

N O R T H W E S T ENERGY NEWS

Volume 5, No. 5

Northwest Power Planning Council

August/Sept 1986



INSIDE: PACIFIC NORTHWEST ELECTRIC POWER MAP

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N O R T H W E S T ENERGY NEWS

is published bi-monthly by Northwest Power Planning Council, 850 S.W. Broadway, Suite 1100, Portland, Oregon 97205.

Reprinting is encouraged. Please credit Northwest Energy News.

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.

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Editor's Notes

In our last issue, we looked at the possible effects the drop in world oil prices might have on Northwest ratepayers. In this issue, we are seeing one of those possible effects materialize, as the Bonneville Power Administration trims its budget and talks of tighter times ahead.

After directing that budget review process, Bonneville Administrator Peter Johnson announced his resignation and, soon afterward, the appointment of one of his aides, Jim Jura, to succeed him. Johnson granted *Energy News* an interview as an opportunity to reflect on his five years managing the region's chief power marketing agency.

In our continuing effort to keep readers informed on the fish and wildlife amendment process underway in the region, Ruth Curtis has expanded her regular "Goals Study Update" to cover major work in the amendment process as well. Curtis also accompanied Council members on a recent visit to the Yakima River Basin. Her story brings us up to date on work in that key subbasin.

Beth Heinrich, in the Council's Idaho office, covered opening ceremonies for the Cabinet Gorge Kokanee Hatchery in her state, the first hatchery completed (a full year ahead of schedule) under the fish and wildlife program.

While conservation programs are practically ubiquitous in the Northwest these days, Snohomish County, in western Washington, is clearly a leader in the field. In covering some of their activities, we heard about a homebuilder in Montana who guarantees his homes will require no more than \$100 a year for heat. Terri Wilner, from the Montana Council office, gave us a quick write-up on this Buffalo Homes' pledge.

This month's special section describes the region's electric power generators. The pull-out section and the April/May issue map of the major dams of the Columbia River Basin are both available from the Council's central office.

COVER ILLUSTRATION: The Council's art director, Stephen Sasser, illustrated this issue's cover.

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WEAVING A HEALTHY RETURN

by Carlotta Collette

For as long as there have been programs to produce more salmon and steelhead in the Columbia River Basin, there have been more questions than answers found in those production efforts. Too many factors, ranging from genetic variations in salmon stocks to climatic changes in the ocean, can seriously alter the numbers and quality of fish returning up the Columbia to spawn. Biologists and planners alike have learned that the matter of bringing back healthy fish is no simple matter at all.

For nearly a hundred years, hatcheries were seen as the most cost-effective way to produce large numbers of fish. Years of operation produced insights into how the biology of the fish is influenced by its environment. New feeds were developed. Attempts were made to match hatchery water to the best natural streams. The ratio of successfully released smolts to eggs grew.

Then, the whole notion of hatcheries as the primary means of increasing salmon and steelhead in the basin came into question with the spread of diseases and genetic weaknesses contributing to (an as yet not fully understood) steady drop in the number of adult returns from hatchery progeny.

Less synthetic means to enhance fish production have also fallen short. Experts have learned that fish aren't always lured up ladders to spawn in clean gravel upriver. And even the near-natural channel clawed out of the graveled China Bar in the mid-Columbia stretch that is otherwise dotted with salmon nests, has not attracted spawners.

These and other disappointments have led to a growing frustration among some fishery experts over the increasing complexity of their work. While much more is understood about the fish life cycle and biological needs than was known when the runs began their decline, new mysteries are still emerging.

The Northwest Power Planning Council is addressing this complexity and the need to lessen it by focusing the fisheries restoration, in its study to develop



a framework for the Columbia River Basin Fish and Wildlife Program. The Council staff has been meeting with fisheries experts throughout the region to explore various approaches to increasing fish production in the basin. Issue papers addressing salmon and steelhead planning and research, and technical papers describing genetic considerations in salmon and steelhead planning and the Columbia River Basin fishery planning computer model (described below) were released for public review and comment in June.

“The genetic character of stocks of salmon and steelhead ... is as fundamental to their productivity in a particular environment as the character of that environment itself.”

Salmon and steelhead planning coordination

Part of the complexity of this huge restoration effort derives from the number of entities sharing the responsibility. In the Columbia River Basin, fisheries research and restoration are carried out by federal and state fish and wildlife agencies, Indian tribes, the Bonneville Power Administration, hydroelectric project operators, independent contractors and others, making coordination and cooperative long-term, systemwide goals and objectives difficult to achieve.

All of these entities were brought together in a series of workshops to work side by side finding answers to production planning questions. Their goal was a better coordination of the overall restoration effort so that mistakes can be reduced and information about remaining problems can be shared.

Without coordination, the effectiveness of passage improvements to aid salmon and steelhead migrations, fish production and ocean and river harvest management could be diminished. Measures taken in the fish and wildlife program could be defeated by the counterproductive ac-

tions of other actors. Power system operations could, for example, offset increases in fish production. Harvest practices could prevent adult spawners escaping back up the river in adequate numbers to ensure sustained increases in numbers of fish. The mixed-stock harvest could undermine efforts to protect certain stocks of fish.

Unless a variety of key players are engaged in the planning process, the goal of a shared systemwide perspective, a goal mandated by Congress in the Northwest Power Act, cannot be realized. Without a broad representation at the discussion table, the spectrum of choices among production, passage and harvest actions will be narrowed. Actions could be taken without adequate analysis of their consequences. Monitoring and evaluation of actions may be insufficient to provide comparisons with other actions.

To help carry out this coordination, the Council staff continues to work with fish and wildlife program implementers and other interested parties to improve the computer simulation of the life cycle of Columbia River Basin salmon and steelhead. This model can then be used to help develop alternative policies and sub-basin plans with specific actions and implementation schedules. The staff is also preparing a follow-up issue paper that explores several policy questions that must be decided.

The Columbia River Basin planning model

The staff has also been meeting with interested parties throughout the region to develop, refine and demonstrate a computer model of the life cycle of salmon and steelhead in the basin (see Northwest Energy News, Volume 5, Number 3). The model incorporates specific biological and geographical information about individual subbasins and stocks of salmon and steelhead in those river reaches. It simulates the journey young fish make as they leave their spawning gravels to migrate downstream to the ocean, where they mature.

The model factors in mortalities at each of the dams and reservoirs crossed by the juvenile salmonids and estimates the survival rates once the fish hit the estuary and then the ocean. Ocean and river harvests of the fish are calculated also, as well as

the toll from the adult returning spawners' final climb back up the river to the natal streams.

Biologists and planners alike have learned that the matter of bringing back healthy fish is no simple matter at all.

While the model is, of necessity, very general, it remains a useful tool for previewing the possible effects of various production, passage and harvest changes in the basin. It is also an efficient means of collecting and organizing enormous quantities of data. And it provides the opportunity to simulate a broad range of options with a large segment of the fisheries community participating in the exercise.

Genetic considerations in salmon and steelhead planning

The workshop process included detailed discussions leading to alternative strategies for producing fish in each subbasin studied. Fisheries experts in these discussions reviewed genetic variations among Columbia River Basin salmon and steelhead stocks and contributed to a report on genetic considerations in salmon and steelhead planning prepared for the Council by Doctor Lawrence Riggs, an expert on population and evolutionary genetics.

In its natural state, each subbasin contained genetically unique strains of salmon and steelhead. These strains carried the particular traits needed for those fish stocks to thrive. Taken together, the immense variety of these stocks resulted in a stable, sustainable fish population. According to Riggs, “The genetic character of stocks of salmon and steelhead ... is as fundamental to their productivity in a particular environment as the character of that environment itself.”

As the Council considers production alternatives, the concerns surrounding genetic make-up of these fish become critical. Riggs' report (actually a series of reports) identifies existing genetic distributions among subbasins and a variety of strategies for protecting and promoting genetic diversity as a means of sustaining fish runs in the basin.

In its natural state, each subbasin contained genetically unique strains of salmon and steelhead. These strains carried the particular traits needed for those fish stocks to thrive.

Salmon and steelhead research

Salmon and steelhead research, like the restoration work itself, is carried out by many institutions in the basin. Again, a lack of coordination and the absence of shared goals and objectives can limit the effectiveness of the research. Research based on the needs and interests of individual researchers or organizations, and budgets and priorities which do not fit into any long-term strategic plan can lead to significant gaps in the store of available information.

To make all research more effective, the Council staff is recommending the same coordination called for in salmon and steelhead planning. The goal of this coordination mirrors one of the goals of the Columbia River Basin Fish and Wildlife Program; to promote a coherent and consistent approach to rebuilding salmon and steelhead populations in the basin.

Chromosomes are microscopic threadlike packages of genes (depicted as different colored stripes in the illustration) that carry instructions for each living creature's form, function and behavior. The individual distinctions among creatures, even within the same species, reflect the variations in their chromosomes. Genetic diversity then results from the combination of many different genes on chromosomes.

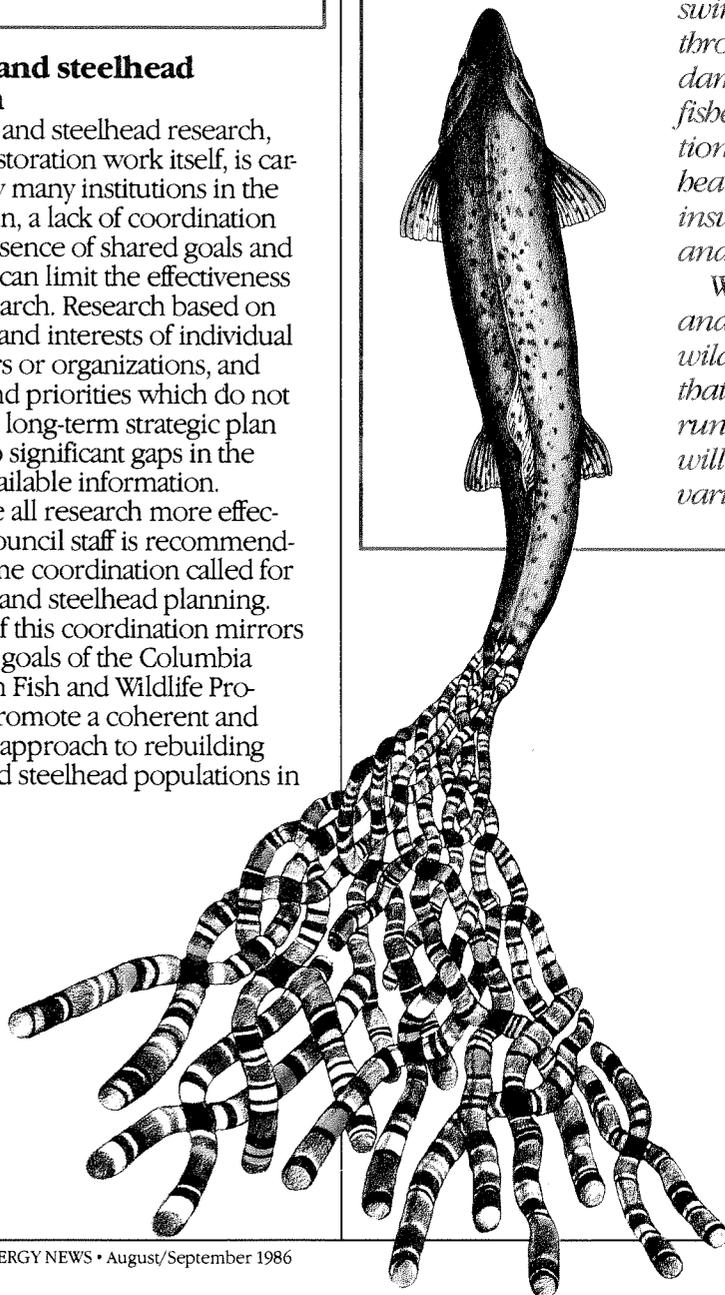
In the case of Columbia River Basin salmon and steelhead, each individual stream reach can produce distinct population groups, called stocks—apparently duplicates of other stocks, but, in fact, genetically unique. These stocks are the survivors of generations of adaptation to ever-changing natural and manmade hazards. They have evolved genetic strengths that make them particularly well suited to their environment.

Biologists argue that this multiplicity of genetic strengths preserves options for the species' future survival. Disease in the basin is less likely to kill every stock; some will be more resistant, more likely to survive. Certain stocks may even be more able to

swim up fish ladders or make their way through juvenile fish bypass channels at dams. As diseases adapt and change and fisheries management policies alter conditions in the basin, a broad spectrum of healthy genetic characteristics becomes insurance for sustaining future salmon and steelhead runs.

Whether the Columbia River Basin Fish and Wildlife Program focuses on preserving wild and natural (hatchery produced fish that spawn in natural environments) runs or emphasizes hatchery production will have an effect on this genetic variation.

—CC



Super Cents-able

Snohomish County

by Carlotta Collette

Economic growth depends on the wise use of energy. — Snohomish County Public Utility District 1985 Annual Report

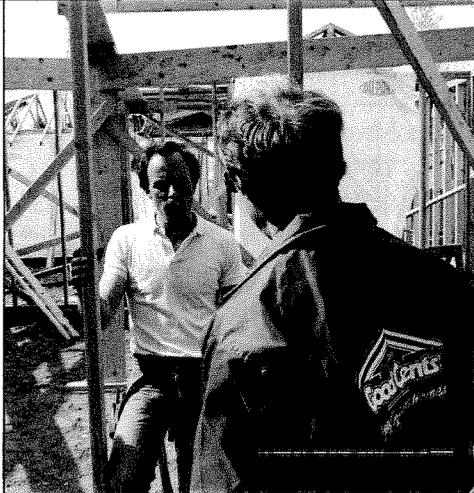
Simple good sense dictated a move to conservation in the public utility district that serves Snohomish County in western Washington. Snohomish learned this the hard way.

In the late 1960s, the district bought into the Washington Public Power Supply System's (WPPSS) nuclear construction program. "At the time, it was the best way to go for Northwest utilities," argues Dr. Roger Rice, senior member of the public utility's three-person commission. "The Supply System saved individual utilities having to build their own resources to meet electrical load growth."

Unfortunately for Snohomish and many other utilities in the region, the plants' construction cost overruns and shrinking Northwest loads proved the danger in investing too big, too quickly. Of the five projects initiated, two have been terminated, two are on hold pending settlement of legal, financial and other questions, and only one is operational.

The district, the region's largest non-municipal public utility, was hit hard by the collapse of the nuclear program. Alarming cost increases were translated into rate hikes that sent the pre-WPPSS one cent per kilowatt-hour up to almost five cents. These previously unheard of rate hikes led customers to revolt, in some cases elect new commissioners and force a redirection of priorities for the utility that, above all else, likes to think of itself as a *public* entity.

Commission President Matt Dillon, one of the commissioners who came in on the crest of ratepayer unrest, describes the new priorities in terms of keeping resources, jobs and dol-



Snohomish County PUD staff on the construction site with builders.

lars in Snohomish County, rather than sending them elsewhere.

"The policy question," he explains, "amounted to whether ratepayers wanted to buy bags of concrete for Satsop [site of one of the unfinished nuclear projects] or buy bags of insulation in Snohomish County. The insulation increases the assessed value of our homes, increases their comfort and increases the overall quality of life in those homes."

Dr. Rice, having lived in much colder Illinois where insulation is simply a necessity, needed little convincing. "Rather than build houses that are like open tents," he reasoned, "it's far more practical to insulate. With rates at over four cents a kilowatt-hour, it just plain pays to insulate."

The arguments in favor of conservation were compelling, and there appear to be few in the county who opposed the new resource strategy. Since then, the number of ratepayers serving on the utility's advisory committees has gone up significantly, and the message they continue to send to their commission is—conservation works for Snohomish County.

Advanced framing techniques and 2x6 studs allow more insulation in wall cavities and help avoid "cold corners" in Super Good Cents houses.

Conservation kudos

In 1979, the public utility established its conservation department. By 1985, the county had conducted energy audits on 71,000 homes and weatherized 30,000. In fact, Snohomish County has weatherized about 20 percent of all the homes in weatherization programs in the five-state Bonneville Power Administration service area.

In 1985, the utility was recognized for its "outstanding performance" in having the greatest percentage of new homes built through the Bonneville-sponsored Super Good Cents Program. The Super Good Cents Program promotes new construction built to the Northwest Power Planning Council's model conservation standards for new electrically heated residences.

With its enthusiasm for efficiency, the county has carved out room for the Northwest's first large-scale subdivision of Super Good Cents homes—Sun Meadow, a 46-lot development.

The utility has also developed the first subdivision of manufactured Super Good Cents homes in the United States. The subdivision is on the Tulalip Indian Reservation on Puget Sound, north of Everett, Wash-



Photographs from Snohomish County Public Utility District

ington. It is a joint project of the utility, the Tulalip Housing Authority, the U.S. Department of Housing and Urban Development and the Bonneville Power Administration. Built as a demonstration project to test the feasibility of very energy efficient manufactured homes, the houses are expected to save 48 percent more space-heating electricity than manufactured homes built to the state's 1980 construction code.

Even the schools in Snohomish County have gotten into conservation, largely because energy efficiency is a big part of the economic future of the region. With the utility district providing special training, the Edmonds School District and the Rotary Club of Lynnwood, Washington joined forces to construct the first

high school student-built Super Good Cents home in the Northwest. The vocational education students contributed their design, drafting, construction, cabinet making and landscaping skills to the project, and the Rotary donated the lot and all building materials. This is the 11th cooperative construction project for the rotary and the school, but the first that is super energy efficient.

Altogether, the public utility district has pumped \$80 million into residential, commercial and industrial conservation. The investment has created more than 1,000 jobs and contributed to the creation of about 2,000 more. In a county whose labor force, like others in the Northwest, was largely dependent on the dwindling wood products industry,



Instructor Jim Drake (left) of the Everett School District supervises construction of a student-built Super Good Cents house.

Imagine homebuilders who guarantee that the homes they build will cost less than \$100 a year to heat. Picture those homes in the middle of a snow-swept Montana landscape, where winter temperatures complicated by wind chill may plunge to minus 30 degrees and stay there for days at a time. Will those builders regret their promise?

Absolutely not, says Brian Curran, owner of Buffalo Homes, a Butte, Montana builder of modular homes. Curran's confidence stems from a decade of experience in designing and constructing super-insulated homes and commercial buildings.



That experience has proved that "plain good engineering, design and quality construction" will result in a comfortable, inexpensive-to-heat structure that the company can stand by—even in the worst weather conditions. Consequently, Buffalo Homes provides a three-year guarantee that each home it sells will perform according to computer predictions. And most of the over 150 Buffalo Homes in Montana do heat—as predicted—for less than \$100 annually.

Curran began his Buffalo Homes business early in 1980, after several years of independent research and construction experience. At first, the company built both conventional and super-insulated homes. Then it decided to take the leap and build only super-energy efficient homes. "That was a frighteningly radical step in those days," says Curran. But there have been no regrets. Curran is convinced that building energy efficient houses has kept his company alive during the recent housing recession.

Buffalo Homes features standard super-insulation measures (double walls, continuous air/vapor barrier, triple-glazed windows) in addition to new techniques and products that Curran learned of during a recent stay in Sweden. For instance, Buffalo designs include windows recessed halfway into the wall to keep them clear of condensation and to reduce heat loss. And Curran now uses a Swedish vapor barrier material that has a 50-year guarantee, which virtually eliminates concern over potential disintegration of poly vapor barriers.

Buffalo Homes builds about 40 to 50 homes a year, and markets them throughout Montana, Wyoming, Idaho, and eastern Washington. The company is also active in the commercial building sector, where it has built close to 30 convenience stores and gas stations and a number of law and dental offices.

—Terri Wilner

the creation of 3,000 new jobs is very good news indeed. "This is one of the biggest economic success stories this community has," declares Commissioner Dillon, and he's more than slightly proud to have been a part of it.

The public utility's 1985 Annual Report described the "entirely new way of thinking" that made 1985 such a successful year for the district. "During the past decade, when old assumptions were found wanting and new economic realities took hold, utilities discovered that building new power plants no longer made rates go down. Electric utilities learned, through successful conservation programs, that economic growth no longer depends on increasing the consumption of electricity." The word from Snohomish County is clear—"efficiency is in everyone's economic interest."

BONNEVILLE BUDGET

CURB CONSERVATION

The Bonneville Power Administration, in an attempt to cope with the declining sales of its power to California, announced major cuts in its budgets for conservation and other programs over the next three fiscal years. The cuts amount to about a 45 percent reduction in conservation program levels from previous budget plans, a 20 percent reduction in planned transmission construction efforts, and a two-year postponement of about \$4 million in borrowing for fish and wildlife programs.

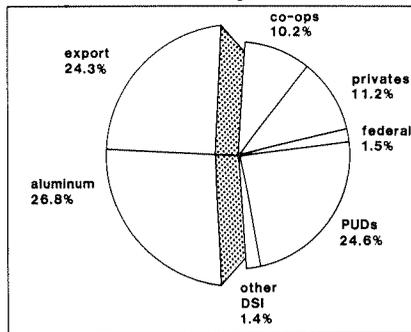
"We understand the difficulties Bonneville is facing, and we agree on the need to review spending levels with care," says Ed Sheets, executive director of the Northwest Power Planning Council. "At the same time, we're concerned about the effect the proposed cuts may have on the progress of conservation and the fish and wildlife program. Bonneville will need to consult closely with the fish and wildlife agencies and the Indian tribes on the proposed schedule for funding fish enhancement measures and with the organizations implementing conservation programs."

Bonneville's revised budget still places a high priority on preventing lost opportunities for energy savings, such as making sure new houses are built as efficiently as possible. But other conservation programs for existing housing will be reduced.

"The Council staff is analyzing the new budgets. We have questions about the adequacy of funding for new commercial buildings, manufactured housing and the assessment of conservation data," explains Sheets. "It will also be important for Bonneville to work with the organizations that are implementing conservation programs so that the region doesn't lose capability in that sector."

More than 24 percent of Bonneville's revenues come from power exports, with California the most steady buyer. This market has been severely diminished by oil prices that are less than half what they were only one year ago. With lowered oil prices, California can competitively produce its own electricity using oil-fueled generators. To compete with California's fossil fuel generation, Bonneville has lowered its wholesale power rates, a move that may preserve some sales, but also reduces revenues from these sales.

Bonneville Non-Exchange Revenues



Bonneville's income is also vulnerable to depressed world prices for aluminum, because aluminum smelters are the agency's largest customer group, providing nearly 27 percent of its revenues. With the aluminum industry purchasing less power than Bonneville anticipated, Bonneville is again left with reduced sales.

With half the agency's revenues tied to volatile commodity markets and the remaining income tagged to the vitality of the Northwest economy as a whole, Bonneville is reassessing its outlays.

The announced cuts come primarily from the three areas of Bonneville's budget the agency considers most discretionary. These areas include the conservation budget (5.7 percent of the agency's total obligations), fish and wildlife (2.1 percent), and system planning and construction (9.1 percent).

Largely unaffected, to date, are the budgets for the Washington Public Power Supply System nuclear projects, which account for about 40 percent of Bonneville's fiscal year 1987 obligations and other operating expenses and debt repayments that amount to about another third of its obligations.

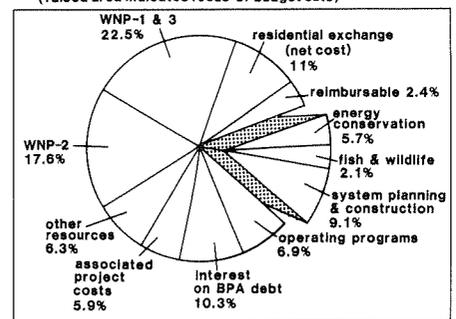
Bonneville is cutting its budget in an effort to meet its payment to the U.S. Treasury for the Federal Columbia River Power System and to hold down to approximately 10 percent the rate hikes that are projected to range from 14 to 35 percent without budget reductions. The projected rate hikes, slated to begin in 1987, are based on assumptions about the agency's fixed expenditures and estimated future oil and aluminum prices.

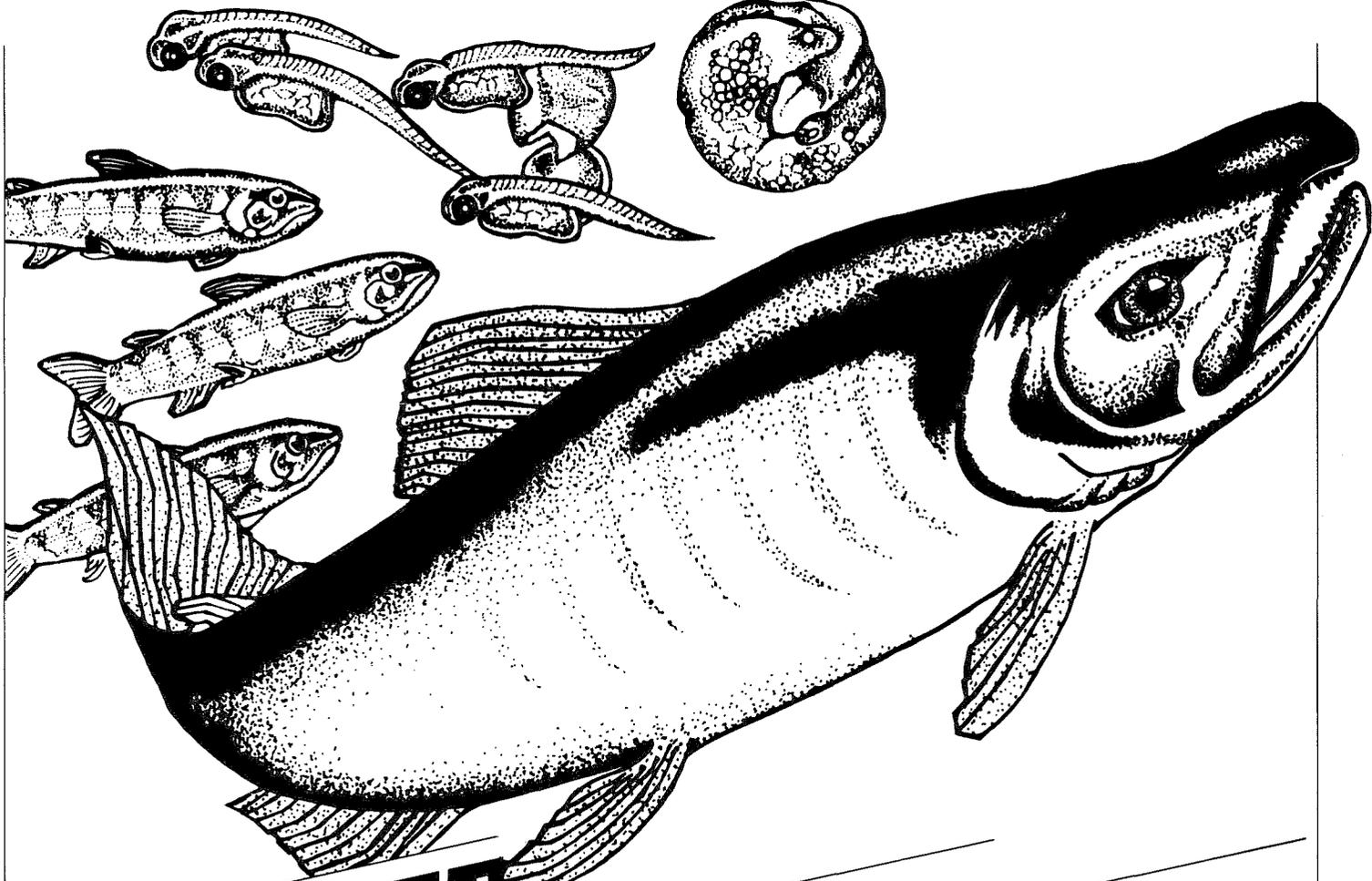
The 14 percent rate increase assumes a modest recovery in both oil and aluminum prices and an improved market for Northwest hydropower in California. Under these assumptions, Bonneville estimates its surplus firm power will be selling in the 16 to 24 mill range (1.6 to 2.4 cents per kilowatt-hour—surplus firm power is currently selling at 14.5 mills).

The possibility of a 35 percent rate increase is based on more pessimistic projections. In this scenario, the aluminum industry does not show any significant recovery and neither oil nor gas prices rebound. Firm surplus power prices and sales remain low throughout the four years of the planning projections.

Bonneville's new power rates will become effective on October 1, 1987, after a lengthy public rate-making process that begins in September of this year. —CC

Bonneville Budget Obligations 1987 (raised area indicates focus of budget cuts)





KOKANEE

ON THE COMEBACK

by Beth Heinrich

They dine on herring, salmon, crab and anchovies. Not once a day, but 10 times a day, every day. Their accommodations are nothing but the best, nestled on the scenic shores of Idaho's Clark Fork River and equipped with daily maid service and 64 swimming pools. All are fed by hand, treated for disease and raised with tender loving care.

It sounds too good to be true. And indeed it is when one discovers the entree comes in powdered-form and each swimming pool holds 300,000 tiny fish.

But to the five million young kokanee salmon making their debut at Idaho's new Cabinet Gorge Kokanee Hatchery, life couldn't be better. Hatchery personnel are working sunup to sundown perfecting incubators, scrubbing raceways and feeding high protein fish meal that would shame the diet of even the best-fed hunting dog.

The new state-of-the-art hatchery sits eight miles east of Clark Fork, a small northern-Idaho town whose potholes outnumber its residents at least four to one. With the help of a few temporary workers from the local high school, hatchery manager Ed Schriever and assistant manager

Gary Bertellotti hope to release enough young kokanee, or fry, to rebuild the once plentiful and popular sport fishery in nearby Lake Pend Oreille.

A cooperative effort

Idaho's new facility is the first hatchery constructed under the auspices of the Northwest Power Planning Council. Back in 1983, the Council incorporated the Cabinet Gorge Kokanee Hatchery into its Columbia River Basin Fish and Wildlife Program, making it eligible for electricity-ratepayer funds. The impetus behind that decision was the declining kokanee population in Lake Pend Oreille, due in part to Cabinet Gorge Dam upstream and Albeni Falls Dam downstream.

The Council's decision smoothed the way to a cooperative arrangement among the Bonneville Power Administration, the Idaho Department of Fish and Game, and the Washington Water Power Company, owner of the

land on which the hatchery rests. Bonneville and Washington Water Power each contributed over \$1 million toward the construction of the hatchery, while Idaho Fish and Game will cover operation and maintenance costs, estimated at \$170,000 a year. The total construction tab came to roughly \$2.7 million.

"The key ingredient that made this hatchery possible is cooperation — cooperation among the electricity ratepayers in the region, the private sector and the citizens of the Northwest," stated the Council's Chairman Bob Saxvik during recent dedication ceremonies at the hatchery. "The Cabinet Gorge Hatchery shows how all of these parties can unite to protect and restore Idaho's fishery resources."

Over 500 people gathered at the hatchery on July 12 to celebrate its grand opening, nearly one year ahead of schedule. Council members, local officials, fishing enthusiasts and others toured the project and listened to distinguished speakers. Joining emcee Jerry Conley, director of Idaho Fish and Game, were Saxvik, outgoing Bonneville Administrator Peter Johnson and Idaho Governor John Evans, who officially dedicated the hatchery "to the people of Idaho and to our neighbors in Montana, Washington and Oregon."

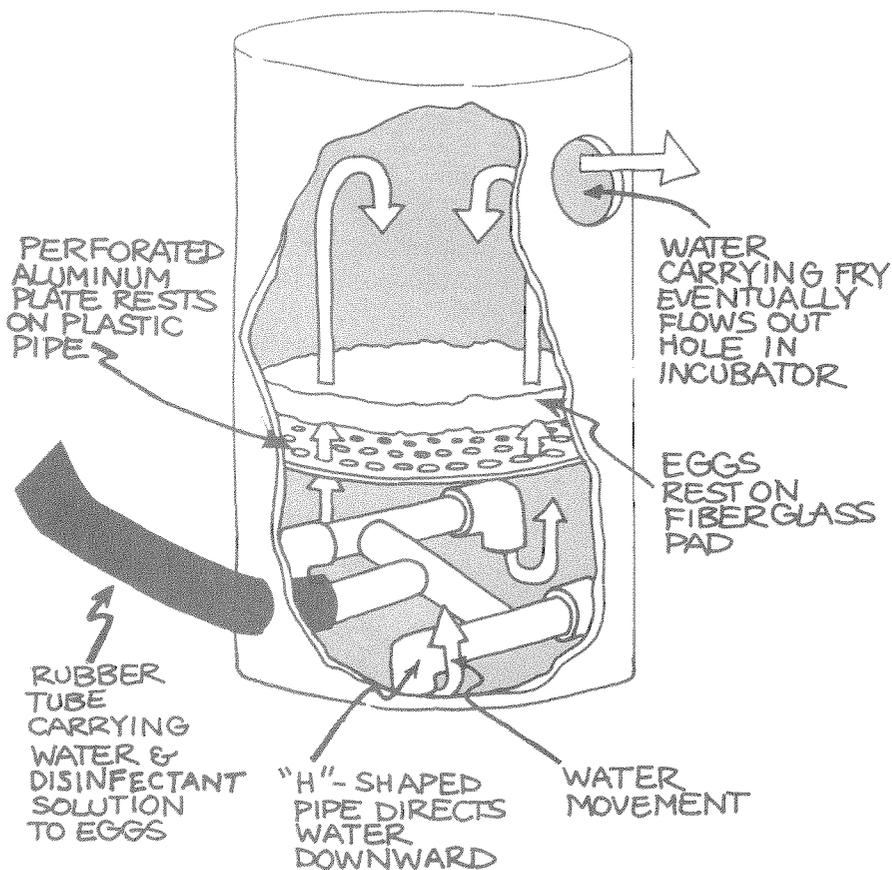
Perched over a raceway, the Governor then uncapped the underground pipe system and, in a rush of water, sent the season's first 5,000 kokanee fry into the Clark Fork River and on their way to Lake Pend Oreille.

A feeble fishery in comparison

Lake Pend Oreille in northern Idaho is home for nearly five million kokanee salmon, or landlocked sockeyes. Sport fishermen caught over 200,000 last year alone. But what may sound like a large number to a panhandle newcomer is considered "piddlings" to those who remember the good old days.

Pend Oreille's kokanee fishery was once the single largest fishery in the state of Idaho. Kokanee from Montana's Flathead Lake traveled down the Clark Fork River into Idaho's largest body of water. In the 1950s and '60s, Pend Oreille's waters supported over 12 million kokanee. Both sport and commercial fishermen harvested nearly one million

KOKANEE HATCHERY INCUBATOR DESIGN



NOTE: WATER FLOW IS VERY LOW DURING 30 DAYS OF INCUBATION SO EGGS DO NOT MOVE. LATER, EGGS NEED MOVEMENT SO WATER FLOW IS INCREASED & EGGS MOVE IN A CIRCULAR MOTION

The new Cabinet Gorge Kokanee Hatchery is designed to minimize handling of eggs and fry. The less handling, the less stress on the fish, the higher the survival, and the higher quality the final product. Consequently, once the eggs at Cabinet Gorge are fertilized, disinfected and placed into the incubators, they are not touched again.

The unique incubators, all 256 of them, are "barrel-type" or "upwelling" incubators that sit directly in the raceways. A carefully regulated flow of water through each incubator enables the newly hatched fry to naturally migrate through a porthole and into the raceway where they will remain until release.

kokanee annually during those productive years. A large portion of those fishermen were non-residents who brought their business to northern Idaho.

Commercial fishermen enjoyed catch limits of 250 kokanee a day, and sportsmen could haul in 50 a day. According to fishery research biologist Ed Bowles of Idaho Fish and Game, the kokanee fishery's net economic worth (the amount of money it would have taken to lure anglers elsewhere) totaled \$5 million a year.

Today that figure has dropped 40 percent to \$3 million. Commercial harvest has come to a halt. Sportsmen's daily bag limits have been cut in half. Catch rates, time spent fishing and the number of tourists seeking Pend Oreille kokanee have also dropped. Local businesses have suffered the consequences.

So why the drastic decline in kokanee numbers? Three major factors take responsibility—two in the name of progress and one a biological backfire.

Back in the 1950s, when the environmental costs of hydroelectric projects were rarely known or recognized, the U.S. Army Corps of Engineers constructed Albeni Falls Dam at the outlet of Lake Pend Oreille, some 20 miles downstream from Sandpoint. At the opposite end of the lake, the Washington Water Power Company had completed Cabinet Gorge Dam on the Clark Fork River, 10 miles upstream. Cabinet Gorge Dam blocked the traditional spawning grounds for 3- and 4-year-old kokanee, which once migrated throughout the Clark Fork system to build their nests, or redds.

Restoring a fishery whose past is legendary will be no easy job, nor will it be a quick one.

At the same time, water draw-downs to produce electricity from Albeni Falls Dam left vulnerable kokanee eggs, that lay hidden in the lakeshore gravel over winter, high and dry. To its disadvantage, the kokanee's spawning habits coincided with the increased electricity demands of winter.

In the mid-1960s, before dwindling kokanee numbers were evident, the

Idaho Department of Fish and Game introduced mysis shrimp into the lake as a new food source for the kokanee. Fishery managers expected the shrimp to produce bigger and better kokanee, as witnessed in Kootenai Lake in British Columbia. Instead, mysids competed with the newly hatched kokanee for the limited food supply of microscopic animals, or zooplankton. The appetites of the freshwater shrimp actually shifted the peak abundance of zooplankton six weeks later, creating a food shortage for emerging kokanee fry.

It wasn't until the early 1970s, after several consecutive years of poor catch rates, that the drop in kokanee numbers became obvious. Today, drawdowns at Albeni Falls Dam are no longer a problem. Not long after managers noticed the kokanee decline, the Corps of Engineers altered operations at the dam. Drawdown is complete by November 15 every year, shortly before the bulk of the spawning begins.

Nonetheless, the small portion of wild fry that survive the seasonal food shortage could never sustain a sizeable sport fishery. "The kokanee fishery is virtually dependent on hatchery-produced fish," says Bill

Goodnight, chief of information and education for the Idaho Department of Fish and Game. "The only way we can circumvent the mysis shrimp is through artificial means."

The artificial means Goodnight was referring to is the Cabinet Gorge Kokanee Hatchery.

On the road to recovery

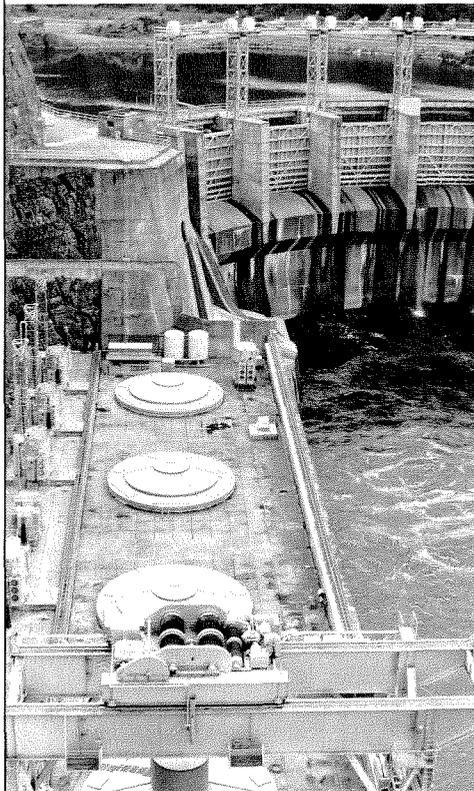
Five million kokanee fry will graduate from the hatchery in 1986. When at full capacity four years from now, the facility will be releasing into the Clark Fork River up to 20 million fry or 20,000 pounds of wriggling kokanee.

The devastating time lag between hungry fry and an adequate food supply in the lake won't cause havoc with releases from the hatchery. Managers are holding the fry in hatchery raceways until the shrimp have moved to deeper, cooler waters and the zooplankton numbers are up. Then Schriever and Bertellotti will pull the plugs.

It will take 200,000 returning adult spawners to fill the hatchery's 30-million egg capacity. Three or four years from now, this year's fry will return to the hatchery to spawn. In the meantime, Schriever has been receiving eggs from adults returning to a fish trap on nearby Granite Creek. He and his crew also collected over 115,000 eggs from adults returning to the hatchery site this season, thanks to releases beginning three years ago in anticipation of the hatchery. Hatchery workers will continue to collect eggs and release fry at both the new hatchery and Granite Creek—a decision that will assure enough eggs and serve as a safeguard against catastrophe at one or the other site.

In the wild, kokanee eggs naturally hatch during the spring, and the tiny fry emerge from their gravel nests in late spring or early summer. The fry immediately move downstream to the lake where they will spend the next few years obtaining lengths of 8 to 16 inches.

In the controlled environs of the hatchery and under optimum water temperatures (42° F to 52° F), kokanee eggs will take 50 to 100 days to hatch. The lower the water temperature, the slower the development. In another 25 to 50 days, the "swim-up" fry will migrate from the incubators into the raceways. Come mid-July, six weeks after the wild kokanee have headed toward the lake, a convenient underground pipe



Cabinet Gorge Dam

system will send the 1- to 2-inch fish to the river.

Timing of the fry releases is critical, as are river flows. Squawfish, trout and other predators await the helpless fry. To help maximize fry survival, Washington Water Power will be coordinating flows from its Cabinet Gorge Dam to give the fry a boost to the lake. According to the company's fish and wildlife biologist, Roger Woodworth, Washington Water Power has been coordinating flows with fry releases on the Clark Fork since 1981. The company is funding an Idaho Fish and Game study to evaluate the benefits of releasing water and to research strategies that will optimize fish survival.

During the adults' journey back up the river, streams other than the one simulated over the hatchery's fish ladder, will compete for the kokanee's attention. Ingeniously, hatchery managers drip a chemical attractant, Morpholine, into the raceways for 10 days prior to release. The young fish cue-in or "imprint" on that specific chemical.

Kokanee numbers would have to bounce back to 12 million fish, anglers would land their limits, and the fishery's net economic worth would increase threefold to \$9 million.

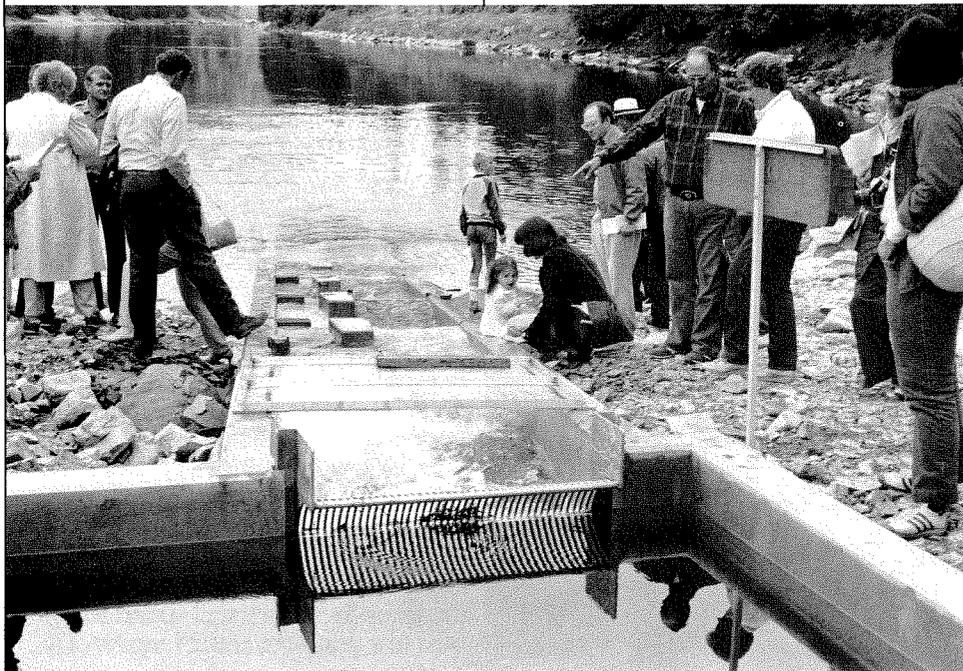
When fall rolls around and kokanee are migrating upstream, managers will drip this same olfactory cue into the flows at the fish ladder. Even at concentrations as low as one part per billion, the chemical will provide enough stimulus to lure returning kokanee up the fish ladder and into the trap. Once in the trap, adults are lifted out and moved into holding ponds where workers will collect and fertilize the eggs.

The benefits to come

Restoring a fishery whose past is legendary will be no easy job, nor will it be a quick one. Nonetheless, researchers are hoping to see results from the Cabinet Gorge Hatchery in the lake's kokanee numbers as early as 1990.

The Idaho Department of Fish and Game has set its sights on sustaining an annual sport harvest of 750,000 kokanee in Lake Pend Oreille. That means kokanee numbers would have to bounce back to 12 million fish, that anglers would land their limits, and that the fishery's net economic worth would increase threefold to \$9 million.

Idaho Fish and Game's Ed Bowles predicts that monies flowing into the local economy via meals, travel, overnight accommodations and other business could amount to \$2 million annually. This represents more than a 300 percent increase over estimated present benefits to local retailers. Whatever the benefits, regardless of size or number, they will no doubt be welcome improvements.



Fish ladder & adult trap on Clark Fork River.

PACIFIC NORTHWEST ELECTRIC GENERATING PROJECTS

At one time, the Columbia River and its tributaries supplied nearly all of the Northwest's electrical power. This was the case until the 1960s. But then, as the region's economy and population grew, increasing the demand for power, and as the river's resources were exhausted, the Northwest began turning to other generators of electricity.

Today, while hydropower still accounts for 75 percent of the electrical generating capacity in the region, the Northwest has a mix of resources supplying its electricity. Coal is the second largest resource, followed by nuclear generation. Together, including reserves, these thermal generators account for 19 percent of the region's capacity, making the Northwest's a hydrothermal system.

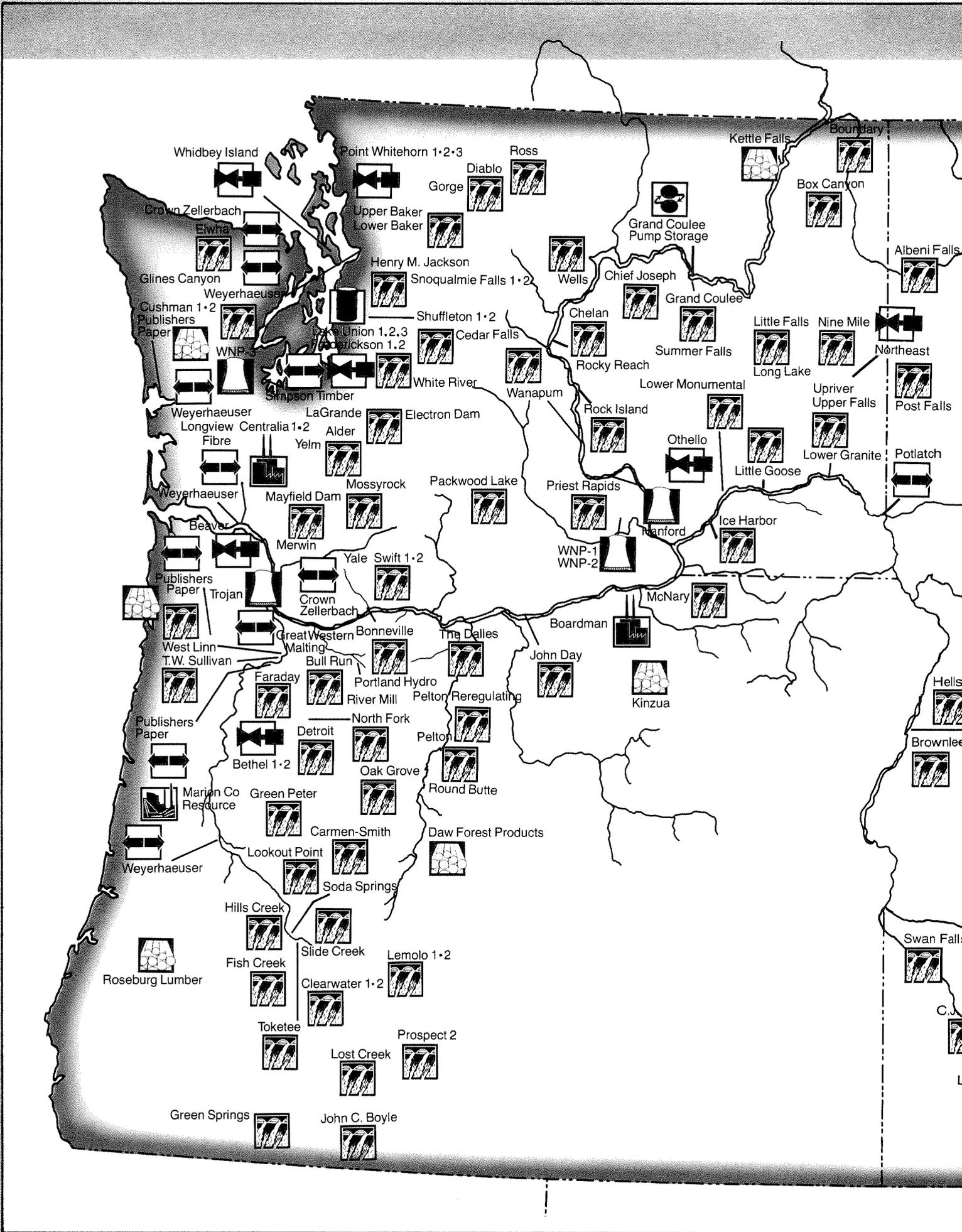
Power imports make up 4 percent and small power generation (under 10 megawatts) accounts for 2 percent.

The map in this section of *Energy News* shows just how extensive the Northwest's resident electrical generation system is. Reprints of this map, like the map of the Columbia's mainstem dams in a previous issue, are available free on request.

**PACIFIC NORTHWEST ELECTRIC GENERATING PROJECTS
(10 MEGAWATTS NAMEPLATE CAPACITY OR GREATER)**

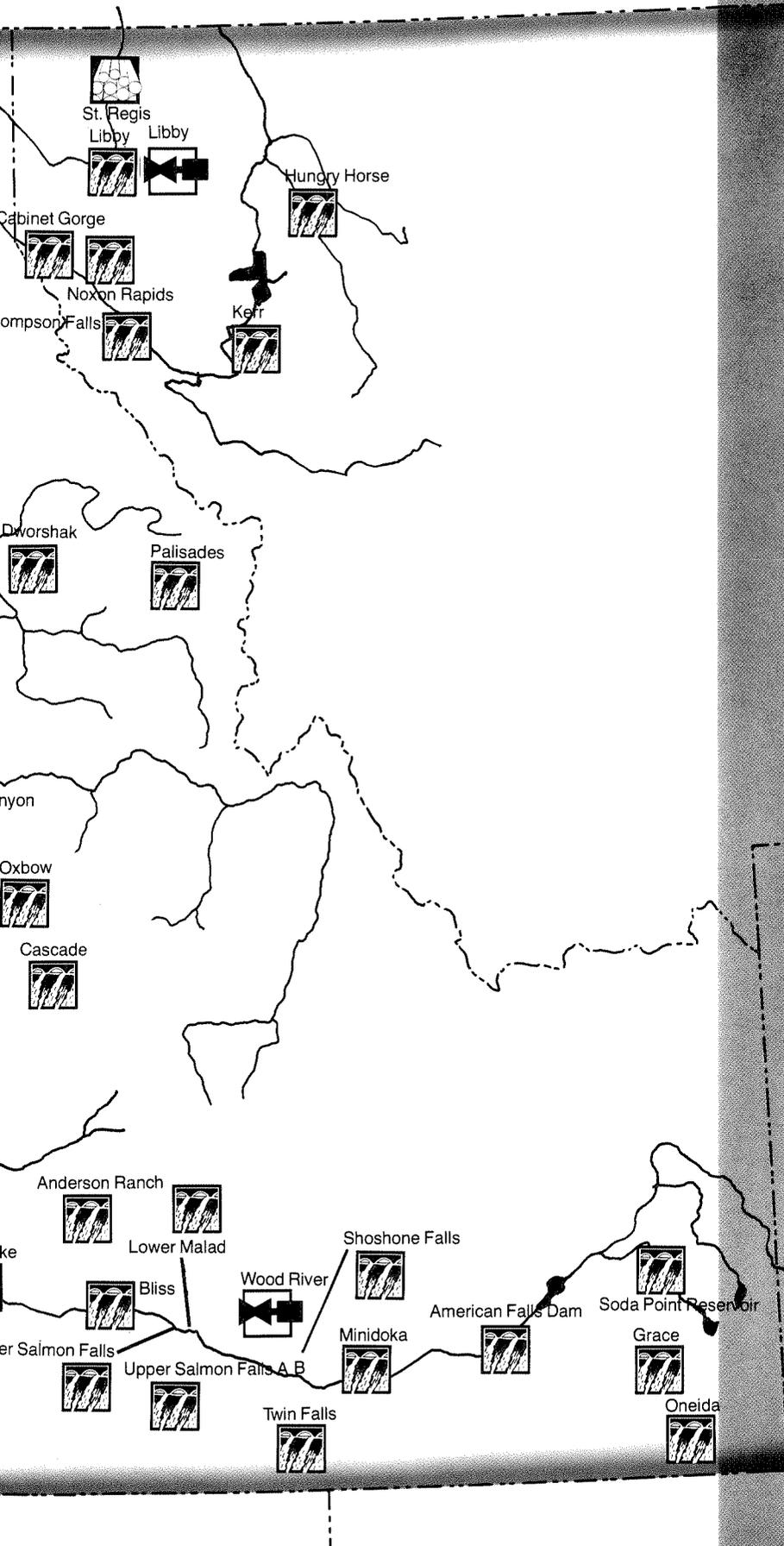
	Project	County	State	Nameplate Capacity (MW)	Average Energy (MWh)
Coal	Boardman	Morrow	OR	560.0	357.0
	Centralia #1	Lewis	WA	665.0	448.0
	Centralia #2	Lewis	WA	665.0	448.0
Gas/Oil Combustion Turbines and Combined Cycle	Beaver	Columbia	OR	545.0	53.4
	Bethel 1	Marion	OR	56.7	9.5
	Bethel 2	Marion	OR	56.7	9.5
	Frederickson 1	Pierce	WA	85.0	2.1
	Frederickson 2	Pierce	WA	85.0	2.1
	Libby	Lincoln	MT	24.0	0.0
	Northeast	Spokane	WA	61.2	2.0
	Othello	Adams	WA	28.2	1.0
	Point Whitehorn 1	Whatcom	WA	61.0	1.0
	Point Whitehorn 2	Whatcom	WA	85.0	1.0
	Point Whitehorn 3	Whatcom	WA	85.0	1.0
	Whidbey Island	Island	WA	27.0	1.0
	Wood River	Bear Lake	ID	50.0	1.0
Cogeneration	Crown Zellerbach	Clallam	WA	10.0	5.6
	Crown Zellerbach	Clark	WA	12.0	9.0
	Great Western Malting	Clark	WA	20.1	15.9
	Longview Fibre	Cowlitz	WA	45.0	35.9
	Pottlatch (Lewiston)	Lewis	ID	36.5	9.1
	Publishers Paper	Clackamas	OR	15.0	n/a
	Publishers Paper	Yamhill	OR	35.0	4.0
	Simpson Timber	Mason	WA	11.0	2.0
	Weyerhaeuser	Grays Harbor	WA	15.0	6.8
	Weyerhaeuser	Snohomish	WA	12.5	10.0
	Weyerhaeuser	Cowlitz	WA	81.4	60.0
Weyerhaeuser	Lane	OR	51.2	14.0	
Nuclear	Hanford	Benton	WA	800.0	400.0
	Trojan	Columbia	OR	1,216.0	648.0
	WNP-1	Benton	WA	1,338.0	812.5
	WNP-2	Benton	WA	1,154.0	656.0
	WNP-3	Grays Harbor	WA	1,324.0	806.0
Oil	Lake Union 1	King	WA	36.0	0.0
	Lake Union 2	King	WA	36.0	0.0
	Lake Union 3	King	WA	36.0	0.0
	Shuffleton 1	King	WA	35.0	1.0
	Shuffleton 2	King	WA	35.0	1.0
Pump Storage	Grand Coulee Pump Storage	Grant	WA	100.0	0.0

Continued

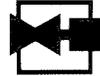


Electric Power

GENERATING TECHNOLOGIES IN THE Pacific Northwest



Coal: Plants which produce electricity from coal. Steam, produced in a steam generator heated by the combustion of coal, is used to turn a steam turbine driving an electric generator (turbine-generator).



Gas/Oil Combustion Turbines & Combined Cycle: Plants which produce electricity using combustion turbines burning natural gas or fuel oil. Combustion turbine plants (CTs) consist of one or more sets of combustion gas turbines driving electric generators. Combined cycle plants (CCs) are similar, but also include a steam generator heated by the hot combustion turbine exhaust gasses. The resulting steam is used to turn a steam turbine-generator.



Hydropower: Plants which produce electricity from the energy released by falling water. Water, conveyed at pressure from a dam or water diversion structure, turns one or more hydraulic turbine-generators.



Cogeneration: Plants for the simultaneous production of electricity and useful thermal energy from wood, natural gas, coal or other fuel. One common design consists of a steam generator, heated by the combustion of fuel, providing steam to turn a steam turbine-generator. Steam is bled from the turbine to supply space heating or industrial process needs. A second design consists of a combustion turbine, fired by liquid or gaseous fuel, driving an electric generator. A steam generator, heated by turbine exhaust gasses, provides steam for space heating or industrial process uses.



Nuclear: Plants which produce electricity from the energy of nuclear fission. Steam, produced in a steam generator heated by a nuclear reactor, turns a steam turbine-generator.



Oil: Plants which produce electricity from fuel oil. Steam, produced in a steam generator heated by the combustion of fuel oil, turns a steam turbine-generator.



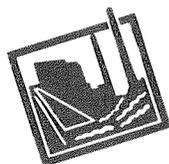
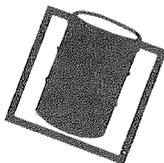
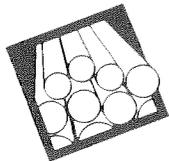
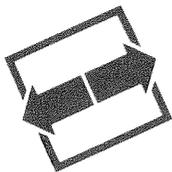
Pump Storage: Plants for the interim storage of energy. Electric energy is used to pump water from a lower to a higher elevation. When electric energy is needed, the elevated water is released back through the pumps which are reversed to operate as turbine-generators.



Refuse: Plants which produce electricity from municipal solid waste. Steam, produced in a steam generator heated by the combustion of municipal solid waste, turns a steam turbine-generator.



Wood: Plants which produce electricity from wood or wood residues. Steam, produced in a steam generator heated by the combustion of wood, turns a steam turbine-generator.



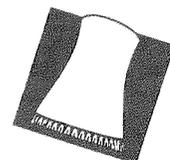
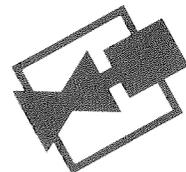
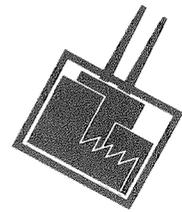
Hydropower

Project	County	State	Nameplate Capacity (MW)	Average Energy (MWh)
Albeni Falls	Bonner	ID	42.6	27.0
Alder	Pierce	WA	50.0	24.0
American Falls Dam	Power	ID	92.4	42.0
Anderson Ranch	Elmore	ID	40.5	n/av
Bliss	Gooding	ID	75.0	47.0
Bonneville	Multnomah	OR	1,078.6	771.0
Boundary	Pend Oreille	WA	634.6	508.0
Box Canyon	Pend Oreille	WA	60.0	48.0
Brownie	Washington	ID	585.4	267.0
Bull Run	Clackamas	OR	21.0	12.0
C. J. Strike	Owyhee	ID	88.0	57.0
Cabinet Gorge	Bonner	ID	200.0	132.3
Carmen-Smith	Linn	OR	80.0	27.0
Cascade Expansion	Valley	ID	12.8	5.7
Cedar Falls	King	WA	20.0	n/av
Chelan	Chelan	WA	48.0	42.0
Chief Joseph	Douglas	WA	2,069.0	1,405.0
Clearwater 1	Douglas	OR	15.0	n/av
Clearwater 2	Douglas	OR	26.0	n/av
Cushman 1	Mason	WA	43.2	11.0
Cushman 2	Mason	WA	81.0	25.0
Detroit	Linn	OR	100.0	47.0
Diablo	Whatcom	WA	122.5	95.0
Dworshak	Clearwater	ID	400.0	240.0
Electron Dam	Pierce	WA	25.5	n/av
Elwha	Clallam	WA	12.0	6.8
Faraday	Clackamas	OR	34.5	23.0
Fish Creek	Douglas	OR	11.0	n/av
Gines Canyon	Clallam	WA	12.0	9.1
Gorge	Whatcom	WA	137.7	115.0
Grace	Caribou	ID	33.0	n/av
Grand Coulee	Grant	WA	6,580.0	2,286.0
Green Peter	Linn	OR	80.0	29.0
Green Springs	Jackson	OR	16.0	7.3
Hells Canyon	Adams	ID	391.5	214.0
Henry M. Jackson	Snohomish	WA	111.8	53.0
Hills Creek	Lane	OR	30.0	19.0
Hungry Horse	Flathead	MT	285.0	108.0
Ice Harbor	Walla Walla	WA	602.9	309.0
John C. Boyle	Klamath	OR	80.0	n/av
John Day	Sherman	OR	2,160.0	1,232.0
Kerr	Lake	MT	168.0	119.0
LaGrande	Pierce	WA	64.0	41.0
Lemolo 1	Douglas	OR	29.0	n/av
Lemolo 2	Douglas	OR	33.0	n/av
Libby	Lincoln	MT	525.0	219.0
Little Falls	Lincoln	WA	32.0	n/av
Little Goose	Columbia	WA	810.0	320.0
Long Lake	Lincoln	WA	70.0	n/av
Lookout Point	Lane	OR	120.0	38.0
Lost Creek	Jackson	OR	49.0	35.0
Lower Baker	Skagit	WA	64.0	45.0
Lower Granite	Columbia	WA	810.0	325.7
Lower Malad	Gooding	ID	13.5	11.6
Lower Monumental	Walla Walla	WA	810.0	321.0
Lower Salmon Falls	Twin Falls	ID	68.0	35.0
Mayfield Dam	Lewis	WA	162.0	77.0
McNary	Umatilla	OR	980.0	699.8
Merwin	Clark	WA	136.0	63.0
Minidoka	Minidoka	ID	13.4	11.0
Mossyrock	Lewis	WA	300.0	114.0
Nine Mile	Spokane	WA	12.0	n/av
North Fork	Clackamas	OR	38.4	26.0
Noxon Rapids	Sanders	MT	396.9	215.1
Oak Grove	Clackamas	OR	51.0	26.0
Oneida	Franklin	ID	30.0	n/av
Oxbow	Adams	ID	190.0	109.0
Packwood Lake	Lewis	WA	26.1	11.0
Palisades	Bonneville	ID	118.8	73.0
Pelton	Jefferson	OR	97.2	36.0
Pelton Reregulating	Jefferson	OR	19.6	9.3
Portland Hydro	Multnomah	OR	35.6	12.6
Post Falls	Kootenai	ID	14.7	n/av
Priest Rapids	Grant	WA	788.5	580.0
Prospect 2	Jackson	OR	32.0	n/av
River Mill	Clackamas	OR	19.1	13.0
Rock Island	Chelan	WA	620.1	330.0
Rocky Reach	Chelan	WA	1,211.6	693.0
Ross	Whatcom	WA	360.0	88.0
Round Butte	Jefferson	OR	247.1	96.0
Shoshone Falls	Jerome	ID	12.4	11.4
Slide Creek	Douglas	OR	18.0	n/av
Snoqualmie Falls 1	King	WA	12.2	n/av
Snoqualmie Falls 2	King	WA	29.5	n/av
Soda Point Reservoir	Caribou	ID	14.0	n/av
Soda Springs	Douglas	OR	11.0	n/av
Summer Falls	Grant	WA	90.0	37.0
Swan Falls	Ada	ID	10.3	n/av
Swift 1	Skamania	WA	204.0	74.0
Swift 2	Cowlitz	WA	70.0	25.0
T.W. Sullivan	Clackamas	OR	15.4	14.0
The Dalles	Wasco	OR	1,807.0	1,005.0
Thompson Falls	Sanders	MT	30.0	34.6
Toketee	Douglas	OR	42.5	n/av
Twin Falls	Jerome	ID	10.0	6.0
Upper Baker	Whatcom	WA	94.4	41.0
Upper Falls	Spokane	WA	10.0	n/av
Upper Salmon Falls A	Twin Falls	ID	18.0	18.0
Upper Salmon Falls B	Twin Falls	ID	16.5	n/av
Upriver	Spokane	WA	17.7	5.0
Wanapum	Grant	WA	831.3	611.0
Wells	Douglas	WA	774.3	457.0
West Linn	Clackamas	OR	13.9	3.4
White River Project	Pierce	WA	82.6	27.9
Yale	Clark	WA	108.0	64.0
Yelm	Pierce	WA	10.0	9.0

Refuse

Wood

Marion Co Resource	Marion	OR	13.1	n/av
Daw Forest Products	Deschutes	OR	10.0	0.9
Kettle Falls	Stevens	WA	51.0	31.0
Kinzua	Morrow	OR	10.0	7.4
Publishers Paper	Tillamook	OR	10.0	6.9
Roseburg Lumber	Douglas	OR	52.0	26.0
St. Regis (Libby)	Lincoln	MT	13.3	1.8





Peter Johnson

He was, unquestionably, the most powerful man in the Northwest power community. For that matter, Peter Johnson, was and—depending upon his future choices—may still be one of the most powerful men in the Northwest.

During his five years at the helm of the Bonneville Power Administration, Johnson was widely admired, sometimes criticized, and nearly always something of an enigma. His leaving, in its apparent suddenness, did nothing to lessen that impression.

After some regional debate (nothing like the ease with which his successor was named), Johnson became Bonneville's Administrator in May of 1981. His

resignation became effective July 18. This interview was conducted two days before that date and only hours before Johnson was to leave for Washington, D.C., and a personal audience with President Reagan.

It was obvious that Johnson was "up" for the interview—he had just been feted at a dinner the night before. It was obvious also that Johnson felt strongly he was leaving because of a sense of accomplishment and in no sense as a means of avoiding any future problems, as some had suggested. In fact, he took mild umbrage at the use of the word "quitting" in the opening question.

Prior to joining Bonneville, Johnson, an Idahoan, was chief

executive officer of Trus-Joist Corporation, a Boise-based firm that manufactures roof and floor structural systems. He also served on President Reagan's transition team in 1980-81.

Major tasks of Johnson's tenure at Bonneville included the initial implementation of the Northwest Power Act, building a new relationship for Bonneville with the Northwest Power Planning Council, the completion of one nuclear project and the mothballing of two others, the negotiation of new power sales contracts with Northwest utilities, and the development of a new intertie access policy for the transmission of Northwest power to the Southwest.

Q. I mean this tongue in cheek, but it's as good as any way to open. There's a rumor that you're quitting because there are finally fish in Idaho.

I hate the word "quitting," because there is a suggestion of giving up in that particular word, and in no way am I giving up, quite the contrary. We have come to a point in the utility community, in the implementation of the regional Power Act and with the successful handling of a number of crises, where it is appropriate now for me to step aside. The agency needs renewal. I feel I need renewal, and the worst thing one can do is overstay his or her career. That is the reason I'm leaving, but I'm not quitting.

Q. Where do you think Bonneville was when your five-year tenure began, and where is it now?

When I came, Bonneville was on the threshold of a change or a combination of changes that it didn't even comprehend at the time. You've heard me refer to the Council as an experiment when it was launched with the signing of the Northwest Power Act. Bonneville too was, and in a sense, became an experiment in how it was going to mature into full utility status, with the Council, with its new obligations, and with the new authorities granted in the regional Power Act.

We have moved significantly down that road now and have discovered what, in fact, was required. I believe we have dealt with it reasonably well and are poised now for what I also believe to be an exciting future.

Q. What's in that future?

That future is the potential for delivering to this region the most efficient and environmentally sound utility system anywhere in the country.

I suggested the Council might be an experiment, and indeed it was, because it had no successful precedent in America.

Q. Where do you think the Council fits? How has it matured?

I believe very strongly that the maturing of the Council and the development of its two energy plans and fish and wildlife program, as amended, are very real successes. There has been a diversity of interests as well as of experience on the Council, which I think has added value to its plan and program. It has developed a strong, competent, committed staff. As I mentioned earlier, I suggested the Council might be an experiment, and indeed it was, because it had no successful precedent in America.

However, it was clearly difficult for the Congress and for the region to draft the language to describe the subtle, but dynamic relationship between our states and this federal agency. It was not easy to describe, yet it was clear to me as the Administrator, what the intent and the desire of the region and Congress was. They simply wanted a dynamic but effective relationship between these two entities. Thus I concluded, at the time I became Administrator, that it was my responsibility to create an environment within which the Council could become strong, effective and respected.

It was the duty of Bonneville and I as the Administrator to find ways to overcome those ambiguities in the language of the regional Power Act that could have brought the Council down. It was my responsibility to find ways to overcome the differences that might develop between Bonneville and the Council. It was my responsibility to simply make the Act work, without abdicating the rights or responsibilities of the Administrator under law or expecting the Council to do the same.

One thing that I did soon after becoming Administrator was instruct the staff that I wanted the Bonneville professional team to become actively engaged with the Council in its forums and in the development of its plan and program. I urged staff to point out fiscal, utility or legal problems we had with programs the Council might be considering. My purpose was to inform Council members and staff of difficulties we might have in implementing their ideas before they had matured to their final definition.

I personally believe that this contributed significantly to Bonneville's ability to move quickly to implement the Council's first power plan practically in its entirety. And again in the second plan, Bonneville has agreed to the Council's objectives and is proceeding now to develop the work plans and to carry them out in a fashion that properly addresses not only the plan but the Administrator's responsibilities and accountabilities.

This strategy wasn't written in the Act nor will you find it anywhere in the legislative history. It was simply one of my management strategies to help make the Council strong and effective and respected. I think it's important to note that I didn't do this so much for the Council as I did it for the region and its ratepayers and the beneficiaries of the fish and wildlife program. I continually urged members and the staff of the Council to focus on delivering the very best values in all of our endeavors to all citizens of the four Northwest states.

Anything can fail if you either are careless or don't work to make it succeed. There are flaws in any institution in its relationship with another that can bring both down. But if you accept your responsibility to bring about a worthwhile outcome, then you can also find ways to accomplish that, in spite of what might be intrinsic conflicts.

Q. Do you think that the regional cooperation the Council calls for in its plan is a possibility or is it a blue sky thing?

I think we have it now, but if you were to ask 10 people to define it, they would all define it a little differently. But it's there, certainly better than it was. It will never be perfect. I think it is in this arena that we find the creative tension that [former Council] Chairman and now Senator Dan Evans spoke of.

When we can pull behind the plan, the fishery program, our letter agreement with Canada and California over hydro development in British Columbia, and name a successor Administrator in 10 days, with the full support of six key Northwest senators and the Secretary of Energy, then I believe we have what can clearly be described as regional cooperation. But the job's never done. It requires work.

Q. When you put it in that perspective, it seems the ease of naming someone to one of the most powerful jobs in the region was something of a miracle. It does speak to a different climate.

It sure as heck does. We've never been able to do that before. We flopped all over the place. I think my leaving served to coalesce the region behind our accomplishments and to realize the successes that we've achieved together. I think it's caused people to pause and reflect on the progress we've made, and again that can be defined as cooperation. We have problems and challenges ahead of us—many of them—but with the same philosophies and attitudes there is nothing we can't overcome.

Q. What do you feel were your most satisfying accomplishments?

I feel that we've achieved, inside and outside Bonneville, organization and motivation through our strategic planning. Bonneville is revitalized in its commitment to delivering efficient outcomes, the best value in the marketplace. This permeates the agency. We have reinforced the logic that led us to

sound business outcomes in our activities. Together with the Council and the utility community, we've looked into the future to define what we want to look like. We're going to accomplish our objectives under the Act.

The only way an institution gets anything done is through its people. If they do not have direction, if they do not act cohesively based upon a confidence in an energy future they believe in, then we will fall far short of what could be done. So I feel best about how we have revitalized Bonneville in particular and the utility community in general through this delivery of best value to our customers.

I could go down through a whole litany of things, say the internal fiscal planning of Bonneville, through what we've accomplished through the [Washington Public Power] Supply System. I could talk about the membrane of oversight which is now working very effectively with the Supply System. I could talk about our coming together and thinking and acting as one, extra-regional marketing, hydro development in British Columbia, but these are the results of this revitalization.



Q. What do you see as Bonneville's biggest contributions to the fish and wildlife in the region?

I think Bonneville has contributed significantly and will continue to urge fishery and wildlife agencies as well as the Council to carefully define, evaluate and assess measures before they become part of a program. Bonneville can assist in this requirement by asking questions and assisting in analyses, but we will be relying most heavily on the competence of the existing experts in the Indian tribes, state and federal governments, and the Council.

Initially, thanks to the cooperation of the parties brought about through the Council's forums, we have been successful in identifying what I would term generally as "honey" projects, meaning simply that they have been carefully defined, evaluated and assessed and therefore are ripe for implementation. We have a high confidence in the value that will be delivered in the way of fishery enhancement, mitigation or protection.

However, as we move forward we may be visiting less perfected ideas and will therefore want to assure ourselves that we are considering good alternatives. Bonneville wants to guard against throwing money at programs born of sheer hope and enthusiasm, only to learn later that they were largely a waste.

Q. How serious is the Bonneville revenue crunch?

The Bonneville revenue crunch is very real, and I guess you'd call it serious, too, or it would have been had we not had our planning tools in place to see it coming and to take responsible action before it became a crisis. I believe we have matters once again under control and can protect Bonneville's fiscal integrity and hold generally stable rates without jeopardizing either our plan or program, thanks to the cooperation of the Council and utility community.

Q. Do you plan to stay involved in Bonneville?

I will certainly be watching and monitoring the region's progress, including Bonneville, but Jim Jura is now the boss and he will be a good one. I respect that his philosophy will be a good one. If Jim or anyone else in or out of Bonneville wants to talk to me, fine. But I don't want this misinterpreted that I'm going to be a lingering presence, because I'm not going to be. I'll act as professor, but I'm going to extract myself from the mainstream of decision making. That is the only responsible thing to do. I'm going in other directions.

Q. I think people are curious, because you've been such a strong presence in the region, how will Jim Jura's style differ from yours?

I'm sure it will be very fitting for the times. Mine may have been fitting for the difficulties we've faced during my five years. One of my fears and, therefore, one of the reasons for my departing Bonneville at this time is that my particular style may be too rich. I mean that in the sense of too rich a mixture in a carburetor. It forces the engine. My style may be too rich to deal with the opportunities that lie before us now. I think Jim's talents are uniquely complementary to the tasks ahead.

Q. The entire region is speculating on what you plan to do next. You have created a wonderful mystery. It has made you a very interesting man. Are you ready to reveal any plans?

Just say that I'm taking a one-year sabbatical, and during that time I plan to reflect. I have said and I will say again that it is not my plan to go into big business or further public service. It will be something different. I'll be very busy. I have already made a list of the things I plan to do, and they are exciting and they consume a full 14 hours a day without meals, so clearly I'm going to have to employ some of my own strategic planning to my personal affairs.

Q. In the past couple of years of grist for the gossip mill has been speculation about your leaving Bonneville. Then when you did, everybody was amazed, because they perceived it as very sudden.

Outsmarted them, Dulcy, outsmarted them! When I tried to speak of it philosophically a year and a half ago, there was already speculation and the threat of a lame duck administration as well as frustrating the parties as to who might be the successor, and I therefore shut up. I decided I would find the window, and I would keep it very private and to myself and I would move quickly and decisively at a time when the outcomes would be good.

It was a very conscious choice on my part—the way I did it, the way I staged it, the way I talked to people in Congress, the way I talked to [U.S. Department of Energy] Secretary [John] Herrington. Jim Jura was not my choice—Jim Jura was the choice of the political process. I listed a raft of names to the Secretary and to the senators—Senator Hatfield and McClure—and offered to be a resource to them, a reference to them on these names as well as others. Jim Jura was a clear and solid choice of the political authorities in the region.

Bonneville could be reformed and replaced by some other institution if we were perceived as failing to deliver the best outcomes from the assets and resources that we control.

Q. Was Jim Jura on your raft of names?

Yes. My advice to the Secretary and to the senators was that he had an institutional memory and a competence, and that he should be in the office of the Administrator. There are three positions in that office. My advice to them was to not lose his competence and institutional knowledge and that he could fill any of the three positions.

Q. You have mentioned coming to Bonneville with some specific management strategies. What do you think were your most important management strategies? What are your management philosophies?

I think it was my good fortune that my business experiences had exposed me to many sound principles and doctrines born of the acid test of the marketplace. I brought an approach to strategic planning to Bonneville which, incidentally, does not conflict with the planning obligations under the regional Act or the Council. I am personally delighted with our success in the agency at adopting and perfecting these strategic planning skills.

One must also understand organization in its many dimensions. Each function or discipline within Bonneville must deliver its responsibilities to the highest levels of professional excellence peculiar to that discipline. Examples would include the law, engineering, and accounting. At the same time, one has to recognize the natural conflicts that exist among these functions and introduce the mechanisms that will bring about effective resolution of the natural conflicts. I have used sophisticated forms of task forces and steering committees to bridge and resolve differences. It is an interdisciplinary approach that has resulted in outstanding performance.

I used the steering committee approach in the private sector and I began to perfect it there. If you misuse the concept, it will backfire on you; you will come up worse off than if you hadn't used the technique. But if you use it properly, launch it properly and advantage it properly and bring it to a conclusion to where it ceases to exist at the appropriate time, then it can be a very dynamic and effective management technique in dealing with what otherwise would be irreconcilable conflicts within an organization as complex as Bonneville.

A corollary to setting up these task forces and motivating them is to create goals that are achievable and, again, this is only a judgment call. If I set up a task force with goals that are not achievable, then I have done an incredible disservice, not only to the agencies but certainly to the people involved in the region. You hurt someone by putting them in a situation where you know they can't deliver.

In an organization you build on successes. I wanted to create an environment where the members of the Council could be successful. I wanted to create an environment within Bonneville where its professional people could be successful. "Success begets success."

Q. You've certainly brought a distinct management style to Bonneville, and you are widely respected even by people who are sometimes very frustrated by Bonneville. You have a rich resource in your management experience. Are you going to let it lie fallow?

One of the things I might do in my sabbatical is think about whether it might someday be useful to write a book about what we've accomplished here, more in the how-to sense. I'm not going to try to be an historian, but go more in the direction of how did we do what we've done, not only within Bonneville but by and between Bonneville and the Council.

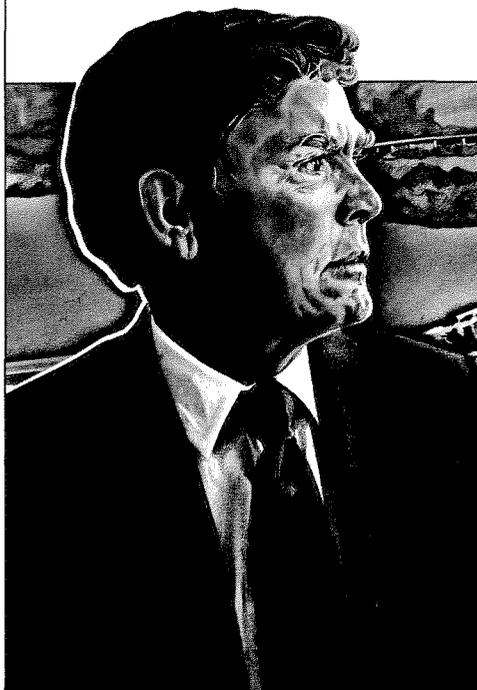
Very few of us ever have an original idea. Some do put together existing ideas perhaps better, and that is what I think we might have done here, put together existing ideas that are

combinations to bring about better results. Having been a student of organization and management and bureaucracy for 30 years, I've tried to absorb the best I possibly could from people in the private sector as well as in government and education. We have a wealth of ideas, principles and doctrines, and how we wove these together might be worth writing about.

I would change in the course of a day as circumstances demanded, not in the physical sense, but in how you address the environment you want to create so there will be the best outcomes. It took almost daily adjustments.

As an example of the revitalization I have spoken of, our engineering and construction people told us about how they have finally gotten control of our inventories to control turnover and amount of money invested. When I first came, there wasn't much of this. It is a result of a number of things.

I said we are going to conduct the affairs of Bonneville in a businesslike way. That is what the law tells us we are supposed to do, and if we don't we are not going to deliver the best economic result. I hadn't perfected this idea yet, but I saw that at first this idea went down into the bureaucracy and bounced right back up again. They were listening to this guy talking about how things had to be done in a businesslike way to deliver the best results.



The idea still wasn't sticking, so I came up with this "best value" concept, and that's a very, very sophisticated concept meaning only that if somebody were sitting next to me and had the same resources at his disposal as I did and could do a better job, then I should let him eat my lunch. I began to talk about that concept four years ago, and it is now incorporated into our strategic expressions. It has become inculcated into the ethos of the agency.

I helped reinforce this by reminding Bonneville employees of the fact that if they didn't deliver the best value, their jobs were not very secure. Bonneville could be reformed and replaced by some other institution if we were perceived by the public we served as failing to deliver the best outcomes from the assets and resources that we control. This got their attention in a healthy way.

But I didn't do this directly. I didn't say "thou shalt." I created the environment with a stimulus, and they of their own volition and through their own hands delivered the best value result. You're winning when that starts to happen, you're winning as an institution, and that is pervasive in an agency of this kind.

I've got to make another comment here. I'll resurrect [former Oregon Council member] Roy Hemmingway. He said "Johnson is running Bonneville like a business, and it's more than a business." Roy Hemmingway is right.

I'm talking about how you achieve consistent, sound economic results. However, we must recognize that Bonneville serves, besides the commercial responsibilities, many other societal interests expressed in the law. We are a federal agency, and we must act responsibly as a federal agency in environmental terms as well as carrying out our obligations under these other laws, such as fish and wildlife, that go beyond just the utility system. I personally feel that the best outcomes in the public interest can also be the best economic outcomes. Occasionally, but only rarely, is there a conflict between these two objectives of Bonneville that can't be resolved.

REVIVING THE YAKIMA FISH RUNS

by Ruth Curtis

In 1870, John W. Beck planted the 50 peach trees and 50 apple trees that became the first orchard in Washington's Yakima Valley. Within a few years, the arid valley's first irrigation system, a canal bringing water from the Yakima River to 320 acres of farm land, was built. Each decade after that brought more irrigation projects and more settlers expanding the valley's carpet of green orchards and cultivated fields. Thus, what had been cattle country, became, with irrigation, one of the world's greatest apple producing areas.

But the irrigation systems and other development in the valley brought a decline in the Yakima River Basin's annual runs of salmon and steelhead. Each diversion dam hindered passage of the fish returning to spawn in the valley's streams. In some places, withdrawal of irrigation water actually left the Yakima River dry. In addition, young fish heading downstream to the ocean often found themselves washed through canals onto fields, where they died in the sun. Local biologists estimate the half million adult fish that at one time returned to spawn in the river basin dwindled, in the 1970s, to less than 1,000.

Nonetheless, the Yakima Basin is still recognized by agricultural, power and fishery interests as a great potential resource for salmon and steelhead. To develop that resource, the Northwest Power Planning Council focused a major portion of its Columbia River Basin Fish and Wildlife Program on work in the Yakima. The program involves using ratepayer funding to help rebuild fish passage facilities, thus improving adult and juvenile salmon and steelhead migrations, and to develop integrated fish hatcheries. The program also recognizes the need to develop a plan for water management, addressing instream flows, water conservation practices and water storage to improve flow conditions.

The project is part of the Council's program to restore fish and wildlife damaged by hydroelectric development and operations in the Columbia River Basin. While much of the Yakima damage was not caused by hydropower, the basin is seen as a source of some of the best available spawning habitat, which can be used to help rebuild fish runs in the larger Columbia Basin. These efforts are considered "offsite enhancement" to mitigate the effects of the hydropower system.

Tom Trulove, the Council's eastern Washington representative, calls the Yakima project "a great example of multiple use. In this basin there's the potential of doing a great deal to improve the fishery, while at the same time protecting the agricultural uses of the river."

The project is a cooperative effort coordinated by the Council, and involving the Yakima Indian Nation, the basin's irrigation districts, the U.S. Bureau of Reclamation, the Bonneville Power Administration, and state and federal fish and wildlife agencies. "Making maximum use of the water is the key to the Yakima project," according to Trulove. "While project details are still being hashed out as we progress, I don't hear anyone saying that we're on the wrong track."

Rebuilding fish passage facilities

Based on recommendations of fishery agencies, tribes and other interested parties, the Council adopted measures in the program specifying reconstruction of fish ladders and screens at 20 irrigation diversions. Fish screens—giant rotating metal drums—are placed near the headwaters of the irrigation canals to deflect the young fish back into the river. Some canals already had screens, but many of these needed to be redesigned because young fish were injured as they crashed into the screens at tremendous speeds. The new screens are set at an angle to reduce the water's velocity and minimize the problem.

Diversion dams are also a problem for adult fish returning upstream to spawn. The dams are generally too high for fish to jump, especially during low water periods. Fish ladders are being added to dams that lack them, and existing ladders at other dams are being improved. Much of this work has been completed, while the remainder is under construction or in the planning stages. To date, more than \$15 million has been spent on passage improvements. The accompanying box describes the current status of each project.

"The Yakima work is exciting, but to make it work, we need to make sure we all have the same vision of the future and that it's one that's mutually beneficial..."

Integrated fish production

In 1984, the Council amended the program and assumed responsibility for developing a facility master plan for a hatchery in the Yakima River Basin. It will be a central outplanting facility, used to raise juvenile fish for release in the Yakima Basin and elsewhere in the Columbia River Basin. Presently, the Council is conducting a planning study to identify possible sites and facility designs, specify stock rebuilding objectives, and develop a moni-



Northwest Power Planning Council members Tom Trulove (center) and Bob Duncan (right) visit with cattleman Eldon Weidenbach (left) at the Cascade irrigation facility in the Yakima Basin.

toring program to assess the results of supplementing natural runs of salmon and steelhead with hatchery fish.

In approximately a year, construction will start on a new hatchery in the Yakima Valley. The fish distributed from the hatchery will be used to help rebuild dwindling wild and natural fish populations. These wild and natural populations have a genetic diversity that allows them to adapt to changing environments. This adaptability is essential to the vigor and survival of the species.

Water management plan

Insufficient water for all the demands placed on it is an old problem in the valley. Water is essential to the orchards and other farms that are vital to the local economy. It is also needed by the fish for their survival. Increasing the supply of water is everyone's dream.

Additional reservoir storage capacity may be part of the solution to the problem. The Bureau of Reclamation is currently studying several sites to determine their feasibility and cost effectiveness.

Other creative solutions are also possible. Senators Dan Evans and Slade Gorton and Representative Sid Morrison of Washington have recently introduced legislation authorizing the construction of several small projects to improve the operation and efficiency of the exist-

ing irrigation facilities in the basin. Among other objectives, this increased efficiency could leave more water in the streams for the fish. The projects would be paid for by federal, Bonneville and local funds.

The bill includes projects modifying the existing gates at Cle Elum Lake to allow the reservoir to be raised three feet; a gravity pipeline between Keechelus and Kachess Lakes to balance the storage within the two drainage systems; an "offsystem" reservoir to store excess water from Roza Canal for use later during periods of low water; and facilities to automate and improve the operation of the canals at the Sunnyside Diversion and the Wapato Project.

"There is much that can be done in the Yakima through careful management of what we have," explains Trulove. "The Yakima work is exciting, but to make it work, we need to make sure we all have the same vision of the future and that it's one that's mutually beneficial. Then we must carefully take one step at a time to make sure that all the different state and federal agencies, water users and others are comfortable when we take those steps."

Status of Yakima Basin Projects

Project	Status
Naches-Cowiche Diversion Dam	New ladder and screen have been installed.
Horn Rapids Diversion Dam	Richland Canal screen is installed. Both right and left bank ladders have been constructed. The fish screen on Columbia Canal is about to enter service.
Sunnyside Diversion Dam	Sunnyside Canal screen and right bank ladder were completed in the spring of 1985. Left and center ladders were completed in March 1986.
Wapato Diversion Dam	West Branch ladder is completed and in service. Construction on East Branch ladder is beginning this summer. The Wapato Canal fish screen is completed and operating.
Toppenish/Satus Unit	Construction of the fish screen and ladder began in October 1985 and is completed.
Prosser Diversion Dam	Construction has started on the Chandler Canal fish screen. A canal bypass around the screen site was completed in February 1986. The Prosser Dam right bank ladder is completed. A fish trap addition to the right bank ladder has been designed and construction is scheduled to start this fall. Construction on the Prosser Dam left and center ladders begins next spring.

Status of Yakima Basin Projects

Roza Diversion Dam	Construction on a new screen structure has begun. Completion of this facility is set for March 1987. Designing fish ladder modifications is underway.
Roza Power Plant	Construction of the wasteway barrier began in July 1986.
Easton Diversion Dam	Construction on the Easton fish screen is scheduled to begin in February 1987. Construction of a canal bypass will begin in October 1986. A fish ladder is being designed with construction set for April 1987.
Satus Creek	Ladder plans are complete. Construction is beginning this summer.
Toppenish Creek Diversion Dam	Construction on the fish screen is beginning this August. Construction of permanent fish ladder has been deferred until testing of a rock-gabion ladder is complete.
Town Ditch	Revised ladder and screen plans are complete. Construction is scheduled to begin in October 1987.
West Side Ditch	Design work has begun on fish screens. Construction is scheduled to begin in January 1987.
Wapatox Dam	Improvements to the current fish screens are to be constructed and funded by Pacific Power and Light Company. Negotiations are underway with PP&L, Washington State and Northwest Power Planning Council.
Taneum Diversion Dam	Planning studies for fish ladders and screens at four sites are underway.
Marion Drain Diversion	Final designs are about to begin on fish ladder. Construction is scheduled for June 1987.
Old Reservation Canal	Fish screens are in preliminary planning stages.
Snipes/Allen Canal	Construction of a fish screen will begin next summer.
Thorpe Mill Ditch	Fish screens are in the preliminary planning stages.
Stevens Ditch	Fish screens have been installed by the State of Washington.

THE GOALS PROGRAM UPDATE

Fish and Wildlife Update

by Ruth Curtis

Nearly a year ago, this column was started to regularly track and report on a study which is providing the framework for salmon and steelhead restoration in the Columbia River Basin—originally known as the goals study. The study is producing major results this year. Data have been collected that describe the number and kinds of salmon and steelhead and their habitat that have been lost in the basin. This information was used to estimate which portion of the total losses can be attributed to hydro-power development—5 to 11 million fish. Basinwide policies are now being developed to help replace those losses. Because many of these results will be integrated into the amended Columbia River Basin Fish and Wildlife Program—on which work also shifted into high gear this summer—this column is expanding to cover, in addition to the goals study, the entire amendment process.

Salmon and steelhead planning and policies

Fishery restoration efforts in the basin must be coordinated to be effective. If they are not, the value of the ratepayer's investment is decreased. Approaches to improve that coordination were discussed this summer. A computer model of salmon and steelhead life cycles is also being used in this planning process. The process and the computer model are covered more completely in the article on page 3.

The planning work will result this fall in a staff issue paper summarizing the major policy alternatives on the relative roles of river passage improvements, fish production, and fish harvest relative to the Columbia River Basin.



Public hearings and consultations will be held throughout the basin to get comment on these alternatives. The Council then may propose a program amendment dealing with these policy alternatives, to be adopted in 1987.

Amendment process

From September through December, the public will have an opportunity to comment on the proposed draft amendments to the Columbia River Basin Fish and Wildlife Program. More than 80 potential amendments were received last winter when the Council called for recommendations. The Council staff, and in a few cases the Council, have reviewed these, and made preliminary proposals to adopt, modify, or reject each. About two-thirds of the applications are proposed for adoption, about one-third for rejection. These proposals are being compiled into a draft amendment document that will be available in early September.

Highlights of this document include:

- A statement that hydropower development in the basin is responsible for a reduction in run size of about 5 to 11 million adult salmon and steelhead. This is a "cap" and does not constitute a judgment that even the bottom end of this range can or will be achieved through the program.
- New emphasis on a systemwide coordination of three interdependent types of action—passage improvements at the dams, fish production, and harvest management. This also will be addressed in the issue paper on policy alternatives described above.

- A discussion of salmon and steelhead research objectives, policies, and priorities.
- A call for the Bonneville Power Administration to complete about 70 habitat and tributary passage projects that are already underway, but to start no new projects unless a need for additional habitat is demonstrated.
- Approval for Bonneville funding of a spring chinook hatchery in north-eastern Oregon.
- Refinement of the water budget accounting and implementing process. The water budget is a block of water set aside for fish to be used in timed releases corresponding to the spring fish run. It actually increases the regulated flow of the river to speed the migrating juvenile fish downstream.
- Changes in the fish transportation policy. Transportation refers to collecting downstream migrating fish and transporting them in barges or trucks around the dams.
- New emphasis on bypass facility construction schedules. Bypass facilities provide a route for young fish to move past dams without going through the turbine units.
- A variety of new resident fish substitution projects for the major blocked areas above Chief Joseph Dam on the Columbia River and the Hells Canyon Complex on the Snake River. Resident fish are fish, such as certain trout or kokanee, which do not migrate to the ocean. They are used as substitutes for salmon and steelhead populations lost when areas were blocked by hydroelectric dams. A proposed policy on resident fish substitutions was approved by the Council last spring.

- A provision for Bonneville funding of data collection on hatchery and natural fish production.
- Plans to mitigate the effects on wildlife of Libby and Hungry Horse dams in Montana.
- Recognition of the Montana Power Company agreement to purchase water from Painted Rocks Reservoir to maintain summer and fall flows for resident fish in the Bitterroot River.

Public hearings on the draft amendment document are being held in each state during October. (See the calendar on page 27 for dates and locations.) The Council's monthly public involvement newsletter, *Update!*, will contain more information on these hearings. To receive the newsletter use the order form on the back cover of this magazine.

Taking into account public comment, the Council will evaluate the preliminary decisions contained in the draft amendment document and adopt the final amendments in February 1987.

(To receive copies of the documents mentioned here, use the order form on the back cover.)

In The News

Court denies rehearing on Council's constitutionality

The U.S. Court of Appeals for the Ninth Circuit has denied petitions of the Bonneville Power Administration (through the U.S. Department of Justice) and the Seattle Master Builders to rehear the Master Builders' appeal against the Northwest Power Planning Council.

On July 8, 1986, the Court of Appeals denied the petitions for rehearing in *Seattle Master Builders et al. v. Pacific Northwest Electric Power and Conservation Planning Council* and rejected the suggestions that the case be reviewed *en banc*, that is, before a larger panel of judges than the three-judge panel that generally hears cases in the Ninth Circuit.

On April 10, 1986, the Ninth Circuit had turned down the Master Builders'

challenge to the Council's model conservation standards contained in the 1983 Northwest Power Plan. In its April decision, the Court also found that the Council was constitutionally formed and that it was not necessary for the Council to prepare environmental impact statements pursuant to state laws.

Asking for rehearing, the Department of Justice argued that the Ninth Circuit panel's opinion decided constitutional issues that were not presented by the case, while the Master Builders argued that the panel had overlooked material points of law and fact in each area of its holding. Although all the judges were advised of the suggestion for rehearing *en banc*, none of them requested a vote on whether to rehear the matter by the full court.

—CC

Council adopts power plan petition process

The Northwest Power Planning Council has adopted a policy for dealing with petitions submitted by any group or individual to enter rulemaking on issues related to the Northwest Power Plan. Rulemaking is the process by which the Council amends its plan through a publicly designated revision process, which is required at least every five years by the Northwest Power Act.

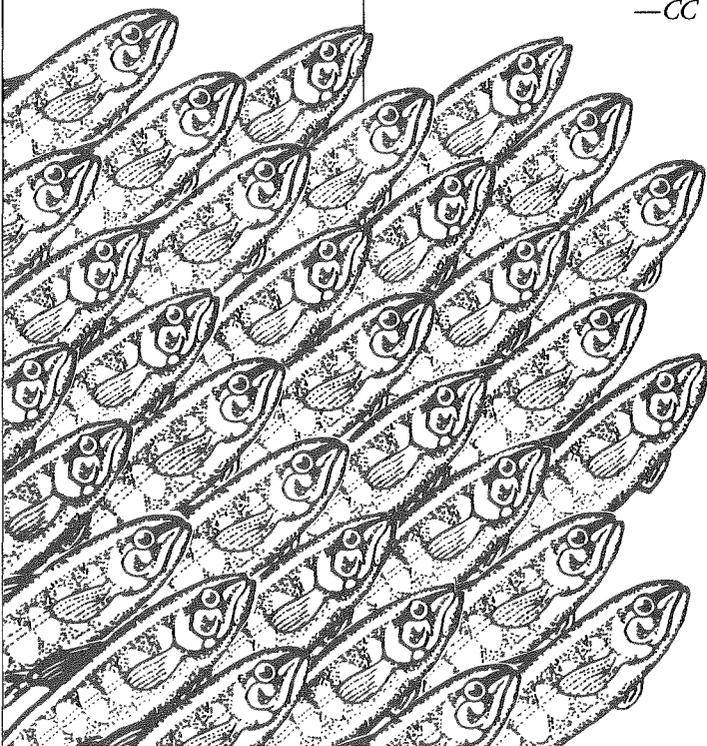
The major reason for establishing new procedures is a change in the power planning cycle, according to Executive Director Ed Sheets. "The first plan [adopted in 1983] set up a two-year planning cycle, which guaranteed the plan would be reopened to public comment within that time. But the 1986 plan is expected to be in effect for a longer period," Sheets explained. "A petition process will ensure full public involvement by providing an opportunity for any individual to seek reconsideration of any section of the plan."

The first person to make use of the new procedure is Washington State Senator Al Williams, chairman of the Washington State Senate Energy and Utilities Committee. In his petition, Williams asks the Council to reconsider its review of the cost effectiveness of Washington Public Power Supply System nuclear projects 1 and 3 because of changes he believes have occurred since the 1986 Northwest Power Plan was adopted.

Procedures for petitioning the Council may be obtained by writing to the Council's Public Involvement Division, Suite 1100, 850 S.W. Broadway, Portland, Oregon 97205. These procedures are brief and require a minimum of paper work. They also set a 120-day timeline within which the Council must respond to petitioners to tell them if the petition is accepted or denied. For example, the deadline for responding to Senator Williams' petition is November 6, 1986. Decisions on petitions will be made in public meetings.

Parties in two actions brought to challenge the Council's model conservation standards have indicated that, based on the new petition process, they may withdraw their petitions to the U.S. Ninth Circuit Court of Appeals for review of the standards. These petitions were filed by Case (an unincorporated association), the Utility Reform Project, et. al., and by the Northwest Conservation Act Coalition together with the Natural Resources Defense Council. The two petitioner groups are arguing in part that certain of the Council's standards are not sufficiently stringent.

—DM



Calendar

August 25-September 18—

"Fisheries Economics," a training program offered by the Consortium for International Fisheries and Aquaculture Development and Oregon State University, in Corvallis, Oregon. For more information: CIFAD Training Programs, 443 Snell Hall, Oregon State University, Corvallis, Oregon 97331, (503) 754-2624.

September 17-18—

Northwest Power Planning Council meeting in Portland, Oregon.

September 13-14— "Solar 86: Renewable Energy Development and the Environment," a conference sponsored by the Solar Energy Association of Oregon, at the University of Oregon campus, Eugene, Oregon. For more information: Solar Energy Association of Oregon, 2637 SW Water Avenue, Portland, Oregon 97201, (503) 224-7867.

September 29-October 1—

1986 Annual Meeting of the Geothermal Resources Council "A Milestone Year," at the Americana Canyon Hotel, Palm Springs, California. For more information: Geothermal Resources Council, P.O. Box 1350, Davis, California 95617, (916) 758-2360.

October 2—

Northwest Power Planning Council hearing on the fish and wildlife program draft amendment document. In Spokane, Washington. Call the central office for more information.

October 7—

Northwest Power Planning Council hearing on the fish and wildlife program draft amendment document. At the Outlaw Inn, 1701 Highway 93 South, Kalispell, Montana. Call the central office for more information.

October 8—

Northwest Power Planning Council hearing on the fish and wildlife program draft amendment document. At the Village Red Lion, 100 Madison, Missoula, Montana. Call the central office for more information.

October 13—

Northwest Power Planning Council hearing on the fish and wildlife program draft amendment document. In Portland, Oregon. Call the central office for more information.

October 15-16—

Northwest Power Planning Council meeting in Moscow, Idaho.

October 21—

Northwest Power Planning Council hearing on the fish and wildlife program draft amendment document. At the Red Lion Riverside in Boise, Idaho. Call the central office for more information.

October 21-23—

"Stream Habitat Enhancement Evaluation Technical Workshop" in Portland, Oregon. Sponsored by the Bonneville Power Administration and Bozell & Associates, Inc. For more information: Buell & Associates, Inc., (503) 649-9205.

October 28-30—

"2nd Annual Northwest Energy Expo" in Seattle, Washington. Sponsored by Puget Sound Power and Light, in cooperation with Seattle City Light, Snohomish County/Public Utility District, the City of Tacoma Light Division, and the Bonneville Power Administration. For more information: Puget Sound Power and Light, P.O. Box 97034, Bellevue, Washington 98009, (206) 462-3726.

November 12-13—

Northwest Power Planning Council meeting in Portland, Oregon.

Compiled by Ruth Curtis

COUNCIL PUBLICATIONS ORDER FORM

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

Publications

- Draft Amendment Document—Columbia River Basin Fish and Wildlife Program (See page 25.)
- Summary of 1986 Applications for Amendments—Columbia River Basin Fish and Wildlife Program
- 1986 Applications for Amendments—Columbia River Basin Fish and Wildlife Program (five-volume set)
- 1986 Northwest Power Plan
Procedure for Responding to Petitions for Rulemaking to Revise the Northwest Power Plan
- Western Energy Study Draft Workplan
- Joint BPA/Council Issue Paper on Resource Acquisitions of the Northwest Power Act-Section 6(c)

Mailing Lists

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

- Northwest Energy News* (this bimonthly magazine)
- Update!* (public involvement newsletter mailed with the Council meeting agenda)

Name _____

Organization _____

Street _____

City/State/Zip _____

(Or call Judy Allender at the Council's central office, (503) 222-5161, or toll free 1-800-222-3355 in Idaho, Montana, and Washington, or 1-800-452-2324 in Oregon.)

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