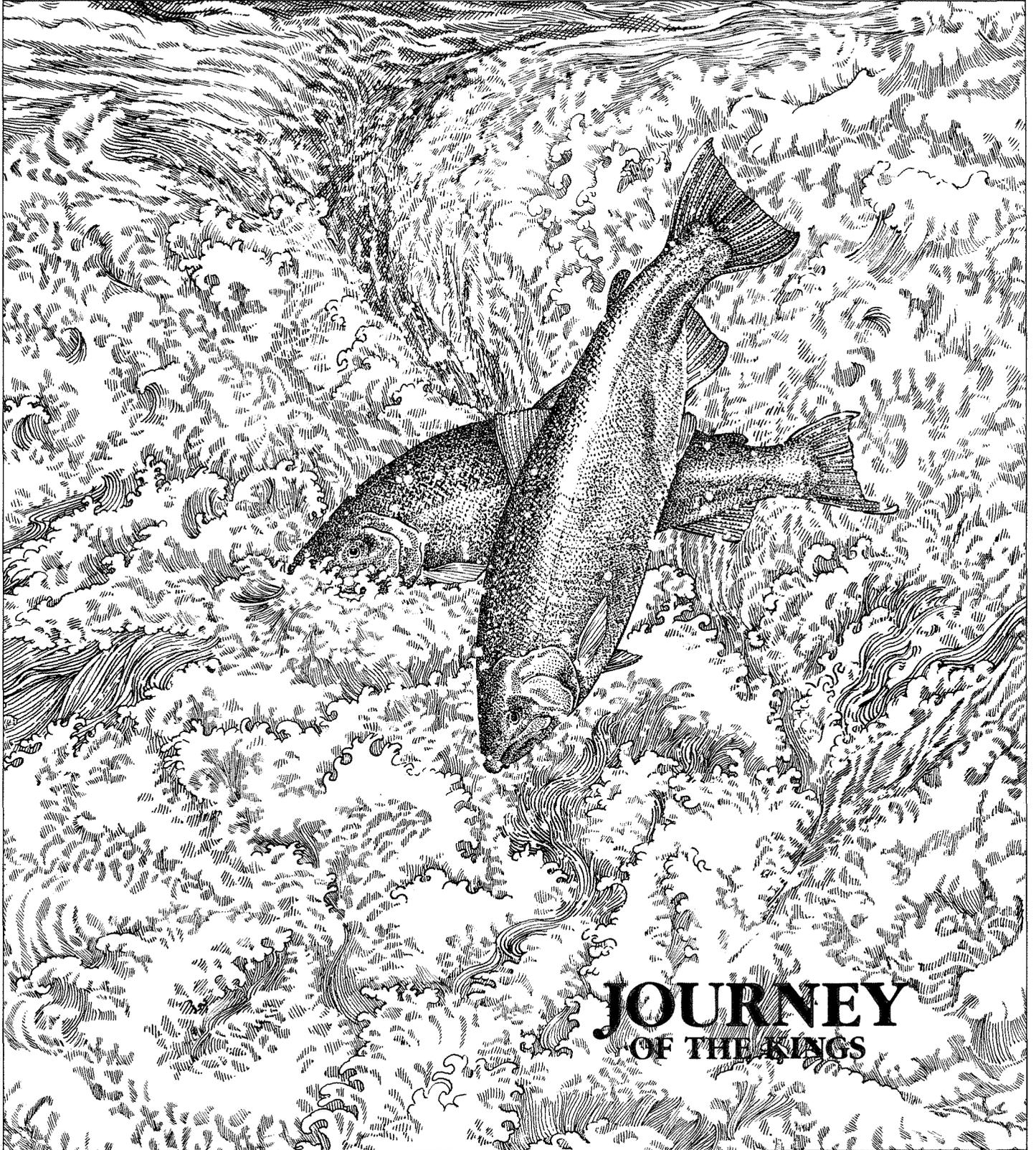


# N O R T H W E S T ENERGY NEWS

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Northwest Power Planning Council

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**JOURNEY**  
OF THE KINGS

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# N O R T H W E S T ENERGY NEWS

is published bi-monthly by Northwest Power Planning Council,  
700 S.W. Taylor, Suite 200, Portland, Oregon 97205

The Northwest Power Planning Council is required to develop a program to restore the Columbia fisheries and a regional electric energy plan, to be carried out by the Bonneville Power Administration, emphasizing cost-effective conservation and renewable resources.

Editor: Dulcy Mahar  
Graphic Design: Linda Sawaya

# EDITOR'S NOTES

Fish and wildlife are — appropriately — the focus of this issue of *Energy News*. I say appropriately because two important events are going on. First, the Northwest Power Planning Council is in the midst of reviewing proposed amendments to its fish and wildlife program. This issue carries both a synopsis of the amendment issues as well as instructions for public comment, both written and oral.

The second event is the release of the Council's new film, *Journey of the Kings*. The 26-minute film was the brainchild of Idaho Council Member Larry Mills, a man who, according to legend, once said, "I've seen a lot of fish, but I've never seen a kilowatt!"

In this issue we are also beginning a series of interviews with key energy and fish and wildlife people in the region. The interviews are "conversations," and do not necessarily represent the viewpoints of the Council.

With all the emphasis on fish and wildlife issues, energy issues aren't over-

looked. This issue includes an analysis of the utility "death spiral" theory (can it happen here?), a look at the controversy over the intertie access, and an update on homes built to the model conservation standards.

Last, and certainly not least, the Council's information coordinator Ruth Curtis has compiled a practical list of where to go in the region for more information about energy and fish and wildlife issues.

I'd like to especially thank contributing artist Sharon Torvik of the Oregon State Department of Fish and Wildlife for the loan of excellent drawings used on the cover and inside this issue. Thanks also to two alert readers who deduced that the nuclear plant mentioned in the last issue is at Marble Hill, Indiana, not Marble Head. — DM

Cover illustration by Sharon Torvik,  
courtesy Oregon State Department of  
Fish and Wildlife.

# CALENDAR

**May 15-17** — Northwest Power Planning Council meeting in Helena, Montana.

**May 31, June 1** — Northwest Public Power Association annual meeting in Victoria, British Columbia.

**June 5-9** — American Solar Energy Society annual meeting and solar technology conference in Anaheim, California.

**June 11-13** — American Water Resources Association symposium on "A Critical Assessment of Forecasting in Western Water Resources Management." Sheraton Hotel, Seattle, Washington. Contact Gary Minton, (206) 282-1681.

**June 27-28** — Northwest Power Planning Council meeting in Pocatello, Idaho.

**June 29** — Draft of Northwest Power Planning Council's Fish and Wildlife Program amendments is published.

**July 16** — Public hearing on Northwest Power Planning Council's Fish and Wildlife Program amendments in Boise, Idaho.

**July 18-19** — Northwest Power Planning Council meeting in Spokane, Washington.

**July 19** — Public hearing on Northwest Power Planning Council's Fish and Wildlife Program amendments in Spokane, Washington.

**July 24** — Public hearing on Northwest Power Planning Council's Fish and Wildlife Program amendments in Missoula, Montana.

**July 24-25** — Northwest Public Power Association Rates Symposium in Missoula, Montana.

**July 26** — Public hearing on Northwest Power Planning Council's Fish and Wildlife Program amendments in Portland, Oregon.

**August 8-9** — Northwest Power Planning Council meeting in Kalispell, Montana.

**August 10** — Comment period on Fish and Wildlife Program amendments closes.

**August 23-25** — Energy '84 in Honolulu, Hawaii. Sponsored by the American Society of Civil Engineers — Energy Division. Contact Dr. Pat Takahashi, Dept. of Civil Engineering, University of Hawaii, Honolulu, Hawaii, 96822, (808) 948-7658.

**September 14-15** — Solar '84 in Portland, Oregon. Sponsored by the Solar Energy Association of Oregon.

Compiled by Ruth Curtis

# IN THE NEWS

## Bonneville's breakthrough breaker

It's called a "major breakthrough" and predicted to have "an almost revolutionary impact on transmission systems throughout the world," according to the Bonneville Power Administration.

All the excitement is over the world's first high-voltage, direct-current (HVDC) circuit breaker just developed by the agency's engineers. The new breaker, a 25-foot tall "giant switch," can interrupt the flow of power on a high-capacity direct-current transmission line, something no previous breaker could do.

This will allow the operation of long-distance, multi-terminal direct-current transmission lines or networks. When the Northwest-Southwest Intertie was built, branches to the main line were impractical because there were no breakers to isolate the faults on branch lines. The HVDC corrects this problem and could allow branch lines to such places as San Francisco, Salt Lake City, and Phoenix. (See photo on page 21)

## Roundtabling conservation around the region

Representatives of the region's utilities, local governments, industries and environmental organizations got an opportunity to inject their ideas into BPA's conservation planning process in a series of "roundtable" discussions sponsored by the agency this spring. The meetings were held in Spokane, Missoula, Boise, Seattle and Portland to gather public comments primarily on how the region's energy conservation potential should be tapped and how these efforts should be paid for.

Steve Hickok, BPA assistant administrator and conservation manager, said Bonneville

"was encouraged by the positive, forward-looking tone of most of the participants" in the discussions.

Hickok said BPA tried to set the stage for the meetings by sending the message that "there are several actors whose actions are critical to attaining the goals" of the Council's electrical energy and conservation plan. Despite the fact that the region's private utilities and a large share of the public utilities rejected long-term conservation contracts offered by the agency last fall, BPA still hopes it can team up with the region's energy agencies and utilities to meet the requirements of the Council's plan.

The roles BPA could assume in developing the available energy conservation range from only meeting the needs of its own customers to being the "conservation czar" for the entire region, regardless of contracts and utility service territories, according to an issue paper developed by BPA for the sessions.

BPA's role was perceived by the roundtable participants as somewhere in the middle of that spectrum, Hickok said. They perceived that some coordination of conservation efforts is still necessary, he explained.

All of the private utility representatives also expressed a desire for BPA to share the cost of research and development and conservation capability programs, he added.

"BPA is still viewed as a catalyst, but it's not the only actor on the conservation stage," Hickok said. "This certainly has to be a hand-in-hand approach."

According to Hickok, BPA will be deciding in the near future if and when the long-term conservation contract will be again offered to those utilities who declined to sign the agreement last year. — SS

## WPPSS 2 by any other name

The Washington Public Power Supply System's Richland, Washington plant — known as WPPSS 2 — has received permission to go to full power from the Nuclear Regulatory Commission.

The 1,100-megawatt plant is expected to reach capacity sometime in July and will, according to industry observers, double the regional surplus of electricity that could be sold to California. Regional forecasts predict the plant's energy won't be needed within the region for a decade.

Meanwhile, plant officials are working to come up with a name for the plant, perhaps to remove the taint of adverse publicity associated with the term "WPPSS." So far, the nominees are Columbia, White Bluff (reflecting a geographical feature of the area), and Chief Joseph, a leader of the Nez Perce tribe in the 1800s.

## No contest over Council amendment

The Northwest Power Planning Council has adopted a noncontroversial amendment to its power plan. The staff-proposed amendment deals with action 23.1 of the two-year action plan and deletes a Council study of large thermal plant planning and construction schedules.

The study will be replaced with a provision allowing the

Council to assess the results of ongoing utility studies before making a decision to conduct its own study. The amendment, which complied with all requirements for public comment, received no opposition.

Further information about the amendment is available by writing to the Council's Public Information office. See central office address on the inside front cover.

## Brokering power for the Northwest

The Bonneville Power Administration will act as the agent for Northwest utilities which request assistance in selling long-term, surplus power to California.

The agency is taking on the job at the request of the Pacific Northwest Utilities Conference Committee (PNUCC), according to Bonneville Administrator Peter Johnson.

"Our objective will be to conclude sales beneficial to BPA, the utilities, and to the region as a whole," he said. Johnson also said Bonneville will consult with the Northwest Power Planning Council to assure that sales to California are consistent with the regional power plan.

Thus far, the agency has received 27 responses to its offer to act as a marketing agent. The offers could provide for the sale of 600 to 1,000 average megawatts over the next 15 years.

## FISH AND WILDLIFE HEARING DATES

Public hearings on proposed Fish and Wildlife Program amendments will be held in individual states on the following dates at 9 a.m. Specific locations will be announced.

**Boise, Idaho — Monday, July 16**  
**Spokane, Washington — Thursday, July 19**  
**Missoula, Montana — Tuesday, July 24**  
**Portland, Oregon — Thursday, July 26**

Information about presenting both oral and written testimony on the proposed amendments is on the back cover of this issue. A synopsis of the issues raised in the amendments also appears in this issue for your convenience on pages 22-25.

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# M O N T A N A

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## WELCOMING BACK WILDLIFE

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Libby Dam

**N**inety-mile long Lake Koocanusa used to be a river.

It came down from the west slope of the Continental Divide, made a big sweep from near Banff in British Columbia, through northwestern Montana, cut across a corner of Idaho and poured back into Canada. It was the Kootenai, still is, except for those 90 miles that are now a lake. In the process of building the Libby Dam that made Lake Koocanusa (the name comes from Kootenai, Canada and USA), 46,500 acres of wildlife habitat were inundated.

Just east and a little south of Lake Koocanusa is the Hungry Horse Reservoir on the South Fork of the Flathead River. The South Fork runs almost parallel to the Continental Divide and Glacier National Park. Hungry Horse is 35 miles long and covers up nearly 24,000 acres.

On the lower Clark Fork River at the Idaho border there are three reservoirs that butt up against each other forming a 70-mile long stretch of regulated water that eventually enters Lake Pend Oreille. A total of 21 square miles of aquatic and riparian\* habitat were transformed when the Clark Fork was impounded by the dams.

\*Riparian refers to land along a river or lake shore.

It's hard to say just what kind of wildlife inhabited these areas. Thompson Falls Dam, on the Clark Fork, was built in 1916. Not too much evidence of the old habitats from that period remains. What was gained in building the dams is obvious. What was lost still needs to be quantified.

The Montana Department of Fish, Wildlife and Parks (MDFWP) saw the Northwest Regional Power Act as an opportunity to study this question. As each of the hydroelectric facilities in their portion of the Columbia River Basin was built, some mitigation of the damages to existing wildlife was attempted, but few people would argue that any of these efforts was adequate. The problem goes back to de-

by Carlotta Collette

termining how many animals of which species were actually killed or displaced by the dams. This is what's known as a "loss statement."

Loss statements that describe pre-dam ecosystems may need to be developed for each area where improvement (as called for in the Council's Fish and Wildlife Program) will be undertaken. Northwestern Montana is ahead of other parts of the region in this. MDFWP has completed its loss statements for the three major restoration projects underway in that state. These are the areas of Lake Kooicanusa, Hungry Horse Reservoir and the three dams and reservoirs on the lower Clark Fork above Lake Pend Oreille — Thompson Falls, Noxon Rapids and Cabinet Gorge.

Thompson Falls Dam is the oldest of these and provides a good example of the work involved in pursuing the history of an inundated environment. To make their analysis of the pre-dam habitats and populations at Thompson Falls, Montana's wildlife biologists and researchers had to dig through files of information that dated back to 1809.

Arnie Olsen, MDFWP's project coordinator, was surprised at the quantity and quality of literature available. "We came up with an average of 100 references for each of our projects."

In addition, they interviewed long-time residents of the area, retired fish and wildlife personnel and local biologists.

There were very few photographs of the Clark Fork River dating from before Thompson Falls Dam, but a few US Forest Service file photos taken in 1909 exist. "The intent," adds Olsen, "is to look at these old photographs and determine what kind of general habitat types were there prior to the dam construction." From these it was concluded that all or most of the 500 acres flooded by this first dam had been covered with Douglas fir, ponderosa and lodgepole pines, some deciduous trees and numerous shrubs. There were several islands in the river, and stretches of meadow opening in the forest. At least part of the riparian strip had been homesteaded and farmed. A US Geological survey completed in 1911 helped draw more specific habitats.

For all of the areas inundated by the dams, categories of habitats were established. These included aquatic habitats, grasslands, gravel bars (usually at water's edges and regularly flooded by high stream flows), various riparian habitats and other landscape types further from the actual water. A separate category covers developed areas such as towns and farms.

Wildlife to be studied were also targeted by the Department. It limited work primarily to species that appeared to have been most severely hurt by the dams, those considered endangered and those that are prized as game. The Department assumed efforts to re-establish these would also benefit other species which share the habitats.

Lands adjacent to natural rivers and lakes tend to attract and support complex ecosystems. Creatures who either live in these ecosystems or migrate through them do so for precise reasons. They interact in specific patterns with other parts of that ecosystem. The interaction is dynamic, due, in part, to the fertility of both the land and the water, and stable or homeostatic in that there is generally an evolved balance of prey and predator.

The dams disrupted this balance. Species such as white-tailed deer, elk, grizzly and black bears lost the nutritious forage or den sites along the river banks. Predators such as mountain lions and bobcats were deprived of their prey base of smaller mammals and birds. River otters seem to have been entirely eliminated from the vicinity of the reservoirs and beaver populations, without their denning sites, declined dramatically.

Nests for ruffed grouse, bald eagles and other waterfowl were lost when 14 islands in that 70 mile stretch of the Clark Fork were covered with water.

The only species showing measurable net improvement after the river was regulated was the osprey. But biologists tend to attribute the increase in osprey nests to the

ban on DDT rather than any particular benefit of reservoir creation.

In studying each of the affected species, the MDFWP calculated the degree of impact as high, moderate or low and used these criteria for establishing mitigation goals.

At Thompson Falls Dam, where only 500 acres were flooded, there were in general only "moderate" impacts on the surrounding ecosystems. But, when the added inundation created by Cabinet Gorge Dam (2,700 acres) and Noxon Rapids Dam (6,000 acres) is included in the evaluation, impacts on several species become "high."

The white-tailed deer is one of these species. The earliest historical reference to the white-tailed deer in the lower Clark Fork Valley appears in the records of David Thompson, who in 1809 established the Salish House, a trading post near the present town of Thompson Falls.

It is recorded that Thompson and his crew survived on 145 deer during their first winter at the site. A letter from Thompson Falls resident dated January 19, 1890, suggests that the deer survived Thompson and his crew. "There is an abundance of all kinds of game here," notes the letter. "Deer, prairie chickens, grouse, ducks, mountain sheep, mountain goats, elk . . . etc."

A forest fire in 1910 burned about 60 percent of the Cabinet Gorge Forest which surrounds the lower Clark Fork River. White-tailed deer numbers were affected by the loss of wintering grounds there. Thompson Falls Dam construction begun



*In all, 1,475 white-tailed deer and the habitats they relied on were lost to the three dams.*

three years later did not improve the situation.

Nonetheless, the white-tailed deer seemed to re-establish themselves in the area of the dam, surviving in large numbers until the second and third dams were built in the '50s. In fact, white-tailed deer populations peaked at just about the same time as Noxon Rapids and Cabinet Gorge Dams were in construction. This larger population at the river increased the destructive impact of the flooding.

There were as many as 2,200 deer on the lower Clark Fork before the dams. More than half of these are assumed to have moved to other habitats when the dams were built. These adjacent habitats also carried peak populations of deer and were likely to have been close to their limit for

supporting them. The additional deer were certain to cause an unbalancing in these new areas.

Replacement habitats and new shorelines are also inferior to the original land lost to the floods. The new shorelines are unstable due to the drawdown on the dams, and neither vegetation nor wildlife can become established there.

But, the dams had another overall effect that decimated remaining deer populations. The old Clark Fork rarely, if ever, froze over during the winter. Long-time residents recalled seeing deer swimming the river to cross to other forage areas. The reservoirs slowed the river causing it to freeze during the winter. Deer attempting to cross now frequently break through the ice and drown.

In all, 1,475 white-tailed deer and the habitats that they relied on were lost to the three dams. But because of the age of Thompson Falls Dam and the scarcity of detailed records from that time, these numbers are still rough guesses. "We had to generalize," says Olsen. "Rarely did we have real data from the actual sites. We had to infer from surrounding areas. We had to choose between spending all of our time and money on the loss statements themselves, or draw some conclusions from the best data we had and proceed to the actual work of mitigation."

The real work is about to begin. The work of making up for the damage caused by the dams will be in what are being called "mitigation packages." Olsen explains why. "Once you do anything in nature there are multiple reactions. We know that if we do something for say, mule deer, we would probably benefit some of the predators like mountain lion."

So each effort taken will be looked at to see how other species also will be enhanced. Nothing can fully restore everything that was lost. It's just not possible. Too much was lost, too long ago. The presence of the dams and reservoirs where there were once wild rivers is a fact of life for northwestern Montana and the rest of the region. Still, much can be done thanks to the "protection, mitigation and enhancement" called for in the Fish and Wildlife Program of the Power Planning Council.

Most mitigation efforts in Montana will be begun this summer and in the fall. We will follow this article with one that looks at that work in progress. ■



On the east facing cliffs overlooking Lake Koocanusa there lives one of the few remaining herds of bighorn sheep (Ural-tweed) in northwestern Montana. Before Libby Dam was built flooding 4,350 acres of crucial winter/spring forage grounds, there were between 150 and 200 sheep in the herd. Now there are approximately 25.

It wasn't only Libby that caused the catastrophic drop in the population. Frequent forest fires used to keep the bighorn ranges open and grasses abundant. The prevention of forest fires allowed the Douglas firs to take over, closing out the preferred grazing habitat of the sheep. But, Libby's effect was even more formidable.

Two things happened because of the dam that were critical in the survival of the herd. Pregnant ewes relied on the early greening of grasses along the Kootenai to restore them after their winter of dormant vegetation. They needed the high protein fresh forage for lactation. When the forage grounds were inundated, the mortality rate of lambs rose.

In addition, highway 37 was moved from the west side of the river to the east. The new highway cuts directly across the bighorn sheep range known as Allen Gulch, the sheep's preferred lambing ground. The highway created an island habitat between Lake Koocanusa and the road. Sheep attempting to reach that "island" can climb down the sheer cliffs blasted through the mountainside to create the road, but they are trapped when they attempt to return to the higher ranges. Trapped sheep trying to find a foothold are frequently killed by passing vehicles.

The Montana Department of Fish, Wildlife and Parks will begin herd preservation efforts this fall. There are plans to blast terraces into the cliffs

along new highway 37 that will allow the sheep to climb back off the highway in the event they become trapped there. To reduce the number of sheep crossing the roadway, fences and new passages will be installed that will route the sheep along safer paths under the highway. Hopefully, with such mitigation in place, the herd will become re-established as a wild resource for the Northwest. ■

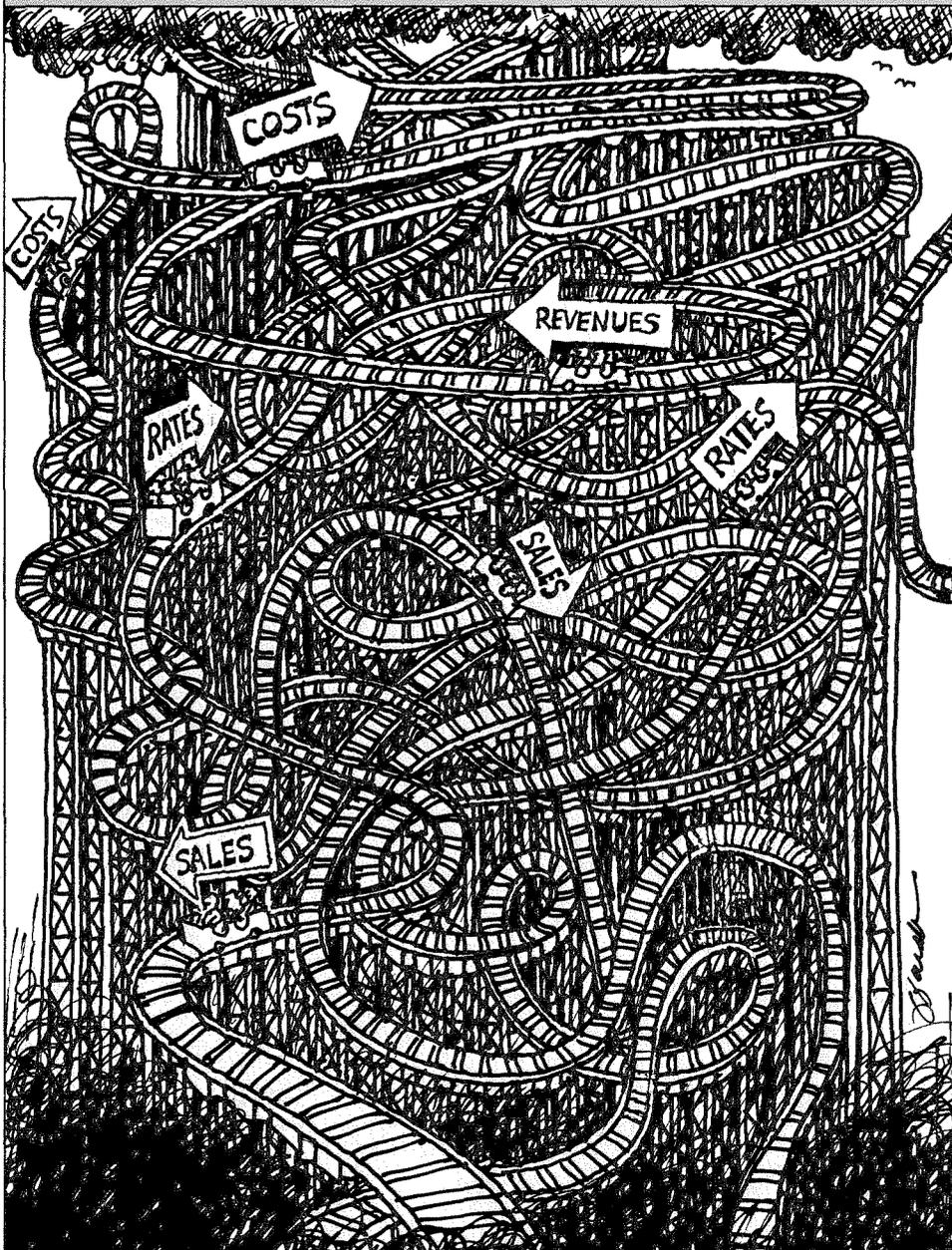


## LAST CHANCE



### at LIBBY DAM

by Carlotta Collette



by Terry H. Morlan

The "death spiral" is highly unlikely to occur in the Pacific Northwest, according to an analysis by the Northwest Power Planning Council. The ominous sounding death spiral is the more dramatic name for a phenomenon sometimes also called the "spiral of impossibility." The concept was first applied to the utility industry by Amory Lovins in 1980. Since then, more and more utilities throughout the country have paid it serious attention as they make the difficult transition from the previous rapid growth of demand and decreasing costs to a new era of harsher realities.

Very basically, the death spiral theory is based on an assumption that a utility's cash flow is inherently unstable. This instability is believed to result from the relationship among utility costs, electric prices, and demand for electricity.

According to the theory, rising utility costs can trigger an increase in rates so that a utility can recover the additional revenue needed to cover the higher costs. However, the increase in rates can depress sales so that the expected revenue increase is not realized. When this happens, further rate increases are needed, causing further sales reductions, and so on — resulting presumably in an endless spiral.

In the extreme case, according to the theory, the spiral could lead to the "death" of the utility because there would be no price that would allow the utility to recover its costs.

In the Northwest, concern about such a phenomenon has been spurred by the impact of WPPSS nuclear plant costs on regional utilities and the Bonneville Power Administration. Could such a thing happen in this region? How serious is the potential? To answer these questions, the Council's forecasting staff has recently completed a computer simulation to see if the spiral could be triggered in the region and, if so, what the likelihood would be.

While current statistical surveys of short-run price elasticity indicate the possibilities of the death spiral are remote, the Northwest faces some unique problems which could complicate the picture. In addition to the WPPSS costs, these include the possibilities of direct service industry

# DEBUNKING THE DEATH SPIRAL

Illustration by Frank Farah

## Understanding the Death Spiral

shutdowns or out-of-region displacement of Bonneville loads.

To the extent such events are allowed to occur, Bonneville could face much larger, short-run sales decreases and financial problems. However, the direct service industry shutdowns would be limited to the amount of their demand in the region.

With these and other regional factors in mind, the Council's staff used its demand analysis system to test if an extreme situation could trigger the death spiral in this region. The analysis simulated the effect of a cumulative demand collapse on electricity prices. The extreme situation was not an anticipated economic projection but simply a "worst possible" scenario to see if the death spiral was even a possibility.

(Several assumptions were made in the simulation and these are outlined in an issue paper on the death spiral available by writing to the Council.)

The simulation showed real electric rates increasing by .24 cents per kwh (in 1980 prices) or by about 10 percent. Thus, the rate impact appeared less severe than the economic dislocations that caused it. For one thing, the price increases resulting from loss of sales were partially offset by cost savings. Without these savings, prices would have increased by about 22 percent.

Cost savings of about 9 percent were achieved in the simulation by backing down additional thermal generation and by selling more surplus firm power to California. For, although the Northwest's electric power system is characterized by high fixed costs, the region benefits from a supply of low-cost secondary power which can generate revenues through export.

These additional revenues decrease the revenues that must be raised through rates within the region under most water conditions. In effect, while the Northwest has some unique problems, it also has a unique (if partial) cushion against the death spiral.

In general, the computer analysis showed short-run price elasticities would not be large enough to trigger a death spi-

To understand the concept of the death spiral more fully, four basic assumptions must be used. First, a utility must recover its costs through its revenues. Second, revenues are equal to sales of electricity times its price. Third, sales are inversely related to price. For example, an increase in price will decrease sales. And fourth, the variable costs of electricity generation are directly related to sales.

Based on only the first two assumptions, a 10 percent increase in costs could be recovered by a 10 percent increase in price. But when you introduce the third assumption (prices go up/sales go down), the revenue increase will fall short of the 10 percent because sales are depressed. How far short revenues will fall depends upon how strongly price affects sales.

The strength of the price effect on sales is described as "elasticity of demand." Elasticity measures the percent change in sales that results from a small percent increase in price. For example, an elasticity of -1.0 would mean that a one percent price increase

would reduce sales by one percent. The greater the elasticity, the larger is the impact on sales.

However, the fourth assumption (variable costs of generation) could stabilize utility finances. In as much as reduced generation means lower costs, lower sales could be paralleled by lower costs. This would reduce the need for increased revenues. The problem, however, is that the utility industry in general is characterized by high fixed costs and low variable costs.

In the long run, the problem becomes one of chronic overcapacity. The scenario starts when utilities plan future capacity needs based on current prices and projected economic growth. But as new capacity is completed and its costs are reflected in higher rates, the result is a drop in sales. This eliminates some or all of the need for the increased capacity. As fixed costs for the new plant are spread over fewer sales, the revenue that must be recovered from each unit of power sold is further increased.

ral although there are some risks of large, one-time downward adjustments to demand. These could lead to substantial price increases in the short run. In the long run, financial crises can be minimized or eliminated by using modern planning techniques such as those advocated in the Council's power plan.

This ability to plan flexibly is particularly significant when considering the potential for the death spiral. The theory of the spiral virtually assumes that utilities are helpless in the face of potential financial crisis and would stand by passively. This is highly unlikely.

In the long-term planning stage, all costs of new resources are variable, and there are a host of strategic planning practices that can mitigate the possibility of a death spiral crisis. Many current utility financial problems result from past plan-

ning during a prolonged period of declining prices and rapid growth of demand.

The new realities of the utility business are causing many utilities to adopt new planning procedures which take uncertainty, the need for flexibility, and likely demand response into account. These changing utility planning methods make future financial crises of the magnitude we have experienced recently highly unlikely. ■

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*Morlan is manager of demand forecasting for the Northwest Power Planning Council. His issue paper on the death spiral which gives a much fuller analysis of the theory, including management practices which could avert the spiral and assumptions made in the Council's simulation, is available from the Council's central office. See address inside front cover.*



**S**ilvered salmon arcing above shimmering water in a slippery ballet . . . swooping, soaring eagles pirouetting against emerald treetops . . . majestic elk bearing many-branched crowns motionless as dancers caught on point.

The backdrop for this lush dance of life is the Columbia River Basin in a remarkable new 30-minute film produced by the Northwest Power Planning Council. The *Journey of the Kings* is the story of the Council's efforts to sustain and nurture

# JOURNEY OF THE KINGS

that "dance of life" through an equally remarkable program.

At the beginning of this century, the film tells us, the salmon and steelhead populations of the basin numbered in the tens of millions. At the beginning of the last decade, that population could be counted in the thousands. Much of the loss of these resources, as well as resident fish and wildlife, was a direct result of hydroelectric development and operations in the basin.

Not only did the dams form obstacle courses which dramatically decreased survival chances of migrating fish, but development associated with those dams robbed the basin of thousands of square miles of natural habitat for resident fish and wildlife.

When the U.S. Congress established the Council in 1980 to forecast and plan the region's electrical energy needs, it gave the Council another charge of equal weight . . . to "protect, mitigate and enhance" the fish and wildlife affected by hydroelectric development and operations within the basin.

The Fish and Wildlife Program that grew out of that charge was adopted in November 1982. The *Journey of the Kings* is the story of the myriad ways that program is being put to work within the basin.

The Council's program serves as the vehicle for many entities to come together to develop a workable plan to save and restore a great natural resource. Many were involved — several are highlighted in the film — including the basin's Indian tribes, fish and wildlife agencies, Bonneville Power Administration, utilities, Army Corps of Engineers, conservation groups, and the Bureau of Reclamation.

*"I think if there's any one thing that the Council has accomplished through the development of the Fish and Wildlife Program, it's a sense of cooperation by all the players. They have been willing to alter their traditional likes and dislikes in order to benefit the resource."* —Keith Colbo, Council chairman.

*Excerpt from the Journey of the Kings.*

The film strives to match educational value with extraordinary artistic beauty. It is helped in this by the set — the basin itself. Sweeping aerial shots pan over some of the world's most spectacular real estate. The cameras range from the iron lacy of the Astoria bridge at the mouth of the Columbia and glide up the Columbia and its tributaries as they spread like mercury veins into the interior. The scenery reaches a crescendo in the lofty ranges of Montana.

The film is also helped by its lead actors,

and, in this case, humans are a mere supporting cast. Central casting has pulled out all stops supplying the nobility, strength, and grace of bighorn sheep, elk, and white-tail deer in the basin's upper reaches. Smaller, nibbling, darting, furry creatures supply momentary cameos.

But the real stars are the salmon, the kings of the title. Their journey from the sea begins with spectacular slow-motion shots as the fish slice the water's surface like skimming U-boats. The cameras follow as the mighty fish surge upstream to ancestral spawning grounds driven by primeval instinct.

In the beginning, the salmon are clean and fat and strong with silvered scales intact, shiny bright armored warriors setting off to the crusades.

As they struggle upriver battling both manmade and natural obstacles, they swiftly lose their sheen, but not their drive. Gouged, slashed, scales ripped away, they continue their rush forward to life (to spawn) and to death (they die after spawning).

Their depleted numbers are testimony that this struggle is not an exaggeration. But the film tells a parallel story — the story of the region's fish and wildlife program and how it is beginning to ease this journey of kings.

We hear how water can be budgeted through the dams during critical periods to mimic natural freshets and speed the young fish along to the ocean. We see stream-bank projects where work is being done to dredge excess silt. We visit reclamation projects such as the vast Yakima Basin where new state-of-the-art fish passage facilities will be installed.

We learn how the fish agencies are tagging smolt so that biologists and other researchers can learn more about the journey and what they can do to improve survival. We get a firsthand look at the various ways the fish are helped around the dams, from fish ladders to barges through the locks.

Even these efforts may not be enough, and hatcheries may be needed to supplement natural stocks. Certainly one of the most memorable sights in the film is that of hundreds of hatchlings leaping in quick-step, ballet-like motion out of their ponds.

With a 30-minute limit, the film can touch on only a few of the projects currently going on or planned in the basin to save fish and wildlife. It does however, give an overview of the scope of the fish and wildlife program and of the unprecedented cooperation among utilities and environmentalists, agencies and tribes,

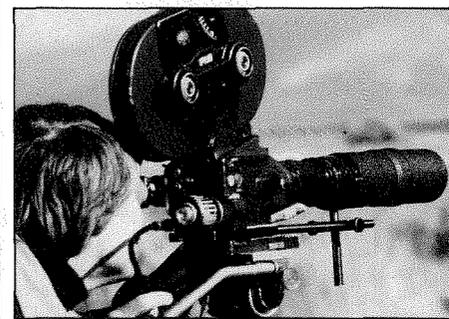
sportsmen and scientists.

The *Journey of the Kings* tells the story of what may well be the largest regional project to reclaim a natural resource going on in this country today.

*"It's something that my grandchildren will see, hopefully . . . the salmon in the river."* —June Morse, fishery worker.

*Excerpt from the Journey of the Kings. ■*

*Editor's note: To check out the film, contact your state Council office or Chris Larson at the central office. Addresses inside front cover.*



*Brigadier General James W. van Loben Sels is the commander and division engineer for the North Pacific Division of the United States Army Corps of Engineers. He is from Northern California where his family was involved in agriculture and water issues. That interest was passed on to the General.*

*He is a graduate of West Point, the Air Force Institute of Technology, the Army Command and General Staff College and the Army War College. He has had civil works assignments in West Germany, Norfolk, Virginia, and Fort Hood, Texas, before coming to the Northwest in July 1981. He has also served two tours of duty in Vietnam.*

*The General describes the Corps as being in the business of "mobility, counter mobility and survivability." In times of war, it creates mobility – bridges, roads, airports, etc., for its army, while blowing up the opposing army's bridges, roads and airports.*

*In times of peace, the Corps is usually thought of in terms of moving water. In the Pacific Northwest a primary responsibility of the Corps is the "mobility, counter mobility and survivability" of anadromous fish.*

# A Conversation WITH THE GENERAL



## *How does the Council and its Fish and Wildlife program fit in with the Army Corps of Engineers' role in the Northwest?*

I arrived here just as the Council was getting organized. I looked at it as a great opportunity for the region to look at its needs in fish, wildlife and power on a regional basis and do some balancing between those purposes.

We've been attempting to do some of that ourselves, however imperfectly, but attempting to do that for all the purposes we serve — flood control, recreation, power, fish and wildlife. The local entities, utilities and individual states were not totally successful in getting a regional consensus.

I think that's one of the reasons behind the (Northwest Power) Act. The way it was written was to provide a vehicle to develop a regional consensus, a *public* consensus. It's an experiment in politics, and it really is unique. A federally established council but *not a federal* council . . . independent.

There are federal entities more or less responsive to the Council — at least taking into account the Council's views — it varies with the agency you're at and their interpretation of what they think the law says. But nevertheless, I saw it as good. I told the Council, "Welcome to the forum!"

It's a very difficult task, balancing the needs, trying to perceive what the public interest is. Is it the need for more power at the expense of anything? And, how much do we pay for fish and wildlife mitigation?

## *Are there major problems remaining?*

Well we haven't solved all the problems, of course. If it were easy there wouldn't be a need for this. Things would have been decided before. But I think the Council, particularly in its public involvement pro-

gram — in being able to bring a number of players to the table, the agencies, the states, the Indian tribes, the utilities, Bonneville Power and ourselves — is forcing us to sit around the same table and decide.

Now there may be some who are impatient with our progress, but I'm not. I think the progress has been significant. We have an energy demand forecast, and BPA and the utilities' forecasts are now closing in on the Council's.

The water budget wouldn't have happened without the Council.

## *I'm glad you brought up the water budget. Is it that new an idea?*

No, but the way it's done is a new idea. The idea of providing adequate flows for fish in the summer has been around for some time. The Corps, BPA, the tribes and the various fisheries had been discussing provision of flows. We had been providing (within available water) flows for fish.

What had not been done is the explicit trade-off of so much firm power for those flows. The agencies and the tribes had established what they called "minimum flows" and "optimum flows" for several seasons. These were based on some studies — not as rigorously scientific as I'd like — but it's the best data we have.

I guess maybe the Council's step forward was to go ahead and commit those resources based on the best scientific data available, rather than on scientific proof.

## *Is there "scientific proof" on this question?*

Well, it depends on whom you ask. You can get many opinions from scientists. There are many scientists who read the numbers and believe that there's adequate evidence that providing flows during the period of migration will help, and I agree.

The biological process of the fish mov-

ing down the stream means that they need to get to the ocean in a reasonable length of time. The fact that the dams exist has changed the environment such that they don't do that as well as if they came down naturally.

The hard question is, how much is enough? Where's the margin? Is it this amount of water this length of time, or is it more? And if I give you that more, and it costs that much in dollars, or in hydroelectric power, or in just the ability to turn the lights on at a given time so we don't have rationing or a period of deficit, and it only helps the fish get there a day sooner, what is the survival improvement? That's one of the pieces that's missing. That has to be proven.

We tend to think transportation is the solution. That is, collect the fish, put them in a transportation mode, get them around the dams. It works very nicely for steelhead. It works only marginally well for salmon, so we think we ought to work to improve transportation to make it work for salmon.

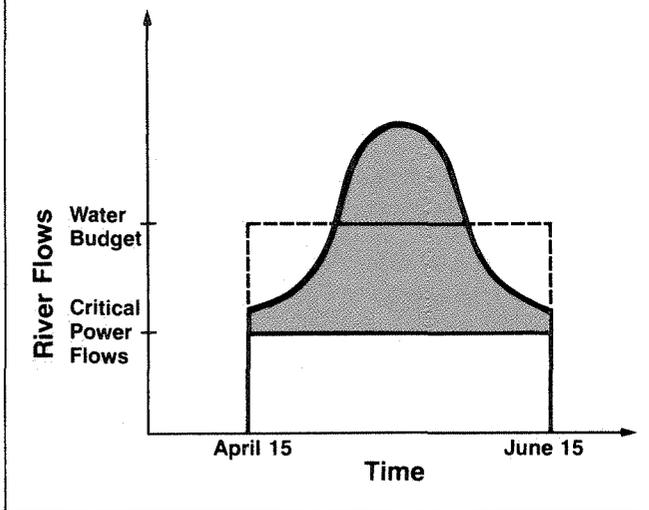
The agencies and tribes disagree. They think we can work on transportation, but the resource is too valuable to put all our eggs in one basket. So that dialogue continues. If there were a clear-cut answer, then we would do *that*.

I've got some good fish biologists on



## Water budget

How flows could be shaped to aid fish migration



my staff, too. They believe what they're doing is right. They're not "power guys," they're not "dam builders," they're top-notch people who happen to have a professional disagreement.

*In 1983, when we tested the water budget, there was a record salmon return . . .*

But you can't attribute that to the water budget. We practiced the water budget, but it was mostly an accounting test. The water budget only gets hard in dry years. This wasn't a dry year. This has been really a luxury, an opportunity to learn how to do a water budget during a good year.

It's also been a year of surplus energy. If we were to try to make these decisions in a year of power deficit it would be much more difficult. We have not finished agreements on the water budget yet. We have an agreement to help with it this year.

*Do you see it as a year-to-year process then?*

Yes, in the beginning, because there's an evolution in how we account for the water budget. On the power side there are still ongoing negotiations in how we plan and account for the trade-off of firm power to the water budget.

It's not a simple matter. It's not just saying that we're going to trade so many megawatts of firm power for the water budget, because how you do that, how you trade it in — the multitude of dams, the utilities, the planning period being three years long, etc. — those are the things we still need to work on.

*We've talked about the trade-off between power and fish. What's the trade-off in terms of flood control?*

There's not a direct trade-off in the sense of the way the law is put together. This is an effort to balance fish and power.

We often have to have space in our reservoirs for flood control purposes so that if there's a storm or a big snow melt, we've got a place to store water. That space, if it wasn't required for flood control, would be used to store water for fish, so there is a conflict.

The Council has asked us to examine our flood control "rule curves" (our rules for establishing at any one time how much space to save in our reservoirs) with the idea of perhaps reducing that space so that we can have more water for the fish flow.

That's not a new idea. The power folks have been asking us to do that for years, because it also impacts on building increased power. You can't generate power with an empty lake.

So, we are embarked on a study to examine our rule curves in the light of modern technology. We have better forecasting and computers now, and we want to be sure that we're not being too conservative.

On the other hand, I carry my flood control responsibilities very highly. As I told the Council, "If I have a trade-off between the protection of human life and providing additional water for fish, I'll go for the people first." So, I'm going to do my best to create more flexibility in the shape of the water picture for both fish and power.

*Explain the problem that occurs in a dry year.*

In the dry years we'll have a limited amount of water to do everything with. We need to save enough water to provide for the water budget and at the same time send it down in the winter months when the power load is greatest.

We also want to operate in such a way that the reservoir can refill the next year, so we can start at a reasonable level. Our planning is based on a sequence of three

dry years. That's the historic worst situation. At the end of those three years our reservoirs would be dry.

### *Are you considering changing or adapting that planning base?*

No. We're continuing to study it, but we believe that it's the prudent way to plan. There've been studies that suggest that we ought to base our planning on average water years, but what that is essentially saying is that we can do something else in the second and third dry years.

We could generate thermal electricity or have rationing, but there are other interests involved. There are lots of people who are just as interested in the fish that live in the reservoirs, fish that don't migrate. They're impacted by this. The Council's looking at these resident fish.

Then you have wildlife that are affected. We can keep the water high so that predators can't reach water-bound nesting areas. If we let the water down, we won't get to do that.

Our charge is to try to articulate these other things to the Council when they're looking at power and fish.

### *How does the Water Budget Center fit into this picture?*

We now have a partner to talk to, which is kind of nice. We may not always like the answers we get, but there's a coordinated position. There's someone we can talk to over time who understands our problems. We're developing a professional staff, a Water Budget Center, the committees that are supported by the Council, the fish and wildlife people, the Inter-Tribal Fish Commission, etc., and these folks know almost as much about our operation as we do.

It forces my people to be sharp. They can't be sloppy in their thinking because there's someone who's going to be listening.

### *The Corps is historically somewhat autonomous. How are you and your people adjusting to having the Council, the Water Budget Center, and the tribes all speaking to you?*

Well, I think we are responding pretty well. I think it's healthy. We're not rolling over and playing dead, but I think the dialogue is staying on a professional level. The communication channels are open and I think we're making progress to the benefit of the fish and wildlife and also to the power planning for the future.

If we do this right we ought to be able to pull together to an understanding. The courts aren't any smarter than we are. What I see is — we're not satisfied with where we are today. We have disagreements. But, I think it's essential and in the public interest that the Corps, BPA, and all the other parties work in cooperation with the Council.

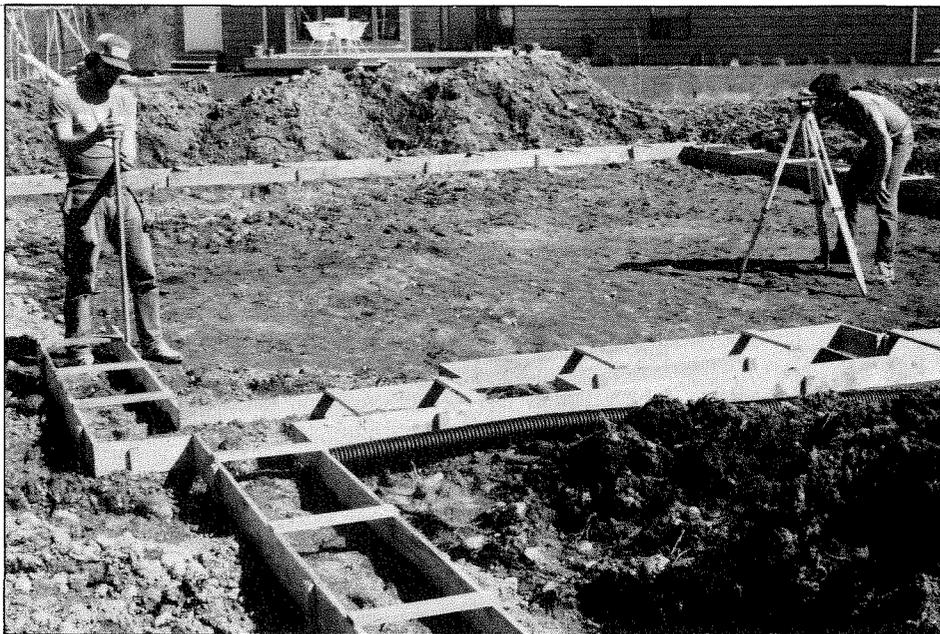
I believe that it's important that the Council be successful not just because the law says so, but because the reaching of a consensus position, so that we can do something about the problems, is important. I'm willing to compromise some of our positions in order to achieve that. Everybody will have to compromise to achieve that, both sides. We hope the Council remains the forum for that. ■



# WASHINGTON

*First in region for model home groundbreaking*

by Mickey Riley



Builder Les Williams (right) prepares foundation for first demonstration home.

Laying a foundation to support the Council's model conservation standards has started in Washington State as builder Les Williams of Bellingham begins constructing the first home in a regionwide demonstration program. "I am *really* pleased to be the first," says Williams.

The home will be the first of approximately 600 constructed this spring and summer to demonstrate energy-efficient building methods, their costs, and their savings. These homes are calculated to use 60 percent less heating energy than homes built to current standards.

Williams is building a "super insulated" home in the Ridgemont Subdivision in Bellingham that is calculated to use an annual 1.8 kWh per square foot of electrical energy to heat the home. Program participation sets an annual limit of 2 kWh per square foot usage in western Washington (Weather Zone 1) where the home is located.

The 1,500-square-foot, three-bedroom home is being built for Bruce and Karen Rowell and their seven-month-old son Christopher. "My main reason for choosing a super insulated house," says Bruce,

an auditor for Puget Power, "is that I see the results every day on my job. And I've lived in a house that was retrofitted and saw the effects of that on our energy bills. It's simple — when you add more insulation, you use less energy."

The Rowells had been living in an older, two-story house. "It was always drafty," says Karen Rowell, "and we knew it would be expensive to heat, especially with the baby." When they decided to build, comfort and energy costs were main considerations. Karen, who has a home economics background, had been interested in energy-efficient designs for several years and had looked at geodesic, earth bermed, and underground homes. But Bruce kept saying: you don't want that, you want a well-insulated house — one that looks like a normal home. "He was right," says Karen.

The Rowell's new home will have three bedrooms, and the kitchen, dining and living rooms will face south. "I wanted lots of light in my working areas," says Karen, and the 143 square feet of south facing windows will contribute 50 percent of the annual heating requirements of the home.

Builder Les Williams feels strongly about having his homes meet a variety of people's needs. "Energy efficiency is important," says Williams, "but so is livability. People don't want to run around each night, for example, closing up shutters to cut heat loss. You want a house that's easy to live in."

Comfort is another requisite for prospective homebuyers, and super insulated homes consistently score high in that area. The fact that they are well insulated and well sealed means there are no drafts and very little heat loss. Williams estimates his design will have an impressive .05 air changes per hour. Homes built to the current Washington State 1980 Code have .6 air changes per hour which represents about 40 percent of the overall heat loss. Although not required by the program, Williams will have the house "blower door" tested during construction, a process which pressurizes the house to determine air infiltration and helps the builder locate leaks.

A major concern of many homebuyers is the indoor air quality of such well sealed homes. "That won't be a problem," says Bruce Rowell, "since we'll have an air-to-

*My main reason for choosing a super insulated house  
is that I see the results every  
day on my job.*

*—Bruce Rowell,  
auditor for Puget Power*

air heat exchanger." An air-to-air heat exchanger is a relatively simple system of ducts and cross changers where the heat from stale, exiting air is transferred to fresh incoming air. All homes in the regionwide demonstration program will have heat exchangers.

### **Costs and Savings**

While all of this sounds promising, the proverbial bottom line is how much will it cost and what will the savings be. Although the specific costs and savings won't be known until approximately one year from now when the homes are occupied and owners have gone through a heating season, builders such as Les Williams rely on their own past experience and the simulations from *Hot Can* and other computer programs.

The figure most often quoted by the dozen or so builders around the state who have built these kinds of homes is an additional cost of approximately \$2,500 to \$3,000, depending on the size of the home and the climate zone. This is also the approximate amount that builders will receive as an incentive for participating in the program. Estimated costs range from \$2 per square foot in Zone 1 to \$3 per square foot in Zone 2. Incentives will be paid once the homes are complete and have been certified for occupancy by local building officials.

Savings for consumers are also calculated through *Hot Can*. The home Les Williams is building is estimated to use 1.83 kWh's per square foot annually. The total electrical heating bill, at current Puget

Power rates, would be \$114 for one year.

Although the figures may seem optimistic to some, in fact, they correspond quite closely with data from other super insulated homes in western Washington that have been metered. Comparisons have also been made between computer model predictions and 28 Oregon homes whose energy use was metered. Actual average usage varied less than 1 percent from what the model predicted.

Builder Les Williams is convinced it's the way to go. "It really doesn't cost that much more," he says. "When you're building a new home, to add an extra \$3,000 to the cost of a \$70,000 home is miniscule. What it does take is extra time and care. That is possibly the main drawback — it takes more of your time. For myself, that's not really a problem since I do a lot of the work myself and I generally like to oversee my subcontractors. Not everyone likes to take that time."

The demonstration program is an outgrowth of the Northwest Power Planning Council's Regional Plan adopted in April 1983. Included in the Two Year Action Plan was the concept of a Bonneville Power Administration-funded, regionwide demonstration program involving large numbers of builders constructing super-efficient homes. The idea is to train build-

ers to construct homes that meet the model conservation standards. The programs are administered by the states. In Washington, the program is administered by the Washington State Energy Office and is called the Energy Efficient Home Demonstration Program. (In some states the program is referred to as the Residential Standards Demonstration Program.)

To participate in the program, builders must be able to demonstrate that their designs will achieve a specified electrical energy use, depending on climate zone. While thermal performance is a requirement for program participation, there is great flexibility in the choice of construction techniques for builders who want to be innovative. How builders achieve the performance goal is up to them. For builders less familiar with the concept of energy efficient construction, a range of 12 possible approaches is available.

To assist participating builders in making the technology transfer, intensive training sessions are currently being held throughout the region. Various construction techniques related to the building of homes with greater levels of insulation, use of continuous vapor barriers, and advantages/disadvantages of various caulking techniques are some of the topics taught and illustrated.



Livability was big factor for homeowner Karen Rowell (with son Christopher) and Williams.

*Energy Efficiency is important  
but so is livability.*

—Bruce Williams,  
builder

The Williams' house will have an R-factor of 24 in the wall insulation (R-19 fiberglass batt and 1-inch extruded polystyrene); advanced framing (2x6 studs on 24-inch centers) which allows for greater levels of insulation; R-42 insulation in the ceiling and built-up trusses which allow the insulation to extend over the top of the exterior walls.

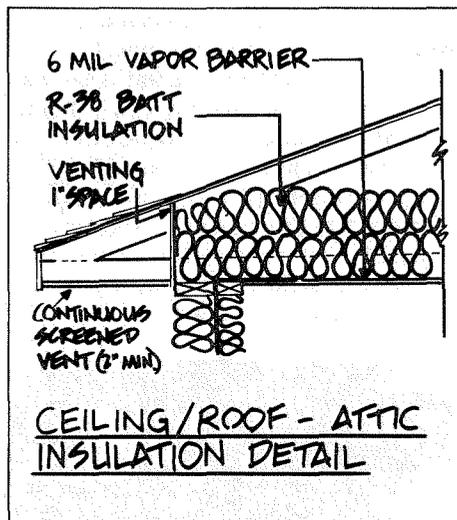
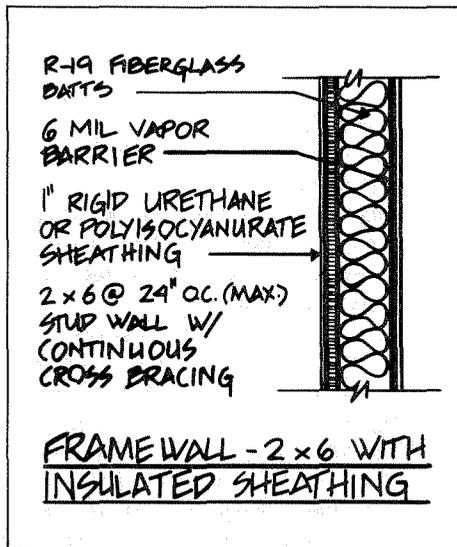
The home will be "sealed" with a 6-mil polyethylene vapor barrier which will be caulked with acoustical sealant where seamed. Doors will be steel with foam core, and windows will be wood frame casement and picture windows. Most windows will be double glazed with the exception of one north facing triple glazed window. The furnace and heat ducts will be inside the home (there is no basement) to maximize the use of heat as well as eliminate the need to insulate the ducts (a savings in construction costs). The home will have a 6kWh forced air electric furnace as opposed to the 20 kWh furnace normally required for a house this size.

The Rowells will probably install an airtight stove at a later date, but it will not be used for the first year while the energy use is being monitored. None of the homes in the demonstration program will operate wood stoves during the first year of data collection.

A Starr 100 air-to-air heat exchanger will control air quality as well as conserve heat. All of these factors will contribute to making a house that maintains an even temperature and is draft-free and quiet.

While Bruce Rowell is excited about the advantages of his new home, he feels there is not much public awareness of improved design and construction. But builder Les Williams says, "I'm quite confident it's going to continue. As programs like this continue, the level of awareness will rise. In Canada they're already experiencing greater demand (as a result of a somewhat similar demonstration program called R2000).

"I do believe in conserving," says Williams, "and I can do it this way. Besides it gives me a builder's edge. If you were going to build a house — what kind would you build?" ■



Drawings based on construction details by Patricia Boothby from Ecotope's *Design Tools for Energy Efficient Homes*.

As the first signs of spring energized the Northwest, the residential standards demonstration program also came to life across the region. The program recently got off the drawing board as ground was broken for construction of some special energy-efficient homes. These are part of a regional demonstration of homes built to higher energy-efficiency standards developed by the Northwest Power Planning Council.

The program is being administered by the energy agencies of Idaho, Oregon, Washington and Montana.

The genesis of the program is found in the pages of the Council's Northwest Conservation and Electric Power Plan adopted last April. But the program has since taken on a life of its own as builders, architects, realtors and prospective home owners lay the foundation for the program — and for new homes erected in the region. The target is to build at least 600 single-family homes and 70 multi-family structures to the Council's standard, making them 60 percent more energy-efficient than the structures built to current practices.

## WASHINGTON

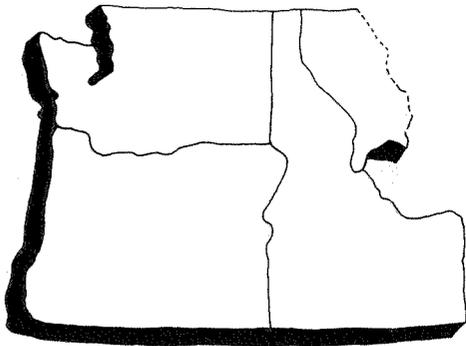
In Washington, 275 builders have applied to construct 400 homes, according to energy program coordinator Linda Steinmann. The Washington Energy Office is continuing to approve builders' applications, and construction on some of the first homes in the program began in mid-April. The goal in Washington is to build 300 single-family and 35 multi-family structures, according to Steinmann.

The energy efficient building program, as it is called in Washington, has "sparked the imagination of homebuilders because they feel that the knowledge of energy-efficient construction techniques they are gaining will give them a competitive edge in the building market," she said.

Washington's homes will be scattered throughout the state. So far, it appears that applications for construction of 45 homes have come from King County; 35 in both Spokane and Pierce Counties; 15 in both Thurston and Kitsop Counties, as well as other counties.

## OREGON

The Oregon Department of Energy (ODOE) has received applications for the



# REGIONWIDE

*Applications pour in for model homes*

by Susan Skog

construction of 261 single-family homes, and has selected 153 builders to participate in the program. One reason so many builders are interested is that ODOE has marketed it to potential homeowners, according to ODOE Building Code Program Manager Rich Gallagher. "Clients have been sold on the idea and dragged in their builders."

In fact, over half of the applications submitted by Oregon homebuilders has been for pre-sold homes. The "Oregon Homes," as they are labeled, will be located throughout the state. Applications for 48 homes have been received for the Willamette Valley area, including Eugene and Portland; 17 for central Oregon; 13 for southwest Oregon; and seven for eastern Oregon and the coast. Ultimately, the agency hopes to oversee the construction of 200 single-family homes and 20 multi-family structures.

ODOE hopes its efforts will provide builders with concrete experience with the model standards. So far, Gallagher is encouraged by builders who have attended the training sessions and come away with a "better and more objective idea of what the model standards are." The agency also plans to sponsor a products fair later this spring to link builders with the manufacturers of energy-efficient products needed to construct homes to the model standards.

## IDAHO

Response from Idaho homebuilders toward the RSPD effort has been good, but there's room for more participation in the

program, according to Steve Payne, energy program specialist, Idaho Department of Water Resources. The department has approved 50 builders for participation in the program of which 23 have submitted designs for pre-sold homes.

Idaho's goal is to monitor the construction of 115 single-family and ten multi-family structures. IDWR recently sponsored a statewide contest to select a name for the demonstration home and has selected "Energy Wise" as the energy-efficient label for Idaho's homes.

Idaho's program also has a unique twist not found in any of the other states. IDWR will monitor the construction of eight natural gas-heated homes built to the model standard. The program will be administered through contracts with Intermountain Gas Company and Washington Water Power Company, in whose service territories the homes will be built.

In Idaho, so far, 15 homes will be built in the southwestern part of the state; 14 in north Idaho; nine in central Idaho; and seven in eastern Idaho.

## MONTANA

Construction on Montana's demonstration homes was expected to begin in late April to early May, according to Julie Palakovich, acting program director, Montana Department of Natural Resources and Conservation (DNRC).

Interest in the program in Montana has been high, and Montana's builders also hope the program will help them compete in the building market, she said.

Although Montana's training work-

shops for prospective participants in the program were still underway in late April, it appears that most of the demonstration homes will be built in the Helena and Bozeman areas.

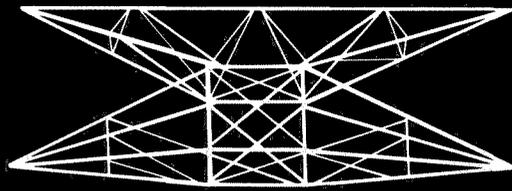
Overall, the Montana DNRC hopes to supervise the construction of 85 single-family and five multi-family structures.

## REGIONWIDE

Wayne Hart, Bonneville RSPD program manager, said he is pleased with the way the RSPD program is progressing in the region. BPA probably won't get the full number of targeted homes in every state, because of the still-sluggish economy, fluctuating interest rates and other factors, but it will be able to gather information needed on the cost of building each home to the model standard and the energy use per home.

The National Association of Homebuilders has been very helpful in assisting the development of a cost accounting system to track the construction costs of the demonstration homes, Hart added. The complexities of the building industry impede efforts to gather construction cost estimates and pose "massive" problems, he said. "But I'm still very optimistic of getting a usable product in the end. No one said it would be easy." ■

*Editor's note: Figures for the number of builder applications were current at publication, but state energy agencies report new applications coming in daily.*



# INTERTIE ACCESS

In 1983, the sale of the surplus power pushed over electric power lines from southern Oregon to California generated over \$400 million for the Bonneville Power Administration and Northwest private utilities. It's no wonder that BPA's planned overhaul of its policy governing access to the Pacific Southwest Intertie has touched off a new round of controversy.

The battle lines were drawn when BPA boldly announced it would assert ownership rights over the transmission lines as it revises its intertie access policy this year. The federal agency claims past intertie practices have been unkind to its ratepayers in years when demand for use of the transmission lines has outstripped capacity. This undercuts Bonneville's ability to market its own surplus power, according to the agency. In fiscal year 1983, Bonneville estimates that stiff competition for the intertie caused the utility to fall short by \$95 million of projected surplus sales revenue.

Now Bonneville intends to exercise new authorities granted it under the Northwest Power Act of 1980 to restructure its intertie policy, granting first priority to the export of federal power marketed by the agency, according to Assistant Power Manager Maureen Flynn. Bonneville's efforts are bolstered by legislative language which says the Bonneville administrator shall provide transmission capacity to help dispose of other utilities' surplus power if it "is not in conflict with the Administrator's other marketing obligations and the policies of this Act and other applicable laws."

If the new policy is established, BPA "wouldn't accept power from any other utility at any price if it interfered with Bonneville's access to the intertie," Flynn said. "As long as our surplus remains large — as it will in coming years — it must be made clear that we must do something about it."

Flynn acknowledged Bonneville's future rules governing intertie access would be a "roadblock to large transactions," but she added that the agency would strive to develop "rational pathways" through which other utilities could sell their

surplus resources when intertie capacity was available.

References to restricting their use of the intertie rankle Northwest utilities which say Bonneville is overstepping its legal bounds established by Congress. Utility representatives are quick to point to the Regional Preference Act of 1964, which they say directed Bonneville to use its intertie capacity as a "carrier" for transmission of non-federal energy.

The intertie access policy came under the scrutiny of the Northwest Power Planning Council at its March 15 meeting. After four hours of highly-charged testimony from representatives of Northwest private utilities and consumer and environmental organizations, the Council submitted comments to Bonneville recommending that its policy provide firm access only to utilities whose new energy resources are consistent with the Council's Fish and Wildlife Program and its Electric Power and Conservation Plan. The Council reserved judgment on the exact form of the consistency with the energy plan. The Council also recommended Bonneville provide priority wheeling services for co-generated power from new facilities that would otherwise not be built.

The Council's major concern with the issue grows out of its intent to honor the spirit of the Northwest Power Act, according to Council Executive Director Edward Sheets. When the act was signed into law, few people envisioned an energy surplus would be around the corner. So the Act spoke primarily to acquisition of power and mandated that acquisition take place in specific sequence. That sequence was that the least costly power resources be developed first, beginning with conservation.

However, because of the surplus, transmission of power outside the region, rather than acquisition for use inside the region, may be the force behind developing new resources. "The Council believes that the Act clearly intended that the sequence of developing the least costly resources first still applies," Sheets said. "Otherwise we could be in danger of developing expensive resources now for

sales to California with our ratepayers stuck with the bill long after California stops buying."

Private utilities testifying cried foul and accused the Council of trying to force adherence to its fish and wildlife and energy plans through the intertie, which they allege exceeds the Council's legislative mandate. A legal analysis prepared for the Pacific Northwest Utilities Conference Committee (PNUCC) on the intertie issue asserts that "it is clear that no Council direction or control of BPA's transmission management policies was provided for by Congress . . ." The utilities also fall back on Regional Power Act language which says Bonneville, in providing transmission capacity, can't discriminate against a utility on the basis of independent development of resources.

Furthermore, PNUCC director Randy Hardy testified that the Act preserved private utilities' autonomy to develop resources independently of the federally-owned system. Although the utilities don't contemplate "running out and developing willy-nilly a bunch of resources inconsistent with the plan," they can't relinquish that right to Bonneville, Hardy said.

The Natural Resources Defense Coalition (NRDC) agreed that utilities are free to "deviate from regional prescriptions, such as the Council's plan, provided that they use their own resources . . ." In their written comments, NRDC stated that such autonomy, however, isn't extended to access to the intertie, which is a regional resource.

NRDC Executive Director Ralph Cavanaugh, in a separate interview, said it's "absolutely essential" that the Council send a message to the Federal Energy Regulatory Commission (FERC) and other regulators that hydroelectric projects can't be approved in the hopes that their power can be marketed to California.

"Now isn't the proper time to approve the development of generating resources whose sole justification is to meet California's loads," when there isn't enough space on the intertie to handle the current surplus in the region, he added. "If we get

# Remains Region's Hot Issue

by Susan Skog

a flood of speculative hydro, that will further complicate the market for existing surplus."

Merrill Schultz, Intercompany Pool director, took issue with conditioning access to the intertie with compliance with the Council's fish and wildlife program by noting that non-federal utilities are only required to take the program into account "to the fullest extent practicable." The Intercompany Pool also represents Northwest utilities.

In a separate interview, Schultz said he fears utilities may be caught in a "whipsaw" when public utility commissions order them to acquire power from small resources, such as hydropower projects,

that may prevent them from gaining access to the intertie.

If BPA encourages the development of inconsistent resources through its intertie policy, Northwest ratepayers will pick up the tab for the resources when their power is called back from the Southwest for use in the region, Mark Reis of the Northwest Conservation Act Coalition said.

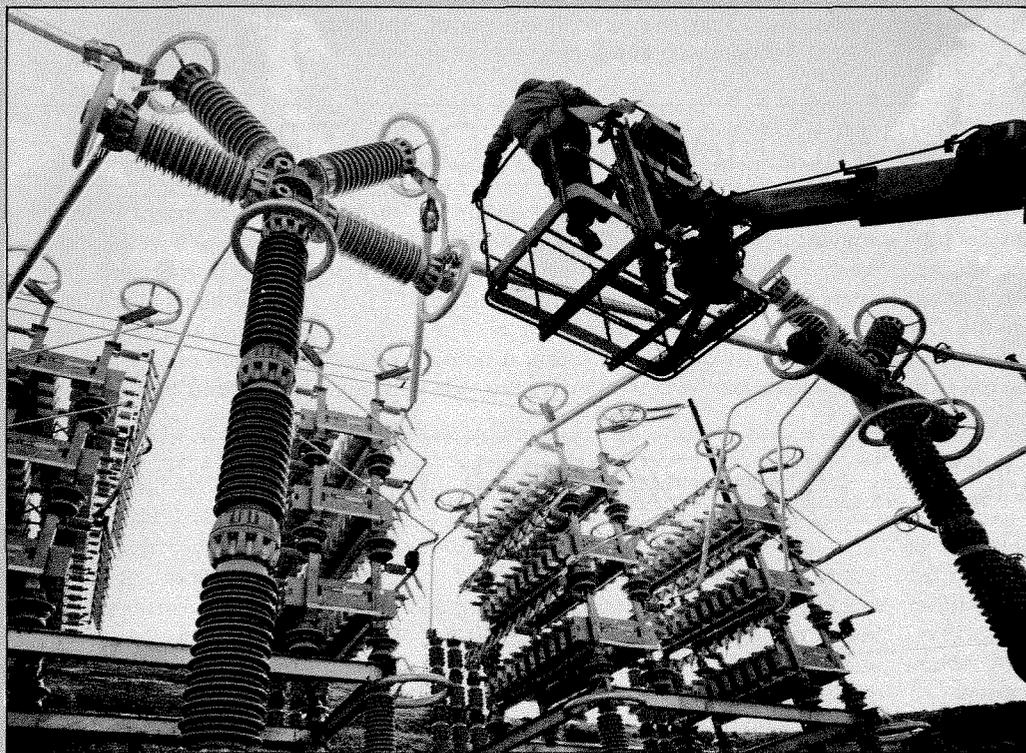
In its written comments, NRDC added that "every dollar diverted to an inconsistent resource, with an eye to export, is a dollar that could have been spent to realize the goals of the Council's plan."

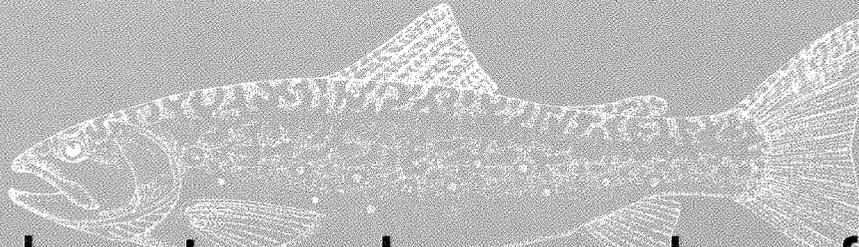
Bonneville's attempts to establish its domain over the only major link between the power systems of the Pacific North-

west and California will be played out in the coming months. A draft policy will be published this month, and an interim policy, which will be subject to an environmental review, will be issued at the end of June, according to Flynn.

Meanwhile, the Council has held informal meetings with utility and environmental group representatives to discuss the intertie issue in the context of its energy plan. ■

Bonneville's new "giant switch" will make branches to the intertie practical because it provides breakers to isolate faults on branch lines. The 25-foot tall switch is the world's first high-voltage direct-current circuit breaker. (See story on page 3.)





# Amendments explore number of fish and

*If the Northwest Power Planning Council wanted evidence that a regional fish and wildlife program with broad public participation is popular, it has gotten that evidence during its current and first program amendment process.*

*Not only has there been a large number of recommendations (more than 140), but with few exceptions these recommendations have not challenged the concept or directions set by*

*the program. Overall, the vast majority call for additions to the program.*

*Because of the sheer number of recommendations, the Council staff has grouped them into broad issues and has published an issue paper on each one. This Energy News carries a brief summary of each issue paper. The issue papers are designed to present background and stimulate discussion by all interested parties.*

*The Council can approve or reject any or all amendment proposals in total or it can modify or adopt portions of a proposal. The Northwest Power Act sets standards by which the Council will judge recommendations. If the Council rejects an amendment, it will explain in writing why the proposal would be less effective than current or other adopted measures or how the measure would fail to meet the standards set by the Act.*

## 1/FUNDING

This category deals with the Bonneville Power Administration's obligation to fund projects within the Council's fish and wildlife program. Proposals address Bonneville funding for federal and nonfederal (possibly non-hydroelectric) projects as well as activities of the tribes and fish and wildlife agencies.

The issues for federal projects revolve around how appropriate Bonneville funding is where the federal agency can obtain Congressional appropriations elsewhere.

The Council must decide if Bonneville should fund such projects when they would otherwise be delayed seriously and how such funding could affect the relationship of the federal project operators to Congress.

On nonfederal projects, questions arise over the equity of Bonneville ratepayers bearing the cost of reversing harm to fish and wildlife caused by individual project operators. There is also the question of whether Bonneville funding is the only

alternative to getting a measure underway without years of litigation.

Questions regarding tribes and fish and wildlife agencies center around use of Bonneville funds for their staff, meetings, and travel and whether such activities reflect additional work due to the Council's program. A key issue is whether Bonneville is the only realistic source of funds for activities critical to implementing the program.

## 2/OCEAN SURVIVAL/HARVEST CONTROLS

Management of ocean harvests of fish is critical to the Council's overall goal of protecting and restoring depleted anadromous fish runs. Without ocean harvest controls, many projects within the Columbia Basin could be lessons in futility.

Two amendment applications deal with

the fact that the program ties certain funding to "adequate controls" of ocean harvest. At issue is the appropriateness of tying funds for a specific hatchery and an acclimation pond to ocean controls. The Council must decide if existing funding restrictions are the most effective pressure

on harvest management agencies to implement controls or if restrictions on other facilities would be more effective.

Other amendments in this category call for more research and data collection and raise the question of to what extent ratepayers should fund these activities.

## 3/ANADROMOUS FISH RESEARCH

These proposals deal with the types of anadromous fish research to be included in the program. In this case, the term research is used broadly to include surveys, inventories, and development. A variety of new activities has been proposed.

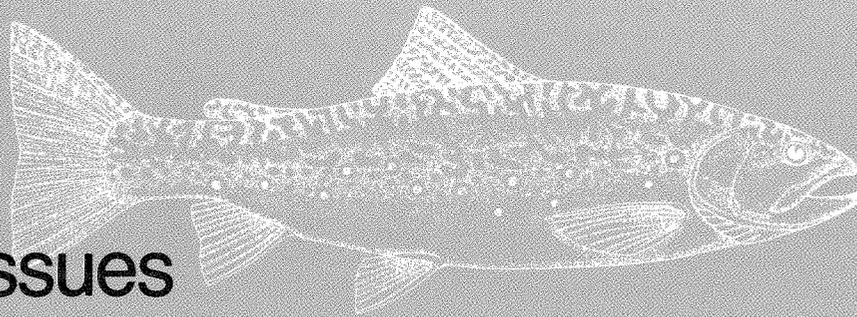
These include studies of fish stress, plans to increase bypass efficiency, studies of water temperature effects and controls, studies to develop habitat preference curves, surveys of habitat, studies to iden-

tify stray disease carriers, a feasibility study of using a fishway for rearing, a study of fish production potential, inventories of stock and estimates of genetic variability, and establishment of a panel of genetic experts. Most proposals are for a specific site.

There are also two staff proposals designed to clarify the intent of program language now considered too vague.

Major concerns deal with potential dup-

lication and cost for the activities proposed. Another important issue is the application of site-specific research to other sites. There is also the question of whether some proposals might be premature until the goals study is completed. The Council must also decide if some of the problems proposed for study could be alleviated without amending the program. In some cases, there are conflicting recommendations.



## wildlife issues

### 4/DEMONSTRATION RESEARCH PROJECTS

The fish and wildlife program contains a number of measures requiring testing and evaluation of prototype fish bypass systems using conventional screening systems. The program also stipulates the use of the best available means to aid downstream migration.

One proposal calls for Bonneville to fund development and testing of "im-

proved" bypass designs to convey juvenile fish from powerhouse intakes to the tailwater below the dam. Another calls for cooperative funding between Bonneville and Crown Zellerbach to install and test a new type of screen at one of the latter's turbines.

The Council must determine if the first proposal would duplicate ongoing re-

search funded by someone other than Bonneville, if the expense is justified, and if the proposed measure is more effective than current measures.

In the second proposal, the Council must assess the potential for a better and more cost-effective means of protecting downstream migrants.

### 5/CAPITAL CONSTRUCTION

Several proposals call for Bonneville or the Corps of Engineers to fund major new construction. Others would modify existing measures which already require capital construction. One amendment proposal challenges the program's priority for improving existing hatchery facilities

over constructing new facilities. Still other amendments are designed to correct problems perceived at specific projects.

The proposed new projects include a bypass system, a vertical slot counter, additional or alteration of passage facilities, structural modifications to improve fish

production or survival at artificial production facilities, and improvements and evaluation of existing fishway systems. Nearly all proposals are site specific.

The major issue is what types of construction are appropriate for funding by Bonneville and by the Corps.

### 6a/SUBBASIN PLANNING

The concept of subbasin planning was proposed by the Council's Fish Propagation Panel. It addresses the fact that the program stipulates a number of habitat and passage projects but, in many cases, sets no priorities. Subbasin planning would set priorities among the habitat improvement and passage projects both within a particular subbasin and among subbasins. (A subbasin is a major tribu-

tary or drainage in a river system.)

The concept is designed to provide a comprehensive and integrated planning approach. It involves acquiring information on a broad scope including institutional and legal considerations, geographic characteristics, land ownership and land use practices, fishery resources, and cost.

The Panel suggests Bonneville funding

would follow a logical sequence of priorities and this would increase fish production and protect ratepayer investment. The Panel also proposes to rely on information from the fish and wildlife agencies and tribes to develop subbasin plans.

The Council must consider the feasibility and effectiveness of this planning tool and weigh it against a potential for delay in funding projects.

### 6b/OFFSITE ENHANCEMENT

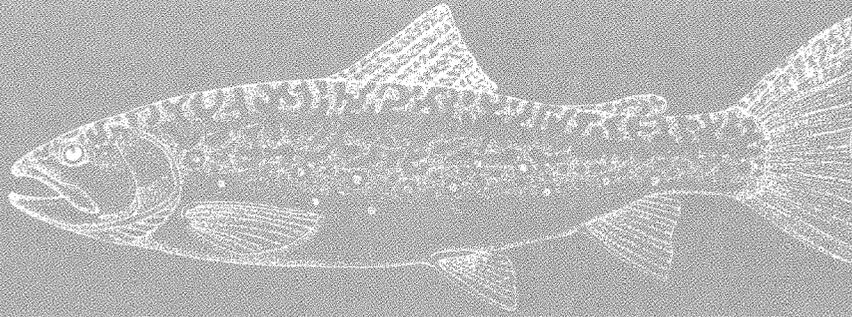
Offsite enhancement refers to the use of substitute resources and environments to compensate for natural habitats which have been lost through hydroelectric development. Most of the proposals would add more habitat improvement and passage restoration projects to the program.

Altogether, the proposed amendments would add 215 offsite enhancement proj-

ects to the existing 70 projects. All but three proposals are stream or site specific. The three exceptions address compatibility of harvest regulations and habitat improvements, spawning ground surveys, and adult counting and collection.

Because of the number of possible projects in the basin, it may be difficult to select projects and develop an appropriate

implementation sequence. The issues therefore are: How much offsite enhancement is appropriate for Bonneville funding? Where and when, and in what order? So a key issue is what, if any, new offsite enhancement should be initiated before that study is completed.



## 8/PROTECTED AREAS

The fish and wildlife program directs Bonneville to fund a study of alternative means for classifying and designating streams and wildlife areas to be protected from future hydroelectric development. The study is to look at existing information on hydroelectric potential as well as fish and wildlife values. The Council will use this study as a basis for designating which areas should be protected from development.

Because the study is closely related to the power plan's site-ranking study, the Council also set up the Hydropower Assessment Steering Committee to advise on approaches and avoid duplication of effort.

One amendment would modify the program by requiring evaluation of specific sites already identified in several existing studies and inventories and would add a detailed list of the studies to be used. The other amendment would add a new step by designating the fish and wildlife agencies and tribes to define important habitats based on criteria they would develop. The Council then would use this input, plus the study results, to designate protected areas.

An issue in both amendments is whether the proposals offer new ideas or duplicate current measures and whether they provide a more cost-effective way to accomplish protection goals.

For example, the program mandates the use of existing studies. The Council must decide if this already includes the studies in the first amendments and if a specific list of studies would impose a limit. The second amendment is designed to use the fish and wildlife agencies and tribes because of their special knowledge. The question then is whether they are already adequately represented as part of the Hydropower Assessment Steering Committee and part of the consultation process.

## 9a/RESIDENT FISH GOALS

While the Council recognized the desirability of setting goals for resident fish, it decided when it completed the program that current information was inadequate to develop such goals.

The amendment proposes that Bonneville fund a study by the fish and wildlife agencies and tribes to identify the impact of hydroelectric development on resident fish in each major basin within the Columbia system. These entities also

would propose resident fish goals to be used as a basis by the Council for adopting goals. The idea parallels the goals study for anadromous fish.

There are several issues here. One is whether Bonneville should supervise the study. Also, the state of Montana objects to the basin-by-basin approach (as opposed to a per project approach).

Such a study could involve twice as many basins as the anadromous fish study

because resident fish appear in more basins. And since hydroelectric development may have helped resident fish in some cases, gains must be weighed against losses. Questions related to harvest regulations and the effects of enhancement and mitigation efforts for anadromous fish on resident fish also may arise.

## 9b/RESIDENT FISH

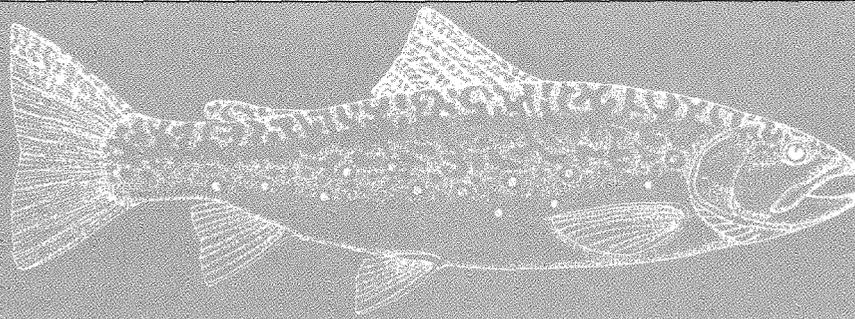
A large number of amendment proposals deal with resident fish. These fall in five broad categories. The first category calls for Bonneville funding of new hatcheries. The Council may wish to assess the degree to which hydroelectric projects are responsible for fish decline and the level of mitigation necessary before determining the need for new hatcheries. Availability of existing hatchery space and alternative

enhancement means must also be weighed.

Proposals to purchase surplus water to provide non-irrigation flows to streams below reservoirs and alleviate fish losses are included. So are proposals for habitat improvement projects at various streams and enhancement opportunities within and beneath reservoirs. Most are new projects. Some propose that the Fish

Propagation Panel set priorities and dates for completion. Several raise the question of trade-offs between resident fish and anadromous fish.

Two proposals deal with water budget effects and water level fluctuations on resident fish at specific sites. The final category of proposals would modify current measures, one for language clarification and one to require an independent study.



## 10/WILDLIFE

Several of the wildlife amendment proposals would affect the planning and implementation schedule of the existing program. Most recommendations are research-oriented and center on determining the extent of hydroelectric impacts on wildlife and their habitat. The needs for a funding mechanism and for continued consultation are common denominators in many applications.

Of four broad wildlife proposal categories, the first consists of new measures which call for Bonneville to fund new

planning and/or mitigation and enhancement activities.

A second group proposes extending completion dates for two activities. There are also proposals to clarify existing program language, with the major issue centering on who should fund implementation of recommendations as they are developed. Other wording changes deal with what projects are included in program tables.

Even proposals which could be termed major revisions do not essentially change

the current direction of the program. One would change the way mitigation reports are handled and emphasize the use of an independent party. Another proposes considerably more detail in the program, particularly to identify which species of wildlife are most important at particular projects.

Because of the detail, the Council has several options for combining parts of the proposals with the program as well as rejecting or accepting the amendments.

## 11/PROGRAM SCHEDULING

Amendments for scheduling fall into two groups. The first is a staff proposal to add a three-year action plan and five-year objectives into the program. The second group seeks to change certain completion dates specified in the program.

Currently, there are more than 220 action items in the program, and amendments could increase this number significantly. The sheer number makes it difficult to determine the appropriate sequence for implementing measures, particularly

since many current measures do not include dates.

The proposed action plan and objectives are designed to overcome this problem by giving more specific direction for scheduling implementation and funding. The objectives and actions are based on the current program but could encompass amendments. Three and five-year periods were chosen to fit with budget and fish cycles and establishment of program goals.

The Council must weigh several issues including the need for flexibility, the degree of specificity, feasibility of setting realistic dates within the time allotted, and the basis for selecting priorities.

The proposals to change completion dates fall into two groups — those that substitute annual progress reports for current completion dates and those that would change actual dates. The Council must weigh how realistic a date is and the potential for and impact of delay.

## 11a/AMENDMENT SCHEDULING

Under the current schedule, both the fish and wildlife program and power plan will be amended concurrently every two years starting in 1985.

Adhering to this schedule could mean that both Council resources and the resources of the parties to the amendment process would be taxed as they turn their

attention to both the plan and program amendments. In addition, there is concern about the feasibility of implementing the 1984 amendments at the same time new amendments are being considered.

The Council must weigh these issues against the value of sticking to the announced schedule. There are three pri-

mary options. The Council could retain the simultaneous amendment process. It could choose to amend the program and power plan on alternating years, or it could retain the current schedule but limit the 1985 program amendment process to certain types of proposals.

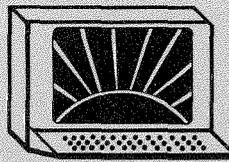
## 12/TECHNICAL CORRECTIONS

This category is for changes which are designed to correct errors or omissions in the program but which do not affect its substance. Most technical corrections are wording changes intended to add clarity.

Some deal with minor process changes and are not expected to be controversial. Two changes are designed to bring the program into conformity with the power plan. ■

*Editor's note: The numbers on the preceding synopsis correspond to the numbers on issue papers. Number 7 is missing because it was incorporated into other issue papers.*

# REGION RICH IN RESOURCES



by Ruth Curtis

Writing a paper on hydroelectric development in the Northwest? Doing research on the fish and wildlife habitats in the Columbia River Basin? Where do you go for background information?

One of the best resources is the Northwest Power Planning Council's public library where you can get information on a wide range of subjects. In addition to the Council, there are a number of other rich resources in the region. These organizations can help provide the background necessary to understand the complex energy and fish and wildlife issues this region is facing.

## NORTHWEST POWER PLANNING COUNCIL LIBRARY

The library's primary purpose is to provide information to the Council's staff. This has resulted in a collection of materials which deal with energy resources and fisheries (particularly in relation to the Columbia River Basin). The public is welcome to make use of the collection, either by phone or in person. The library also distributes many of the Council's publications and provides information about the Council's activities.

## Northwest Power Planning Council Library

700 S.W. Taylor, Suite 200  
Portland, Oregon 97205  
(503) 222-5161 — Portland  
1-800-452-2324 — Oregon  
1-800-222-3355 — Northwest  
Hours: 8:30 a.m. to 5 p.m. weekdays.  
Please call first.

## LOCAL PUBLIC LIBRARY

The public library is a resource that should not be neglected. It can provide general energy and fish and wildlife information and will also provide information on what other local resources are available. The local science museum, Audubon Society, etc., might be a gold mine. Public libraries can help direct people to those bonanzas.

## STATE ENERGY OFFICES

Contact these offices for technical advice, financing information (tax credits, audits, low interest loans) and general energy information.

### Idaho Division of Energy Resources

Statehouse  
Boise, Idaho 83720  
1-800-334-SAVE

### Montana Department of Natural Resources and Conservation

Energy Division  
32 S. Ewing  
Helena, Montana 59620  
(406) 444-6696

### Oregon Department of Energy

102 Labor and Industries Building  
Salem, Oregon 97310  
1-800-221-8035

### Washington State Energy Office

400 E. Union St.  
Olympia, Washington 98504  
(206) 754-0700

## UNIVERSITIES

Oregon State University has a Sea Grant College Program which can be a very useful source of information. The program is concerned with marine and anadromous fish and produces various brochures, reports and films. Directories of current projects and publications are available upon request.

### Oregon State University

Sea Grant College Program  
Administrative Services Building, Rm. 320  
Corvallis, Oregon 97331  
(506) 754-2714

The Fisheries Oceanography Library at the University of Washington is available for the public to use, although non-students are not allowed to borrow materials.

### University of Washington

Fisheries Oceanography Library  
151 Oceanography Teaching Building  
WB-30  
Seattle, Washington 98195  
(206) 543-4279

## UTILITIES

Local utilities can answer questions about electric bills, energy audits, and their own operations. They frequently distribute brochures on such topics as home weatherization and act as a referral agency. When calling, ask for Public Information.

Portland General Electric, Pacific Power and Light, and Puget Sound Power and Light have libraries that are open to the public (with a few restrictions). Their collections generally cover electric engineering, utility management, and energy resources.

## ENERGY EXTENSION SERVICES

The State Energy Extension Services are often the best source of information for the general public. They offer pamphlets and classes on such subjects as buying a woodstove, choosing an architect for a solar house, and low-cost weatherization. Each state extension service has a different structure. County extension offices, state energy offices, and utilities can put people in touch with their nearest energy extension agency. The central offices are as follows:

### Idaho Energy Extension Service

Statehouse  
Boise, Idaho 83720  
1-800-334-SAVE

### Oregon State University Energy Extension Service

114 Dearborn Hall  
Corvallis, Oregon 97331  
(503) 754-3004

### Washington Energy Extension Service

Seattle University  
Seattle, Washington 98122  
(206) 626-6225

While Montana does not have an energy extension service, the Energy Division of the Department of Natural Resources and Conservation provides similar services. (See address under state energy offices.)

<p><b>STATE FISH AND WILDLIFE AGENCIES</b></p> <p>These agencies are responsible for fish and wildlife resources within each state's boundaries. Contact them for information on the state's policies and projects. They can also act as a referral agency. Several publish newsletters or magazines that describe their activities. These are usually free or available for a minimal charge.</p> <p><b>Idaho Fish and Game Department</b> 600 S. Walnut Boise, Idaho 83702 (208) 334-3700</p> <p><b>Montana Department of Fish, Wildlife and Parks</b> 1420 E. 6th Avenue Helena, Montana 59620 (406) 444-2535</p> <p><b>Oregon Department of Fish and Wildlife</b> 506 S.W. Mill Street Portland, Oregon 97201 (503) 229-5403</p> <p><b>Washington Department of Fisheries</b> General Administration Building Olympia, Washington 98504 (206) 753-6552</p> <p><b>Washington Department of Game</b> 600 N. Capital Way Olympia, Washington 98504 (206) 753-5700</p>	<p><b>U.S. ARMY CORPS OF ENGINEERS</b></p> <p>The Army Corps of Engineers builds and maintains the dams that provide most of our power, consequently they are the best source of information on their projects. The North Pacific Division office is in Portland and there are district offices in Seattle, Portland, and Walla Walla. Each of the district offices has a library which is open to the public (with a few restrictions). The Corps produces various pamphlets and films which describe its work. Contact the Public Affairs Office for these materials. Public Affairs will also provide referrals to the Corps' technical staff who are able to answer more detailed questions.</p> <p><b>U.S. Army Corps of Engineers, North Pacific Division</b> Public Affairs Office 220 N.W. 8th Street Portland, Oregon 97209 (503) 221-3768</p>
<p><b>U.S. FISH AND WILDLIFE SERVICE/ NATIONAL MARINE FISHERIES SERVICE</b></p> <p>These two federal agencies can provide information on specific animal species and their own activities. The National Marine Fisheries Service (NMFS) deals with the ocean and commercial aspects of anadromous fish, while the U.S. Fish and Wildlife Service is responsible for resident fish, anadromous fish (mainly during their freshwater phases) and wildlife.</p> <p>For information from the Fish and Wildlife Service contact:</p> <p><b>U.S. Fish and Wildlife Service</b> 500 N.E. Multnomah, Suite 1692 Portland, Oregon 97232 (503) 231-6121</p> <p>NMFS's parent organization, National Oceanic and Atmospheric Administration, maintains an information center:</p> <p><b>N.W. Regional Ocean Service Center</b> 700 Sandpoint Way, N.E. Bin C 1-5700 Seattle, Washington 98115 (208) 527-NOAA</p>	<p><b>BONNEVILLE POWER ADMINISTRATION</b></p> <p><b>Public Involvement Office</b> Contact this office for information on BPA policies and current programs. It maintains mailing lists for materials on current issues. Interested people can have their names added to the lists.</p> <p><b>Snake River Area Office</b> Walla Walla, Washington (509) 525-5500</p> <p><b>Eugene District Office</b> (503) 687-6959</p> <p><b>Idaho Falls District Office</b> (208) 523-2706</p> <p><b>Missoula District Office</b> (406) 329-3860</p> <p><b>Wenatchee District Office</b> (509) 662-4377</p> <p><b>BPA Libraries</b> The libraries provide general energy information. All are open to the public.</p> <p><b>Main Library, SSL</b> 1500 N.E. Irving, Suite R100 P.O. Box 3621 Portland, Oregon 97208 (503) 230-4171 Hours: weekdays 8:00 a.m. to 4:30 p.m.</p> <p><b>Seattle Library Branch</b> RM 414 Federal Building 915 Second Avenue Seattle, Washington 98174 (206) 442-8340 Hours: 8:00 a.m. to 4:30 p.m., Monday through Thursday. Please call first.</p> <p><b>Ross Library Branch</b> Vancouver, Washington (206) 690-2617 Hours: 8:00 a.m. to 4:30 p.m., Monday through Thursday. Please call first.</p>
	<p><b>U.S. DEPARTMENT OF ENERGY</b></p> <p>One of the best ways to get information from the maze that calls itself the Department of Energy is to use the following directory compiled by the Energy Information Administration. It tells who specializes in what subject areas. If they cannot help you, they will route you to someone who can.</p> <p><i>Energy Data Contact Finder.</i> Information Referral Division, National Energy Information Center, Energy Information Administration, Washington, D.C. (DOE/EIA-0259). Most recent — December 1983.</p> <p>Order from: <b>U.S. Department of Energy</b> National Energy Information Center Room 1F-048 Forrestal Building Washington, D.C. 20585 (202) 252-8800</p>

## AMENDMENT PUBLIC PROCESS

**T**he public amendment process for the Council's fish and wildlife program is in full swing now, and by June the Council will have a draft of the amendments.

Deadline for publishing the draft is June 29, and the public will have until August 10 to comment in writing (see instructions). In addition to written comment, any individual or organization will have an opportunity to give public testimony (see instructions). The Council will hold public hearings on the draft program in each of the region's four states. These hearings supplement the opportunities for public comment on the amendment issue papers which have been taking place at regular Council meetings this spring.

The hearings will be held the last two weeks in July in order to give recipients of the draft at least two weeks to receive and read it. See the box on this page for dates in each state. (To receive a draft, fill out and send in the order form in this issue.)

As soon as specific dates, times and sites for the hearings have been set in each state, a special notice will be sent to the public. Those on the mailing list for this issue of *Energy News* will automatically receive that notice. Announcements will also be made to the media.

General directions for both written and oral public comment are included in this issue. In addition, transcripts of the hearings and written comments will become part of the Council's administrative record and will be available to the public for review between 9 a.m. and 4:30 p.m. at the Council's central office. For more information, contact the Public Information and Involvement Division at the central office. Address and toll-free number are listed on the inside front cover of this issue.

## COUNCIL PUBLICATIONS ORDER FORM

Please send me a copy of the following publications of the Northwest Power Planning Council.

- Draft of the Fish and Wildlife Amendments  
(to be published no later than June 29, 1984)
- Draft of the 1984 Annual Report  
(to be published no later than June 29, 1984)
- Staff issue paper on the "Utility Death Spiral"
- Draft Council budget (revised FY85 and 86)  
(Deadline for public comment is June 7, 1984)

Name \_\_\_\_\_

Organization \_\_\_\_\_

Street \_\_\_\_\_

City/State/Zip \_\_\_\_\_

### Instructions for oral comment at hearings

1. Requests for time slots must be made at least five days prior to the hearings to Ruth Curtis, information coordinator, at the Council's central office, 700 S.W. Taylor, Suite 200, Portland, Oregon 97205 or (503) 222-5161 (toll free 1-800-222-3355 out of state or 1-800-452-2324 in Oregon).
2. Those who do not sign up for time slots will be permitted to testify on an "as time permits" basis.
3. Hearings should be used to *summarize* written comments. Comments should *not* be read.
4. Ten copies of written testimony should be submitted to the Council recorder at the hearings. This person will be sitting at a table near the Council members. (See instructions for written comment.)
5. Organizations will have 15 minutes to summarize written testimony. Individuals will be limited to five minutes. These time limits will be observed strictly.
6. The Council may ask questions for clarification.

### Instructions for written comment

1. Comments must be received in the Council's central office, 700 S.W. Taylor Street, Suite 200, Portland, Oregon 97205 by 5 p.m. on August 10. Comments received after that date will not be considered.
2. Written comments should be marked "Fish and Wildlife Program Comment."
3. Comments should be specific and concise. They should refer to program sections by number and provide alternative language to aid drafting.
4. If possible, submit a "marked up" copy of the draft program indicating suggestions or revisions. Suggested deletions should be lined out and placed in parentheses (~~line out portions of the draft to be deleted~~). Suggested new language should be underlined; underline all new language. All comments should be typed and double spaced. Lengthy insertions should be on a separate sheet, and reason for suggested changes should also be stated separately.
5. Provide ten copies of all comments.

Northwest Power Planning Council  
700 S.W. Taylor, Suite 200  
Portland, Oregon 97205

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