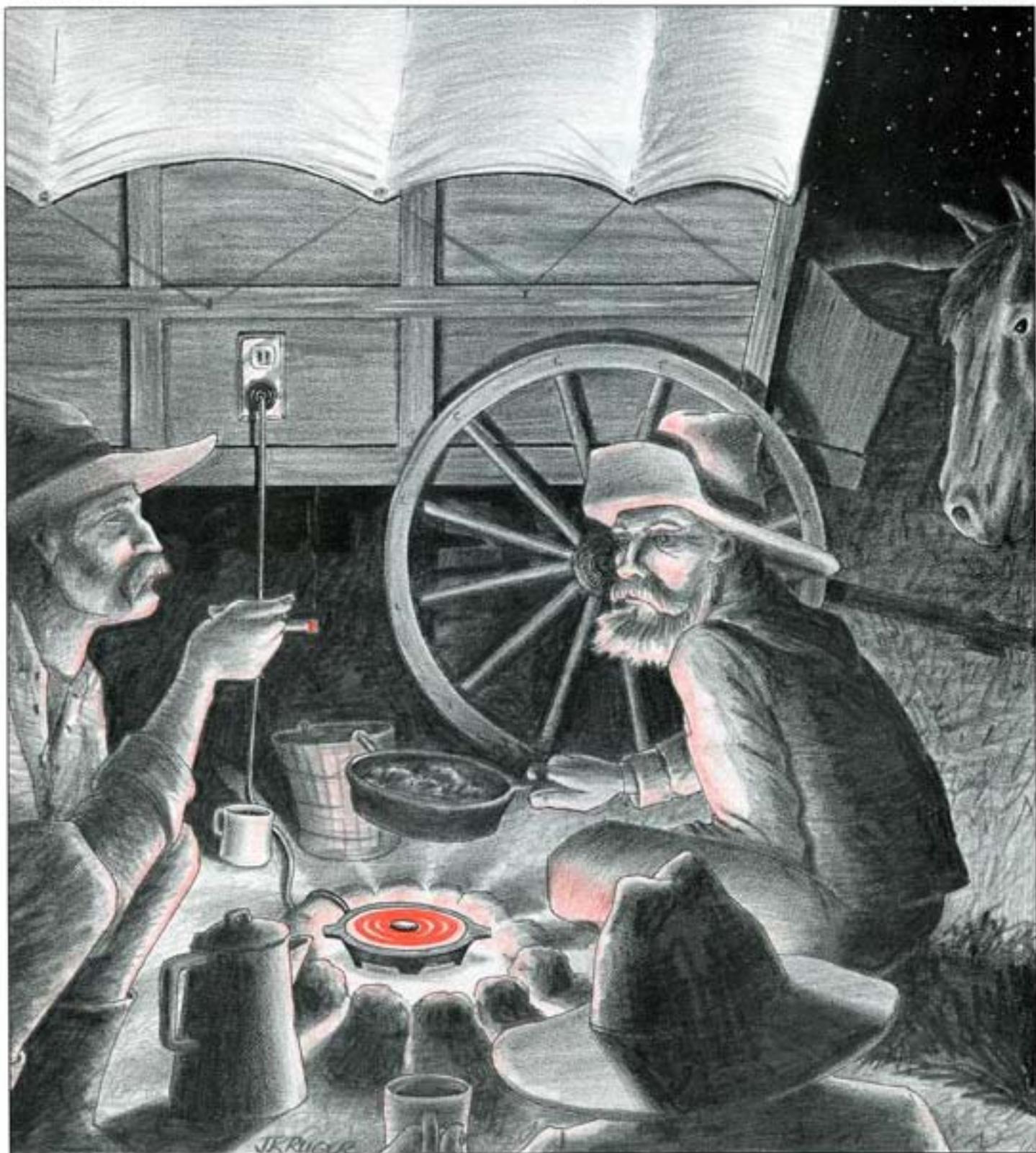


# N O R T H W E S T ENERGY NEWS

Volume 6, No. 4

Northwest Power Planning Council

June/July 1987



INSIDE: THE WIRED WEST—An Electricity System Connects the West

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

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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 River Administration, emphasizing cost-effective conservation and renewable resources.

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# Editor's Notes

Early summer in the Pacific Northwest usually follows a long, cool and wet spring. This year has been drier and, in some parts of the region, hotter than usual. Shallow snowpacks this side of the Continental Divide mean meager runoff in the rivers that drain the region. Irrigating farmers and ranchers, fisheries managers and power system operators all have claims to the annual thaw, making the growing cooperation among these interests more important than ever.

Beth Heinrich, in the Council's Idaho office, writes in this issue about one area where the interests in the Columbia River's hydropower and fish resources must be balanced—the annual water budget, which affords young migrating salmon and steelhead a speedy trip to the sea.

Cooperation is also one theme of the Hood River Conservation Project, which was concluded this spring. Duley Mahar outlined the results of that project in "The County That Came in from the Cold."

In recognition of the Bonneville Power Administration's 50th "birthday," Mahar also interviewed the middle-aged agency's new Administrator Jim Jura.

Our lead story, "The Wired West," continues our series of pieces from the Council's Western Electricity Study (formerly known as the Western Energy Study).

**COVER ILLUSTRATION:** Our cover illustration, a takeoff on the classic art of the West, was created by Portland artist Jerry Kruger.

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# THE WIRED WEST

An Electricity System

Connects the West

by Ruth L. Curtis



Illustration by Jerry Kruger

# THE WIRED WEST

An Electricity System  
Connects the West

**T**he lights went out in Colorado at 4:14 p.m. on February 12, 1985, because a circuit breaker failed more than a thousand miles away at a substation in The Dalles, Oregon. About 28,000 utility customers in Colorado and Montana were affected by a hydropower system most of them had never heard of. In matters of electricity at least, they found they had more in common with the citizens of Oregon than with their neighbors in Kansas.

Colorado and Montana are part of the western electricity system, a system that extends from British Columbia and Alberta, Canada, south through the Pacific Northwest and the Rocky Mountain states to California and New Mexico. Wired together with transmission lines, the area embraces British Columbia and Alberta, Washington, Idaho, Montana, Oregon, Colorado, California, Nevada, Utah, Wyoming, Arizona and New Mexico. This enormous system is largely autonomous from the rest of the United States and Canada.

Within those 11 western states and two Canadian provinces, each utility's transmission lines and power generators, whether hydroelectric, nuclear or another fuel source, are carefully synchronized. All operate together to meet the West's electrical needs. An event at one end of the system can affect customers at the other end, more than a thousand miles away.

The western system works, but no one claims it is perfect. Utilities and governments are currently taking a hard look at the cooperative power arrangements that make up

the system to see what fine tuning can be done to increase its benefits.

As part of this effort, the Northwest Power Planning Council began its Western Electricity Study this spring. The goal of the study is to improve the Council and the Northwest's understanding of the opportunities presented by power transactions with other parts of the West.

The how and why of the system's inner workings are based on the differences among each region's electricity systems. These differences arise from the specific economies or physical features unique to separate parts of the West. The Western Electricity Study divides the West into the following regions: Canada, composed of British Columbia and Alberta; the Northwest, including Washington, Idaho, Montana, Oregon, Utah and northern Nevada; the Rocky Mountain states of Colorado and Wyoming; California, plus southern Nevada; and the Southwest, composed of Arizona and New Mexico.



**M**ajor river systems wind through the Northwest and British Columbia flowing from high mountains to the sea. This drop in elevation increases the rivers' power and allows large amounts of energy to be generated by hydroelectric dams, which produce the majority of electricity in the Northwest and British Columbia. The remainder of the West is dominated by thermally generated power from nuclear, coal and oil plants.

Because California has more people than any other state in the West, it uses large quantities of electricity. But the state's relative consumption of electricity is not that large. Over half of the West's 50 million people live in California, but California accounts for only 36.4 percent of the West's electricity consumption. On the other hand, the Northwest, with only 17.4 percent of the western population, runs closely behind California in electricity use, consuming about 30 percent. The rest of the West — Canada, the Rocky Mountains and the Southwest — account for the remaining third of the electricity consumed.

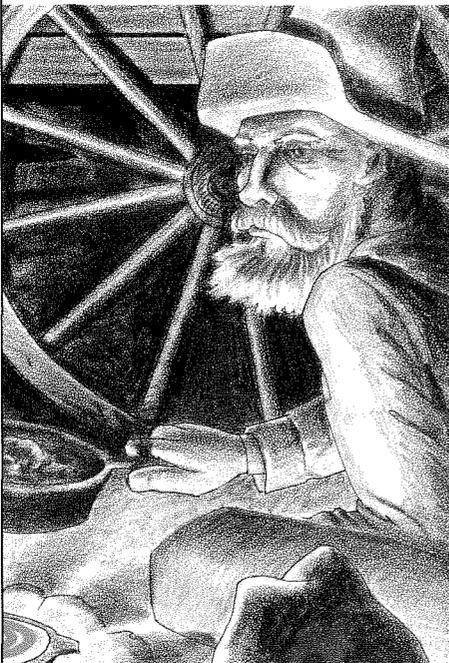
The Northwest's low-priced and plentiful hydropower accounts for the region's high electricity consumption. People and industries were actively encouraged to take advantage of the resource. Because of extensive reliance on electricity for space and water heating, Northwesters use twice as much electricity per capita as citizens in other parts of the nation do.

## Each year, the Northwest's aluminum smelters alone use almost as much electricity as the entire state of Colorado, or three times the amount Wyoming uses.

Cheap power was also an incentive that brought energy-intensive industries such as aluminum smelters to the Northwest. Each year, the Northwest's aluminum smelters alone use almost as much electricity as the entire state of Colorado, or three times the amount Wyoming uses.

A large portion of the electricity consumed in British Columbia and Alberta also is used for industrial purposes. Again, low prices attracted electricity-intensive industries. Canada's wealth of raw materials also drew other industries (wood products and oil and natural gas drilling) that find it economical to process materials close to their source.

For commercial uses of electricity, the California/southern Nevada region ranks highest, due primarily to the San Francisco and Los Angeles urban centers.



The regions of the West differ not only in *how* they use electricity, but also *when* they use it. *When* electricity is used is a critical dividing factor and an important reason for the regions to cooperate in the distribution of electricity. Because the Northwest and Canada rely on electricity for space heating, electricity use for those areas peaks during the winter months. In fact, 27 percent more electricity is used in the winter than in the relatively cool summers, when there isn't much demand for air conditioning.

The Southwest and California have the opposite situation. Their peak demand for electricity occurs during the long hot summers when air conditioning is considered a necessity. In the winter, demand decreases by 28 percent, because there is not a large space heating load.

Only in the Rocky Mountains is electricity use approximately equal during both seasons. Both winters and summers have extreme temperatures that require tempering.

In much of the West, electricity use swings dramatically with the seasons. But when differences are averaged out over the entire West, the swing is only 14 percent, half of what California experiences. This is a major reason why the West's transmission system was developed. A single generating plant can serve the winter load in one region and the summer load in another region, eliminating the need to duplicate the facility in both regions.

The western electricity system has, in the United States alone, over 100,000 circuit miles of transmission lines, varying in size from 115 to 500 kilovolts. In 1986, these wires carried the 556 million megawatt-hours of electricity that the West used—63 times Seattle's total electricity use last year. The highest rate of electricity transmitted at one time, or the peak amount, was 91,768 megawatts in August 1986. On January 1, 1987, the West had the capability to generate 144,263 megawatts.

Electricity is distributed from one region to another within the system in a variety of ways. Sometimes a power plant will be built in one region to serve another region. Coal plants have been built in the coal-producing areas of Montana and Wyoming to serve power needs in western Oregon and Washington, because transporting coal costs more than transmitting electricity.

Electricity exchanges are also made between regions. Several Northwest utilities have exchange agreements with Southern California Edison. The utilities sell electricity to California in the summer, when Northwest loads are low and Californians have their air conditioners on. In the winter, when Northwesterners are heating their homes, the electricity is returned.

Occasionally, firm electricity is sold by one region to another. Firm electricity is energy for which delivery can be considered assured. It can be sold if a region has more than it immediately needs for its own use. Arizona and New Mexico have several of these arrangements with California. The Bonneville Power Administration often makes short-term sales of this type to California utilities.

## When gas and oil prices are high, California buys the Northwest's inexpensive hydroelectricity.

**F**inally, there are nonfirm or "economy" transactions between regions to take advantage of short-term situations, such as an excess of water in a river system. Such transactions are generally scheduled on an hour-by-hour, as-available basis, usually about a day in advance.

The Northwest often makes these types of sales to California, because 45 percent of California's generation capacity is gas and oil-fired turbines. When gas and oil prices are high, California buys the Northwest's inexpensive hydroelectricity. Because this is one of the largest markets for Northwest power, the revenues Northwest utilities receive from sales are very sensitive to oil and gas prices. When the price of oil or gas goes down, as is the case now,

California's utilities will pay less for alternatives to running their own plants.

California is also attempting to reduce its dependence on gas and oil by replacing 10 percent of its generating capacity with other resources. These patterns affect Northwest utilities, and through them, Northwest ratepayers.

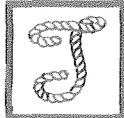
So, why did the lights go out in Colorado? When the circuit breaker failed at Big Eddy substation in The Dalles, much of the power being fed into the system by The Dalles and Chief Joseph dams was lost. The lights went out in many of the surrounding communities in Oregon and Washington.

At the time, Montana was sending electricity to the Northwest. When the circuit breaker failed, those transmissions fell out of synchronization. To protect its own system, Montana Power Company was forced to shed some of its power load. In Montana, 90,000 customers were affected.

The lack of synchronization spread south to Colorado and Wyoming, tripping transmission lines there and causing lights to go out. Transmission frequency problems were noted in Arizona and New Mexico, although no transmission lines or generation were lost there.

Through the system's intricate series of checks and balances, all customers had their service restored in five hours, and the western electricity system was back to normal.

## The Western Electricity Study



**T**his spring, the Northwest Power Planning Council began a study to build an understanding of the western electricity system among those involved in the Northwest's power planning process. The Western Electricity Study is designed to open communication lines with other groups in the West also involved in the power system. A paper introducing the study was distributed in May.

Work from the first phase of the study will be featured in a series of briefing papers on the important characteristics of the western electricity system. The papers and their scheduled release dates are:

1. Western system overview — July.
2. Electricity demand and economic growth — July.
3. Current electrical resources — August.
4. Electric rates in western regions — August.
5. Interregional transactions — September.

6. Regulatory framework for electricity systems — October.
7. Planned future resources — November.
8. Load/resource balances — December.
9. Review of previous studies — December.



lease contact the Council's central office to receive these papers. (Telephone: 1-800-222-3355 in Idaho, Montana and Washington, 1-800-452-2324 in Oregon, or 503-222-5161). Those people who received

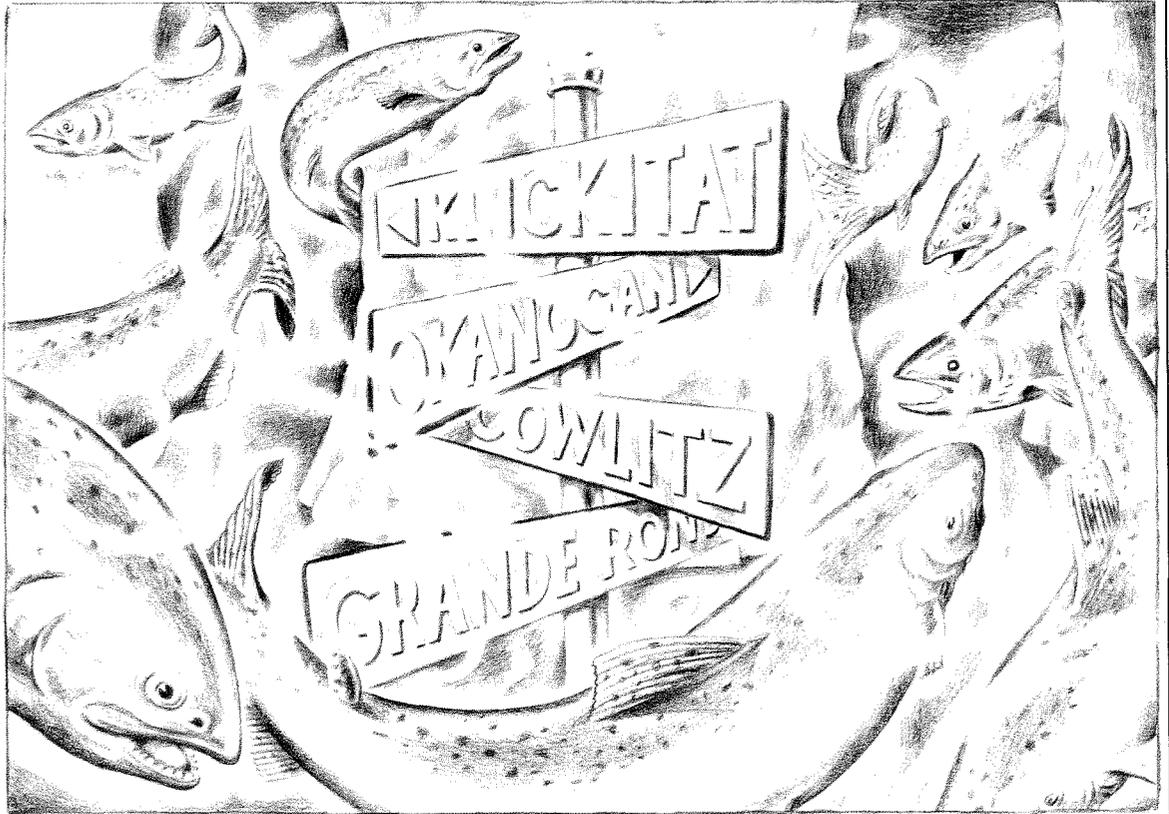
the Introduction to the Western Electricity Study will automatically receive the briefing papers.

In the second phase of the study, Council staff will explore individual issues such as the development of the "Site C" hydroelectric project on the Peace River in Canada, the effects of oil and gas prices on Northwest electricity supplies and prices, or the expansion of the Pacific Northwest/Pacific Southwest intertie transmission lines.

— RC

# A SCHEME FOR THE STREAMS

## Studying the Subbasins



by Paula M. Walker

**I**f the Columbia River Basin were a city, it would truly be a megalopolis, reaching across more than a quarter of a million square miles of land in seven states and parts of Canada. With the Columbia River as Main Street, the basin's vast network of tributaries would form a highway system that would make the California freeways look like the Oregon Trail. Like all cities, this one would have its share of urban crises. One of the most profound would be the rapid loss of its highly mobile population — the salmon and steelhead that course through its rivers and streams to reproduce in the basin.

The Northwest Power Planning Council estimates that the basin has sustained an annual loss of about 7 to 14 million salmon and steelhead from a variety of causes. The Council has set a goal of doubling the current annual run size of 2.5 million fish to compensate for some of the losses resulting from hydropower development and operations.

To achieve the doubling goal, the Council has developed a process called "system planning," which takes into account all of the Columbia Basin that is accessible or can be made accessible to salmon and steelhead. Because the basin is composed of nearly a half-million miles of rivers and streams, the vast area is broken up into smaller units called subbasins. If the Columbia Basin were

a sprawling city, the subbasins would be neighborhoods, each with its own flavor and character.

During the next few years, those who live, work and recreate in the Columbia River Basin can participate in deciding how to produce twice as many fish in the basin. By working with fisheries managers throughout the planning process, sport fishers and other outdoor enthusiasts can help shape the future of their favorite streams.

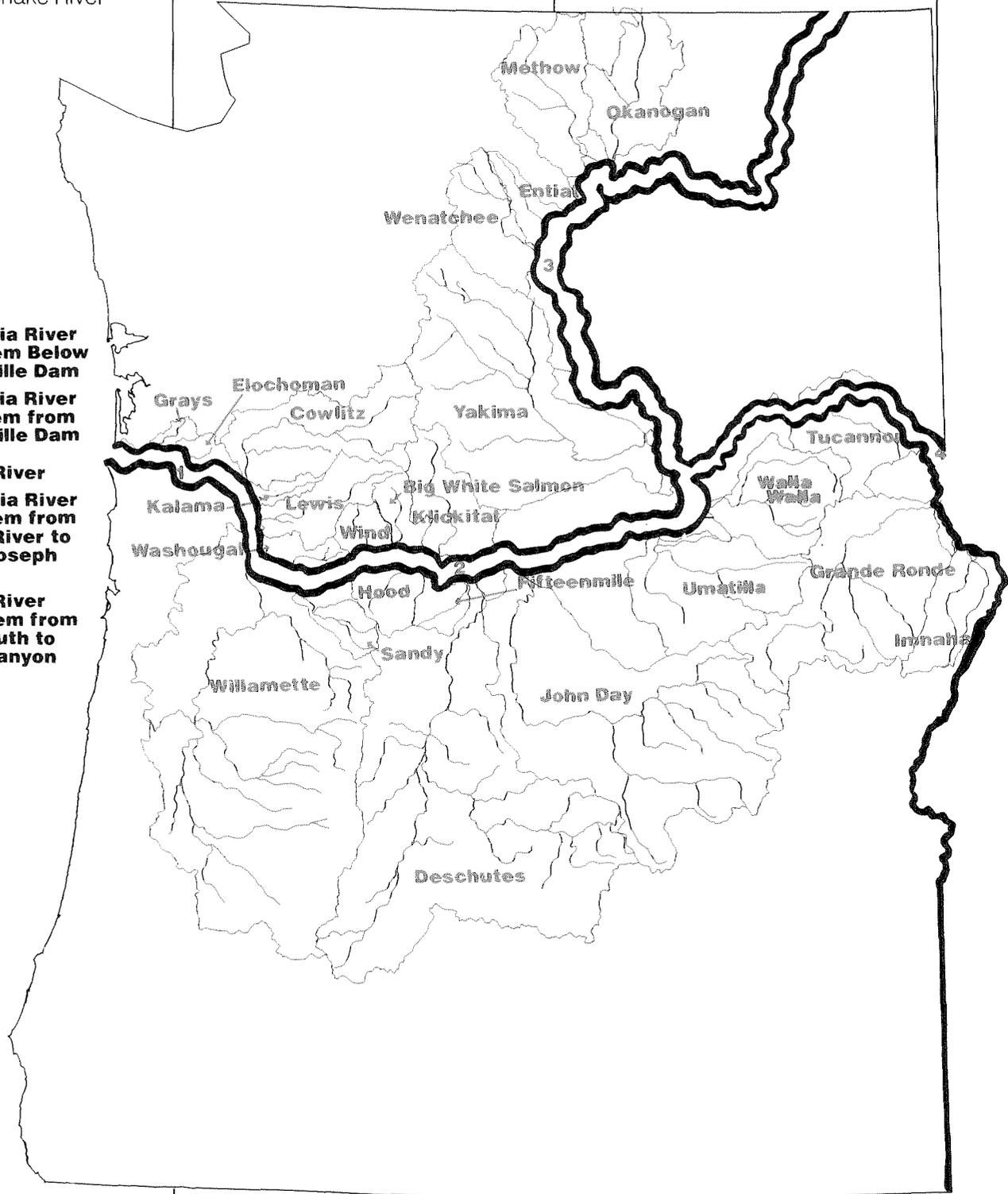
For salmon and steelhead planning, the Council uses 31 subbasins in Oregon, Washington and Idaho. [See map.] (River reaches in Montana are not accessible to salmon and steelhead.) Each subbasin is identified by a watershed. Most are major tributaries to the Columbia or Snake rivers.

The exceptions are the mainstems of the Columbia and Snake rivers, which have been divided into four subbasins to aid system planning. They are: 1) mainstem Columbia River from the ocean to Bonneville Dam; 2) mainstem Columbia River from above Bonneville Dam to the Snake River; 3) mainstem Columbia River from its junction with the Snake River to Chief Joseph Dam; and, 4) mainstem Snake River

from its mouth to Hells Canyon Dam. All four subbasins include minor tributaries to those sections of the mainstem rivers.

**E**ach of the 31 subbasins is rich with history and topography. The Methow Valley, named for the river that runs through it, lies in the midst of the fruit orchards of north central Washington. The area reputedly inspired the landmark Western novel, *The Virginian*.

- 1. Columbia River Mainstem Below Bonneville Dam**
- 2. Columbia River Mainstem from Bonneville Dam to the Snake River**
- 3. Columbia River Mainstem from Snake River to Chief Joseph Dam**
- 4. Snake River Mainstem from the mouth to Hells Canyon Dam**



**If the Columbia Basin were a sprawling city, the subbasins would be neighborhoods, each with its own flavor and character.**

In the Snake River subbasin, that river and the Hells Canyon it flows through were the subjects of an article in a 1939 issue of *Harper's* magazine. The author termed the Snake River "the least known major waterway of the continent," claiming it was surpassed in hydropower potential by only the Columbia, Colorado and Tennessee rivers.

The Yakima River subbasin lays claim to the origins of "bulldogging," a term coined when an ambitious cowboy leapt off his horse and wrestled a steer to the ground by its horns.

While these and other tales illustrate the vivid past of the individual areas that together form the Columbia Basin, the subbasins are equally rich in their biological contributions to the basin. The Hanford reach of the Columbia River (in the mid-Columbia subbasin that runs from the confluence of the Columbia and Snake rivers to Chief Joseph Dam) contains the last natural spawning area in the mainstem of the Columbia for fall chinook salmon.

Wenatchee Lake in the Wenatchee subbasin in central Washington, and Osoyoos Lake, which straddles the British Columbia-Washington border in the

Okanogan subbasin, are the last two major spawning grounds for sockeye salmon in the basin.

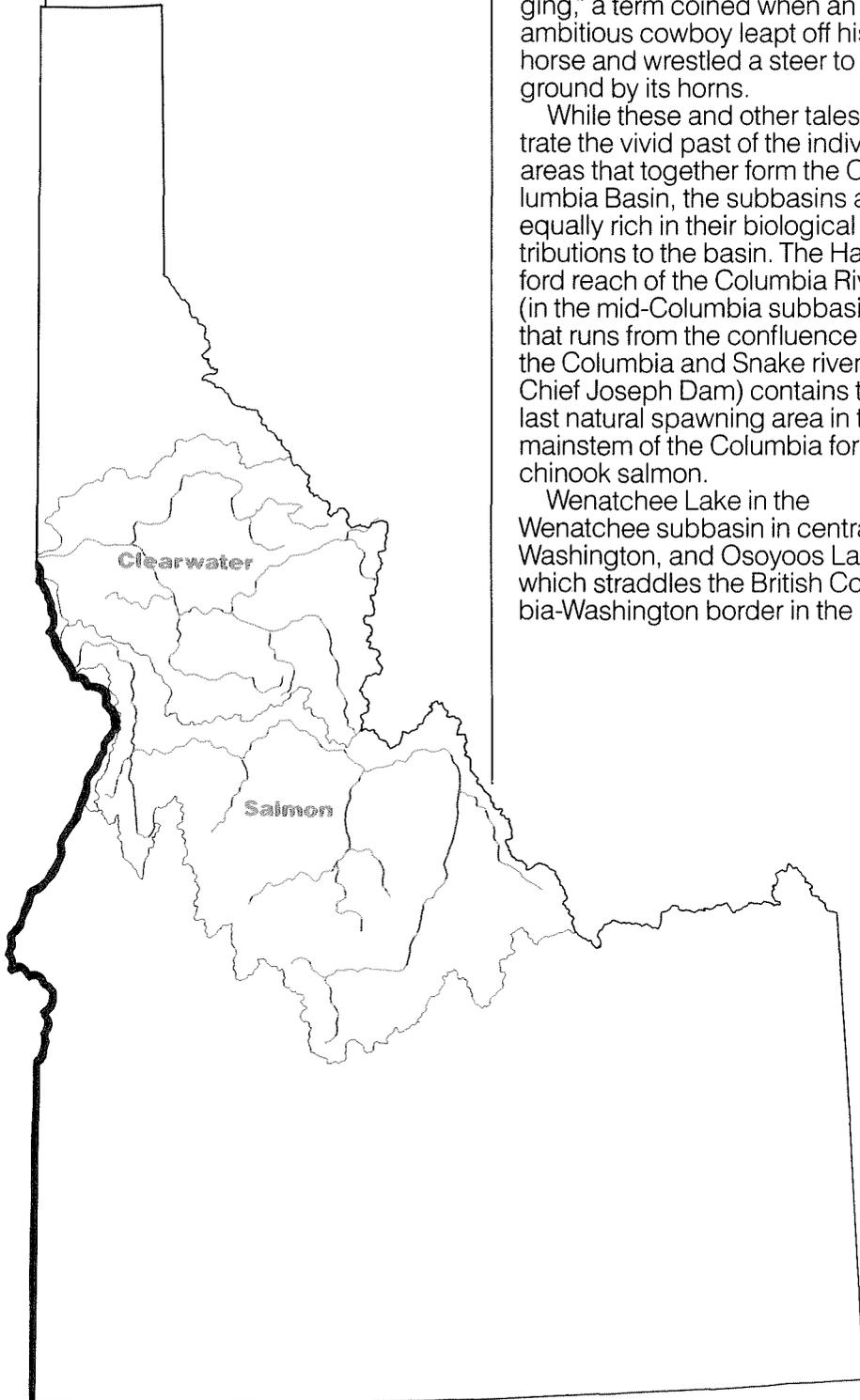
The 31 subbasins that comprise the Columbia Basin "metropolis" are as diverse as Wall Street and Harlem. They range in size from the 14,000 square miles of the Salmon River subbasin in Idaho to the 1,000 square miles of the Fifteenmile Creek subbasin near The Dalles, Oregon. Some are more developed than others. The Willamette in west-central Oregon, for example, links three major urban areas of that state, while the Imnaha, which flows down from the Wallowa Mountains in north-eastern Oregon, is virtually untouched.

During the subbasin planning stage, all 31 subbasins will be the subjects of intensive examination, testing and analysis. Biologists and other planners will scrutinize the characteristics of the individual subbasins to propose alternatives for how each subbasin can best contribute to the overall goal of doubling the runs.

Because the subbasins are so diverse, a systemwide perspective is essential to ensure that all the subbasin plans are consistent with the basinwide plan. Without such integration at the overall system level, actions taken to protect or enhance fish stocks in one subbasin could have detrimental effects on another subbasin. Therefore, planners at the subbasin level will need to work closely with system planners.

**R**ebuilding the salmon and steelhead runs will require a coordinated three-fold approach emphasizing: 1) fish production in both artificial and natural environments; 2) improvements in facilities to help the fish move safely past the dams in the mainstems of the Columbia and Snake rivers; and, 3) careful management of fish harvests in the ocean and in the basin.

Systemwide planning provides a means to coordinate those efforts to prevent them from back-firing. For example, if a new hatchery is built to produce more fish,



the investment in that hatchery will be lost if most of the fish produced die as they try to travel downstream to the ocean.

To ensure that subbasin plans are coordinated with the system plan, the Council's fish and wildlife program lists considerations that system and subbasin planners should incorporate into their plans. The process will involve much interchange between the two groups.

The system planners will use tools such as the Council's computerized system planning model to simulate the levels of salmon and steelhead production that an individual subbasin can sustain. The subbasin planners will provide the finer details based on their specialized knowledge of each subbasin.

The system planning process is well under way. A system planning group composed of fish and wildlife agency and tribal representatives submitted a system planning work plan to the Council in May. The Council currently is discussing the plan with interested parties in the basin, with public comment scheduled on the plan at the Council's June meeting.

After public comment and consultations, the Council is expected to act on the work plan at its July meeting. When approved, the Council intends to provide funding to the fish and wildlife agencies and tribes to support the planning effort.

The proposed work plan provides a format for subbasin plans that specifies what information subbasin planners would provide.

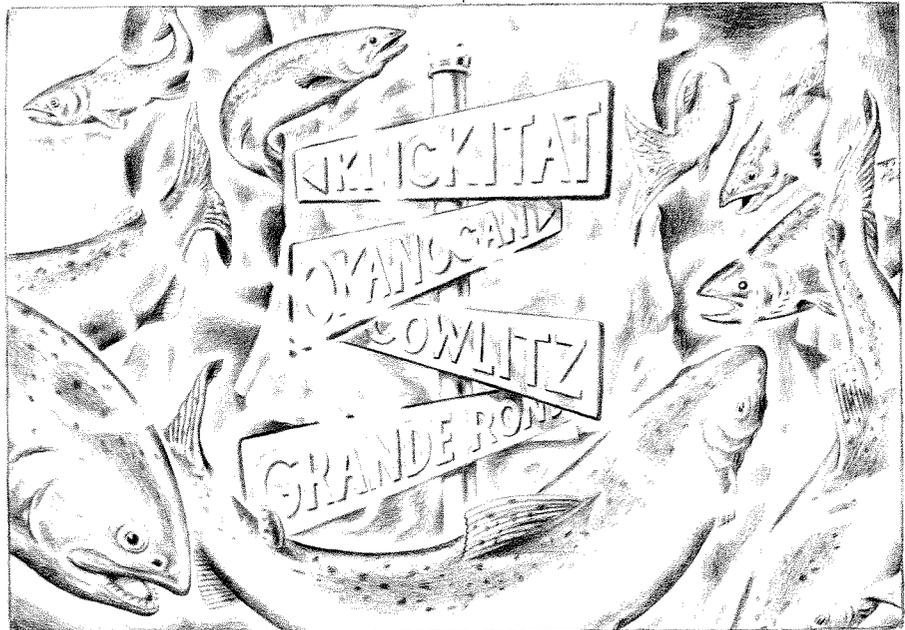
Planners would determine the current amount of wild, natural (hatchery-reared fish that are released to streams to which they return to spawn) and hatchery production for each species in each subbasin. Other factors to be identified include the number of fish the existing habitat could potentially sustain, current harvest levels, interaction among the various species of fish, and information on the genetic makeup of the basin's fish.

But the fish do not exist in isolation in a subbasin. Activities such as logging, farming, ranching, mining, residential and hydro-power development can all have an impact on the quality of the rivers and streams for fish production. Therefore, practical limits on biological potential also must be weighed. Only after all that information has been collected and studied can the planners begin to develop a set of specific objectives in each subbasin and then design strategies for achieving those objectives.

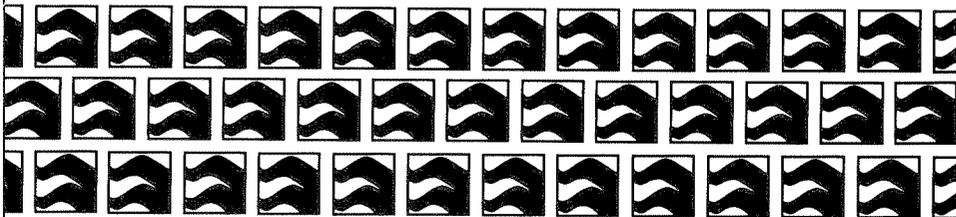
Although the proposed subbasin plan format is still in the design stage, it does provide a planner's-eye view of the complex weave of characteristics that shape a subbasin. When the subbasin planners complete their work, it will be up to the system planners to develop an integrated system plan that will be submitted to the Council.

Upon Council approval, the plan will be added to the existing fish and wildlife program. The overall system plan will then govern how the salmon and steelhead actions of the program will be implemented throughout the Columbia River Basin.

If subbasins are the biologist's equivalent of neighborhoods, then systemwide planning is comparable to urban planning. Much as urban planners coordinate the diverse elements of a city, system planners will use information about subbasins to plan for the coordinated production of salmon and steelhead in the Columbia Basin, an area as diverse and distinctive as any cosmopolitan metropolis.



# WORKING OUT THE WATER BUDGET



by Beth Heinrich

With spring in the Columbia River Basin comes the onslaught of millions of young salmon and steelhead pouring toward the Pacific Ocean. But what was once a quick and relatively trouble-free trip is now a long, treacherous trek. The spring freshet that literally flushed the fish to the sea is now harnessed by hydropower dams on the Columbia and Snake rivers. What's left of the super highway to the sea is simply a chain of sluggish reservoirs.

The slowed river threatens the fish because they are undergoing a biological transformation enabling them to move from freshwater to saltwater environments. The transformation has a time limit. If the fish are stalled in reservoirs, their chances of surviving the journey are greatly jeopardized. Speeding up the flows through these reservoirs is one way to shorten travel time and increase the odds for the young salmon and steelhead.

That is exactly what the Council's "water budget" is designed to do. From April 15 to June 15, during the peak of the migration, the region's fish agencies and Indian tribes may request water releases from storage reservoirs when and if increased flows are necessary to aid the young fish, or smolts. But as its name implies, the water budget is a limited volume of water — one that must be used carefully and judiciously, particularly in dry years like this one.

Months before a single drop of water is released for fish, the key players in the Northwest huddle to discuss the water budget's game plan. What may have been an unlikely collection of agencies 10 years ago is now a team practiced in coordinating other uses of the river with adequate flows for fish.



Beginning in January, the U.S. Army Corps of Engineers calls the team members together. The roll call consists of the U.S. Bureau of Reclamation, the Bonneville Power Administration, Idaho Power Company, the Fish Passage Center, the Council and others. Analyzing the National Weather Service's latest water supply forecast and determining the amount of water available for this year's water budget are only two tasks of many the group must tackle. Once the team has agreed upon the logistics, a "Coordinated Plan of Operation" is presented to the Council.

With the plan of operation in place, the ball falls into the hands of the Fish Passage Center in Portland. Fish Passage Managers Mal Karr and Michele DeHart, representing 13 of the Northwest's Indian tribes and seven fish and wildlife agencies, respectively, serve as the liaisons between the fish interests and the electrical power system. They are responsible for informing the Corps when and to what extent they wish to draw on the water budget.

Armed with hatchery release schedules, flow forecasts and a smolt tracking system, Karr and DeHart make daily and weekly decisions whether to augment flows. Every afternoon finds at least one of the managers and the Council's fish passage advisor, Jim Ruff, sitting in on the daily operations meeting at the Corps' Reservoir Control Center in Portland.

The Fish Passage Center manages two water budgets, one for the mid-Columbia River and one for the Snake River. Storage releases from the Bureau of Reclamation's Grand Coulee Dam provide flows for the mid-Columbia water budget. In the Snake water budget, releases from the Corps' Dworshak Dam and Idaho Power's Brownlee Reservoir are key.

The Fish Passage Center is optimistic that flows on the mid-Columbia will be adequate to protect migrating smolts this year. The picture is not so promising on the Snake. While the Columbia Basin's runoff was forecast to be only 69 percent of normal this spring and summer, conditions in the Snake River Basin were even worse. The Snake River runoff in Idaho was forecast to be only 49 percent of normal this spring and summer.



Despite the dry conditions, there is a piece of good news. For the first time in four years, Idaho Power has committed to contributing water to the Snake's water budget. The Bonneville Power Administration has agreed to replace any electricity Idaho Power may lose when making water available to the water budget. The lower Snake River has very limited storage capacity, making it difficult to secure adequate flows for fish each spring. Idaho Power's participation is one step toward remedying that problem.



***“Fear no more  
the heat  
o’ the sun,  
Nor the  
furious  
winter’s  
rages” \****

***\*From “Cymbeline” by William Shakespeare, Act 4, Scene 2***

# SPOTLIGHT ON ASHLAND

by Carlotta Collette

**In 1986, the city of Ashland, Oregon, was recognized by the Bonneville Power Administration for having 80 percent of the city's new electrically heated houses meet the Northwest Power Planning Council's model conservation standards for energy-efficient new houses. Bonneville provided builder training and marketing assistance to the city through the "Super Good Cents" marketing program the agency instituted in 1985.**

**But there's another story behind Ashland's recent success. Almost from the time the town was first settled, the city's leaders have made a commitment to efficiency as a guiding principle in city management. Last year's Super Good Cents success story is really only another chapter in a long history of innovative urban problem solving.**

**A**t the turn of the century, Ashland, Oregon, was calling itself the "home town of Southern Oregon ... a pleasant home in a pleasant place." Incorporated in 1874, the city's population grew from 300 to 3,000 in its first 15 years. Photographs from this period show a picturesque hillside community at the southern outlet of the Rogue River Valley.

Flour, lumber and woolen mills provided a stable economic base for the young town. A state college, public schools, nine churches, a well-stocked library, an electric company (the second in the state) and the theater that eventually grew into the world-famous Shakespearean Festival all contributed to the city's early reputation for "piety and progressiveness."

Piety and progressiveness were also reflected in the city's first electrical rate schedule. In 1889, churches, the opera and bedrooms all cost less to light than saloons (which paid a premium), other businesses and other rooms in houses. Conservation was rewarded in that innovative rate structure. Homeowners who

turned their lights off at 9:30 p.m. paid 75 cents a month for electricity. For the privilege of keeping lights on all night, ratepayers had to spend \$1.35 each month.

**C**ontemporary Ashland still takes pride in its early heritage and the practicality that marked its steady growth from a small village to a medium-sized city of 16,000 citizens. But the city's first century was nurtured by the price of crude oil — the raw material that drives industries and towns — which declined continuously from 1870 to 1970. Then from 1970 to 1980, the price of imported oil jumped more than 1,000 percent.

In the Pacific Northwest, a region that normally would have been sheltered from such increases by the low cost of its hydropower, a simultaneous series of low water years and forecasts of electricity shortages encouraged an interest in other energy resources.

Urban planners across the United States began rethinking their mandates, looking at ways their towns could temper the effects of shortages and price markups in such basic commodities. The move across the country was toward more self-reliant communities, and Ashland was an early leader in the movement.

Faced with the prospect of rising electricity costs, Ashland's Department of Community Development combined respect for the past with careful attention to the multiple needs of the future. An inventory of the city's energy assets pointed up a defunct hydro-power project on Ashland Creek above the town; an enviable amount of year-round free sunlight; and a sturdy conservation ethic shared by a majority of the town's populace.

The town's small dam was refurbished to generate about 2 percent of the city's electricity. But turning sunshine and good intentions into the equivalent of electrical generating resources took vision and fortitude—resources of another sort Ashland has in abundance.

## Ashland's planners forged a comprehensive plan to meet their city's new needs.

Taking direction from cities such as Davis, California, whose Village Homes Development combined energy conservation, solar heating and communal open spaces and gardens, Ashland's planners forged a comprehensive plan to meet their city's new needs. One of their initial moves was to protect the resources already available to the town. Guaranteed access to the valuable sunlight falling on Ashland buildings was among the first things considered.



### SIGNING UP FOR SUPER GOOD CENTS

There are currently 80 electrical utilities in the Northwest participating in the Super Good Cents marketing program operated by the Bonneville Power Administration. Super Good Cents offers utilities and builders a voluntary marketing approach to achieve the energy savings of the Northwest Power Planning Council's model conservation standards.

Through Super Good Cents, the utilities receive technical information regarding the standards and how to implement them; training for local builders learning construction techniques to improve the energy-efficiency of buildings; marketing assistance to help sell the new houses; and financial incentives to either home builders or home buyers.

The four Northwest state energy offices provide technical assistance on the model conservation standards and the Super Good Cents program. Super Good Cents utilities also provide training. Workshops to train builders are held regularly in each state. Training frequently covers such topics as energy-efficient wall construction, advanced structural framing techniques, and installation of air and vapor barriers and ventilation systems. Super Good Cents training video tapes have also been prepared.

For more information about the Super Good Cents programs, contact the local electrical utility, state energy office, or any area or district office of the Bonneville Power Administration.



**B**acked by the Klamath Range of the Siskiyou Mountains, Ashland has a climate like northern California's, about 20 miles to the south. The Klamath Mountains cast a rain shadow over Ashland, leaving the city only 18-20 inches of rainfall each year. Summers in the city are bright and hot. But more than half the city — the downtown and older hillside houses plus many of the newer homes — steps down along the north face of the town's own mountain. As the sun in winter sinks lower behind the community and the cool season approaches, sunlight that could cheaply heat homes becomes a more limited and precious feature.

## In 1980, the city adopted one of the first citywide solar access ordinances in the nation.

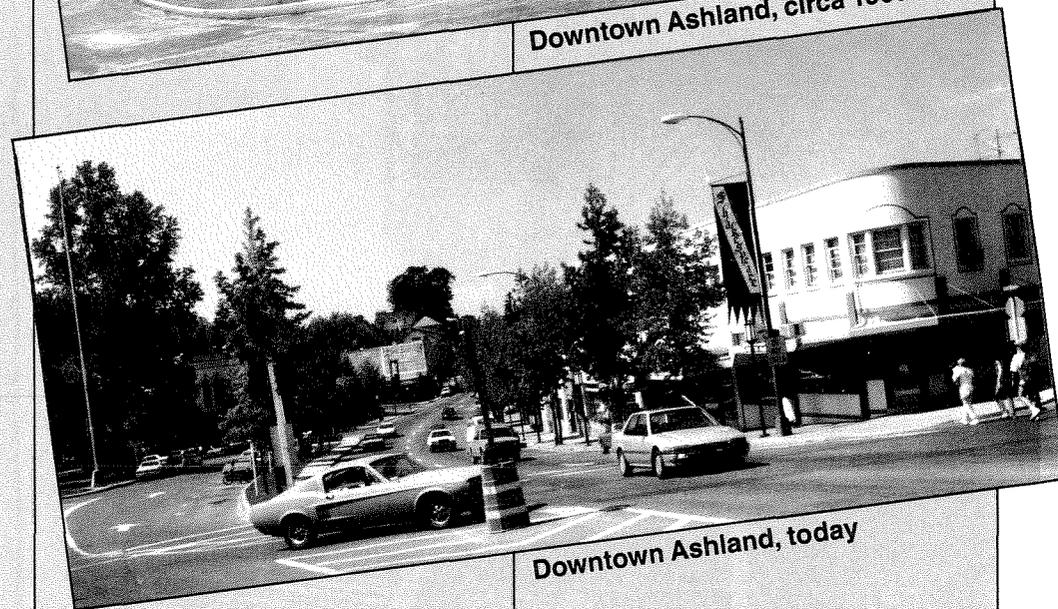
In 1980, Ashland's director of community development, John Fregonese, wrote, and the city adopted, one of the first citywide solar access ordinances in the nation. Because of Ashland's difficult northern orientation, the solar access ordinance called for complex calculations to guarantee full sunlight on hillside lots and homes. About 60 percent of Ashland's new homes now have significant solar contributions to their winter heating.

But as helpful as the sun in winter can be, in summer the reverse can be true. Like neighboring California, Ashland uses a good deal of its electricity to cool down the city. Consequently, even before solar access became the law of that land, natural cooling was written into the city's building standards.

**Parking lots in Ashland must have one large shade tree for every 10 parking spaces, and the city's streets must also be canopied by spreading trees.**



Downtown Ashland, circa 1960



Downtown Ashland, today

The city's "Site Design and Use Guidelines" explain that, "trees, shrubs and living ground cover provide shade and shelter, aid in energy conservation and moderate the local climate in developed areas." Parking lots in Ashland must have one large shade tree for every 10 parking spaces, and the city's streets must also be canopied by spreading trees. Climate-conscious landscaping is required in all new housing developments.

To further guide Ashland's housing and business growth, the city instituted a series of "performance standards options" that allow developers to increase the number of houses or office sites in a given area.

For example, housing developments in Ashland are limited to a base of six homes per acre. If a developer builds only homes that meet strict energy conservation standards; adds housing for people with lower incomes; or incorporates open landscaped areas and shared gardens, more than the base number of homes

can be built at the site. The developer is given points for adding efficiency and other considerations. Dick Wanderscheid, the city's energy conservation coordinator, explains that "the city wanted to encourage people to build energy-efficient houses without getting into enforcement kinds of problems."

Then, to make the most of nature's heating and cooling, Ashland's citizen-owned utility became an active participant in energy conservation programs offered by its power supplier, the

Bonneville Power Administration. After the Northwest Power Act became law in 1980, Bonneville began offering assistance to help insulate and weatherstrip houses within its service area. Ashland signed up for the program and soon had 1,300 electrically heated homes insulated.

**"Conservation is really a win-win situation."**

**W**hen Bonneville began its Super Good Cents marketing program to help utilities encourage the construction of new, electrically heated homes that meet the Northwest Power Planning Council's model conservation standards, the Ashland City Council voted unanimously to participate in that program.

Wanderscheid feels that "Super Good Cents ties all our other energy-saving efforts together."

The city excelled at Super Good Cents. In 1986 Ashland was recognized for having 80 percent of its new electrically heated homes qualify for the program. "Very few people build minimum code houses in Ashland," Wanderscheid notes. "When you build houses that are energy-efficient, it raises people's expectations. It's hard to sell electrically heated houses that are not Super Good Cents houses, but all our Super Good Cents houses are sold before they're even built."

Ashland is able to provide more than 40 percent of its city services (police, fire, street maintenance, etc.) with the profits from the municipal utility. So why would the city want to reduce its own sales through energy conservation?

Part of the answer has to do with the way utilities must plan for the future needs of their customers. The utility must be able to provide enough electricity to meet the community's needs when power use is at its peak. If this demand for power grows beyond the existing supply, the utility, or its power supplier, must build new resources, which are generally very expensive. The costs of new generating resources are then passed on to the consumers.

"The municipal utility has to think like both a utility and its customers," says Wanderscheid. "The utility considers programs that save energy as demand-side management. It's cheaper to save energy than to build new generating resources. Saving energy is also good from the customers point of view because their bills are smaller. So conservation is really a win-win situation."



# HAPPY BIRTHDAY BONNEVILLE



## A Look Back Over Fifty Years

**Left:**  
By December 1937,  
Bonneville Dam,  
the first federal  
dam on the  
Columbia River,  
was nearing  
completion.

By Dulcy Mahar

**I**t is an anniversary year of which it can be said "it was the best of times ... it was the worst of times." As the Bonneville Power Administration nears its 50th birthday in August, it faces plummeting revenues, potential rate hikes, layoffs and continued talk of expedited repayment of its debt to the federal government. At the same time, it also has new leadership, new organization and, from all appearances, the vigor and spirit to take on its challenges.

Problems are nothing new to Bonneville, and, in fact, this anniversary year is fairly representative of the agency's sometimes rocky history. For example, in 1947 Congress slashed appropriations for the federal Columbia River System, resulting in significant staff reductions at the agency. In 1953 there were more cuts in budget and staff. In 1977 Bonneville hiked its wholesale power rates 27 percent, then 88 percent in 1979.

**B**onneville has survived its ups and downs and has been, throughout its history, an undeniably important component of the Northwest economy. Bonneville built the giant electrical transmission grid that crisscrosses the Northwest, the largest single utility transmission system in the world. This network brought electricity to rural areas, powered the region's industry and helped turn arid corners of the Northwest into productive farmland through electrified irrigation.

Milestones in the history of Bonneville are highlighted on these pages. They begin with some of the events that led to the Bonneville Power Administration at least a decade before Bonneville came on the scene.

**1927** River and Harbor Act of 1927 authorizes surveys of the Columbia and other rivers to determine sites for dams and storage reservoirs.

**1933** National Industrial Recovery Act is passed to help the nation recover from the Depression; law is used to start construction of Bonneville and Grand Coulee dams.

**1937** The Bonneville Project Act establishes the Bonneville Project (later renamed the Bonneville Power Administration) to build and operate electrical power transmission facilities, market and exchange power, negotiate power contracts and propose rate schedules. The Act also gives the U.S. Army Corps of Engineers responsibility for installing and operating generators at federal dams.

**1938** Bonneville Dam completed; first generator on line.

**1939** Bonneville contracts to supply power to Aluminum Company of America. Many aluminum and other war-oriented contracts follow in the next three years.

**1940** First Bonneville-Grand Coulee power transmission line begins service; it becomes the axis for the regional transmission grid. Bonneville is directed to market Grand Coulee power.

**1948** Memorial Day flood on Columbia River leaves 38 dead, 35,000 homeless, property losses at \$103 million. It leads to congressional authorization of new dams upstream for flood control.

**1953** Bonneville signs 20-year firm power sales contracts with six private power companies. (The contracts were not renewed in 1973.) Bonneville also enters into first "wheeling" contract, an arrangement to move non-federal power on its transmission lines.

**1961** First Coordination Agreement signed (for one year), followed by a 10-year Coordination Agreement in 1963 and a 39-year agreement in 1964. These agreements among federal and non-federal hydropower owners provide for coordinated approach to operating the river system to provide maximum energy, subject to other river uses. The agreements govern seasonal releases of stored water.

**1963** Upper Snake River drainage area incorporated into Bonneville service area; brings entire Columbia River Basin into Bonneville area.

**1964** Columbia River Treaty provides for joint U.S.-Canada development of upper Columbia Basin for flood control and power production; leads to Columbia Storage Power Exchange.

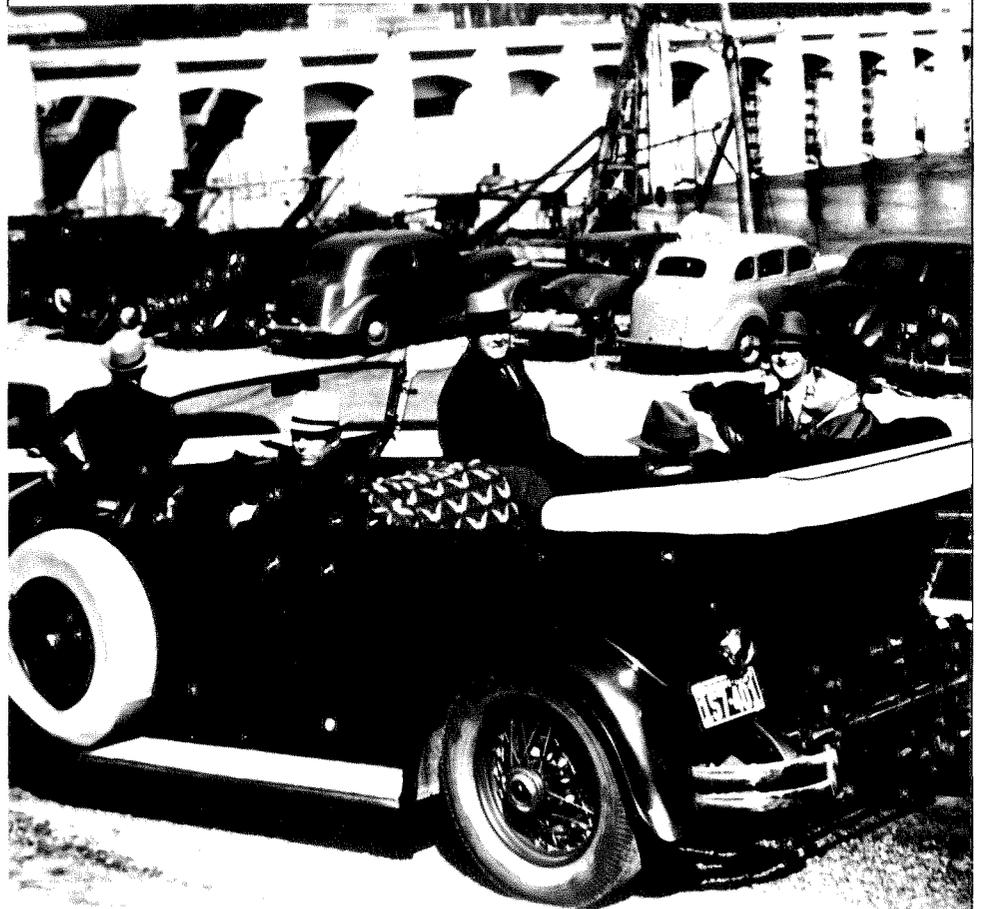
**1967** First intertie line goes into service; intertie links Northwest with Southwest and provides for power sales and exchanges between the two regions.

**1968** With the region beginning to outgrow its hydropower resources, Northwest utilities agree on a Hydro-Thermal Power Program to help non-federal entities construct new generating facilities.

**1974** Federal Columbia River Transmission System Act gives Bonneville self-financing flexibility by authorizing agency to issue revenue bonds.

**Opposite page:**  
**First Northwest Power Planning Council Chairman Dan Evans dons a celebratory T-shirt commemorating adoption of the 1982 Northwest Power Plan.**

**Below:**  
**Franklin D. Roosevelt made hydroelectric development of the Columbia River a campaign promise in 1932. In 1937, he returned to the Northwest to dedicate Bonneville Dam.**



**1976** Bonneville issues notices to customers that it will not have sufficient power to meet load growth beyond June 1983 because of anticipated electrical power shortages.

**1980** Pacific Northwest Electric Power Planning and Conservation Act (commonly known as Northwest Power Act) adopted. It gives Bonneville expanded authority to acquire resources and rebuild fish and wildlife populations affected by hydropower system. The Act also authorizes Northwest states to create a regional planning body, the Northwest Power Planning Council.

**1981** Northwest Power Planning Council created to develop a 20-year power plan and fish and wildlife program, with Bonneville a key implementor.



**1982** Council adopts Columbia River Basin Fish and Wildlife Program including Bonneville actions to protect and rebuild fish and wildlife populations affected by hydropower.

**1983** Council adopts Northwest Power Plan to ensure region has adequate electricity at lowest cost over the next 20 years; includes an action plan for Bonneville.

**1987** Bonneville and Northwest Power Planning Council issue coordinated policies for Council review of major Bonneville resource acquisitions.

For further information:  
Norwood, Gus, 1981, *Columbia River Power for the People*. Oregon, Portland:  
United States Department of Energy; Bonneville Power Administration.

## Who Was Bonneville?

“**Captain Bonneville**, of the United States’ army ... , in a rambling kind of enterprise, had strangely engrafted the trapper and hunter upon the soldier.” That was Washington Irving’s assessment of the man from whom Bonneville Dam, the Bonneville Power Administration and the town of Bonneville derive their names. Irving was probably more responsible for the loan of the name than was Bonneville.

Born of French parents, Benjamin Louis Eulalie De Bonneville was educated at West Point and stationed at various forts on the western frontier in the 1820s and 1830s. From 1832 through 1834, while on leave from the Army, he tried his hand at fur trading in the Rocky Mountains.

Bonneville organized a party of about 110 men and built a fort on the Green River in what is now Wyoming. From that base, he and his men explored parts of what are now Missouri, Kansas, Nebraska, Wyoming, Montana, Idaho, Oregon, Washington, Utah, Nevada and California (much of this area was



at that time part of Mexico). He proved to be a poor fur trader and returned to the Army, where he eventually rose to the rank of brigadier general in 1865.

Many historians claim that Bonneville, masquerading as a fur trader, was actually scouting the central Rockies for the U.S. government and searching for routes to California, activities which Bonneville and his men did indeed do.

Soon after Bonneville returned from his fur trading adventures, he became acquainted with the author Washington Irving. Irving edited Bonneville’s journal of the trip and in 1837 published “The Adventures of Captain Bonneville, U.S.A. in the Rocky Mountains and the Far West.” The popular book associated Bonneville’s name with western exploration in a way the country did not quickly forget—hence the name of Bonneville Dam. Ironically, Captain Bonneville never actually reached the dam’s site in his travels.

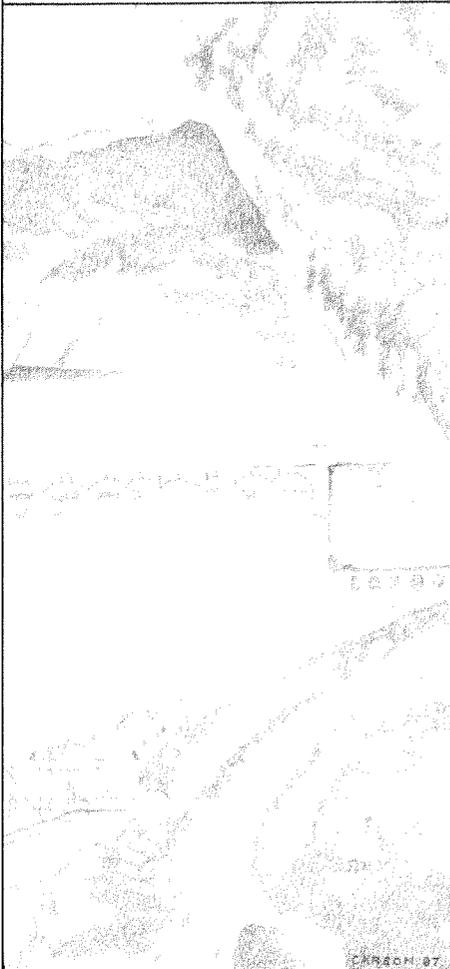
—Ruth L. Curtis

Dulcy Mahar interview with

# JIM JURA



Illustration by Lynn Carson



*Quiet ... shy ... diffident ... soft-spoken. These are not adjectives one expects to hear of the man who occupies the most important federal position in the Pacific Northwest. When Jim Jura was named Administrator of the Bonneville Power Administration, the region's federal power marketing agency, his appointment caught nearly everyone by surprise. Jura was virtually unknown outside Bonneville circles, and those adjectives were the best the region's press could dig up.*

*But for those who worked with him closely, there were other dimensions to the man. Sterling Munro, the Bonneville Administrator who hired Jura, once said, he may be "relatively shy and even diffident [but] ... He's no shrinking violet." Chuck Collins, a former chairman of the Northwest Power Planning Council, recalled that if you mentioned a problem to Peter Johnson, the Administrator preceding Jura, "Peter's answer was typically 'See Jura.'"*

*Jim Jura joined Bonneville nine years ago, partly, he says, as a way to get back to the Northwest. From a Nebraska farming family, he'd first come to the area in 1962 courtesy of the U.S. Army. After a tour of duty at Fort Lewis near Tacoma, Washington, Jura finished his undergraduate degree in business administration at the University of Washington. His career began at Boeing—in personnel—and while there, he completed his master's degree, also in business.*

*He was toying with the idea of attending law school when he got a tip about a job at the U.S. Department of Labor in Washington, D.C. He had planned to stay a couple of years at that job, then return to the Northwest. But by then, Jura had moved over to the Office of Management and Budget for a five-year stint doing "everything from executive assistant to budget analyst." That job gave him the opportunity to work closely with other government agencies.*

In 1978, a job with Bonneville opened up, one of the few positions he actively sought. He joined the agency as assistant manager of the small Washington, D.C., office. Then in 1980, he was called to Portland to serve as special assistant to the Administrator (Munro). Ten years before, he'd left the Northwest with all of his belongings packed in a Volvo. Now he was returning home with a wife, three children (plus one on the way), two dogs and a moving van.

When Peter Johnson took over, Jura's title changed to executive assistant administrator. He focused on internal operations to, as he puts it, give Johnson time to deal with broad policy issues.

When Jura succeeded Johnson as Administrator, there were whispers that his would be only a "caretaker" role. That talk dissipated quickly both because of the new man's personality and because of a new set of challenges confronting Bonneville. Jura's first action in the job was to get out and meet people—customers, the congressional delegation, Northwest Power Planning Council members and other agency representatives. He served notice that his mission in those early days of his appointment was information-gathering.

But, his honeymoon period was brief. Jura inherited an agenda that includes sagging Bonneville revenues; a rate-making process; the disposition of two unfinished nuclear

plants; marketing a power surplus; and talk in D.C. of changing Bonneville's federal debt repayment schedule, not to mention the possibility of selling the whole agency. In addition, he faced the first real test of Bonneville's ability to work with the relatively new Northwest Power Planning Council. The Council's first review of a Bonneville resource acquisition came up early in Jura's tenure.

It is noteworthy that when asked about his professional priorities, Jura lists his family. His interests, he says, are turning more and more to participating in his children's activities (reportedly he spent the weekend the congressional delegation was considering him for the Administrator position leading nine Boy Scouts in the Deschutes National Forest), family ski trips and occasionally running with his wife. His basketball game, on the other hand, an activity he is said to approach with fanaticism, has suffered.

After a year on the job, the region seems to know him just a little better. Now there's a new term applied to Jura that may be equally at odds with the image of a man in a powerful position. It is said of Jim Jura, fairly universally, that he's a "nice guy."

## **Q.** How do you see Bonneville evolving ... any new directions?

Throughout its history, Bonneville has changed appropriately to meet changing conditions. And right now we are in the middle of some major changes. We're facing many of the same pressures others in the utility industry are facing. That is, the need to do a good job of holding our costs down; doing a good job of marketing our product; and getting closer to our customers. To state it simply, we're in a very competitive environment. That's going to require some changes. I should say it *has* required and will continue to require changes ... such as a more efficient organization. [Shortly after this interview, Jura announced a new interim organization designed to make Bonneville "more efficient and more effective."]

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We're relying more on those [outside] groups than we have in the past. And I think that's going to continue ... it has to continue.

Another significant change that has been occurring and is going to continue is the importance of our involvement with organizations external to Bonneville, such as the Council, our customers and other interest groups. Today we're more open with those groups. We're relying more on those groups than we have in the past. And I think that's going to continue ... it has to continue.

**Q. In what ways is Bonneville more open?**

Well, again, this is a trend in the utility industry, but an example I would give you is in the current rate case. Bonneville did some things this year that served us very well when we opened up our spending plans to various parties [involved with Bonneville]. We knew, because of difficult financial conditions, that the spending plans we had projected had to be cut back. So we went after those groups, and we said, "how do you think we should do it?" We worked with them. I'm very pleased with how this organization responded to the input we got from other organizations. I'm pleased with the way the Council responded to it.

Some of the programs that were cut back or eliminated were programs that the Council had an interest in, and they were receptive to the changes that we all agreed on. That's an example. I think all of our policy development is conducted in a very open fashion. That's going to continue. We're getting better at it all the time, and, because it is new for organizations like Bonneville, initially we probably didn't utilize as much of the input as we do today, and we'll probably utilize more in the future.

**Q. What is your perception of how the relationship between Bonneville and the Council has evolved? What is the status of that relationship now?**

Well, first of all, I'm very pleased with our current relationship with the Council. I'm pleased with the way the employees of this organization view the Council and vice versa. I am pleased with the way Chairman [Bob] Duncan approaches Bonneville and the

**We are saying there's a partnership there; like it or not, we have each other.**

way our organization is starting to approach the Council. We are saying there's a partnership there; like it or not, we have each other. At the beginning, I'm not sure that was accepted by all parties in the region.

We've reached the point where we are very realistic about that relationship. We feel good about it, and we're looking for ways we can make the best use of it. I have found the Council to be very supportive of Bonneville on some very key issues recently. That's been very helpful to me in my job. It's been helpful to many of the people over here.

Sometimes when you're dealing with major issues such as we deal with, and there's a lot of pressure to come up with solutions for short-term problems, it's prudent to think about the long-term implications. And we try to do that. However, we have got an advantage with respect to resource-related issues and other issues that are in the Council's plan because, in effect, they [the Council] are there helping us with that. And that is an advantage for us to fall back on. We know they're there, and they are going to keep us honest.



Those are the things you folks are concerning yourselves with, and that's very comforting to me. We are trying to make those long-term plans work, and we've got that implementation responsibility. But I've also got to be certain that we are not taking actions in the short term that are inconsistent with our long-term plans or causing problems for us in the long run. So it's nice to be able to rely on the Council to help us with that.

**Q. Bonneville has been criticized in the past about its commitment to fish and wildlife. What is Bonneville's level of commitment today?**

We are totally committed to our fish and wildlife responsibility and feel very strongly about it. It's a *very important* program to the region, to Bonneville and to the Council. The law is very clear that we have an obligation, and I think that we all feel strongly about that obligation. How it's done is important. I'm very pleased with the recent improvement that we've had between Bonneville and the Council in discussing just how it's going to be done.

This happens to be an area where everything didn't fall into place right away. It's also an area where the Council and Bonneville didn't come to an agreement as quickly as we did in other areas. There continues to be some frustration with interest groups that have been placing a great deal of pressure on the Council and on Bonneville. That pressure is not inappropriate. The recent improvement that we've seen and the working relationship among all those interests, including Bonneville and the Council, is very positive.

**Q. What would you say has brought about a better relationship?**

Well, I think it's been a combination of things. As time goes on, we're going to get better at all of these things. The [Northwest Power] Act brought a lot of change to Bonneville all at once. It's taking us some time to change the way we do our business to accommodate those things, and we're at a point now with fish and wildlife where improvements are coming a little bit faster than they have in the past. I think that's just a natural thing to have happen.

I sense an increased emphasis on fish and wildlife by the Council. I sense increased interest from our utility customers. There have been some cooperative efforts between the fishery agencies and tribes that have been very positive, where they've gotten together and managed to unite their positions. That's all been beneficial. The new organization that Jack Donaldson is heading [the Columbia Basin Fish and Wildlife Authority] is going to be a plus. We also have some governors who are taking a real strong interest in this area.

**Q. What are your biggest priorities? What are the things you want most to accomplish as Administrator?**

I find that my priorities are changing more frequently than I thought they were going to. Let me run through some of my major priorities. The first is my commitment to the Bonneville organization and the people who work here. I want to maintain a highly professional organization and provide a working environment where our employees can produce in the manner they have in the past. Second, I have a priority of getting closer to the customers, understanding the customers' needs and serving the customers. And I mean *all* of Bonneville's customers, including those in California. Keeping close to non-customer interests is also important.

Working with the Council in the planning process and assuring

that the process is as good as it can be is a high priority.

I'm concerned about maintaining and improving the financial health of the Bonneville Power Administration. Again, I appreciate the recognition by the Council of the importance of this. They've been very interested in our financial situation, and I've urged them to be. I think that helps them to do their job a lot better.

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**The regional Act is an excellent mechanism to bring about some very beneficial things for our region. But it depends on a Bonneville that is financially healthy.**

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The regional Act is an excellent mechanism to bring about some very beneficial things for our region. But it depends on a Bonneville that is financially healthy. Sometimes in focusing on what Bonneville can and should provide, Bonneville's underlying financial stability is taken for granted. I think that's a mistake, so a high priority of mine is maintaining the financial integrity of the agency.

A personal priority is to meet some of the needs of my family, and I try to recognize those and meet those the best way I can. I find that more and more of my interests are in the direction of activities that we can do together.

**Q. Before you became Administrator, few people outside of the Bonneville arena had heard of you. Now you have one of the most important positions in the Northwest. Tell us something about yourself. How are you different from your predecessor Peter Johnson? What is your personal management style?**

Well, Peter came to the agency from the outside, and he brought many things to the agency that we are still benefiting from. Getting back to priorities, one of my priorities is to continue many of those positive things that he brought us. I have a very high regard for Peter because I've had an opportunity to see what he brought this organization. I bring different things to the job; my experience is different.

Peter had a very strong experience in the private sector, and I like to think that I've had some excellent experience in the public sector. I had 10 years in Washington, D.C., that exposed me to many things that are serving me well and that I hope help our agency. But I also learned a great deal from Peter. There have been times in the past few months when I've wondered where Peter got all the stamina and the drive he had.

Peter and I have similar views on the Council. Peter maintained from the beginning that this organization should be doing everything it can to make the regional Council strong, effective and respected. And I maintain that it's in the best interest of the Council to be doing everything they can to make Bonneville a strong and effective organization. We're linked in a way that supports that relationship. Peter saw that very early and felt strongly about it, and I feel strongly about it. I think we're getting there.

**Q. What are some of the differences between the two of you?**

One has to think about conditions that exist at the time. I have advantages that Peter didn't have. For example, the [Washington Public Power] Supply System is a major force in helping us hold our costs down today. They are truly part of the solution. That wasn't always true.

There was also much more litigation when Peter was here. A number of entities were taking us to court. Today, much of that litigation has been resolved either through settlements between the parties or through court decisions that clarified the situation.

One of the things I think Peter had that was so valuable was vision, long-range vision. He had the ability to conceptualize. I try to do that. I try to get us all pulling together.

I've enjoyed working at Bonneville. I think it's a fine organization. Frankly, when Peter was here, I had no idea I'd be Administrator. I'm enjoying the job. It's a tremendous responsibility. When I was younger, I had no idea I would have this sort of job. Throughout my career I've gone where the opportunities have come up. I've only gone after two jobs, and the last one was at Bonneville, but not as Administrator.

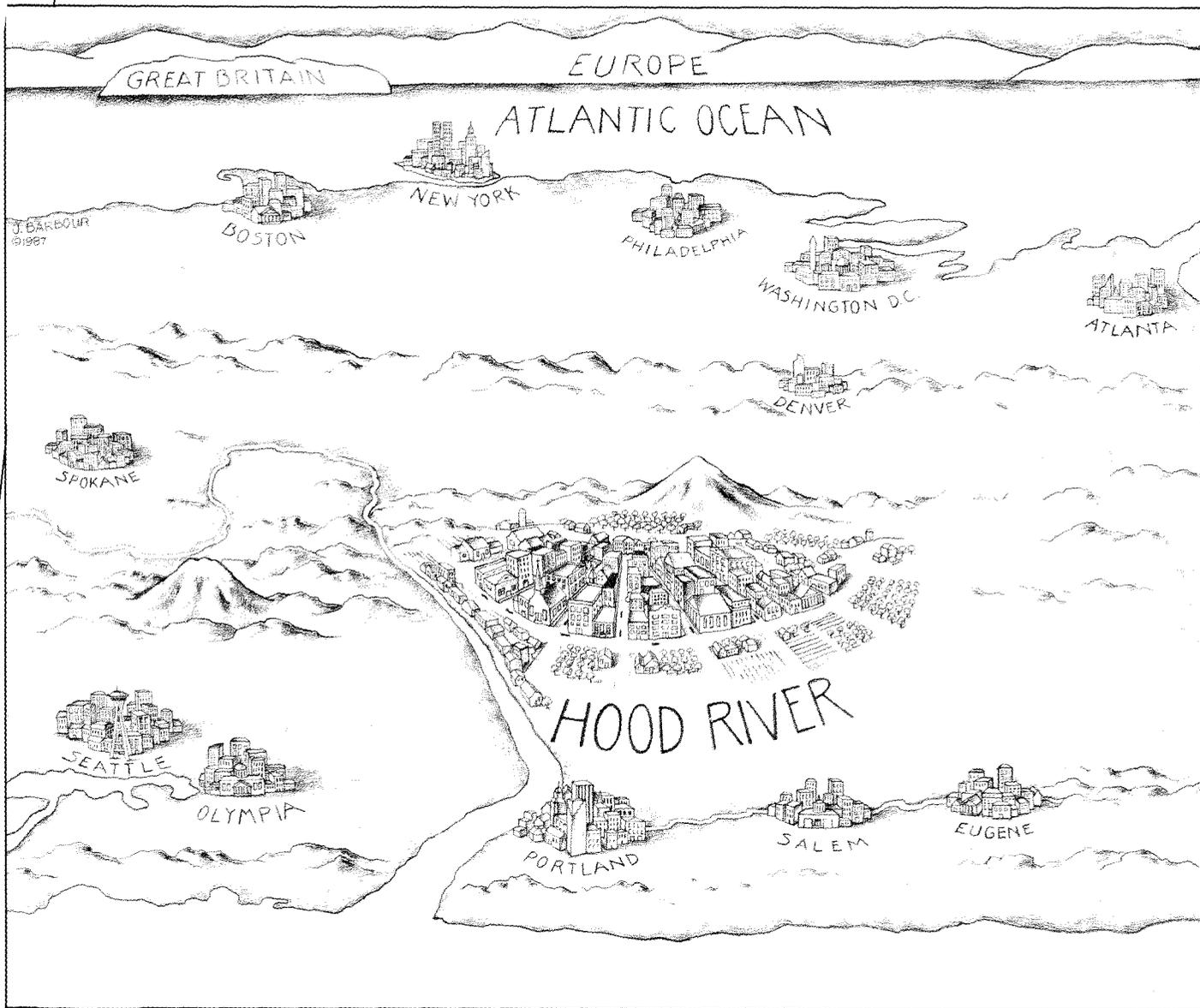
People have made the statement that Bonneville has been lucky with the Administrators they've had, because they fit the times. I hope the same can be said of me. But the jury is still out on that. The Council has had the same thing. It was especially apparent when I became Administrator. Bob Saxvik's efforts at the time were exactly right. And Bob Duncan came at a perfect time, both to the Council and to the chairmanship. That's made my job very, very easy. I have appreciated this in recent months, as I've been spending a lot of time with California sales and rate issues. The time I have had with the Council members has been very productive. But, I haven't had as much contact with them as I'd like.

**Q. You've been the subject of many interviews lately. Can you tell me something about yourself you haven't told any other interviewer?**

One of the hardest adjustments is being in this very visible position. What you said about me, that people hadn't heard of me, that's true. That reflects how I am. I recognize and I welcome the responsibility to be more in the forefront, but it is also something that I will have to grow more comfortable with.



# THE COUNTY THAT



by Dulcy Mahar

**E**veryone knows someone who has done some sort of weatherizing — the neighbor down the street who put in storm windows ... the friends who've just had their attic insulated ... the co-worker who's just wrapped a water heater.

And that's the problem. Until now, community weatherization has been pretty much a piecemeal affair ... both in terms of how many people make the effort to conserve energy and in terms of how many conservation measures are

installed in any given house. There really had been no full-scale, communitywide project that would demonstrate just what kind of energy savings were possible if everyone did the right things to his or her house. Such information is

# GAME IN FROM THE COLD

## The Hood River Conservation Project

**The broad range of participants in itself made the project unique — utilities, power planners, conservation groups and local citizens were all working together.**

critical to answering an even bigger question: can large-scale conservation replace or reduce the need to build future electrical power plants?

This intriguing question was the motivation for the Hood River Conservation Project, born in the fall of 1983. The project, which has attracted international attention, concluded this spring. (Some follow-up monitoring will continue into 1988.) It was a unique effort to fully weatherize every electrically heated home throughout a county and then to scrutinize the results.

The idea was to see how much energy could be saved; to see if it was possible to get an entire community weatherized; and to use the data to study its application to other areas. Hood River County (along with the adjacent community of Mosier) was chosen because of its climate diversity.

An hour east of Portland, Oregon, Hood River sits on the bank of the Columbia River almost exactly between the mild marine-influenced weather of the coast and the harsher, drier climate east of the Cascades. The county's elevation also changes rapidly, rising from sea level at the river into the foothills of the mountain that shares the county's name — 11,000-foot-high Mount Hood.

The five-year, \$20 million project was proposed by the Natural Resources

Defense Council, funded by the Bonneville Power Administration and operated by Pacific Power & Light Company and the Hood River Electric Cooperative. Other sponsors included the Northwest Power Planning Council, Northwest Public Power Association and the Pacific Northwest Utilities Conference Committee. This broad range of participants in itself made the project unique — utilities, power planners, conservation groups and local citizens were all working together.

Another distinctive feature was that, unlike other weatherization projects, the sponsors funded virtually all of the costs to homeowners. Economical weatherization measures were installed in as many electrically heated homes in the county as possible (about half of all the area's homes). The measures were aimed at reducing electricity used for space heating and at improving the efficiency of water heating. No heating or water heating equipment was replaced.

The project had two parts. The first was the energy audit and installation of measures between the fall of 1983 and the end of 1985. The other element was the research and supporting data collection, which began a year before field activity started and continued for more than a year after the homes had been weatherized.

## The participation rate surprised nearly everyone. Some 91 percent of Hood River's electrically heated homes received energy audits, and 85 percent of the homes had major energy-saving measures installed.

**T**he participation rate surprised nearly everyone. Some 91 percent of Hood River's electrically heated homes received energy audits, and 85 percent of the homes had major energy-saving measures installed. The most popular measures were ceiling insulation, storm windows, caulking, door weatherstripping and outlet gaskets.

Only about 250 households (out of 3,500) chose not to participate in the project, and most of these were upper-income residents. Project evaluators speculate that those homeowners either did not value heat savings as much as the average person or already had energy-efficient housing. On the other hand, the project enjoyed "spectacular" participation from renters, low-income citizens, migrant fruit pickers and other groups that are normally hard to reach in weatherization programs.

The excellent participation was due primarily to the fact that the weatherization measures were offered at no cost to homeowners and that the project featured "one-stop" convenience. A homeowner only had to make one phone call to participate in the entire process. A community advisory group played an important role, helping to communicate with residents about the project and providing valuable feedback on citizen concerns to the project team. In fact, word-of-mouth information was so effective that the project ended up spending

only a quarter of its media budget.

Total electricity savings averaged 2,600 kilowatt-hours annually per housing unit—a 15 percent reduction in electricity consumption—for all housing types, including those homes that used wood heat or had participated in previous weatherization programs. A substantial portion of the energy saved through weatherization also showed up in reduced wood consumption. For single-family homes without wood heat that had not participated in previous weatherization programs, the savings were 4,500 kilowatt-hours per house.

While Hood River may have been an ideal test area based on climate, it was not necessarily a typical Northwest community in other respects. The weatherized homes in Hood River used less electricity before the project than homes that had participated in other weatherization programs in the Northwest. Broader participation, newer homes, high unemployment and easy access to wood (two-thirds of the county's homes used wood heat) may account for the area's lower electricity consumption.

Other factors also contributed to more modest electricity savings. People realized the efficiency improvements provided by the project in different ways. Some simply enjoyed reduced electricity bills, while others used weatherization to increase their comfort and convenience. For example, the project's

monitors showed that some households curtailed their reliance on wood heat and others increased their indoor temperature settings. These are behavior changes that could be reversed in an energy crunch, while the energy-efficiency features will remain in place.

The goal of 100 percent participation also led to the inclusion of some homes with little potential for cost-effective conservation. Owners of multi-family buildings, fruit pickers' cabins and mobile homes, who traditionally do not participate in weatherization projects, did so in this case. The actual savings from these homes were about half the savings from single-family homes. This reduced the project's overall average savings.

Even with these caveats, the project resulted in significant savings. Hood River residents now use less electricity for space heating than participants in any other weatherization program in the United States (taking climate adjustments into consideration). Electricity use since the project was completed is even lower than the average for typical *new* homes in the region. Project co-sponsors at the Natural Resources Defense Council, the Bonneville Power Administration and Pacific Power and Light described the project as "both prudent and profitable, from the standpoint not only of our regional utility system but also of its counterparts on this continent and beyond."

**The biggest payoff for the project is yet to come. Because utility planners now have electricity consumption data they can rely on, they can plan more effectively for the future.**

**T**he biggest payoff for the project is yet to come. Because utility planners now have electricity consumption data they can rely on, they can plan more effectively for the future. Low electricity consumption for weatherized houses will mean that utilities will not have to build coal plants or other expensive new resources to supply the extra electricity the houses would have consumed without weatherization.

While electricity consumption for houses in the Hood River area was low prior to the project, reduced consumption was due largely to behavior — turning down thermostats, closing off rooms, using wood heat, etc. A utility cannot rely on residents curtailing energy consumption in this manner for 20 years, because economic changes can significantly alter behavior patterns. But, where permanent energy-efficient measures are installed on a large scale, utilities can plan on building fewer expensive new resources, a bonus that will show up in future electricity rates.

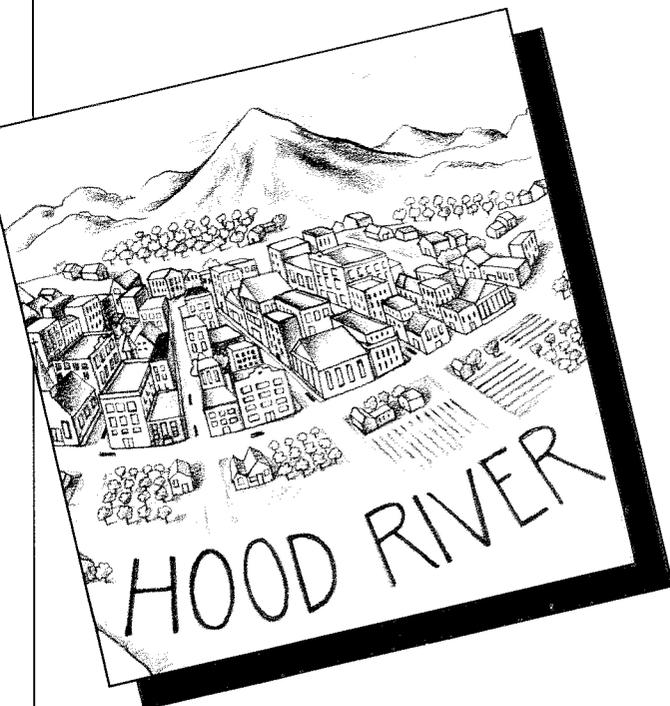
To install the energy-efficiency measures, the project paid up to \$1.15 for each kilowatt-hour estimated to be saved annually, a figure based on the estimated cost of power from a new coal plant. The \$20 million budget was split between implementation and research. Implementation costs totaled \$14 million, of which almost 80 percent was spent on installation of energy-efficiency features. The average installation cost was \$4,400 for each house. House age was an important factor. Costs were roughly three times higher for pre-1945 homes than for homes built after 1979.

Improvements in construction standards reduced the need for and cost of weatherization measures in newer homes.

Dr. Gil Peach, Pacific Power's manager of evaluation and research, points out that project costs should be approached with "caution," because the project sometimes emphasized objectives other than minimizing costs. The need to complete all retrofits within two years, coupled with the decision to rely primarily on local contractors, led to higher costs. Much of the work involved levels of insulation and glazing with which the contractors were unfamiliar. As builders gain experience with energy-efficient measures, installation costs are likely to drop.

Research and data collection on the Hood River Conservation Project will continue, with special emphasis on determining which lessons from the project can be applied elsewhere. One lesson has already been demonstrated decisively: groups that traditionally had been adversaries can design and implement an important project and see it through to completion.

*For a copy of the complete report prepared by Oak Ridge National Laboratories, write to: Hood River Conservation Project, 440 PFFC, Pacific Power & Light Co., 920 S.W. Sixth, Portland, Oregon 97204. The Natural Resources Defense Council also plans to publish information about the project in its magazine, Amicus Journal. For copies, write to: Natural Resources Defense Council, 90 New Montgomery, Suite 620, San Francisco, California 94105.*



# Shorts

**In May, Northwest fishery agencies, Indian tribes, utilities and a wildlife organization agreed to a proposed settlement on the controversial Rock Island Dam fish passage dispute.**

In response, the Northwest Power Planning Council has invited the parties to propose amendments to the Columbia River Basin Fish and Wildlife Program to make the program and the settlement consistent. The agreement addresses the development and installation of bypass systems to move fish past the dam without going through the turbine units; building a hatchery capable of producing 250,000 pounds of juvenile salmon; and spilling water over the dam in the spring and summer to protect migrating juvenile fish. The settlement treats spill as an interim measure that could be used on a long-term basis, if bypass is not feasible. Rock Island Dam, owned by Chelan County Public Utility District No. 1 and located near Wenatchee, Washington, is the oldest dam on the Columbia River. It has been the subject of litigation since the 1970s, because some fish and wildlife agencies and tribes claimed the dam fails to adequately protect juvenile fish attempting to migrate past it to the ocean. The Council entered the proceeding in 1983 to ensure that its fish and wildlife program was taken into account. The settlement has been submitted to the Federal Energy Regulatory Commission and will take effect when the Commission approves it.

**The state of Oregon ranks among the top six states in the nation for its renewable energy and conservation policies,**

according to the "State of the States 1987" report prepared by the Fund for Renewable Energy and the Environment. The report also states that "only ten states have implemented laws and authorities to press utilities for least-cost energy development." Oregon's Legislature is now considering such a bill. Since the report was issued, the Washington Utilities and Transportation Commission has adopted new rules requiring investor-owned utilities in that state to prepare biennial plans for use of least-cost resources. The plans must describe "the mix of generating resources and improvements in the efficient use of electricity that will meet current and future needs at the lowest cost to the utility and its ratepayers."

**The most efficient commercial and industrial building designs and industrial processes are featured at Portland General Electric's new Energy Resource Center, in Tualatin, Oregon.**

The center, the first of its kind in the Northwest, has a resource library, demonstration and testing rooms, and a staff of technical specialists. Commercial and industrial building planners, designers, engineers, owners and developers are invited to examine new energy applications at the center at no cost. For more information, Energy Resource Center, 7895 S.W. Mohawk, Tualatin, Oregon 97062, 503-692-4800. (Source: ENERGYgram, Oregon State University, Extension Service, Corvallis, Oregon 97331)

**The Northwest Energy Code, a building code language version of the region's model conservation standards, is now available from the Bonneville Power Administration.**

The codified versions express the standards in the form most suitable for adoption by state and local governments and for enforcement by building code officials. The Northwest Energy Code covers new residential and commercial buildings as well as buildings converting from some other heat source to electricity. (Available from any district or area office of the Bonneville Power Administration.)

# Calendar

**June 15-19** — 1987 Cogeneration Congress in Cherry Hill, New Jersey. Sponsored by the Association of Energy Engineers, New Jersey Department of Energy and Energy Initiatives (a subsidiary of New Jersey Central Power and Light). For more information: Association of Energy Engineers, 4025 Pleasantdale Rd., Suite 420, Atlanta, Georgia 30340, 404-447-5083.

**June 22-26** — International Symposium on Fisheries Acoustics in Seattle, Washington. Sponsored by the Northwest and Alaska Fisheries Center of the National Marine Fisheries Service. Organized with the cooperation of the International Council for the Exploration of the Sea, and the Food and Agriculture Organization of the United Nations. For more information: Martin O. Nelson, National Marine Fisheries Service, 7600 Sand Point Way, N.E., Building 4, Seattle, Washington 98115-0070, 206-526-4165.

**June 23-26** — Hydraulic Turbine Testing Workshop Seminar at the Red Lion Columbia River Inn in Portland, Oregon. Sponsored by the Electric Power Research Institute and Bonneville Power Administration. For more information: Antonio Ferreira, Electric Power Research Institute, c/o NEPLAN, P.O. Box 2010, West Springfield, Massachusetts 01090, 413-736-3343.

**July 8-9** — Northwest Power Planning Council meeting at Templin's Hotel, Post Falls, Idaho.

**July 11-16** — "Solar '87," an interdisciplinary solar technologies conference in Portland, Oregon. Sponsored by the American Solar Energy Society and the Solar Energy Society of Canada. For more information: Phil Barrett, Solar Energy Association of Oregon, 2637 SW Water Avenue, Portland, Oregon 97201, 503-224-7867.

**July 12-15** — "Surviving on a Shoestring: Meeting Increasing Public Demands on Fish and Wildlife with Declining Revenues," the 1987 joint conference of the Western Association of Fish and Wildlife Agencies and Western Division of the American Fisheries Society in Salt Lake City, Utah. For more information: Andrea Perschon, Registrar, Division of Wildlife Resources, 1596 West North Temple, Salt Lake City, Utah 84116-3195.

**August 12-13** — Northwest Power Planning Council meeting in Kalispell, Montana.

**August 17-18** — "Small-Scale Hydro-power Development: Planning, Feasibility and Design" in Portland, Oregon. A short course in conjunction with "Waterpower '87." For more information: Jan Becker, Professional Development and Conference Services, University of Minnesota, 315 Pillsbury Drive, S.E., Minneapolis, Minnesota 55455-0139, 612-626-1358.

**August 19-21** — "Waterpower '87" in Portland, Oregon. Sponsored by the American Society of Civil Engineers. For more information: American Society of Civil Engineers, 345 E. 47th Street, New York, New York 10017.

**September 9-10** — Northwest Power Planning Council meeting at the Quality Inn Westbank, Idaho Falls, Idaho.

**October 3-4** — "Northwest Rivers — A Celebration of Free-Flowing Rivers" at the Mountaineers Clubhouse in Seattle, Washington. Conference sponsored by the Mountaineers, Washington Wilderness Coalition, Northwest Steelheaders, National Park Service and others. For more information: Jennie Goldberg, Friends of Whitewater, 206-361-9310.

**October 26-28** — "First National Conference on Appliance Efficiency" in Arlington, Virginia. Sponsored by the American Council for an Energy-Efficient Economy. For more information: American Council for an Energy-Efficient Economy, 1001 Connecticut Avenue, N.W., Suite 535, Washington, D.C. 20036, 202-429-8873.

*Compiled by Ruth L. Gerris*

## 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 possible.)

### Publications

- 1987 Columbia River Basin Fish and Wildlife Program. (Please do not check if you ordered the Draft Amendment Document. The program will be sent to you automatically when available.)
- 1986 Northwest Power Plan
- Proposed Amendment to the 1986 Northwest Power Plan: Model Conservation Standards for General Conservation Programs
- Western Electricity Study briefing papers. See article on page 6.
- System Planning Work Plan: Columbia River Basin Fish and Wildlife Program. See article on page 7.

### 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)

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(Or call Judy Allender at the Council's central office, 503-222-5161, toll free 1-800-222-3555 in Idaho, Montana and Washington, or 1-800-452-2324 in Oregon.)

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