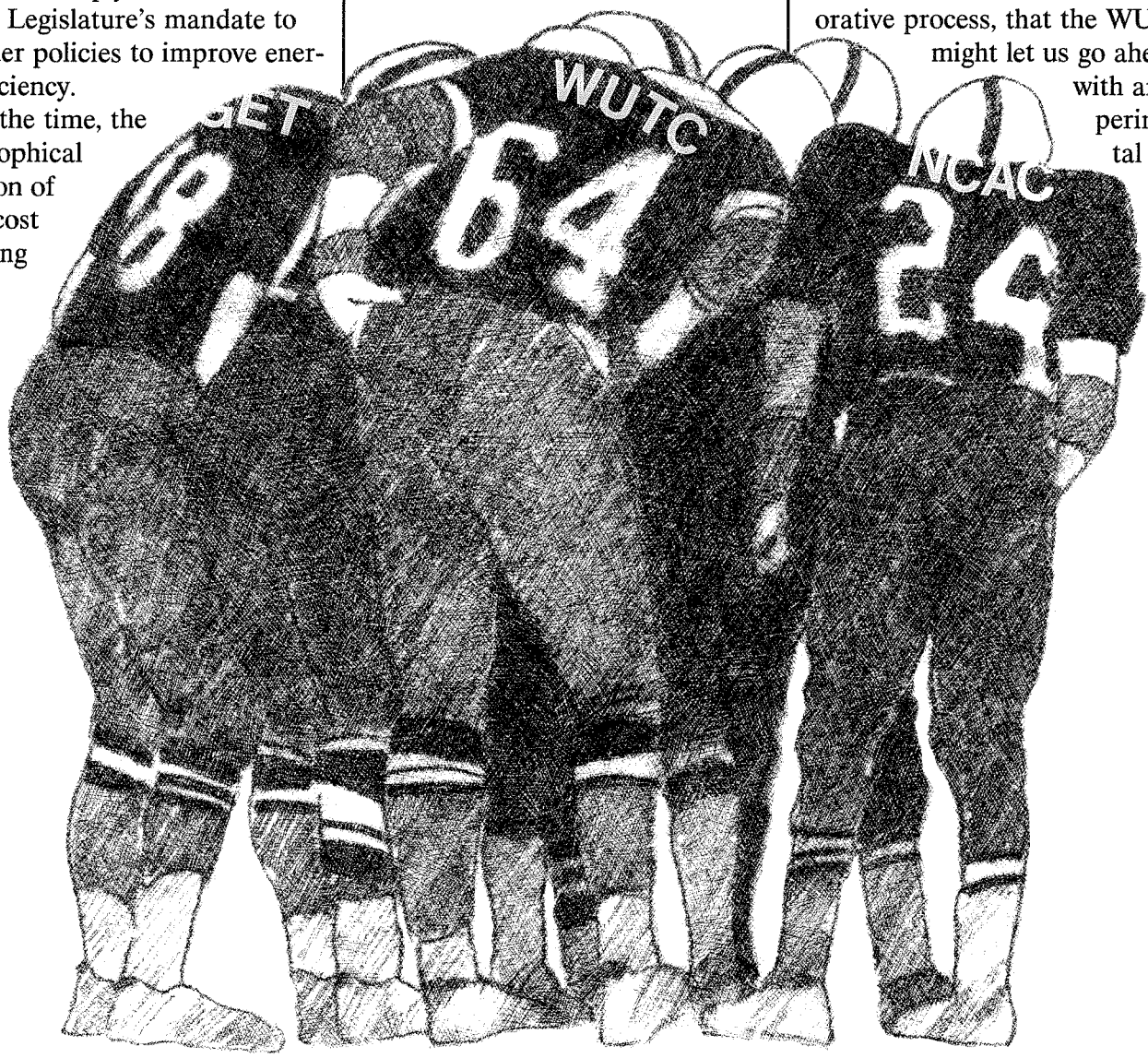


Illustration by Lyn Nance

proposal. "We had immediate needs for conservation, and for cost recovery, and we didn't want to wait a long time," he added.

Puget Power has 750,000 customers and is growing fast. The utility predicts its demand for electricity will grow by about 60 megawatts in 1992. That's enough electricity for about 36,000 people.

Swofford chaired the collaborative effort, whose members met one-on-one or in small groups for six weeks and then at a series of group meetings, usually at a motel near Seattle-Tacoma International Airport.

Chuck Adams, public counsel in the Fair Practices Division of the Washington attorney general's office, recalled that the group met periodically through the summer and into the fall. The sessions often lasted all day. Working groups would break off to discuss specific issues and then report back to the main group.

The meetings were not always harmonious, but they served to air differences in a way they never had been aired in previous rate cases. That is, the participants talked about their differences and tried to reach consensus prior to the formalities of the rate case process and without taking each other to court.

The result was a two-pronged rate proposal. The first part decoupled Puget Power's sales from profits, basing the company's income on the number of customers served and the cost of serving them, rather than on the amount of energy sold. After public hearings and some minor adjustments, the Commission approved the decoupling proposal on April 1, 1991. The second part of the proposal, which provides a profit incentive for meeting the conservation target in the rate case, was filed with the Commission on June 14. The Commission has not acted on that proposal yet, but has asked Puget Power to take the proposal to its Customer Advisory Council for additional comments.

The collaborative process allows our interest in clean energy to be aligned with the profit interests of the company.

–K.C. Golden Northwest Conservation Act Coalition

The company hopes to see the proposal approved before the end of the year.

Everyone wins

Adams said the collaborative process "gives us the chance for the interests of customers and the utility to line up, and that's never happened." He has experience representing utility customers in rate cases, and he noted the special significance of a collaborative effort with Puget Power. "There hasn't been a utility with whom we've had a more adversarial relationship in the past," he said.

Adams said it is important to show utility customers that they will benefit from a rate increase to pay for conservation.

"The tough thing to get through to customers is, your bill will be lower thanks to least-cost planning," he said. "Many costs they are going to incur in the short term will pay off for them in the long term in the form of lower bills. Conservation must be cost-effective. It must be perceived as having a broad-based benefit to customers."

He is optimistic about Puget Power's rate proposals, as long as they don't unjustly enrich the company.

"I'm willing to go along with it on an experimental basis," he noted. "But investor-owned utilities have a profit motive, and if the profit motive costs ratepayers more, it is not a good thing."

Puget Power is enthusiastic about the collaborative process, as well. In fact, the company intends to formalize the process by creating two permanent committees, a Policy Collaborative Group and a Technical Collaborative Group. Members will include those who took part in the 1991 rate case, including the Commission, the Boeing Company, The Northwest Cogeneration and Industrial Power Coalition, The Northwest Conservation Act Coalition, The Northwest Power Planning Council, Washington Industrial Customers for Fair Utility Rates, the Washington State Energy Office, the Washington State Public Counsel, and the Industrial Customers of Northwest Utilities.

The collaborative process also has the support of K.C. Golden, director of the Northwest Conservation Act Coalition in Seattle.

"We've got a lot of conservation to do [in the Northwest], and it became apparent we'd never get the investor-owned utilities to do it if it was financially painful to shareholders," he said. "You want to give the company its profits, but not give away the farm in the process. The value of the collaborative process cannot be overstated. It allows our interest in clean energy to be aligned, almost perfectly, with the profit interests of the company."

At the Tacoma Power Council meeting, which took place just before Puget Power filed the second part of its rate proposal, the utility's chief executive officer, Richard Sonstelie, told the Council that the collaborative process amounts to new thinking in the utility business.

Now the utility needs to re-educate its own staff, as well as its customers.

"We've been doing least-cost planning since 1987, and I think you have to start there," he said. "You have to see what makes the most sense for the customers and the company."

Before the latest rate case, he said, "our financial incentives were backward; they were geared to build, build."

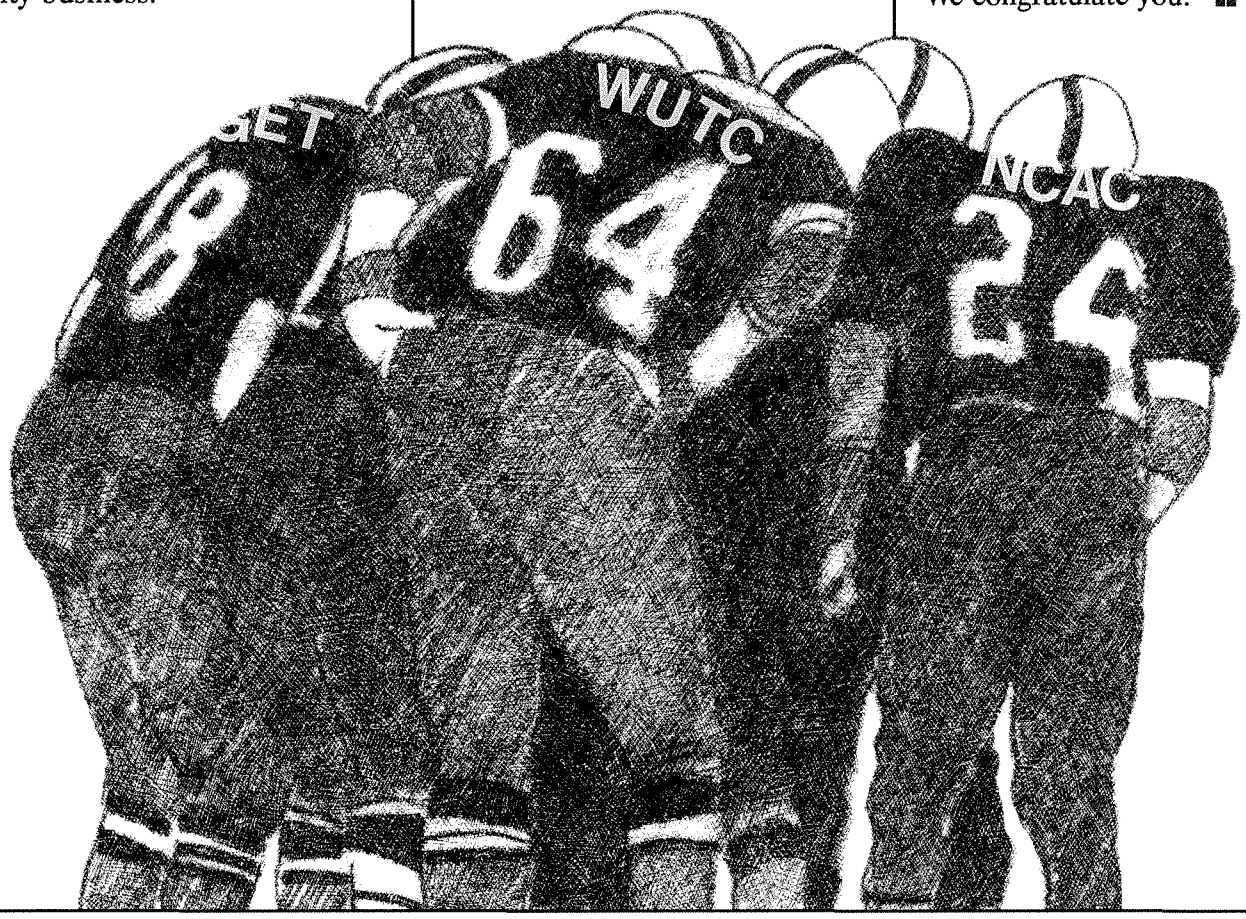
Now the utility needs to re-educate its own staff, as well as its customers.

"This is not least-rate," he explained. "It's least-cost. Least-rate for us would be a marketing strategy to maximize (energy) sales. But it doesn't make sense to do that, environmentally. And our customers are willing to pay for environmental quality.

"We haven't junked the old regulation, we've modified it," he said. "We have growth ahead, and we see profitability, too," he said. "The basic economics of this will work. We wouldn't have bought into this if we didn't think it would work."

Council Chairman Jim Goller of Idaho underscored the significance of the group effort.

"We're witnessing a process with historic significance for the region, the United States and, possibly, the world," he told the collaborators at the Tacoma meeting. "You are pioneers in this conservation acquisition effort. We congratulate you." ■



In most issues of ***Northwest Energy News****, we run an interview with a regional leader in the areas of fish and wildlife or power planning. The interview format has served us well, and we will continue it. But from time to time, we have wanted to provide readers with more of the flavor of debates that are brought to the Northwest Power Planning Council for deliberation. We have, frankly, been wary of airing controversies in this publication until the Council has made public* ***its*** *position on the debate.*

Face Off

The Upriver Downriver Debate

With this issue, we are trying an experimental format; we are publishing a capsule of a major controversy. We picked two regional spokesmen, sent each of them the same two questions, gave them a word limit and asked them to respond to both the questions and, briefly, to each others' responses. Except for proofreading, we are running their responses as they wrote them.

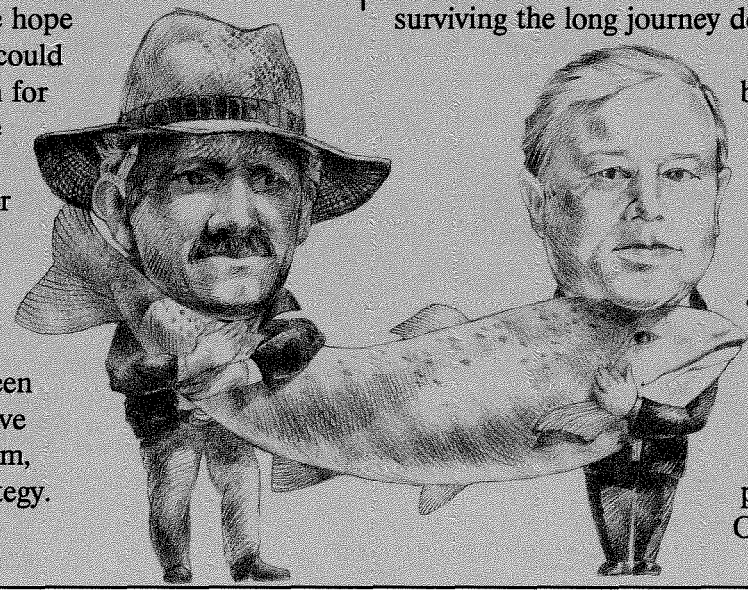
Neither position represents Council opinion on this matter.

Ed Chaney and Al Wright present two views on what should be done to save dwindling salmon runs.

Last fall, regional leaders with an interest in the Columbia River Basin's water, salmon, electricity and other benefits began meeting in what was termed the "Salmon Summit." Their goal was to reach a consensus on a Northwest response to the likelihood that several salmon stocks in the Columbia and Snake rivers could be declared threatened or endangered under the federal Endangered Species Act. There was little disagreement within the group that the salmon should be saved from extinction. But there was no consensus on long-term strategies to bring about that salvation.

For months they met, urged on by the governors of the four Northwest states and by the region's congressional delegation. The hope was that the region itself could adopt a recovery program for the fish, thus avoiding the need to turn it over to the federal government for solutions. At the end of the Summit, short-term measures designed to aid the 1991 spring and summer migration had been approved. Discussions have continued on a longer-term, more comprehensive strategy.

In the midst of the discussions, it became evident that there were, at a minimum, two sides in the debates, which could be characterized as "upriver" and "downriver." The upriver faction, based in Idaho, home of the salmon stocks proposed for listing, argued for a major drawdown of the lower Snake River hydroelectric dams when young salmon are heading downstream in the spring and early summer. While such a drawdown could have implications for fish that do not migrate to the sea and possibly for salmon that migrate later in the year—fall chinook, for example—the "Idaho proposal" would speed the spring migration of young fish out of the system and probably improve their chances of surviving the long journey downhill.



The downriver faction, based primarily in Washington and Oregon, where power system managers have their headquarters, floated their own proposal, "Target 200." The "200" in Target 200 refers to the provision of up to 200,000 cubic feet per second in flows for fish passing dams on the Columbia.

Caricature by Fredrika Spillman

The Council is reviewing these proposals and hundreds of related recommendations as part of its amendment of the Columbia River Basin Fish and Wildlife Program (see box on page 21).

Ed Chaney and Al Wright have both put in their time trying to resolve the Northwest's fish and wildlife, and electric power problems. While Wright once commented that he "was probably the only person in the region who wouldn't claim to have written a piece of the Northwest Power Act," (the legislation that led to creation of the Council) he has rarely been absent from the Council's table since.

Chaney, on the other hand, *was* instrumental in adding language to the Act that called for fish and wildlife recovery efforts. In natural resource arenas, his is also a familiar face.

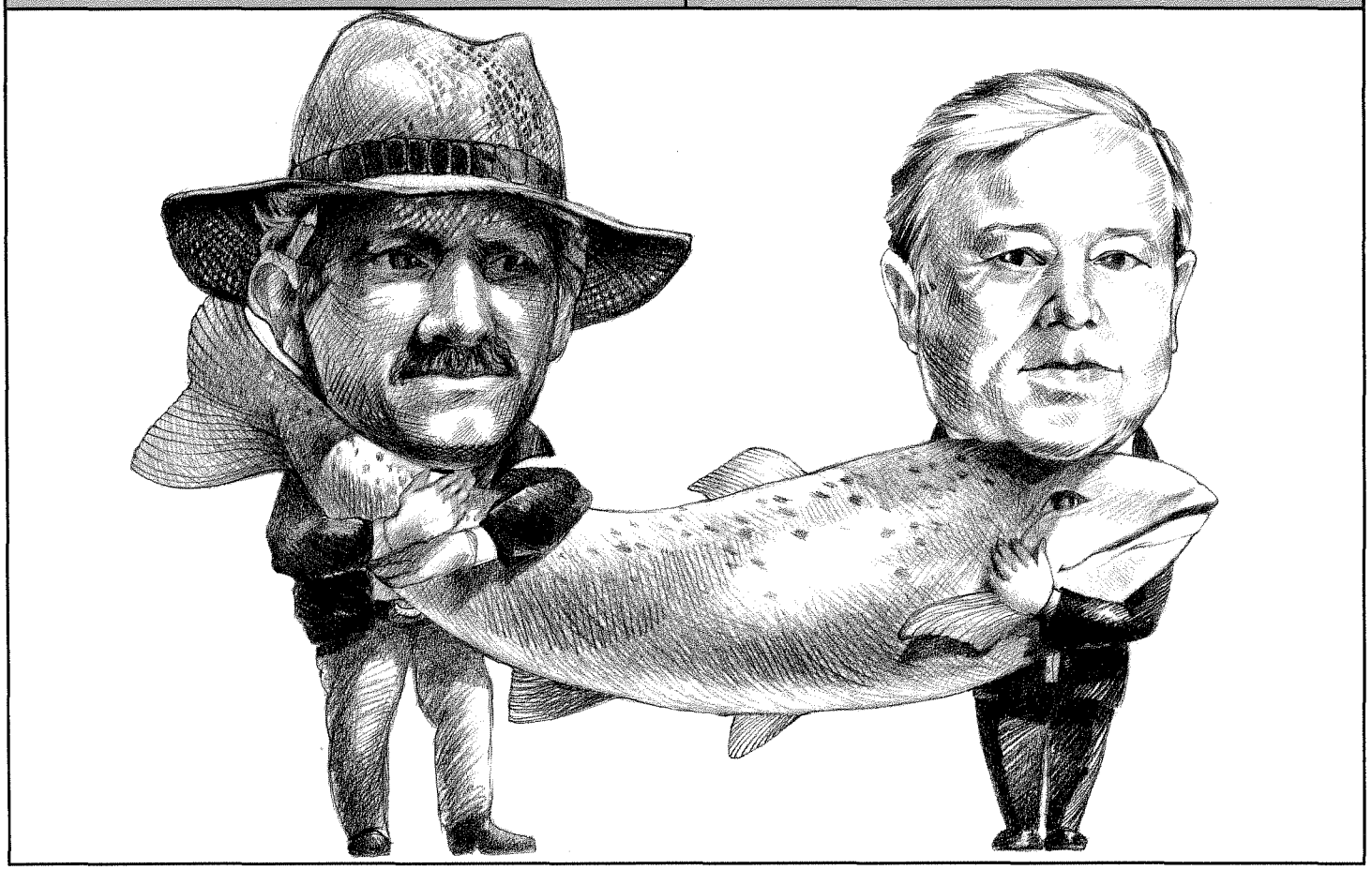
When the Council convened the region's Salmon Summit, both Chaney and Wright were present.

They were asked to participate in this printed debate because, at least geographically, they represent the upriver and downriver perspectives. They also speak often on behalf of two other segments of the debate: advocates for wild fish versus the utilities. And, it should be noted, they speak highly of each other, notwithstanding what they have written here.

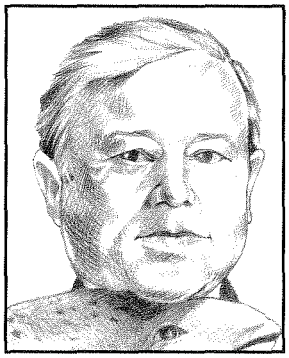
Chaney, as president of Chinook Northwest, Inc. (a consulting firm on natural resource issues) and director of the Northwest Resource Information Center (a research institute on similar issues), is an outspoken champion for wild salmon. He ardently maintains that protecting wild salmon, and the environment in general, is good business for the region; that conserving resources does not necessarily mean cutting long-term revenues; and that creative approaches can overcome long histories of conflict.

Wright is executive director of the Pacific Northwest Utilities Conference Committee, which represents utility and industrial customers of the Bonneville Power Administration, the region's federal electricity marketer. If anyone could be said to be outspokenly moderate, it is Al Wright. As spokesman for the region's utilities, public and investor-owned, as well as for those industries that require so much electricity in their processes that they buy it directly from Bonneville (the direct service industries, mainly aluminum companies), Wright has an enormous constituency to represent. Many measures to protect fish and wildlife in the region will be paid for by Wright's member companies through their power purchases from Bonneville.

—CC



Q. ***If it were up to you, what would you do to protect and rebuild those salmon stocks that have been identified as at greatest risk?***



Al Wright

If I was the Columbia River fish Czar advising the Northwest on what it must do to rebuild the salmon stocks, I would first ask people to recognize the reality of our current situation. The region's fish programs have evolved and spawned monstrous bureaucracies. A lot of money has been spent, with marginally successful results.

The first rule should be *no business as usual.* Second, *focus on recovery of fish, or forget it.* We're not interested in providing excellent habitat for fishery biologists. We are interested in returning fish to their spawning grounds to ensure the survival of marginal stocks.

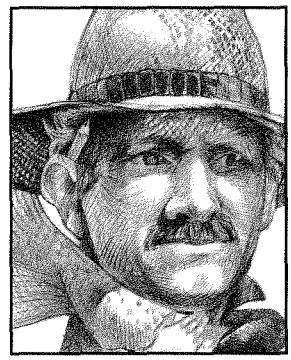
Third, *if it isn't hard science, it doesn't get done.* We have spent decades and millions on conjecture and pet projects. Many myths have become regarded as fact. The Council must demand that only verified and well-monitored programs are implemented.

We must recognize the limits of the existing system. In the 1700s, there might have been 20 million fish and a few thousand people. Now, we've got many millions of people and a few million fish. That is a fact of life. We cannot return to the "natural state" that so many people talk about. We don't have billions of buffalo, and we will never have billions of buffalo again.

This is not an argument against restoring the fish runs, but it does not serve us to worry about what is past. The Northwest Power Act's "equitable treatment" (not "equal treatment") for fish is significant. "Equitable" acknowledges our obligation to consider the fish, but recognizes the limitations of what we can do.

Now, how do we protect and rebuild salmon stocks that are at the greatest risk? Everybody has to *stop killing them.*

We need a program that deals with these animals throughout their entire life cycle. Every human activity that kills those fish has to be dealt with. To protect the eggs and juveniles, we have to protect the



Ed Chaney

The question is both curious and instructive as we approach the 10th anniversary of the Columbia River Basin Fish and Wildlife Program, once touted as the "Mother of All Fish Restoration Programs."

More than a decade ago, the then-critical plight of Snake River salmon provided principal impetus for the fish and wildlife provisions of the Northwest Power Act of 1980.

Results to date: Snake River coho are extinct. (They were likely beyond help by 1980.) Sockeye probably are doomed, notwithstanding heroic artificial life-support measures. Fall chinook may be over the threshold of extinction. Spring and summer chinook ("sprummer"[1] chinook to the National Marine Fisheries Service) hang on at critically low levels that represent irretrievable loss of invaluable genetic diversity. Wild steelhead are in serious and deepening trouble. The social and economic impacts have been traumatic and widespread.

It doesn't take a rocket scientist to figure out what's wrong with this picture. The Act *promised* fundamental changes to reconcile operations of the world's largest coordinated hydroelectric system with the needs of what once were the world's largest runs of chinook salmon and steelhead, and other upriver salmon.

The Council *delivered* hydropower tinkering with a new paint job and mudflaps. Interminable studies of the studies. Critical year,[2] no risk, planning for power production. Extinction and near extinction for fish.

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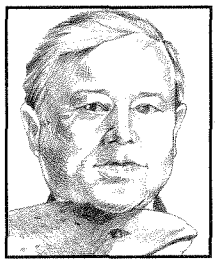
1. The National Marine Fisheries Service is responsible for administering the Endangered Species Act where ocean or ocean-migrating resources are the subject. The Service did not distinguish spring from summer chinook in a proposal to list the fish as threatened.

2. "Critical year" refers to the lowest water levels on record in the Columbia River, an event that is expected to occur in about 1 in 50 years. The concept is employed in the hydropower system as a basis for estimating the minimum power delivery of the system in record low-water, or critical, years. This power is known as "firm" because it can be guaranteed.



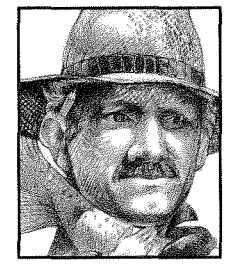
nursery stream riparian [shoreline] habitat. We don't have to stop cutting trees or raising cattle. We need a more intensive management program to ensure that riparian habitat is restored and preserved. Irrigators must see that diversions are screened to protect the juvenile fish, and adequate water is available for adult fish returning to spawning grounds.

In the mainstem Snake River and Columbia River, the responsibility falls mainly on the hydroelectric industry and the navigators to provide a safe highway for migrating juveniles and adults. Some think that in the Snake River, it's either "Target 200" *or* the "Idaho proposal."[3] There is very little unused water available for mainstem flows in the Snake, so a combination of things must be done. We must devise the best "mix" that provides the best survival.

How do we protect and rebuild salmon stocks that are at the greatest risk? Everybody has to *stop killing them.*

In the Columbia River, life is a little easier for fish. There is a lot more water, and there are some additional things we can do. The power industry has said it is willing to work with the Council and the region to get that job done. Interdam loss of returning adults is a significant problem. We don't have answers, but this should be a very high priority program. The returning adult salmon is the most valuable animal that we have, given that it has survived all the hazards of nature, all the developments of mankind and all the "curtains of death" in the harvest system.

3. See introduction.



What would I do?

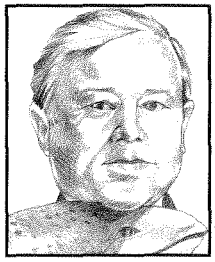
Comply with the letter and intent of the Power Act. Focus on the pivotal problem responsible for devastation of fish runs and dependent economies: operations of the federal Columbia River power system. Make intelligent long-term investments to enhance the capacity of the Columbia River Basin for joint production of anadromous fish and hydropower.

Only one thing threatens extinction of wild Columbia River Basin salmon and steelhead: improperly designed and operated mainstem Columbia and Snake River dams.

Many things have contributed to the decline of wild salmon. The Bonneville Power Administration, the Pacific Northwest Utilities Conference Committee and the Army Corps of Engineers have a list. It features overfishing, degradation of spawning and rearing habitats, misdirected hatchery programs, and the weather (the fish thrived during pre-dam droughts, but let it go).

All of those things are accurate to some extent. However, only one thing threatens extinction of wild Columbia River Basin salmon and steelhead: improperly designed and operated mainstem Columbia and Snake River dams. According to the region's fishery agencies, this is responsible for more than 95 percent of all man-caused mortality of Snake River salmon.

If this problem is not resolved, all past investments, economic loss and human agony will be



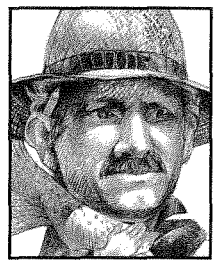
Harvest kills fish, contrary to what a lot of people say. We have to deal with the harvest question in three areas. One is the off-shore harvest, both recreational and commercial. Second, is the commercial harvest in the lower river. And last, the treaty harvest between Bonneville Dam and McNary Dam.

I personally believe that the off-shore harvest, in Alaska, Canada, the Pacific Rim driftnet fishery, the troll fishery, et. al., is effectively unregulated. It is a "good 'ol boy" system and a race to kill the last fish. It is a self-policing mechanism that is doomed to failure. Unless we make massive changes in the regulations of off-shore harvest, particularly the continuous intrusion by the Pacific Rim fisheries, all other activities to save and restore salmon are destined to failure, without exception. And I see nothing being done in today's world to try to stop "business as usual" and turn that system around dramatically.

We now manage harvest with an 1890 technology.

The recreational and commercial fishery in the lower Columbia River is better regulated, but still a major problem. I think we should simply buy the Zones 1 to 5 commercial gillnet fishery [below Bonneville Dam] out of existence, since it is actually a recreational fishery under the guise of commercialism. Recreational fishing is a sizeable industry on the Columbia River, and it should be maintained because it provides benefits to a lot of communities. The recreational fishermen can be educated to use a catch and release program for unmarked (wild) fish. The fishermen could take pride in taking only marked fish and releasing wild fish.

The tribal fishery from Bonneville Dam to McNary Dam is the best regulated fishery on the river. I believe the tribes will impose even greater harvest controls so long as other people are working hard, too.



wasted. The fish will become extinct. Then we can start spending ever greater sums to restore some marginal approximation of what we've squandered.

BPNUCC[4] for decades have fought making fundamental changes in the dams and in system operations necessary to restore devastated fish runs and dependent economies. They won. But it has been a Pyrrhic victory. It guaranteed Endangered Species Act petitions. Now they seek political absolution for the fish kills by blaming the victims.

As a backup to diverting the blame, BPNUCC et. al., have engaged in economic doomsday scare tactics cynically designed to confuse and intimidate the public and decision-makers. It's working.

They used the "Shadow Summit," from which public fish advocates and the press were excluded, to accomplish what they were unable to accomplish in the Salmon Summit. They call their proposal "Target 200" after its flow target of 200,000 cubic feet per second at The Dalles Dam. If implemented, the "200" in Target 200 would more appropriately reflect the number of wild salmon that eventually would be left in the Snake River.

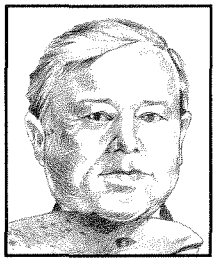
The primary objective of Target 200 is to minimize hydrosystem changes and protect subsidies that would make a Bulgarian bureaucrat blush, not to restore fish runs and dependent economies. In the Snake, their proposal relies on spring flow augmentation from storage, and the barging of juvenile fish. This is more of the same that created the present crisis. This is a prescription for eventual extinction of wild Snake River salmon. This is not good business. This is not acceptable.

Two things are mandatory to restore wild salmon and dependent economies.

1. The velocity of streamflow through the series of mainstem reservoirs must be substantially increased to transport juvenile fish to the ocean on a biologically timely basis.

In the water-poor Snake River Basin this can only be accomplished by drastically drafting the four lower Snake River reservoirs in the spring and augmenting streamflows in the summer. In the comparatively water-rich Columbia River Basin, it can be

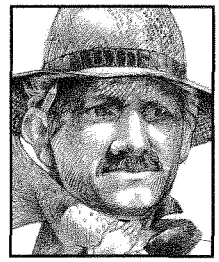
4. Chaney's acronym for Bonneville and its major customer groups.



We need to severely limit mixed-stock fisheries [in the ocean, all stocks school together and are caught together] and move to a selective harvest. We now manage harvest with an 1890 technology. I think we can move into the year 2000 with a Columbia River fish harvest program that will exceed people's wildest expectations, if it is managed with a 2000 technology.

Hatchery practices must be changed so they produce quality fish that are comparable to naturally produced stocks. Current programs focus on quantity, not quality, and that must change. We support marking all hatchery fish, better broodstock management, reductions in hatchery density, and improvements to water quality and hatchery facilities.

If we do all these things, we can have marginal stocks that survive, we can have harvest, we can have a multitude of river users who are using the river economically and efficiently, and we can do this at the least cost. If we do not, we will have a piecemeal program. It will be very expensive, and it will fail.



accomplished by flow augmentation from storage supplemented by modest reservoir drawdowns, notably the John Day pool.

2. Juvenile and adult fish passage facilities at the four lower Snake River dams must be modified to operate at variable drawdown levels.

This is a prescription for extinction of wild Snake River salmon.

Juvenile fish passage should be fundamentally re-examined at all mainstem dams, including innovations to make existing or new powerhouses fish-friendly.

Q. ***How would you justify this approach to the affected parties, such as irrigation farmers, barge companies, commercial fisheries, anglers or ratepayers?***

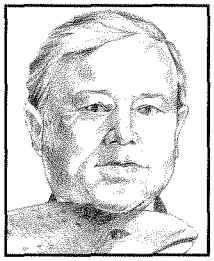
All river users and fish users must recognize reality too. Our reality is, we are an affluent, well-fed, well-sheltered society. We are not a developing nation. We are not frontiersmen who must exploit natural resources to survive. We have diminished the fish runs, and we *want* to do something about it. We want to pay back the environment for those things we have done to it.

Now, if you are willing to accept that reality, and you must, then the only answer is to get that job done as quickly, efficiently and cost-effectively as we can. If we don't succeed, we will constantly be pressured for more. The power industry and other river users have to wake up to this reality just as the fish interests must wake up to their reality.

First, I would make it clear that it is the only thing that will work. And that failure to get on with it will put what few fishermen are left out of business, and will put farmers, waterway shippers and ratepayers at high risk of draconian intervention by the courts and the Congress, neither of which will have any sympathy for maintaining our region's coveted subsidies at the easily avoidable expense of extinct wild salmon and dependent economies.

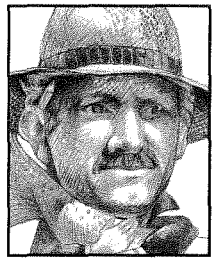
Farmers pumping irrigation water from mainstem reservoirs would not be affected by the proposed drawdowns. They didn't create the problem. They shouldn't have to pay for modifying irrigation pump intakes.[5] This has been a tenant of the drawdown proposal from its inception. People who know better

5. Many Northwest farmers irrigate by pumping water directly from reservoirs. Some of their pump intakes would need to be extended if reservoirs are drafted as low as has been suggested in the "Idaho proposal."



And, if the river users live up to their responsibilities, we have every right to demand "where's the fish?" The Power Planning Council has an obligation to see that this question gets answered. I believe that the region is ready to do the right thing. It won't be easy and there will be some pain, but if we focus on that four letter word—fish—it can be done. ⊞

We are an affluent, well-fed, well-sheltered society. We are not frontiersmen who must exploit natural resources to survive.



have suckered pump irrigators into believing they are at risk of being put out of business.

The proposed drawdowns would not affect water transportation in the lower Columbia River. In the lower Snake River, barge traffic would cease during drawdowns. A two-month shutdown, for example, would affect about 5 percent of the total annual tonnage past Bonneville Dam. Some shipments could simply be rescheduled outside the drawdown period. Additional subsidies could offset any unavoidable increase in farmers' shipping costs; better to subsidize with a check than with extinction of Snake River salmon and dependent economies. The barge companies, on the other hand, could use a little dose of free enterprise.

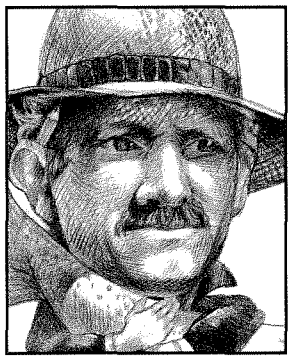
Fisheries on Snake River salmon already have been eliminated or drastically reduced. There has been relatively little reduction in harvests by dams.

Ratepayers, appropriately, will pay the cost of hydrosystem changes to restore wild salmon runs and dependent economies. Ratepayers long have been the beneficiaries of cheap power highly subsidized at public expense, including the unnecessary expense of devastated fish runs and dependent regional economies.

Contrary to BPNUCC's scare tactics, the required hydrosystem changes will not result in draconian rate increases. The energy cost of the spring drawdown/summer flow augmentation plan for the Snake River will be less than the energy cost of Target 200's plan for the Snake. The former will save the fish. Target 200 won't.

Hydrosystem changes required to safely pass fish through the lower Columbia River will result in short-term loss of energy revenue. These costs will be modest and will quickly fade as energy production, pricing and marketing strategies are modified to adapt to the new reality. Importantly, in the long term, the supply and price of energy will be roughly the same with or without fish.

The long-term choice then, is to have wild salmon or not to have wild salmon. This decision repeatedly has been made in the affirmative by the people of the Northwest and the nation. Now it is time for the Northwest Power Planning Council to stand and deliver. ⊞



Ed Chaney Rebuttal

Al has done his usual masterful job at creatively mixing common sense with strawmen. By the time he gets through demolishing the latter, the reader has so much chaff in his or her eyes, attention is diverted from the issue at hand, as intended.

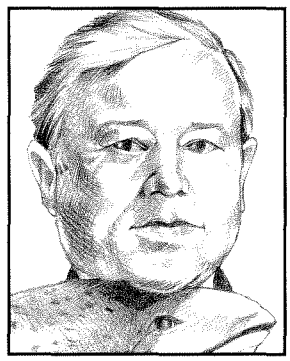
We are in agreement on his first two rules, no business as usual, focus on recovery of the fish. We part on the third, not in principle, but in practice. Fish traditionally have been subject to impossible burdens of scientific proof in defiance of common sense and law. Power production, on the other hand, is based on a no-risk-allowed standard and pitted in zero-sum conflict with fish. Not surprising, fish are becoming extinct, Bonneville's revenues are up, direct service industry rates are down, other rates have declined in real terms, and Bonneville is keeping current on its payment of the Washington Public Power Supply System nuclear power plant gambling debts.

Al deftly employs the old can't bring back the buffalo canard (a variation on the equally false "back to nature" ploy). It would be inconvenient to have all those buffalo running around. But fish don't get in the way. One estimate suggests that providing the mainstem flows needed to restore devastated fish runs and dependent economies would divert 1 to 5 percent of the average annual flow of the Columbia River from hydropower production.

The fact is that the devastation of Columbia Basin salmon and steelhead runs is not the inevitable price of progress. It is the inevitable price of stupidity. Of a slash-and-burn approach to hydropower development. Of egregious privatizing of the benefits and commonizing of the costs of bureaucratic myopia and inertia.

Al's self-righteous indignation about the insatiable appetite of the biologists is misplaced. It was energy interests' intent to buy fish advocates off the backs of Bonneville and its customers. Their real complaint is that it is turning out to be more expensive than expected.

Al makes some valid points about the need for fishery and hatchery reform which, unfortunately, are obscured by the chaff of hyperbole and blame spreading. The fact is that harvest of Snake River



Al Wright Rebuttal

The Snake River coho are extinct because they were managed out of existence.

The sockeye are "doomed" because Idaho Fish and Game poisoned them in favor of trout.

The Snake River fall chinook have declined because the massive mixed-stock fishery on strong mid-Columbia fall chinook targets them at the same rate.

Snake River spring and summer chinook are being swamped by massive releases of hatchery fish. It has always been PNUCC's contention that "meat" hatcheries to feed the mixed-stock harvest will spell doom for the wild stocks.

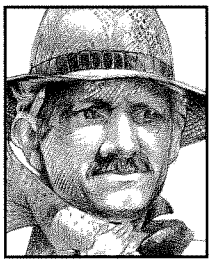
The hydropower system has made fundamental changes. Water is reregulated for fish flows and spill. In addition, over $1 billion was spent on fish programs.

Pressure for more water is really pressure for exclusive use of the river for fish.

But, for our 10-year, $1-billion carnival ride we have lived with zero accountability for fish measures. And, in return for our investment, zero verification of the benefits of these actions. It's time the fishery managers had the burden of proof, not the fish.

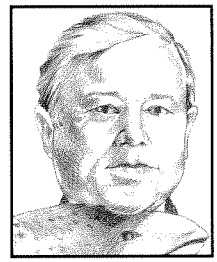
I am glad that Ed recognizes that many things kill fish. I recognize that dams cause fish mortality; I deny that 95 percent of the mortality is caused by dams. It is interesting to note that the lower Columbia wild coho have been driven to the brink of extinction absent any influence of the dams.

Target 200/85 is not designed to "minimize hydrosystem changes." It will stretch the system even further, to the limits of our water management abilities. Pressure for more water is really pressure for exclusive use of the river for fish.



salmon has been drastically reduced over the past three decades with concomitant severe economic impact on fishermen and fishery-dependent communities. Columbia and Snake River dams harvest more fish in one year than all fisheries combined in 10.

Al rightfully calls for recovery actions throughout the salmon's life cycle. Now it is time for Bonneville and the utilities to quit blaming the fisheries, the hatcheries and the weather. Clean up their own house. Make quick changes in the hydro system necessary to save the fish from extinction. Make intelligent long-term investments to enhance the capacity of the Columbia River Basin for joint production of salmon and hydropower. ■



The power industry endorsed the drawdown experiment. But, the feasibility studies must be linked with an assessment of biological benefits. If there is something in the Idaho proposal that makes it one-half the cost of our targeted flow proposal, and it does more for fish survival, I am overjoyed. Please send us the data so that we can encourage Bonneville to cut its budget immediately. ■

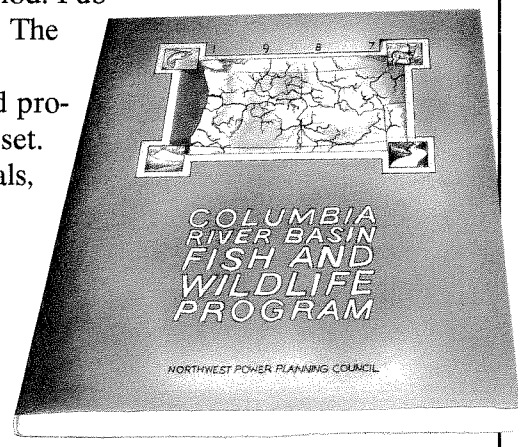
Amending the Fish and Wildlife Program

The Northwest Power Planning Council is amending its Columbia River Basin Fish and Wildlife Program to incorporate additional measures to aid declining runs of Northwest salmon, including those fish proposed for protection under the federal Endangered Species Act.

In August, the Council approved priority habitat and production projects to help salmon runs this year and in 1992.

At about the same time, the Council began a second process to further amend the salmon and steelhead portions of the fish and wildlife program. The deadline for submitting amendment proposals for this second process was August 9. Proposals dealing with mainstem survival, harvest and production will be considered first, with a public review period from August 12 to September 12.

The Council will then compile a draft of those measures it is considering for incorporation into the program and release that draft for an additional 30-day comment period. Public hearings and consultations will be held in September and October. The Council expects to make its final decision in November.



Northwest Power Planning Council file illustration by Lynn Carson

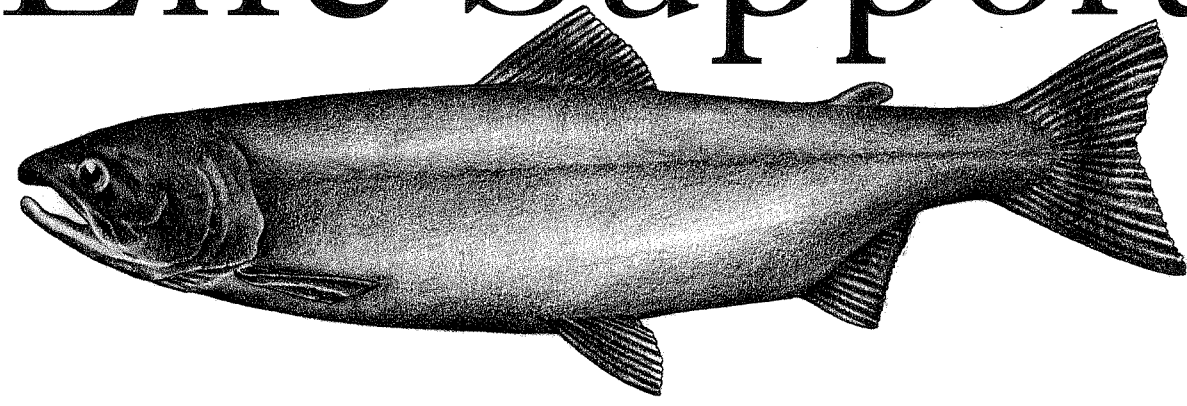
Hearings and consultations on the remaining salmon and steelhead proposals are tentatively planned for early 1992, but dates have not been set. The Council will issue a draft amendment document on these proposals, conduct public hearings and consultations, and then make a decision, perhaps as early as the spring of 1992.

By law, the Council must conclude the rulemaking on salmon and steelhead amendments by August 9, 1992, one year after the deadline for submitting proposals. However, the Council intends to proceed more quickly, if possible.

The deadline for submitting amendment proposals for remaining sections of the fish and wildlife program, primarily the sections dealing with wildlife and resident fish, will follow the completion of the salmon and steelhead amendment process. Tentatively, that is scheduled to begin in September 1992. As with the salmon and steelhead amendments, the rulemaking process would have to be completed within one year of the deadline for submitting proposals. ■

—JAH

The System of Life Support



by Karen Nelson

An intensive care unit to save the last Idaho sockeye.

Since the beginning of May, 761 young salmon have been protected and nurtured as part of an experiment that could be the Snake River sockeye's best hope for survival.

The salmon smolts were caught in Redfish Lake Creek, near the Salmon River, as they migrated out of Redfish Lake. The Idaho Department of Fish and Game moved the naturally spawned salmon smolts to the Eagle Fish Health Facility near Boise. They will never leave the facility.

The fish were captured in a five-foot-long wooden frame mesh trap placed where the current is the swiftest. The hope is that three years from now 40 adults will have survived to spawn. Their eggs will be taken, fertilized and hatched. Their young will be reared to fingerlings and returned to Redfish Lake to migrate naturally.

Sockeye once journeyed by the thousands down the Salmon River in Idaho to the Snake and on to the Pacific Ocean. After about three years in the ocean, they would return more than 900 miles over dams and up waterfalls, climbing from sea level to a lake 6,500 feet in the mountains.

But last year, no sockeye returned to spawn at Redfish Lake, and in 1989, only two adults made it back. So far, seven have been spotted heading up the Snake River this year.

This April, the National Marine Fisheries Service proposed that Snake River sockeye be granted protection under the Endangered Species Act. Next April, the National Marine Fisheries Service will announce their final decision.

The grand experiment

The Idaho Department of Fish and Game estimated that approximately 4,500 smolts began migrating out to the ocean from Redfish Lake during the time the experimental trap was in operation.

"We lost 73 fish during trapping and transporting to the hatcheries and then lost nine at the Eagle Fish Health Facility in early June," said Dexter Pitman, anadromous fisheries manager

Northwest Power Planning Council file illustration by Joan Barbour

for the Idaho Department of Fish and Game. The mortality, which was expected, was due to the stress from handling.

"We can't be certain right now if the smolts we have at Eagle Facility are all sockeye or some kokanee.[1] No one knows at this point," said Pitman. He explained that the fish that died during trapping and transporting have been sent to the National Marine Fisheries Service for analysis. Tests were taken of kokanee from Redfish Lake last year so comparisons can be run.

Explained Pitman, "In addition to those which were captured, we tagged and released 21 smolts so we can follow them and study their patterns." Pitman also stated that 141 smolts from Alturas Lake, assumed to be kokanee, were captured and are being kept separate at the Eagle Fish Facility to have a control group and perform an independent study and analysis.

The project, which was encouraged by the Northwest Power Planning Council, is a joint venture with the Idaho Department of Fish and Game, the Shoshone–Bannock Tribes of Idaho and the Bonneville Power Administration.

"Is this a waste of effort?" asked Steve Huffaker, chief of fisheries for the Idaho Department. "It's a long shot, I'll admit. The other alternative is to declare them extinct and write them off. We're just trying to preserve the options, if there are any," he said.

The system of life support, as Huffaker calls it, is expensive. Equipment to catch and raise the smolts costs about $350,000. Operating the hatchery and paying the salaries will add $250,000 per year for four years. Bonneville is funding the program.

When the young fish arrived at the Eagle facility, project leader Keith Johnson started them on a feed similar to what they normally eat. The feed was largely fish–based, made up of krill, anchovy paste, some standard hatchery fish food and even a little cat food. As they learned to eat in captivity, they were gradually converted to eating pelletized fish food used in most hatcheries.

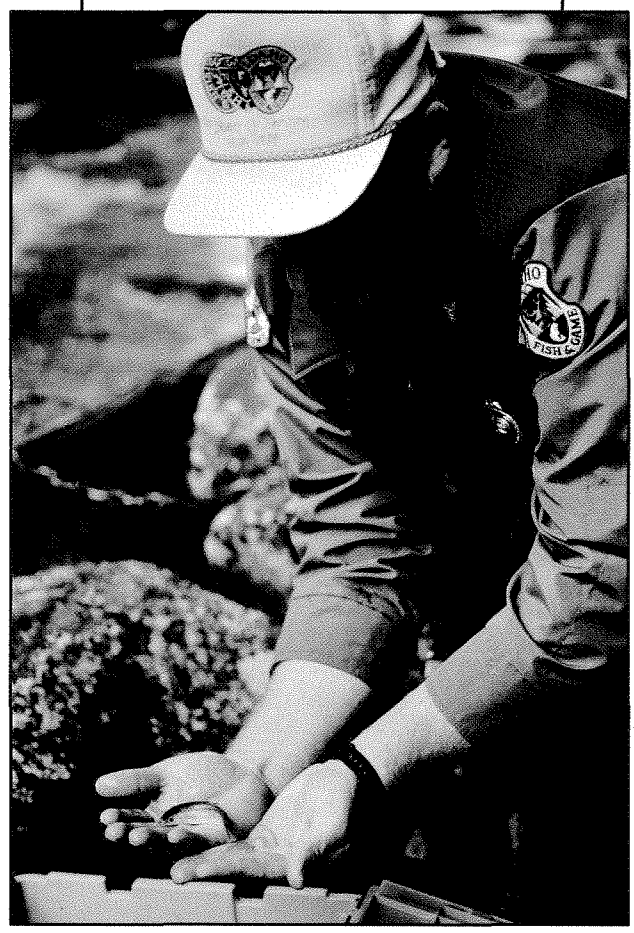
"It's amazing how consistently they all converted over to feed," said Johnson. "It only took about 10 days for them to adapt to the pellets."

The weight of the young salmon has more than tripled under Johnson's care. The fish are now on a diet based on their body weight. Johnson is pleased with the success so far. "Things are going well, and look good into the foreseeable future," he said. "It's almost surprised me to see how well the fish are doing in captivity."

Johnson is making improvements at the Eagle facility so it can serve its function as an "intensive care unit" for these precious fish. A more sophisticated water supply alarm system is a priority item. Building security and other measures that make the facility more suitable for adult fish have also been installed.

"The beauty of it is that we have a 50–year old facility that we are able to renovate to accommodate these sockeye," stated Johnson. "We have sufficient water supply from artesian wells that is actually very good for the fish."

In addition to the Idaho Department of Fish and Game's work at the Eagle facility, the Shoshone–Bannock Tribes are performing



Idaho Department of Fish and Game Hatchery Manager Rick Alsager holds a juvenile sockeye salmon spawned in Redfish Lake, Idaho.

Photograph courtesy of Idaho Department of Fish and Game

1. Kokanee are sockeye salmon that generally do not migrate to the ocean. A small portion of kokanee populations attempt to migrate to the sea every year, but it is not known whether they are successful. Biologists believe that the sockeye and kokanee populations found in Redfish Lake are separate stocks.

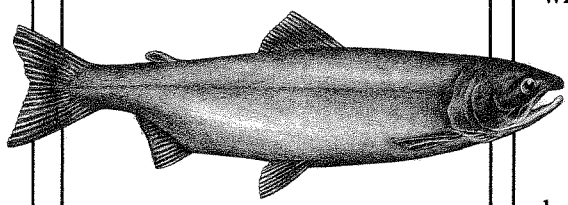
complementary work on the project as well. The Fisheries Service acknowledges there are a lot of unanswered questions concerning the differences and similarities among sea-run sockeye and kokanee. No one knows if kokanee could successfully traverse the 950 miles. In hopes of answering these questions, the Shoshone-Bannocks will perform four major tasks, all funded by Bonneville.

According to Sue Broderick, fisheries biologist for the Shoshone-Bannock Tribes, kokanee eggs will be gathered in the fall from Redfish and Alturas lakes. The progeny will be reared in net pens with saltwater to see if they make the biological transformation known as smoltification that migrating salmon undergo to adapt from freshwater to saltwater environments. A portion of these kokanee will be tagged and released to migrate. The remainder will stay at the facility.

"We also plan to restore the fertility of nursery lakes, such as Redfish, Alturas, Pettit and Yellowbelly, where the fish are reared," said Broderick. She explained that this is a sensitive project because of its location in the Sawtooth Recreational Area. The tribes will do water quality studies this year on the physical, chemical and biological aspects of the lakes. Work should begin this summer and will build on the experience of others in British Columbia and Alaska.

The last major task for the tribes under this project is to change the migration barriers that were placed on Pettit, Yellowbelly and Stanley lakes in the 1950s and '60s to keep suckers and squawfish out. New barriers need to be designed that will allow chinook and sockeye to pass, while still keeping the predators out.

In mid-July, five Snake River sockeye were seen at Lower Granite Dam, the last major hurdle on their way to Redfish Lake.



In mid-July, five Snake River sockeye were seen at Lower Granite Dam, the last major hurdle on their way to Redfish Lake. Fisheries officials were tempted to trap them at the dam, but abandoned that plan so biologists could locate the fish's natural spawning grounds. The fish, at least one of which is a female, will be trapped at Redfish Lake, 400 miles upstream from Lower Granite. They should arrive there by the end of July.

Their offspring would be raised in captivity at the Eagle facility to increase the stock, with the succeeding generation released to the wild.

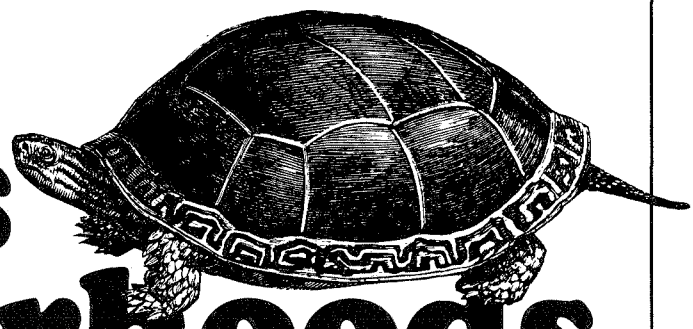
If all the fish are female, biologists will consider fertilizing their eggs with sperm from another sockeye run.

Idaho fish advocacy groups are opposed to the artificial spawning and rearing of these returning sockeye. They would like to see a "spread-the-risk" strategy that ensures some natural spawning by returning adults.

Huffaker admits that idea has a lot of appeal. In two or three years when the sockeye are spawning, Huffaker hopes that changes will be in place downriver to aid their migration. "Otherwise these smolts' progeny, like millions before them, will be decimated by the dams on their way to the Pacific," he said. In any case, the next generation of smolts will be returned to spawn naturally in Redfish Lake.

"We are not going to raise generation after generation in captivity," he said. "We are not going to keep an artificial population on a life support system." ■

Nature's Neighborhoods



by John Harrison

New homes for wildlife signal region's rural renewal.

Ten miles northwest of downtown Portland, Oregon, on the edge of an urban area with a population of about 1 million, bald eagles and blue herons nest in the brushy bottomlands along the Willamette River. Thousands of geese, swans and sandhill cranes stop to rest on their migratory journeys.

This wetland, bordered by Oregon Highway 30 on the west and a slough of the Willamette River on the east, is criss-crossed by small lakes, ponds and marshes. It teems with wildlife. There are beaver, muskrat and endangered species, such as peregrine falcons and Columbian white-tailed deer. The area, known as the "Burlington Bottoms," also supports river otters, hawks and trumpeter swans.

While it is a prime location for suburban development, just a 12- to 15-minute drive from downtown Portland, the 428-acre Burlington Bottoms instead will remain a home to wildlife, thanks to a cooperative effort involving the Northwest Power Planning Council and an uncommon assortment of other organizations.

The Nature Conservancy, a private, non-profit group that buys land for wildlife worldwide with donated money and loans, negotiated a deal to purchase the Burlington Bottoms from Glacier Park Inc., the owner of the land. The Burlington Northern subsidiary agreed to sell the land for $350,000, far below its assessed value of $1.2 million.

The Nature Conservancy will hold the land for purchase by the Bonneville Power Administration, the region's federal electric power marketing agency. Bonneville is responsible for carrying out fish and wildlife recovery activities under the Northwest Power Act. The Power Planning Council authorized the Bonneville purchase in June.

For the Council, Burlington Bottoms is a "wildlife mitigation project," a purchase of unspoiled habitat intended as partial compensation for damage caused to wildlife by the construction and operation of hydroelectric dams in the Columbia River Basin. The Council considers Burlington Bottoms part of the mitigation for Willamette River Basin dams. The site will be managed and maintained as wild habitat by the Oregon Department of Fish and Wildlife.

Planning for the natural neighborhood

The Council has been working to set aside pristine habitat for wildlife, since its inception. It's a task specifically established by the Northwest Power Act of 1980, the federal law that allowed the states of Idaho, Montana, Oregon and Washington to establish the Council.

The Act ordered the Council to develop a program to "protect, mitigate and enhance fish and wildlife, including related spawning grounds and habitat, on the Columbia River and its tributaries." Congress did not intend that the Council become another fish and wildlife agency. That would risk duplicating work already being undertaken by state and federal agencies.

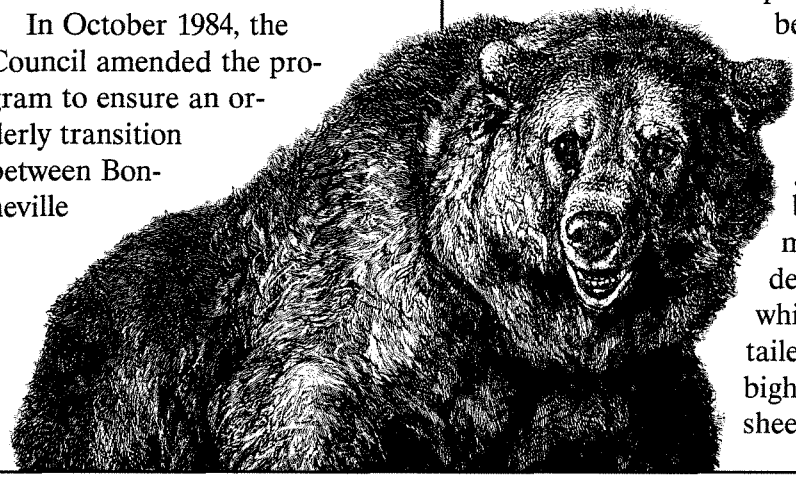
Instead, the Act directed the Council to ask the region's fish and wildlife agencies and Indian tribes to recommend ways to protect, mitigate and enhance fish and wildlife; establish objectives for carrying out those measures; and coordinate management, research and development within the Columbia River Basin.

In its first Columbia River Basin Fish and Wildlife Program, the Council agreed to establish the wildlife coordinator position called for in the Act to serve as a liaison between wildlife and power interests. The program also called on Bonneville to fund a review and analysis of past, present, and proposed wildlife planning and damage compensation in the Columbia River Basin. In addition, Bonneville would finance studies to measure the losses of wildlife and habitat, and establish the amount of habitat and wildlife lost at some 30 dams.

In October 1984, the Council amended the program to ensure an orderly transition between Bonneville funding of wildlife studies and actual implementation of projects. The Council also adopted criteria to guide land acquisitions and added other hydroelectric projects to the list for possible mitigation of damage done to wildlife.

There are beaver, muskrat and endangered species, such as peregrine falcons and Columbia white–tailed deer.

The Council amended the program again in February 1987, adding wildlife plans, those for Montana's Hungry Horse and Libby dams, to the program. Modified from a proposal by the Montana Department of Fish, Wildlife and Parks, the Hungry Horse and Libby dam plans call for projects to benefit elk, black bear, grizzly bear, mule deer, white–tailed deer, bighorn sheep, sharp–tailed grouse, waterfowl and furbearing mammals, such as bobcat, lynx and pine marten.



During the 1987 amendment process, the Council decided that additional wildlife plans should be considered in formal amendment proceedings before they are added to the program for funding.

In short, the Council established a process for developing mitigation status reports, wildlife and habitat loss statements for each dam, and plans for damage mitigation and wildlife protection and management. In this process, all wildlife plans are subjected to extensive public review and comment.

A rule for mitigation

By 1989, a review of habitat losses was completed for 13 Columbia Basin hydropower dams and amended into the fish and wildlife program. These losses are expressed in lost "habitat units," by affected species.

This is a state–of–the–art method for estimating habitat losses. The procedure, known as the "habitat evaluation procedure," was developed by the U.S. Fish and Wildlife Service in the late 1970s. Quantity and quality of available habitat are combined into a single value, expressed as a "habitat unit," for each targeted species. For analysis purposes, one habitat unit is equal to one acre of optimum habitat, and losses can be expressed in habitat units for each target species.

The Council agreed to try to replace approximately 35 percent of the lost habitat units over the next 10 years, arguing that 35 percent was well within the amount of wildlife losses that could be at-

tributed to hydropower. That goal could be changed as the remaining wildlife plans are completed.

In 1989, the Council also established its Wildlife Advisory Committee, which includes members from fish and wildlife agencies, Indian tribes, utilities and conservation groups. The committee reviews wildlife mitigation plans and makes recommendations to the Council on which ones should be carried out first.

The committee first developed recommendations for basinwide wildlife priorities, based on information in the plans submitted by the fish and wildlife agencies and tribes. These priorities, which were approved by the Council in October 1990, specify habitat types, target species and associated habitat units for the Columbia River Basin. There are 10 habitat types, including old growth forest, shrub–steppe land, islands and riparian (shoreline) habitat. About 30 types of birds and animals are included in the list of target species.

The committee has six members. One of them, Russ Hoeflich, directs the Oregon field office of the Nature Conservancy, in Portland. He was instrumental in the effort that led to the Council's approval of the Burlington Bottoms project.

"Only 10 percent of Oregon's wetland areas remain intact; most have been irreparably altered," Hoeflich said. "We simply must protect the few that still exist."

Hoeflich said Burlington Bottoms is an ideal site for mitigation of man's impacts on wildlife.

"The fact that the site is accessible to Portland residents within 12 minutes of downtown makes the project so exciting," he said.

"Only 10 percent of Oregon's wetland areas remain intact; most have been irreparably altered."

—Russ Hoeflich Wildlife Advisory Committee

"Our vision is to make it a model urban wildlife refuge. We'll emphasize wildlife protection and outdoor education."

1991 wildlife projects

Once it had adopted priorities for wildlife projects, the Council began reviewing projects proposed for funding in 1991. The Burlington Bottoms project was one of those.

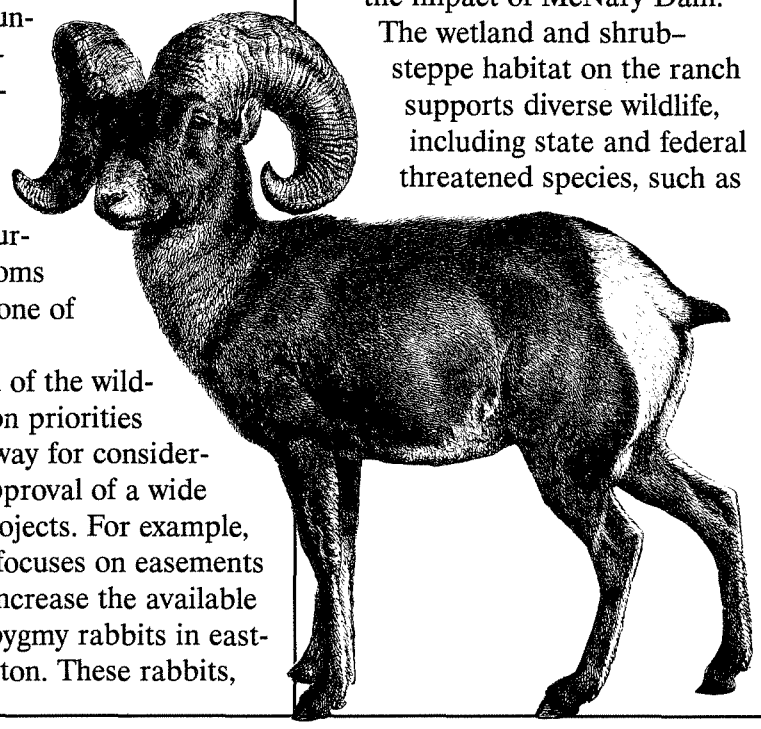
Adoption of the wildlife mitigation priorities cleared the way for consideration and approval of a wide variety of projects. For example, one project focuses on easements for land to increase the available habitat for pygmy rabbits in eastern Washington. These rabbits, which Washington state considers threatened, prefer dry, shrub–steppe habitat. But in eastern Washington, 94 percent of the available habitat in four counties around Grand Coulee Dam was lost to flooding behind the dam and irrigated farming made possible by the dam.

Here is a brief look at the other projects that have been approved by the Council since the mitigation priorities were adopted. All of them include protection for riparian, wetland or shrub–steppe habitat, the three types most damaged by hydroelectric development.

Conforth Ranch

Conforth Ranch, a 2,860–acre cattle ranch just above McNary Dam, would become a wildlife refuge under a proposal approved in June by the Council. The Council urged Bonneville to work closely with the Port of Umatilla, which operates an industrial park adjacent to the refuge, to resolve potential conflicts. The ranch is considered partial mitigation for the impact of McNary Dam.

The wetland and shrub–steppe habitat on the ranch supports diverse wildlife, including state and federal threatened species, such as



bald eagles, peregrine falcons, burrowing owls, white pelicans and long-billed curlew. The area will be managed with the goal of increasing waterfowl production.

Pend Oreille wetlands

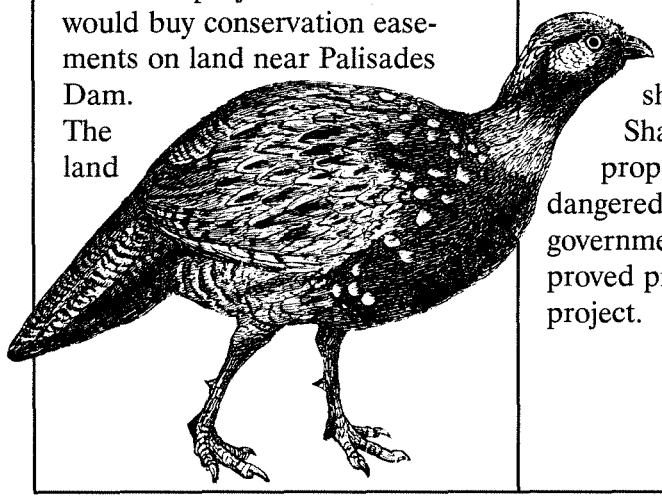
The Council approved the purchase of 436 acres of wetlands and forest along the Pend Oreille River in northeastern Washington. The land is considered mitigation for the impact of Albeni Falls Dam. Waterfowl and bald eagles, and other game and non-game species use the property. The project was proposed by the Kalispel Indian Tribe.

Idaho timber rights acquisition

A wildlife plan for Dworshak Dam could lead to the acquisition of old-growth timber rights on 150 acres near the Little North Fork Clearwater River. The Council authorized Bonneville to buy the rights, pending a study of the feasibility of the project. The Council will review the study before taking further action. The acquisition would improve water quality and benefit cutthroat trout and wildlife.

South Fork Snake River

In this project, Bonneville would buy conservation easements on land near Palisades Dam. The land would be set aside as habitat for eagles. Bonneville began pre-design work, which includes appraising the mitigation potential of the property and determining whether the project would fit with the work of wildlife managers in the area. Nearly half of the bald eagles nesting in Idaho are in this area.



Blue Creek winter range

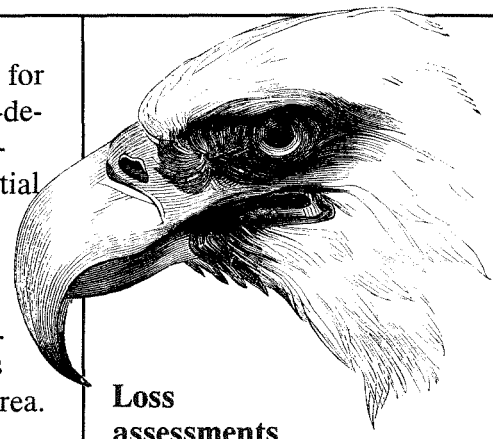
This project would improve winter range for white-tailed deer on 4,400 acres of the Spokane Indian Reservation near Lake Roosevelt in eastern Washington. This would involve cattle guards, alternative fencing and managed grazing. The Spokane Tribe relies on deer for subsistence. The project also would benefit sage grouse and sharp-tailed grouse.

Pygmy rabbits

Conservation easements would be acquired for high-quality, shrub-steppe habitat for pygmy rabbits near Grand Coulee Dam. Sharp-tailed grouse, sage grouse and mule deer also would benefit from the 720-acre project.

Tracy Rock sharp-tailed grouse

Perpetual conservation easements would be acquired on 18,349 acres near Grand Coulee Dam for sharp-tailed grouse. Sharp-tailed grouse are proposed for listing as an endangered species by the federal government. The Council approved pre-design work for this project.



Loss assessments

The Council amended the fish and wildlife program to include loss assessments for Minidoka and Dworshak dams in Idaho. This was the first step toward establishing a wildlife plan for losses from those dams. The amendments included public comment periods. The losses estimates were compiled by state fisheries managers.

Lower Columbia wildlife losses

Draft plans have been prepared for McNary, John Day, The Dalles and Bonneville dams. These are being circulated for public comment before the Council approves or rejects them. The deadline for comments was July 10, but the Council extended the deadline to September 12 to allow time for further comments. ■

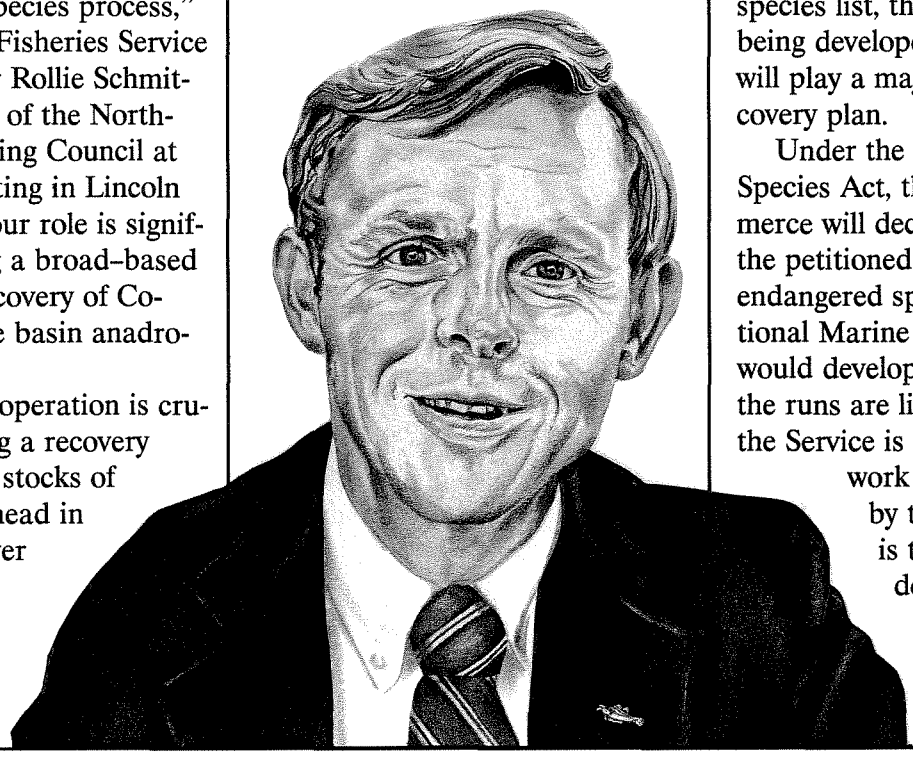
SALMON Solution

by John Harrison

Rollie Schmitten underscores cooperation in devising program to aid salmon.

"Welcome to the endangered species process," National Marine Fisheries Service Regional Director Rollie Schmitten told members of the Northwest Power Planning Council at their August meeting in Lincoln City, Oregon. "Your role is significant to providing a broad-based solution to the recovery of Columbia and Snake basin anadromous fish."

Regionwide cooperation is crucial to formulating a recovery plan for depleted stocks of salmon and steelhead in the Columbia River Basin, Schmitten said. And if three runs of Snake River salmon are added to the federal endangered species list, the salmon solution being developed by the Council will play a major role in the recovery plan.



Under the federal Endangered Species Act, the secretary of commerce will decide whether to add the petitioned salmon runs to the endangered species list. The National Marine Fisheries Service would develop a recovery plan if the runs are listed. That is why the Service is interested in the work being undertaken by the Council, which is the only agency that does long-range fish and wildlife planning for the Columbia River

Northwest Power Planning Council file portrait by Lynn Carson

Basin as a whole and represents all four Northwest states.

A regional solution

"If you believe, as I and others believe, that a regional solution in which all affected parties participate and contribute is a prudent course, then I think you are very likely the last hope for such an effort," Schmitten said.

The Council is in the process of amending its Columbia River Basin Fish and Wildlife Program (see box on page 32), and approved in August some 30 priority projects for implementation in 1992. The approved projects were selected because they can be put in place rapidly and will have immediate benefits for salmon and steelhead. They include, for example, the installation of protective screens at water withdrawals on Columbia and Snake tributaries to keep out young fish as they swim toward the ocean.

Schmitten said he applauded the Council's work in amending the program for habitat and production. "It is, in effect, a recovery program," he said. "Regardless of what the secretary of commerce may do with a listing, a comprehensive, systemwide focus on wild fish is necessary, and I can tell you I applaud you and I think you are on the right track."

"My two reasons for supporting a regional solution are that, first of all, a regional solution examines the entire Columbia and Snake system and provides benefits for all stocks," he said. "Secondly, a regional solution that is crafted by all water users is likely to be better supported, implemented and funded by regional participants...hopefully, minimizing unnecessary and endless litigation.

I think you are very likely the last hope for such an effort.

A decision soon

The Service proposed earlier this year to list Snake River sockeye as endangered and Snake River fall and spring/summer chinook as endangered. Schmitten said that while Secretary of Commerce Robert A. Mosbacher has until April 1992 to make a decision on sockeye and until June 1992 on the chinook runs, he indicated that much of the work is completed for the sockeye petition and that a final decision is likely in the near future, most probably before the end of 1991.

That is important because the Council intends to make decisions regarding flows, harvest and production shortly before the end of the year, and the two agencies could coordinate their efforts for the benefit of fish. The Endangered Species Act requires federal agencies to consult with each other, even after a species is listed.

Council Chairman Jim Goller, an Idaho member, underscored the importance of consultation. "As we go through our processes, I hope it is possible for you to have a couple technicians that can consult with ours to make sure we're considering things that will be helpful to you. We're both on very fast time tracks, and we both have the same goals," Goller said.

"Let me guarantee it," Schmitten said. "I see us working in partnership. It's imperative that we work together."

If the decision is to list any of the runs, "we would go into the recovery phase and appoint a recovery team, and I could see that team working very close with your efforts," he added.

Learning from the spotted owl

Schmitten said the Service has been following the controversy over the northern spotted owl, and that his agency hopes for a less traumatic decision-making process with the salmon petitions.

"When the fish petitions were submitted, we were dealing with a constituency that for the most part had never dealt with the Endangered Species Act—irrigators, agricultural interests, fishing interests, hydropower interests," he explained. "Based on the spotted owl review, what we found is that most people felt the government had done its review behind closed doors, that there was little or no public input in that review and that there was a lot of distrust for the government's handling of the endangered species review."

So Schmitten changed the review process.

"We started with an educational reachout, explaining the Act, but most importantly we've tried to convince people that there is a role for the public in this process," he said. "I want to admit right out that the government doesn't have all the answers."

The Service put together a technical review committee of experts on fish biology for advice during the review process. Next the Service will put together a second committee, which will include experts in economics to help with the designation of critical habitat if the runs are listed. Both committees—biologists and economists—will offer advice, he said.

A campaign for wild fish

In the meantime, Schmitten is moving ahead with another project: a coastwide wild fish restoration project.

"It's not in any of our interests to sit around and wait until we receive petition by petition...to recover wild fish," he reasoned. "We need to start a proactive campaign to identify wild stocks and the critical habitat they live in. I think we should prioritize those stocks and habitat and develop a restoration program that the states and tribes and conservation groups can take to Congress to fund a major restoration of wild fish. If we want to get out of the position in which we find ourselves, it's going to take this kind of initiative to get started."

From his perspective on the hot seat of the regional salmon protection effort, Schmitten offered a little advice to the Council members, who are about to climb on with him.

"The Council faces one of the biggest, if not the biggest, challenge you will ever face," he said. "It's imperative that you hear from all groups, and your statutory charge for public hearings I think is excellent.

The Council faces one of the biggest, if not the biggest, challenge it will ever face.

He said any recovery plan must be definable, measurable in the short term and the long term, and enforceable, either through the Endangered Species Act, if there is a listing, or through a legal process that the Council would establish.

Council Member Tom Trulove, who represents eastern Washington, said he was concerned about how a recovery plan would be enforced.

Schmitten responded that, "we don't want to drive away participation, but to be sure each party to an agreement honors its commitment. For instance, if there's a major drawdown [of Snake or Columbia reservoirs], and if there are impacts, it should be done slowly enough so that there can be corrections, and the region can look at how to help those people who are affected."

Oregon Council Member Angus Duncan noted that, "the Endangered Species Act doesn't have to devastate economies in order to protect the species that we co-exist with. Our process has to be accessible to all parties."

Schmitten also advised the Council to focus on harvest, flows, habitat, bypass and augmentation, also known as supplementation, which is the process of raising fish in hatcheries in water from a particular stream and then planting those fish in that stream. The hope is that the fish will return to the stream as adults rather than to the hatchery re-establishing a natural run.

"What the Endangered Species Act has done for us is to enlighten us as to the trouble with wild fish," he said. "It doesn't mean that we're wrong with what we're doing at hatcheries, that we should shut them down. Frankly, 80 percent of the fish in the Columbia system are hatchery fish. They're the bread and butter of our coastal fisheries, our recreational and commercial fisheries."

"The hatcheries did just what people in the Northwest wanted them to do, which was produce fish," Schmitten said. "What the technology didn't show was the devastating impacts on wild fish. That's why we have to do better and we have to be smarter."

Additionally, he said it is important that the Council conclude its amendment process by December 31, 1991. The Council intends to vote on mainstem survival, harvest and production proposals in November.

"If we do have final listings from the secretary, and for your plan to provide guidance and be useful in that recovery process, you would need to adhere to the time frame you set for yourself."

Finally, he urged the Council "to send a clear signal" to the region.

"If you choose a course, a clear signal to the region and to ourselves would be a very strong message," he said. ■

Key Points in the Endangered Species Act

In deciding whether to protect petitioned runs of Snake River salmon under the Endangered Species Act, the National Marine Fisheries Service will rely on several key points of that Act. The Service's Regional Director Rollie Schmitten told members of the Northwest Power Planning Council. Those points include:

- Definitions in Section 3. The word "species" is defined to include any subspecies of fish, wildlife or plant, and any distinct population segment of any species that interbreeds when mature.

  "The 'distinct population segment' is a crucial phrase, and frankly that was the unknown for us when we started this process," Schmitten said. To be added to the endangered species list, the Snake River runs must be distinct populations of fish. Not all West Coast sockeye are in trouble, just those in the Snake River, he pointed out.

- Section 4 is the working section, Schmitten said. The section lays out the five factors that the secretary of commerce can cite in listing. A listing can be justified on the basis of one factor, or a combination of factors.

  "The five are habitat, overharvest, disease or predation, inadequacy of existing regulatory measures and, finally, other natural or man-made factors, which could include hydropower facilities and mechanical passage," Schmitten explained. Economic impacts are not a consideration in determining whether a listing is justified, he said.

  "Often, people quit reading right there, but they should read on, because there's another phrase that I think is very important," he said. "That one says 'after taking into account conservation efforts by a state or other foreign nation.' I think that's really significant, and that's often overlooked."

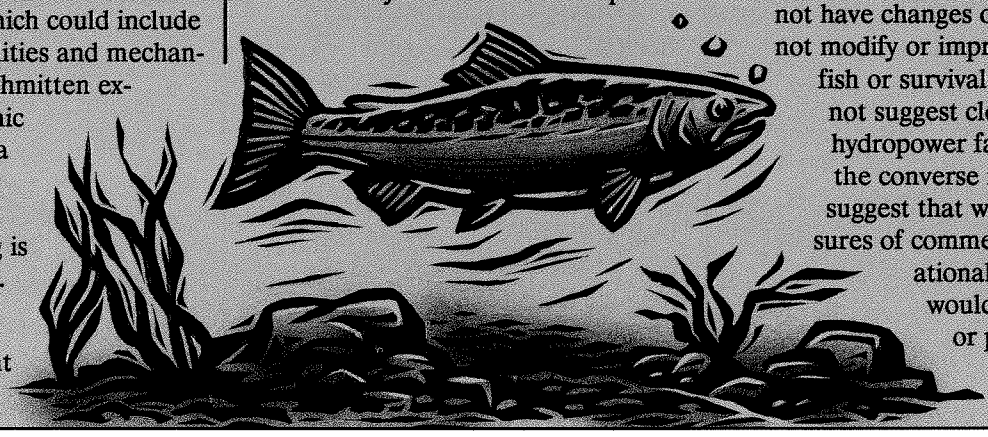
  Section 4 also says the commerce secretary must designate critical habitat in listing a species as endangered or threatened. Schmitten said the section includes an escape clause that says critical habitat may be designated only if it is "prudent and determinable." The Act allows for the consideration of economic impacts in designating critical habitat, Schmitten said.

  Section 4 sets the time line for a decision on whether to list a species. From the day a petition is received, the affected agency has 90 days to decide on the adequacy of the petition. If the petition is adequate, a status review is conducted for the petitioned species within 60 days. Then the agency has up to a year to announce a proposed decision. A public comment period of up to 60 days follows that decision, and then the commerce secretary makes a final decision. That decision must be made within two years of the date the petition was filed.

  Under Section 4, the commerce secretary also can alter the proposed listing—from endangered to threatened, for example, or vice versa—or ask for a six-month extension. Once the decision is made to list a species, a team is appointed to develop a recovery plan.

- Section 7 is the interagency cooperation section. "There is an Endangered Species Committee, more often called the God Squad," Schmitten said. "There are seven members—six cabinet-level individuals and one member of the affected state. The purpose is not to overturn a listing, and many people don't understand that. The purpose is to examine an action that may cause a jeopardy to a threatened or endangered species and determine whether that action should be exempted." For example, a new hydropower dam might be exempted under this process, even though it could imperil a threatened or endangered species.

- Section 10 clarifies what are called "takings." "If you have an endangered species, people say, 'my gosh, there's no taking.' That's not necessarily true," Schmitten said. "If you took that to its furthest, that could suggest that you are closing mainstem hydropower facilities, and that simply is not going to happen. That is not a prudent or practical solution. I'm not saying that you may not have changes or that you may not modify or improve passage for fish or survival, but we will not suggest closing mainstem hydropower facilities. And the converse is true. I do not suggest that wholesale closures of commercial or recreational fisheries would be a prudent or practical course." ■



Northwest Power Planning Council file illustration by Larry Milam

REGIONAL ROUND-UP

Joint Effort Saves Salmon and Steelhead

There should be a sign over the raceways at the Lyons Ferry Hatchery that reads, "We survived with a little help from our friends." Due to the cooperation between Chelan County Public Utility District's Eastbank Hatchery and the Washington departments of wildlife and fisheries' Lyons Ferry Hatchery, hundreds of thousands of salmon and steelhead were saved from potential destruction.

In June, a pipe that serves as the only water supply to the Lyons Ferry Hatchery began leaking 13,000 gallons of water per minute. The steel-lined pipe, measuring five feet in diameter and reinforced by another three inches of concrete, had a cracked joint in a section that ran into the Palouse River. The crack was detected when bubbles surfaced on the river.

A diver from the U.S. Army Corps of Engineers was called into action to check the leaking joint. He reported that both of the 40-foot sections leading to the problem area and the bend itself would have to be replaced. It was thought the pipe could break at any time, cutting off the life-supporting water supply to Lyons Ferry Hatchery fish.

Precautionary measures were taken, but it became apparent the fish would have to be removed and the pipes replaced. The Eastbank Hatchery was the only existing facility that could support such quantities of fish.

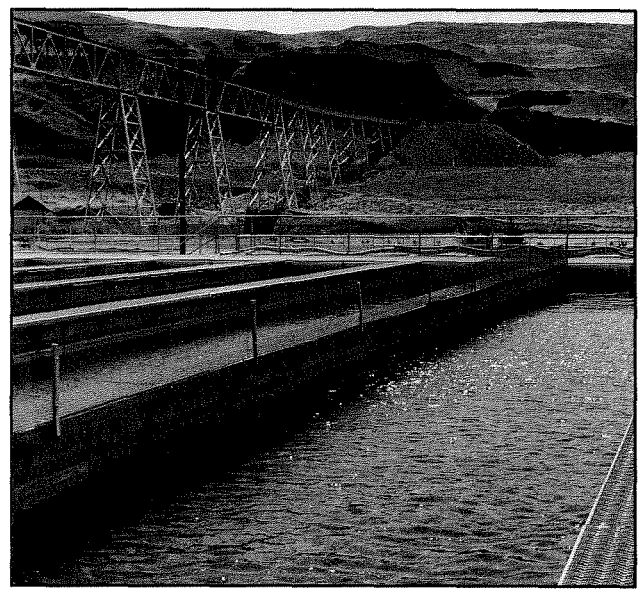
Dick Nason, Chelan County's fish and wildlife operations supervisor, received a call from the hatchery operators, the Washington Department of Fisheries and the Washington Department of Wildlife. "Dick was completely cooperative," says Kathy Hopper, a resource manager for Washington's Department of Fisheries. "I expected the owners of the hatchery to not have a problem with the move, but their willingness to loan us any physical property, like their state-of-the-art trucks, was a real help. We couldn't have done it without them."

The necessity to move the Lyons Ferry stock came at a time when the Eastbank Hatchery was not at full capacity. "The managers and hatchery crew at Eastbank were able to improvise and rework our existing facilities to accommodate the additional stocks," says Nason. Crews from both the Lyons Ferry and Eastbank hatcheries gave up their weekends and worked late night hours to complete the move. They are the real unsung heroes in this cooperative effort."

The transport of 700,000 Snake River fall chinook, 100,000 Snake River spring chinook, 130,000 rainbow trout and 500,000 Snake River steelhead was accomplished in five days. Trucks from the Washington departments, the Chelan County utility, the U.S. Fish and Wildlife Service and the Corps of Engineers were employed.

The fish will be returned to the Lyons Ferry Hatchery in late August. They will remain there until their journey down the Snake River in the spring of 1992.

—Carol Raczykowski
Washington Council Staff



Salmon raceways at the Lyons Ferry Hatchery.

Photo by Stephen Sasser

Bright Lights on Broadway

The bright lights on Broadway are burning no less brightly, but far more efficiently, at the new 1000 Broadway Building in Portland, Oregon. The Broadway Building, tallest beacon in Portland's revitalization of its Broadway Avenue arts and theater district, was designed and built to surpass statewide commercial energy-efficient building codes by nearly 40 percent.

The building represents more than new levels of efficiency; it also is the first completed project with co-funding under a program sponsored by Pacific Power and Light Company called "Energy FinAnswer." Under Energy FinAnswer, the utility offers up to $1 million to incorporate in new commercial buildings efficiency measures that go beyond state codes. The building owners repay the cost of the measures through a monthly service charge added to their utility bills. The utility maintains that the combined service charge and monthly bill will still be lower than the bills would have been without the energy savings. If the promised energy savings don't materialize, the rate of the service charge is adjusted.

At a gathering to celebrate the building's opening, Oregon's Public Utility Commission Chairman Mike Katz praised both the building and the financing arrangement. "The traditional way in which energy conservation programs have been deployed had disadvantages and inequities," he said. "The beneficiaries would be paid to have their bills reduced, while everyone else's rates went up...The utilities' costs went up, and revenues went down. The energy service charge in this experiment is a way to conceptually correct that. I hope it works because it's so conceptually elegant," he added.

Portland's new energy-efficient 1000 Broadway Building.

Photo by Stephen Sasser

To help guarantee that the measures proposed for each building are the most cost-effective, the utility works with the building's designers, computer modeling the building's expected energy requirements as originally conceived and with the efficiency modifications. Building owners—in the case of the Broadway Building, Hillmann Properties Northwest—choose the measures they want to install, set the work schedule and employ their own contractors.

The 1000 Broadway Building features state-of-the-art windows, heating and cooling systems, lighting, insulation, computerized building controls and monitoring of building energy use.

—Carlotta Collette

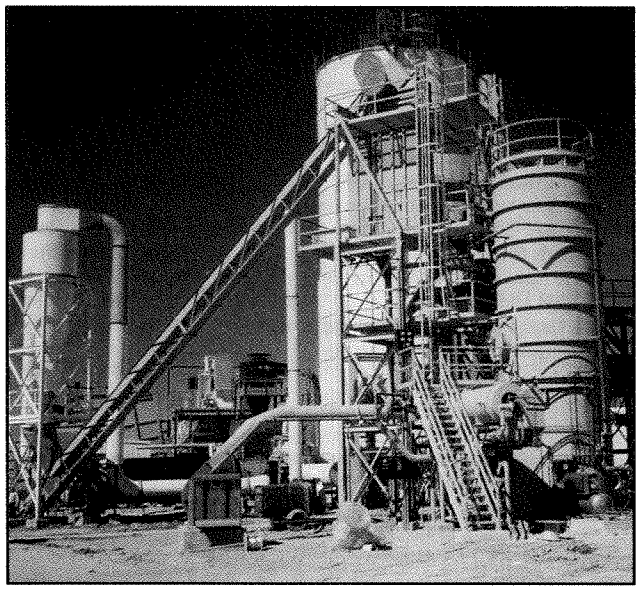
REGIONAL ROUND-UP

Turning Waste into Energy

Landfills in the Pacific Northwest are becoming full, and local governments are hard pressed to locate new acceptable sites. At the same time, the region needs new energy resources. Energy Products of Idaho (EPI) is providing a part of the solution to both of these issues.

Located in Coeur d'Alene, Idaho, EPI manufactures waste-to-energy systems for industrial and municipal wastes and solid fuel. While meeting regulated requirements for emissions, EPI systems can use old tires, plastics, manure, straw, hulls, cardboard, paper, garbage, sewage sludge, yard trimmings, construction waste and other diverse material from municipal, agricultural, industrial and wood-processing facilities, and convert them to usable energy.

"Our patented fluidized bed design gives us the flexibility to burn a variety of high-moisture, low-quality fuels," said Michael Murphy, vice president of marketing and product development.



Waste-to-electricity combustion plant.

Photo courtesy of IPI/JWP Energy & Environment

Idaho's EPI systems are in place throughout the United States as well as in Canada, Japan, Venezuela and Israel. Only five of its 65 systems are installed in Idaho and use wood waste as the fuel source to dry lumber. Retrofits to install power turbines are planned.

Paul Hakala, Atlas Mill manager at Idaho Forest Industries, says his company chose to work with EPI in the design and operation of a burner because of environmental concerns. "Prior to 1975, we had a wigwam burner and a wood waste boiler that was fired by shavings. We had a lot of smoke problems and problems with the local Environmental Protection Agency and the city. We knew we had to do something about it," says Hakala.

"We burn material that has a moisture content of 65 percent. We've been tested every year and been allowed 20 parts per million of particulate, and now we're in the 4 to 5-parts per million level even without scrubbers."

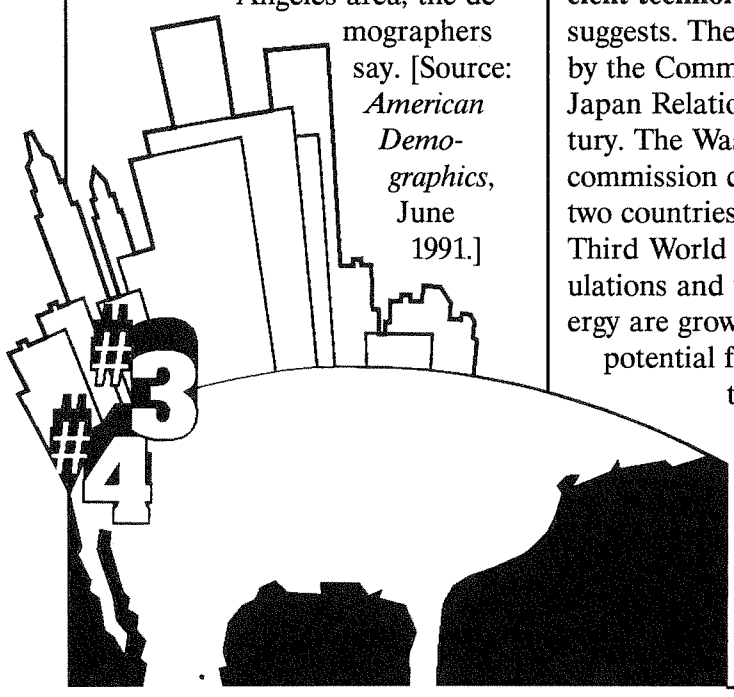
A mothballed 50-megawatt Tacoma City Light power plant located in the tideflats industrial region of Tacoma was also retrofitted and reconditioned. The plant now converts much of Tacoma's garbage, wood waste and coal into 50 megawatts of power; enough for 20,000 homes. This project was recently recognized for "leadership in technology and equipment to maximize efficiency and minimize environmental impact" by *POWER* magazine, a leading technical publication in the utility and power industry.

—Karen Nelson
Idaho Council Staff

SHORTS

Energy conservation is a chief strategy for cutting emissions of carbon dioxide in Europe. In June, the European Commission discussed a report that says conservation will be needed to meet the European Community's goal of stabilizing carbon dioxide emissions by the year 2000. Combustion of fossil fuels in power plants must be cut, the report says. Fossil fuels supply 85 percent of the energy in the European Community. [Source: *EC Energy Monthly*, June 1991.]

Seattle/Tacoma and Portland/Vancouver are projected to be the third and fourth fastest growing metropolitan areas, respectively, in the nation between 1990 and 1995. Seattle/Tacoma population will grow 9.8 percent in that time, and Portland/Vancouver will grow 7.3 percent, demographers predict. The nation's fastest growing area should be Dallas/Fort Worth, Texas, followed by the Los Angeles area, the demographers say. [Source: *American Demographics*, June 1991.]



The Lighting Design Lab in Seattle was honored by a national association of energy conservation professionals, who presented the Lab with their 1991 award for most innovative conservation program. The Association of Demand–Side Management Professionals represents some 1,000 individuals involved in state, federal and utility energy conservation efforts. The Lighting Design Lab offers commercial building designers a hands–on opportunity to test state–of–the–art energy–efficient lighting. The Lab is operated by Seattle City Light with the support of a number of agencies and organizations, including the Northwest Power Planning Council. [Source: Association of Demand–Side Management Professionals news release, July 31, 1991.]

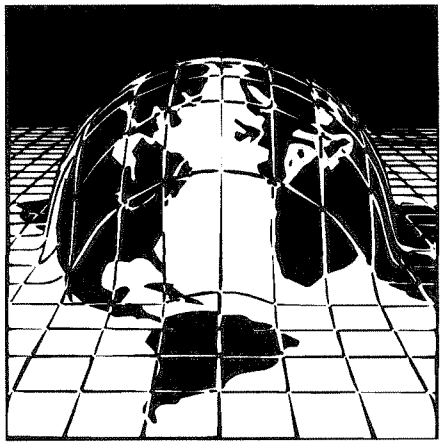
The United States and Japan should collaborate to assist developing nations with energy–efficient technologies, a new report suggests. The report was released by the Commission on U.S.–Japan Relations for the 21st Century. The Washington D.C.–based commission concludes that the two countries have a lot to offer Third World nations, where populations and the demand for energy are growing fast, and the potential for environmental deterioration from power plant construction is great. [Source: *Energy Conservation Digest*, June 10, 1991.]

The Snohomish County [Washington] Public Utility District sponsored an electric boat race in July, as part of a grand–opening celebration for the utility's recreation facilities in the Sultan Basin east of Everett. The race was at Spada Lake, the source of drinking water for about two–thirds of populous Snohomish County. Non–electric motorized boats are barred from the lake. [Source: Snohomish County Public Utility District news release, June 28, 1991.]

In June, Pacific Gas and Electric Company, the northern California utility, started the first complete power plant based on a molten carbonate fuel cell. Fuel cells convert the energy of a fuel directly to electricity and heat, without combustion. There are few emissions and no moving parts in a fuel cell power plant, and the plants are quiet and efficient. Pacific estimates its plant is about 50 percent more efficient than conventional gas–powered generators. The plant in San Ramon, California, produces 100 kilowatts, enough electricity for about 20 homes. [Source: *The New York Times*, June 30, 1991.]

The Bonneville Power Administration received 103 responses to its request for proposals for new conservation and generating resources earlier this year. A total of 41 were conservation proposals, nearly double the second most popular type of proposal, cogeneration (23 proposals). Combustion turbines, hydropower, wind and geothermal projects

also were proposed. Bonneville will announce in December which projects are chosen for further negotiation. [Source: *Journal*, Bonneville Power Administration, July 1991.]



Eleven cities from three continents are negotiating proposals for actions to reduce the risk of global warming. Portland, Oregon, is among the participants. Other cities participating include San Jose, California; Miami, Florida; Denver, Colorado; Minneapolis–St. Paul, Minnesota; Ankara, Turkey; Copenhagen, Denmark; Hannover and Saarbrucken, Germany; Helsinki, Finland; and Toronto, Ontario, Canada. [Source: *Calgary Herald*, quoted in *Clearing Up*, June 1991.]

General Motors will refurbish a Buick Reatta plant in Lansing, Michigan, as a production site for electric cars. The company indicated that production could begin as early as 1992, meaning there could be a 1993 model ready by the fall of 1992. An electric car would help GM comply with stricter U.S. and state clean-air and fuel-efficiency standards. Beginning in 1998, for example, California will require that 2 percent of each automaker's fleet sold in the state be vehicles with no tail pipe emissions. [Source: *Western Energy Update*, March 15, 1991.]

By 2010, conservation programs could cut U.S. electricity use by one-fifth, according to a report from the Oak Ridge National Laboratory. Such programs could cut the nation's electricity bills by $61 billion a year, cut growth in electricity use nearly in half, eliminate the need for 430 power plants and cut carbon dioxide emissions by 9 percent, according to the report by energy analyst Eric Hirst. [Source: *Energy Conservation Digest*, June 1991.]

—Compiled by John Harrison

Clarification

In the May/June issue of *Northwest Energy News*, we incorrectly reported that Dr. John Peters, a University of Southern California epidemiologist working on a study for the Electric Power Research Institute, had found a "higher incidence of leukemia in children exposed to power lines' electromagnetic fields." We have since learned that what Dr. Peters and other investigators have identified is a link between "wire code," or the concentration and proximity of power lines, and childhood leukemia. The conclusion that it is the electromagnetic fields given off by the power lines has not been proven.

Wire code is a means of estimating presumed exposures to electromagnetic fields by counting the number of wires, distance to wires and thickness of wires in any given area. The scheme was developed as an alternative to actually measuring fields in homes. But, according to Larry LaBolle, environmental resource administrator at Washington Water Power, the concentration of power lines in a given area could correlate to other factors, such as dense traffic, that also could contribute to higher instances of cancer. Measurement of electromagnetic fields inside homes, even in high wire code areas, show "no clear association between the fields and incidence of cancer," LaBolle says.

CALENDAR

September 8–12—The 121st annual meeting of the American Fisheries Society at the San Antonio Marriott Riverwalk in San Antonio, Texas. Sponsored by the American Fisheries Society. For more information: American Fisheries Society, phone 301–897–8616, FAX 301–897–8096. For registration only: Barbara Gregg, Texas Parks and Wildlife Department, phone 512–389–4734, FAX 512–389–4388.

September 8–13—"Water Management of River Systems," the 27th annual American Water Resources Association conference at the Fairmont Hotel in New Orleans, Louisiana. Sponsored by the American Water Resources Association. For more information: C. Russell Wagner, U.S. Geological Survey, Building 2101, Stennis Space Center, Mississippi 39529, 601–688–1580.

September 10–12—Northwest Power Planning Council meeting at the Holiday Inn in Coeur d'Alene, Idaho.

September 14—"Visualize World Peace: Exploring Links Between World Peace and Solar Energy," the ninth annual conference of the Solar Energy Association of Oregon at LaSells Stewart Center, Oregon State University, Corvallis, Oregon. Sponsored by the Bonneville Power Administration, Oregon Department of Energy and others. For more information: Solar Energy Association of Oregon, 503–224–7867

September 16–19—"Canadian Dam Safety Association 3rd Annual Conference" at the Whistler Resort in British Columbia. Sponsored by the Canadian Dam Safety Association. For more information: Dave Cattanach, BC Hydro, 970 Burrard Street, Vancouver, British Columbia, Canada V6Z 1Y3, phone 604–663–3126, FAX 604–663–1887.

September 24–27—"Windpower '91" at the Palm Springs Marquis Hotel in Palm Springs, California. Sponsored by the American Wind Energy Association. For more information: Denise Pado–Sullivan or Mellissa Williams, American Wind Energy Association, phone 202–408–8988, FAX 202–408–8536.

October 6–10—"1991 International Joint Power Generation Conference and Exposition" at the Town and Country Hotel in San Diego, California. Sponsored by the American Society of Mechanical Engineers. For more information: Marisa Scalice, American Society of Mechanical Engineers, 212–705–7793.

October 8–10—Northwest Power Planning Council meeting at the Red Lion Inn/Hanford House in Richland, Washington.

October 23–25—"Forecasting: The Foundation of Planning," the Electric Power Research Institute's eighth electric utility forecasting symposium at the Stouffer Harborplace in Baltimore, Maryland. Sponsored by the Electric Power Research Institute, Electric Utility Forecasters Forum and Baltimore Gas and Electric. For technical information: Patrice Ignelzi, Pacific Consulting Services, phone 415–526–3123, FAX 415–526–2727. For logistical information: Joe Okoneski, Meeting Planning Associates, phone 415–326–7781, FAX 415–326–3945.

October 23–25—"Implications of Climate Change for Pacific Northwest Forest Management" symposium at the Red Lion Hotel at SeaTac in Seattle, Washington. Sponsored by the British Columbia Ministry of Forests and others. For more information: Betty Johanna, conference coordinator, phone 206–543–0867, FAX 206–685–0790.

November 3–7—"Fifth International Conference on Artificial Habitats for Fisheries" at the Hyatt Regency Hotel in Long Beach, California. Sponsored by the California Department of Fish and Game, California Sea Grant College, National Marine Fisheries Service, U.S. Fish and Wildlife Service and others. For more information: Robert S. Grove, Section of Fishes, Natural History Museum, phone 213–744–3373, FAX 213–746–2999.

November 11–16—"11th International Symposium on Lake, Reservoir and Watershed Management" at the Sheraton Tech Center Hotel in Denver, Colorado. For more information: North American Lake Management Society, P.O. Box 217, Merrifield, Virginia 22116.

November 12–13—"Northwest Natural Resources: Public Policy at a Crossroad" conference at the Washington State Agricultural Trade Center in Spokane, Washington. Sponsored by the Spokane Area Chamber of Commerce, the Bonneville Power Administration, the Northwest Power Planning Council and others. For more information: Cary Hegreberg, Spokane Area Chamber of Commerce, 509–624–1393.

November 13–14—Northwest Power Planning Council meeting at the Park Plaza in Helena, Montana.

November 21—"Regional Utility Conference: Implementing the Northwest Power Plan" at the Portland Hilton in Portland, Oregon. Sponsored by the Northwest Power Planning Council. Co-sponsors had not been confirmed as we went to press. For more information: Judi Hertz, Northwest Power Planning Council, 503–222–5161 or 800–222–3355.

A more detailed calendar of Council committee meetings and consultations is carried each month in *Update*. See order form inside back cover.

—Compiled by Judy A. Gibson

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The Northwest Power Planning Council is required by an Act of Congress to develop a program to protect, mitigate and enhance the Columbia Basin's fisheries and a regional electric energy plan that provides a reliable electricity supply at the lowest cost. For further information, see Pacific Northwest Electric Power and Conservation Act—Public Law 96-501.

NORTHWEST ENERGY NEWS

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Executive Editor: Carlotta Collette
Art Director: Stephen Sasser
Production: Judy Gibson

COUNCIL PUBLICATIONS ORDER FORM

Please send me a copy of the following publications of the Northwest Power Planning Council. (Note: not all publications are available immediately, but they will be sent to you as soon as possible.)

Publications

- ☐ 91-03 Background paper: Hungry Horse Dam Resident Fish Amendments
- ☐ 91-04 1991 Northwest Power Plan—Volume I
- ☐ 91-05 1991 Northwest Power Plan—Volume II (available early fall)
- ☐ 91-07 Directory of Organizations
- ☐ 91-11 Priority Salmon Habitat and Production Proposals
- ☐ 91-12 Priority Salmon Habitat and Production Proposals: Stock Analyses
- ☐ 91-14 Response to Comments: 1991 Northwest Conservation and Electric Power Plan
- ☐ 91-16 Final Integrated System Plan
- ☐ 91-24 Recommendations for Amendments to the Salmon and Steelhead Provisions of the Columbia River Basin Fish and Wildlife Program (six-volume set) (Comment on these recommendations closes September 12.)
- ☐ 91-25 Draft Salmon and Steelhead Amendment Document (available late September)
- ☐ 91-26 1991 Annual Report to Congress (available October 1)
- ☐ 1987 Columbia River Basin Fish and Wildlife Program

Mailing Lists

Please add my name to the mailing lists for the following newsletters. (Note: do not check if you already are receiving them.)

- ☐ ***Northwest Energy News*** (this bimonthly magazine)
- ☐ ***Update*** (monthly public involvement newsletter that contains the Council meeting agenda, deadlines for public comment and a more detailed publications list)

Name _____

Organization _____

Street _____

City/State/Zip _____

(Or call Judi Hertz at the Council's central office, 503-222-5161, or toll free 1-800-222-3355.)

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