

# A great loneliness of the spirit

*The authors follow a young salmon, or smolt, from its spawning place in the high country downstream, past innumerable physical and bureaucratic barriers, to the ocean.*

by  
Charles F. Wilkinson  
and  
Daniel Keith Conner

*And what is there to life if a man cannot hear a lovely cry of a whippoorwill or the arguments of the frogs around a pond at night? For all things share the same breath -- the beasts, the trees, the man. The white man must treat the beasts of this land as his brothers. What is man without the beasts? If all the beasts were gone, man would die from a great loneliness of spirit, for whatever happens to the beast also happens to the man. All things are connected. Whatever befalls the earth befalls the sons of the earth.*

--Chief Seattle, letter to President Franklin Pierce, 1855

In Aug. 13, 1805, after several weeks of near starvation while seeking a route over the Continental Divide, Captain Meriwether Lewis enjoyed an appetizing meal. Guests of a small band of Shoshoni Indians on the Lemhi River in what is now Idaho, Lewis and Clark had been seeking evidence that they had indeed crossed the Great Divide. It was Captain Lewis' supper that convinced him: a piece of fresh roasted salmon, which he ate "with a very good relish."

On their journey down the Snake and Columbia rivers, Lewis and Clark everywhere saw evidence of the salmon economy on which the livelihood of Northwest Indian tribes was based. Reaching the Columbia River on Oct. 17, Clark recorded that the water was "crowded with salmon." He added, "The number of dead Salmon on the shores & floating in the river is incredible to say..." Chinook salmon were then at the height of their fall run, and the astounded explorers were witnessing a natural spectacle that drew much comment in the journals and memoirs of early explorers and settlers of the Pacific Northwest.

By any standard of measure, Pacific salmon and their relative the steelhead trout are an ideal symbol of the bounty of nature: large, extravagantly numerous in their natural state, perpetually self-renewing, and easily caught. Virtually every river on the Pacific coast of North America, from Monterey Bay in California up to Alaska's Bering Peninsula, once teemed with salmon fighting their way upstream from the ocean to spawn. Late in the 19th century, old-timers would gather to swap tales of those Arcadian times when one could walk across a river on the backs of migrating fish. One crusty old liar named Hathaway Jones -- a regional Munchausen of Oregon folklore who lived on a remote stretch of the Rogue River -- outclassed them

all by telling of the steelhead run of 1882 when the fish were so thick in the riverbed that there was no room for water.

Throughout the nineteenth century and well into the twentieth the Columbia basin produced more salmon than any other river system in the world. No one alive today will ever see salmon runs so wondrous as those observed by William Clark or Hathaway Jones (much less the ones he lied about). Today the fabled salmon and steelhead runs are gone from more than half of their former Columbia basin habitat, and are severely depleted in the rest. Indeed, no fish anywhere has been so intensively exploited as Columbia basin salmonid species. Both nature and humans make extreme demands on them, and for that reason salmon have been called the world's most harassed fish.

If the Pacific salmon is a symbol of natural bounty, it also stands as a testament to the eagerness with which humans have sacrificed wild animals on the altar of economic development. The plight of these fish illustrates an unfortunate irony of conservation policy: In former eras society compounded the conflicts between economic development and resource conservation by providing too little regulation of common-pool resources; today, on the other hand, we overregulate them with a proliferation of uncoordinated laws in which too many government bodies have a hand.

A combination of circumstances makes Columbia basin salmonids uniquely vulnerable to over-exploitation, to habitat degradation or to bad management.

First, a strong consumer preference makes the salmon fishery one of the world's most valuable, with a yearly catch of some 400,000 metric tons.

Second, all salmonid species are prized sport fish, and the yearly pursuit of a tackle-busting steelhead trout approaches a cult religion in the fervor and dedication of its practitioners.

Third, humans have used the fish's compelling migratory instinct to its detriment. Migrating salmonids are not easily deflected from their course; stretch a net or a trap in front of them and they will blunder right into it in a single-minded determination to make their way upstream. So eager are the fish to leap obstacles in their upriver journey that with a little skill they can practically be induced to jump into a bucket.

Fourth, migrating salmonids just before spawning tend to congregate in concentrations that lend a degree of credibility to the tales of 19th century yarnspinners. In former times they could be scooped up almost a dozen at a time, an open invitation to excess. There are people alive who, as farmboys, simply waded into spawning streams and flipped the big fish up on the banks with pitchforks.

Finally, the extraordinary migratory habits of salmon and steelhead

have worked against them in a way that places the demands of nature in conflict with human institutions. Some species of Columbia basin salmonids range over thousands of miles during their four- or five-year lifetimes, and all stubbornly persist in crossing, whatever the risks, the boundaries humans have devised. Migratory fish cannot be successfully confined like many other wildlife populations (if you landlock salmon, they become dwarfs), and effective protection is for that reason all the more difficult.

Because of this unique combination of strong consumer demand and the animal's sublime indifference to jurisdictional boundaries, the salmon fishery may be the most difficult of all to regulate effectively.

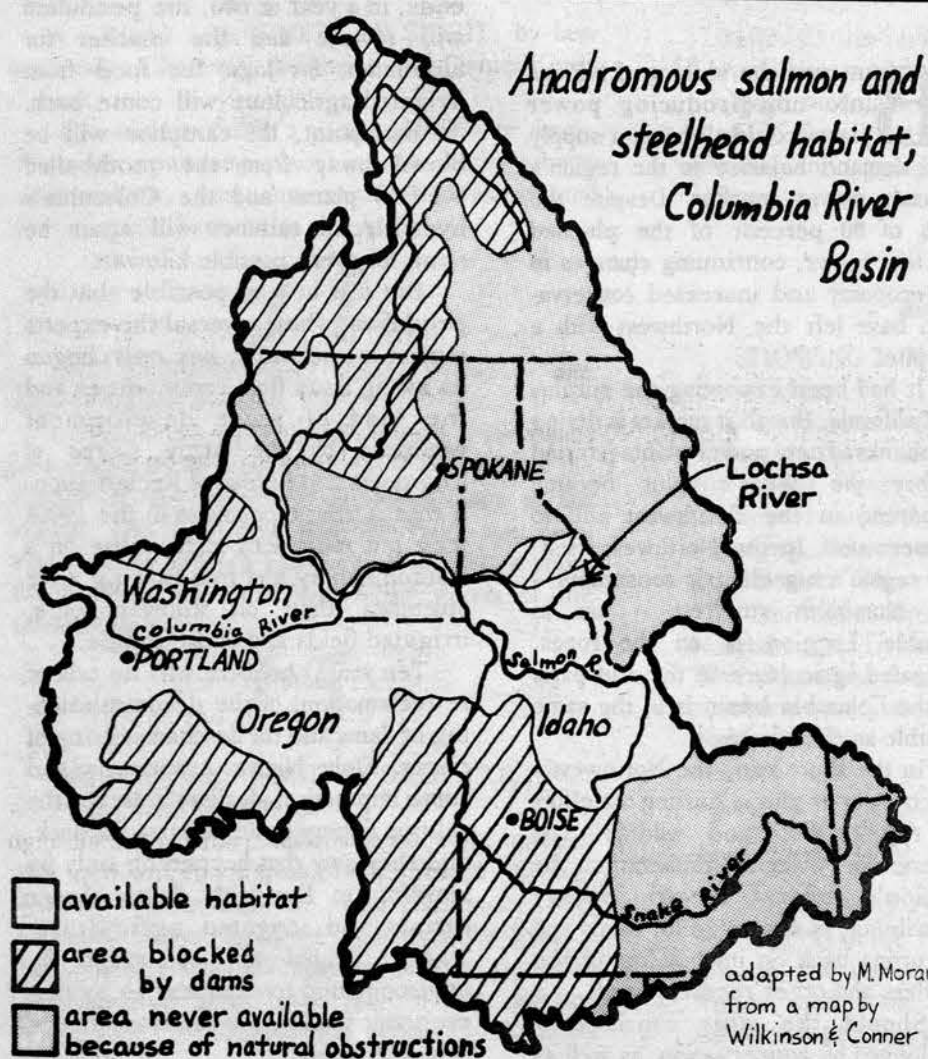
Add to this the complex legal milieu that has developed over the past 12 years as a result both of the federalization of fisheries law and a series of decisions in federal courts that protect Indian fishing rights. Stir in the staggering effects of habitat degradation caused by dams and logging practices, and you have in the Columbia basin what is probably the world's most complicated fishery management situation.

On Sept. 14, 1805, not long after their first taste of Pacific salmon, Lewis and Clark camped on the banks of the Lochsa River, a small but spectacular river that rises just west of the Continental Divide in the Idaho panhandle. (See map on pages 12-13). The Lochsa is relatively far up the part of the Columbia River basin where salmon still run, and a fingerling that hatches in this river must travel through a representative sample of the structural obstacles and management jurisdictions that today characterize the Columbia basin. Thus, we have chosen a Lochsa River fish to represent the plight of all Pacific Northwest salmonids, and of the Columbia River itself.

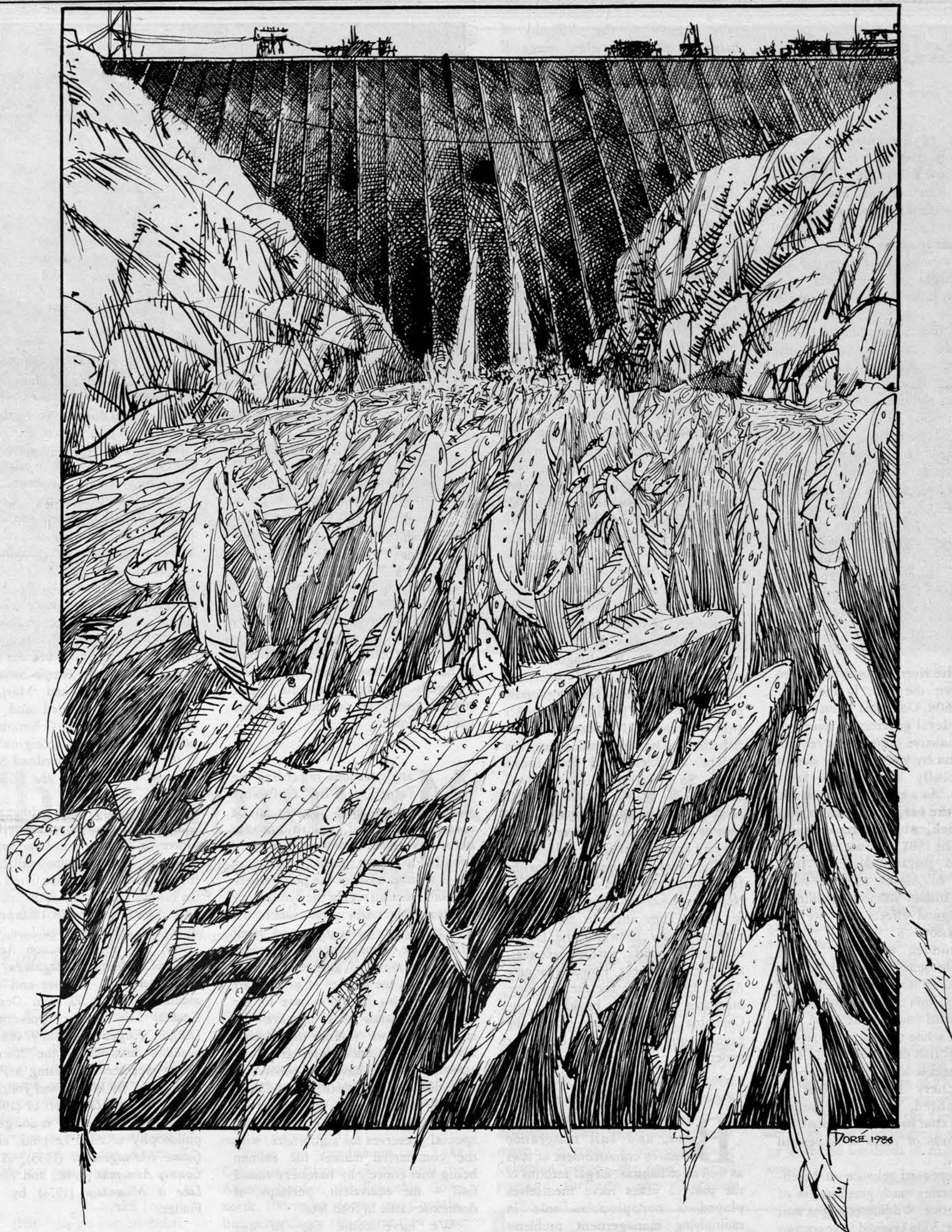
A nineteenth century Lochsa River hatchling would have smoothly migrated downstream into the Clearwater, Snake, and Columbia before reaching the ocean. A four-year journey would have carried the juvenile fish thousands of miles northward into the Gulf of Alaska, perhaps as far as the Aleutian Islands, before it turned to begin its homeward journey.

A returning salmon migrating up the Columbia to spawn in the Lochsa in 1805, when Lewis and Clark were rafting down the river, would have encountered a vigorous Indian fishery. The explorers, passing more than 100 stations where they observed Indians fishing, on Oct. 22 reached Celilo Falls, 200 miles upstream from the mouth of the Columbia. Here was as grand a spectacle as the Columbia basin has ever offered, a place where Indians had been fishing for at least 9,000 years. At Celilo Falls, Indian fishermen dipped their nets into the churning waters, where fish struggled to leap the height of the cataract with prodigious bursts of energy.

The aboriginal fishery Lewis and Clark saw was no mere cottage industry: the annual salmon harvest







exceeded 18 million pounds. (In comparison, the 1980 total commercial catch of Columbia River salmon was 6.8 million pounds.) The Columbia River tribes were a mercantile people; bales of dried and pounded salmon jerky were a medium of exchange among inland tribes. Modern Indian court cases have been brought to preserve a small measure of that way of life.

The late twentieth century Lochsa River salmon we are following faces obstacles far more lethal and implacable than Indians with spears and dipnets. The worst of these are dams. As recently as 30 years ago, a salmon bound for the gravel bar of its birth far up the Lochsa River had only two dams to cross -- both equipped with fish ladders.

In 1956, the most difficult upstream obstacle was Celilo Falls,

the site of the Indian fishery so vividly described by Lewis and Clark. At that time Indians still fished there by traditional methods. But a vital part of the heritage of the Pacific Northwest was about to disappear under 75 feet of water, as the gates of a new dam were closed at a settlement called The Dalles.

**O**n a Sunday afternoon in April 1956, representatives of the fishing tribes gathered for the last time to hold their ceremonies on the bluffs overlooking the falls where years before Lewis and Clark had smoked a pipe of peace with their ancestors. Within the year, Celilo Falls, one of the last natural monuments of the river as Lewis and Clark knew it, was gone.

Today, the landscape of Washing-

ton, Oregon, and Idaho has been thoroughly reworked as a result of hydropower development. Hardly any major stream of the 260,000-square-mile Columbia River watershed has been left unaffected. The unobstructed Columbia of 1805, down which Lewis and Clark drifted with only a single portage at Celilo Falls, is today a stairstep series of slackwater reservoirs.

Only 50 miles of the 1,214-mile-long section of river from the first dam up to the Canadian border now remain free-flowing. A once wild river that drains a land area larger than France and whose annual discharge into the ocean is more than twice that of the Nile has become meek and submissive -- a series of back-to-back placid computer-regulated lakes.

Fifty years ago, there were no dams on the Columbia. As they had

done for thousands of years, migrating salmonids deftly leapt the few natural obstacles. Today the main-stem Columbia has 11 dams; its principal tributary, the Snake, has 10. In the entire basin there are now 79 hydroelectric projects, each with a capacity of 15 megawatts or more. The Columbia-Snake is the most highly developed river system in the world, supplying more than 80 percent of the region's electrical energy.

Hydroelectric projects have been ruinous to the health of the salmon runs. The dams have permanently blocked fish access to vast regions of spawning habitat and inflicted high mortality on downstream migrating juveniles by obstructing passage. Because they have flooded spawning beds, altered flow patterns, and warmed water temperatures, less

(Continued on page 10)



## Loneliness...

(Continued from page 9)

than half of the spawning habitat available in the time of Lewis and Clark is now accessible to migratory fish, and much of what remains has been transformed into an environment hostile to fish propagation. Recent salmon harvests in the river have hovered around 10 percent of the historic highs of the 1880s -- a decimation in the most literal sense of the term.

A wild fish hatching in the Lochsa River must now accomplish the passage of eight dams, both in the downstream direction as a juvenile, and then in the upstream direction as an adult seeking its spawning stream. Juvenile fish mortality may approach 25 percent at each of the eight dams during periods of low river flow. In addition, a beleaguered wild hatchling must compete with hosts of its better-fed, and therefore larger, hatchery-bred cousins. The dams have exacted a far higher toll than anything else has, but competition from hatchery-bred fish is further reducing the number of wild survivors.

As the river has been tamed, so have the fish. In the early 1960s, Columbia basin states and the federal government joined to mount a massive campaign to rebuild salmon runs by increasing the output of artificially reared fish from hatcheries. As a result, only about 30 percent of the basin's salmonids today are wild fish, with the ratio rapidly declining. In 1981, the vast network of public and private hatcheries from California to Alaska released more than one billion salmon hatchlings, with ecological effects that are yet largely unknown.

This sudden expansion, rather than supplementing natural stocks, has itself been an important cause of further depletion of wild salmon runs. Leaving wild stocks to fend for themselves while tending to the needs of hatchery fish only makes wild fish more vulnerable to increased competition. Hatchery fish also tend to become inbred, displacing natural gene pools that have been responsible for thousands of years of successful adaptation.

This increased reliance on hatchery fish worries many practitioners of fishery science. Wildlife ecologist and philosopher Aldo Leopold 50 years ago contributed the fundamental insight that wildlife conservation is better accomplished by protecting animals' habitat than by interfering with the animals or their life cycles. Today, many see that habitat restoration is the preferred route to strengthening the salmon. Carefully planned stream improvement projects and adequate protection from overfishing will allow depleted fish runs to rebuild themselves.

One example of more or less natural enhancement would be to allow dams to spill water at times when juvenile fish need a steady flow of cold water to move them toward the ocean. The "water budget" program developed under the provisions of the Northwest Power Planning Act of 1980 provides a mechanism to do just that. The water budget is an attempt to deal with a critical problem appreciated

only recently -- the difficulty of balancing the water-flow needs of juvenile fish with power, irrigation, and flood control. The water budget allocates increased flows at those times of year when downstream migration is highest. This approach gives fishery agencies partial control over the quantity and timing of river flow over the dams.

Despite recent advances in habitat enhancement, human-made hazards to the fish remain, and they are not only physical. As a result of legal and political events of the past 12 years, fishery managers must now untangle legal snarls and complex networks of responsibility that were undreamed of when Celilo Falls disappeared under the reservoir behind The Dalles Dam just 30 years ago. Today's scientific, legal, and jurisdictional problems are nothing short of labyrinthine.

The wide-ranging migration of a Lochsa River chinook that now travels to the Gulf of Alaska and back will carry it through 17 separate management jurisdictions, each with some degree of independent authority to allocate the harvest of that fish. These include three international treaties that contain provisions on the harvest of Pacific salmon of North American origin, in addition to the authorities of one foreign nation (Canada), four state fish and wildlife agencies (Idaho, Washington, Oregon, and Alaska), one interstate compact, two regional fishing councils established by the 1976 Magnuson Act (which extended U.S. dominion over fisheries two hundred miles out), two federal agencies, and four Indian tribes. So a migrating Lochsa River salmon must survive not only hooks, nets, predators and dams, but also a host of bureaucrats, interest groups, lawyers and federal court judges.

The major laws necessary for the full protection of the Pacific Northwest's salmon resource are now in place. They include the Pacific Salmon Treaty between the United States and Canada, ratified last year, and the Northwest Power Planning Act of 1980, which for the first time mandates that the health of the Columbia River salmon fishery be given equal status with power generation.

But protection is not restoration, and full restoration requires enhancement of laws as well as of habitat. Legal reforms of the past 12 years have themselves played a conspicuous role in multiplying management problems beyond the point of intelligibility. The very institutions designed to protect the resource have now, by virtue of their numbers and unwieldiness, become an additional threat. Like the sorcerer's apprentice of Goethe's fable, today's salmon managers are perhaps more in peril of being overwhelmed by the "solution" than by the original problem.

The chief obstacles to effective restoration are institutional in nature and international in scope. Any permanent solution must go to the heart both of our federalist system of shared power and of the intricate network of national sovereignties on which our world order is based. When an overexploited living resource respects no boundaries, the boundaries themselves must be treated in a way that respects the realities of nature.

Clarence Davis, BIA



Fisherman at Celilo Falls, 1941, before it was inundated behind The Dalles Dam

At a minimum, full restoration of the Pacific salmon runs requires that the law be applied over the fish's entire migratory range, and that it be applied with consistency over the entire network of responsible management bodies. Otherwise, these magnificent wild salmon runs will remain caught in a trap the law itself has set -- the creation of so many autonomous authorities that none by itself has sufficient incentive to conserve for fear that the fish will only be harvested elsewhere. It is the same "tragedy of the commons" that played itself out on public-domain grazing lands.

Many questions regarding the future of the Columbia salmon runs remain to be asked, and all will require answers before the turn of the century. Is it possible to restore riparian habitats in the Columbia basin to the point where the fish runs can regain the abundance of those legendary days when the resource perpetually renewed itself without the encumbrances of management plans, seasons, gear restrictions, quotas, and the politics of allocation? Do we possess the will to care for the watershed lands that nurture the rivers? Are we willing to harness diversions that suck water from the streams? Do we have the resolve to curb our appetite for still more dams? Or will wild salmon go the way of the buffalo, a curiosity protected on special preserves for sightseers, with the commercial market for salmon being met entirely by hatchery-raised fish -- the equivalent, perhaps, of domestic cattle in feed lots?

We have come far in our commitment to bring the Columbia basin salmon runs up to their historic levels. To lose them now by default would be a major defeat, not only to those who depend upon them for a livelihood, but also to those now privileged to dine upon the incomparable flesh of upriver wild chinook, to feel their pulse at the end of a line, or simply to marvel at them as they leap over mountain waterfalls. Without these splendid creatures to lend their grace and beauty to the streams and rivers of the Pacific Northwest, many of us will indeed suffer from the great loneliness of spirit that Chief Seattle foretold.

### Bibliographic Note

This article is an abbreviated version of Wilkinson and Conner, "The Law of the Pacific Salmon

Fishery," in *Kansas Law Review*, vol. 32 (1983). A reprint is available free from Sea Grant Communications, Oregon State University, Corvallis, Oregon 97331. A general introduction to issues discussed in this article is Anthony Netboy's *The Columbia River Salmon and Steelhead Trout: Their Fight for Survival* (1980). A more popular work is Bruce Brown's *Mountain in the Clouds: A Search for the Wild Salmon* (1982). For a biological perspective, see the magnificently illustrated *Pacific Salmon* by R.J. Childerhose and Marj Trim (1979). For a detailed and highly readable history of the Columbia River salmon fishery from aboriginal times to the present see Courtland Smith's *Salmon Fishers of the Columbia* (1979).

On the dams vs. fish dilemma see Michael Blumm's article "Hydropower vs. Salmon," in *Environmental Law*, vol. 11 (1981), also available free from the Sea Grant office listed above. On Indian fishing rights decisions see Jack Landau's article "Empty Victories" in *Environmental Law*, vol. 10 (1980). On the Magnuson Act, see *Federal Fisheries Management* (1985) by Jacobson, Conner and Tozer, available for \$5.00 from Ocean & Coastal Law Center, University of Oregon, Eugene, Oregon 97403. For a detailed analysis of the Northwest Power Act see "Promising a Process for Parity" by Blumm and Johnson in *Environmental Law*, vol. 11 (1981).

On the wildlife management philosophy of Aldo Leopold, see his *Game Management* (1933), *A Sand County Almanac* (1948), and *Thinking Like a Mountain* (1974) by Susan Flader.



Gifford, Oregon, Historical Society, Neg. #G1 7192