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**COLUMBIA RIVER SALMON:
ARE ANY OF THE ESA TOOLS ADEQUATE FOR THE JOB?**

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**BIODIVERSITY PROTECTION:
IMPLEMENTATION AND REFORM OF THE
ENDANGERED SPECIES ACT**

**Natural Resources Law Center
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Columbia River Salmon -- Are Any of the ESA Tools Adequate for the Job?

by John M. Volkman

I. Summary

Microsoft's *Encarta* encyclopedia -- an on-line reference tool -- says that salmon canneries are a major industry on the Columbia River. In fact, salmon canneries were a major employer on the Pacific coast when many of us were children; some were still there 20 years ago. But Columbia River salmon have been in decline for decades. There hasn't been a harvest targeted on Columbia River spring chinook salmon for more than 20 years, and for summer chinook it has been longer. Snake River coho salmon became extinct in 1987. Currently, you can count on one hand the number of sockeye salmon returning to Redfish Lake in Idaho. In the last four years, during which Snake River salmon have been on the Endangered Species list, the declines have continued and many wild salmon subpopulations are at the edge of oblivion. In most coastal communities, salmon canneries are a thing of the past. Someone should alert Bill Gates.

If we placed preeminent value on recovering salmon populations, there would be no secret about how to do it: we would restore the salmon ecosystem. But there is also no secret about why this hasn't happened. It's an enormous ecosystem: many watersheds in several states and two nations, a mainstem 1,200 miles long, a large estuary, and the Pacific Ocean. Countless parts of this ecosystem are now degraded; good salmon habitat now exists primarily in dispersed fragments. Every part of the ecosystem that's degraded is degraded because of commercially productive activities. So this is the dilemma: how can we restore this ecosystem without seriously prejudicing the commercial activities that degrade it?

For fifteen years, the Northwest has been engaged in a serious effort to rehabilitate salmon and other fish and wildlife in the Columbia River Basin. For the last four years, Snake River salmon have been listed under the Endangered Species Act. Remarkable legal tools, including this pit bull of environmental laws. Notwithstanding this, a number of local populations of wild salmon only accelerated their declines.

Realistically, it is likely that wild salmon populations will continue to disappear in the short term. The factors that have led to extinctions will not be reversed quickly or easily. The real question is whether the Endangered Species Act's tools are capable of leading to recovery of listed salmon populations over the long term.

My answer, which the rest of this paper elaborates, is that for the Endangered Species Act to restore a healthy ecosystem for Columbia River salmon, it must be coupled with changes that no environmental law can guarantee. The Endangered Species Act is most powerful in reshaping federal activities to avoid jeopardy to listed species. But rehabilitating the natural functions of the Columbia River Basin ecosystem is a test of social will, not just an administrative or legal process. If the Northwest succeeds, it will be because the region is broadly committed to it.

II. Background

A. The salmon ecosystem, the working river and the decline of salmon.

The Columbia River salmon ecosystem is much bigger than the Columbia River. Snake River salmon, for example, are born in headwaters in central Idaho. As they begin to grow, salmon move downstream through forests and ranching, mining, dry land farming country. Once they reach the mainstem of the Snake River, they make a torturous journey past a series of dams. If they make it, they reach the Columbia River

estuary where they spend time feeding and undergoing a physiological conversion from freshwater fish to saltwater fish. From the estuary, they enter the Pacific Ocean, where they spend several years growing to mature size, which can be anywhere from about ten to more than 100 pounds. After years in the ocean, they reenter the river, stop feeding, and swim back up the river. If they find their way past the dams and thermal blockages and their route has not been drained dry by water diversions, they reach the place of their birth. There, if spawning gravels have not been covered by silt eroded from the neighboring watershed, they spawn and die.

Historically, countless populations of salmon made similar trips from headwaters of Canadian and American streams. Migratory fish have made similar journeys in streams around the world. It is one of the great and mysterious cycles, characteristic of a vibrant natural world.

Today, at almost each point in the salmon migration human activities impinge: mining and logging in the headwaters; irrigation depletion and agricultural runoff in the middle reaches of the rivers; an estuary that collects pollutants from upriver; fishing in the ocean and in the river; and at many points along the way, dams. The dams slow the migration, heat up the river, put fish through pressure changes and descaling. They convert the river to one that is more hospitable to salmon predators like squawfish than it is to salmon. They inundate what was once biologically productive stream side habitat. They simplify the river's complexity, eliminating braided channels, scouring flows and hydrologic processes that once were part of a food chain. We have come a long way

from the conditions that the species once knew, living on "beds of river shingle, under the gin-clear water."¹

The Columbia River has been engineered to do the work of a developed river. The Columbia River hydropower dams provide about a third of the Northwest's electric energy, the largest interconnected hydropower system in the world. This translates into billions of dollars of energy revenues even after paying for various other "public benefits" such as irrigation assistance. Navigation locks and the calm reservoirs backed up by the dams permit barge traffic as far inland as Lewiston, Idaho. Farmers are able to ship crops to international markets. When Portland escaped inundation in the wet spring of 1996, the dams were the reason. The Army Corps of Engineers estimated that without the dams, downtown Portland would have been under seven feet of water.

However, the cost of this development -- the decline of salmon -- is high. From historic peaks ranging from 10 to 16 million adult fish, the Columbia River runs have declined to something like a million. As bleak as this number is, it understates the decline of the wild salmon stocks that many people see as the "seed corn" for the long term viability of salmon. By the late 1980s, wild salmon populations up and down the Pacific Coast were reported to be at critically low numbers.² Today, returns look much worse.

The diversity of salmon populations, which is key to their long term viability, is tied to the availability of diverse, connected habitats. Each population is genetically adapted to a particular tributary. A Hanford Reach fall chinook is

¹ T. H. White, *The Once and Future King*, p. 381 (Berkely Books 1984).

² See W. Nehlsen, et al. "Pacific Salmon at the Crossroads: Stocks at Risk From California, Oregon, Idaho and Washington," *Fisheries* 4 (Mar./Apr. 1991).

genetically different from a Snake River fall chinook. When conditions are bad in the Snake and those runs decline, conditions may be better in the Hanford Reach. When conditions in the Snake improve, the Hanford fish can stray into Snake and help recolonize it. These interrelationships among locally-adapted populations create what is called a "metapopulation," an aggregation of small populations that can mix, stray and support each other.³ Metapopulations mean strength and resilience for salmon. But for a metapopulation to function, it must have diverse streams with healthy habitat in reasonable proximity to one another.

The decline of the Columbia River salmon runs has been accompanied by a decline in the availability of healthy, connected habitat.⁴ Much salmon habitat -- in the neighborhood of 30-40 percent of the habitat that was accessible historically -- has been blocked by high dams. Much of the rest has been developed. Productive habitat has become highly fragmented -- a stream reach here and a reach there, perhaps far removed from others. George Ball's witticism regarding the ways of power in the White House also applies to salmon: "Nothing propinquus like propinquity." When there is so little connection between the fragments, the interchange that defines metapopulations is compromised.

B. Remedial efforts.

In the 1970s and 1980s, a large body of law and regulation developed in response to the salmon declines:⁵

³ See generally National Research Council, *Upstream, Salmon and Society in the Pacific Northwest*, p. 135 (1995).

⁴ National Research Council, *Upstream, Salmon and Society in the Pacific Northwest*, p. 58.

⁵ The best summary is C. Wilkinson and D. Conner, "The Law of the Pacific Salmon Fishery: Conservation and Allocation of a Transboundary Common Property Resource," 32 *Kansas L. Rev.* 17, 48-61 (1983).

- In litigation over fish harvest in the Columbia River and Puget Sound, Indian tribes established the right to harvest up to half of the salmon runs.⁶ They also asserted a right to have salmon habitat protected from degradation.⁷ The latter principle was not entirely resolved, but it bears directly on all activities that affect salmon habitat, including the operations of the Columbia River dams.⁸
- The Magnuson Fishery Conservation and Management Act⁹ was passed in 1976, creating fishery management councils composed of government agencies and representatives of user groups to coordinate fish harvest in the ocean.
- The Salmon and Steelhead Conservation Act¹⁰ purported to address the problem of overlapping and sometimes conflicting fish and wildlife agency management jurisdictions. The Act also promised federal funding for habitat restoration.
- Creating what has turned out to be the most important source of fish and wildlife mitigation funding, Congress enacted the Northwest Power Act.¹¹ The Act created the four-state Northwest Power Planning Council to plan for the Northwest's energy needs and develop a program to offset the effects of the dams on fish and wildlife.¹² The resulting fish and wildlife program is based on recommendations of the region's fish and wildlife agencies, Indian tribes and others, and is implemented by hydropower revenues and the federal agencies that control the dams. A volume of water called the "water budget" was allocated for salmon flow augmentation.
- The United States and Canada signed a treaty designed to protect each country's ocean salmon populations from the other country's fishermen.¹³

⁶ There is a large literature on the treaty fishing cases. In addition to *Felix S. Cohen's Handbook of Federal Indian Law* at 441 (Michie Bobbs-Merrill 1982); see Wilkinson, *Crossing the Next Meridian*, *supra* note 5; and F. Cohen, *Treaties on Trial: The Continuing Controversy over Northwest Indian Fishing Rights* (Univ. of Wash. 1986).

⁷ See *U.S. v. Washington*, 506 F.Supp. 187 (W.D. Wash.), appeal dismissed *U.S. v. Washington*, No. 81-3111 (9th Cir. filed Dec. 17, 1984). See also M. Blumm, "Why Study Pacific Salmon Law?" 22 *Idaho L. Rev.* 629, 636-37 (1985-86).

⁸ See *Authority of Bonneville Power Administrator to Participate in Funding of Program to Help Restore the Columbia River Anadromous Fishery*, 83 I.D. 589 (Nov. 22, 1976).

⁹ Pub. L. No. 94-265, 90 Stat. 331, codified at 16 U.S.C. §§ 1801-1882.

¹⁰ Pub. L. No. 96-561, 90 Stat. 331, codified at 16 U.S.C. §§ 3301-3345.

¹¹ Pub. L. 96-501, Dec. 5, 1980, 94 Stat. 2697, codified at 16 U.S.C. §§ 839-839h.

¹² See R. Hemmingway, "The Northwest Power Planning Council: Its Origins and Future Role," 13 *Env't'l Law* 673 (1983); K. Lee, "The Path Along the Ridge," 58 *Wash. L. Rev.* 317 (1983); and J. Volkman, "Rethinking Development in the Western Environment," in Udall, et al., *Beyond the Mythic West* 105, 115-17 (Peregrine-Smith 1990).

¹³ Treaty Between the Government of the United States of American and the Government of Canada Concerning Pacific Salmon, Treaty Doc. No. 99-2, entered into force Mar. 18, 1985, codified at 16

- In 1986, the federal government, three Northwest states and the region's Indian tribes negotiated a settlement of harvest issues in the Columbia River.¹⁴
- In 1987, the Power Planning Council adopted a "Protected Areas" program counseling against new federal hydropower development in more than 44,000 stream miles of Northwest rivers.

Notwithstanding these remedial programs, alarming wild fish declines were reported in the late 1980s. A seven-year drought and persistently poor (for salmon) ocean conditions followed, with predictable consequences for salmon. Populations that had looked healthy in 1988 were weak enough in 1990 to prompt Endangered Species Act petitions.

The Endangered Species Act's reputation as a "pit bull" preceded it. In 1990 and 1991, a mediated process called the "Salmon Summit" was convened by Oregon's Senator Mark Hatfield and the four Northwest governors. After six months of discussions, the summit found triple the water that was typically provided for salmon flow augmentation in dry years during the 1980s. Federal land managers strengthened their commitment to address habitat problems on federal lands. Moreover, the Salmon Summit succeeded in bringing a wide array of interests into recovery discussions, including shipping interests and environmental groups that were new to the issue.¹⁵

U.S.C. §§ 3631-3644. See T. Jensen, "The United States-Canada Pacific Salmon Interception Treaty: An Historical and Legal Overview," 16 *Env't'l Law* 363 (1986).

¹⁴ The Columbia River Fish Management Plan, approved by the federal district court in *U.S. v. State of Or.*, 699 F. Supp. 1456 (D. Ore. 1988), and affirmed on appeal in *U.S. v. State of Or.*, 913 F.2d 576 (9th Cir. 1990). For background, see P. Harrison, "The Evolution of a New Comprehensive Plan for Managing Columbia River Anadromous Fish," 16 *Env't'l Law* 705 (1986).

¹⁵ Two articles taking very different views of these events were published at about the time the salmon summit concluded its work: Michael Blumm and Andy Simrin, "The Unraveling of the Parity Promise: Hydropower, Salmon, and Endangered Species in the Columbia River Basin," and Kai Lee, "Rebuilding Confidence: Salmon, Science, and Law in the Columbia Basin," both in *Environmental Law*, vol. no. 3, part 1, 1990.

Because the Salmon Summit aimed for consensus, there were contentious issues it could not resolve. How much water should be used for flows in the river? What kinds of structural changes should be made in the dams? How much farther should harvest be reduced? How could the adverse effects of the massive hatchery system be mitigated? For these issues, consensus was elusive, and the region turned to the Power Planning Council.

In 1991 through 1992, the Council conducted an administrative rulemaking process that resulted in *The Strategy for Salmon*. The *Strategy* approved funding for high-priority habitat projects, including various measures to protect wild stocks from hatchery stocks, and added about 3 million acre-feet to the 3.45 million acre-feet that was already available for salmon flows in the Columbia River. In the Snake, the Council solidified the flow augmentation gains that the Salmon Summit made.

The Council found, however, that these measures were not enough. Accordingly, it called for a series of evaluations to expand the region's options for improving salmon survival, including: reservoir drawdowns to reduce the size of the reservoirs and create a faster flowing river; water efficiencies, water marketing, and other means to leave more water in rivers for salmon; alternative power system operations that would make it easier to devote the river to serving fish needs; known-stock fishing techniques that target strong fish stocks and avoid weak fish stocks; close scrutiny of hatchery impacts on wild fish populations; and a watershed-based approach to habitat rehabilitation.

The *Strategy for Salmon* was challenged, and in *Northwest Resource Information Center v. Northwest Power Planning Council*,¹⁶ the Ninth Circuit found the program to

¹⁶ 35 F.3d 1371 (9th Cir. 1994).

be procedurally flawed. The procedural holding was accompanied by expansive *dicta*, including an interpretation of the Northwest Power Act under which the Council would give “a high degree of deference” to the fish and wildlife agencies’ and tribes’ judgments on fish and wildlife mitigation.¹⁷ The court also criticized the scope of the Council’s action: “The Council’s approach seems largely to have been from the premise that only small steps are possible, in light of entrenched river user claims of economic hardship.”¹⁸

Before the ruling was handed down, the Council had completed the further evaluations the *Strategy for Salmon* had called for and was poised to make decisions on reservoir drawdowns and other measures to improve salmon survival in their downstream migration. In December 1994, three months after the *Northwest Resource Information Center* ruling, the Council completed revisions to the *Strategy*.¹⁹ There were three major departures in the new program for the Snake River. The Council: 1) Proposed to take the first steps in the reservoir drawdown program for the Snake River; 2) acceded to fish and wildlife agency and tribal recommendations to cut back the Army Corps of

¹⁷ The Northwest Power Act directs the Council to develop a fish and wildlife program on the basis of “recommendations” submitted by fish and wildlife agencies, tribes and others. The Council must evaluate the recommendations in light of several criteria including, for example, that the program must “complement the existing and future activities” of the agencies and tribes (16 U.S.C. § 839b(h)(6)(A)), be consistent with the legal rights of Indian tribes (16 U.S.C. § 839b(h)(6)(D)). In saying that the Council must accord a high degree of deference to the fish and wildlife agencies and tribes, the *Northwest Resource Information Center* opinion emphasized a statement made by the chairman of one of the two house committees that reported on the Northwest Power bill regarding a provision in the bill that was not adopted. The court expanded on one part of this legislative statement (“the Council should rely heavily on the fish and wildlife agencies . . . and not try to become a superfish and wildlife entity.”, Cong. Rec. at H10683 (daily ed. No. v 17, 1980)), and discounted another (that the Act’s fish and wildlife criteria were not intended to “provide a legal basis for challenging the program,” *Id.*). By this route, the *dicta* conclude not only that the Council must accord “a high degree of deference” to the agencies’ and tribes’ judgments, but that the agencies’ and tribes’ interpretations of the Northwest Power Act’s fish and wildlife provisions are entitled to deference.

¹⁸ 35 F.3d at ____.

¹⁹ Northwest Power Planning Council, *Columbia River Basin Fish and Wildlife Program* (December 1994).

Engineers program that barges juvenile fish in the Snake River; and 3) called for efforts to secure an additional million acre-feet of flow augmentation water from the Snake River Basin, using market transactions, efficiency efforts and other non-structural measures. In the Columbia, the Council added another 1.3 million acre-feet of water to the salmon flow program. The Council concluded that fluctuations in upriver storage reservoirs should be limited to respond to concerns regarding resident fish and wildlife in upriver reservoirs. All of these measures were put in an experimental context: each measure would be part of a head-to-head evaluation of the survival of fish that are transported by barge and fish that are left in the river.

The Council program received measured support from Indian tribes and environmental groups, and an industry lawsuit was later abandoned.²⁰

III. The Endangered Species Act tool kit.

While the Northwest Power Planning Council was working its way through the salmon issues, the Endangered Species Act process was also engaged. The listing of Snake River salmon in 1992 brought into play all of the Endangered Species Act's tools: the federal consultation process, critical habitat designation, recovery planning and habitat conservation planning. This section reviews these tools and addresses the question posed by the title of this talk -- whether they are adequate for the job.

²⁰ The amendments initially were challenged by the Idaho Power Company, which operates the Hells Canyon dams on the Snake River. A coalition of aluminum companies and other industrial interests moved to intervene in support of Idaho Power's challenge, while the Yakama Indian Nation and a coalition of environmental fishing organizations moved to intervene in support of the Council. After taking a closer look at the Council's record and the intervenors, Idaho Power withdrew its challenge.

A. The tools.

1. Federal consultations on hydropower system operations.

By many accounts, the most powerful tool in the Endangered Species Act arsenal is the federal consultation process mandated by section 7 of the Act.²¹ To see how well the process is working with the salmon listings, it is worth spending some time examining the consultation process on hydropower system operations. There has been perhaps an equally interesting series of consultations, opinions and litigation regarding salmon habitat, which I do not discuss here.

In 1993, shortly after publication of the *Strategy for Salmon*, the National Marine Fisheries Service issued its biological opinion on the operation of the federal Columbia River dams.²² The opinion added another two million acre-feet of stored water to the *Strategy for Salmon's* Columbia River flows and concluded that the dams' operations would not jeopardize the continued survival of the species. The opinion also called for a number of other measures, studies and restrictions, some modeled on the *Strategy for Salmon* and some different.

²¹ Section 7 of the Endangered Species Act, 16 U.S.C. § 1536(a)(2), requires federal agencies proposing to take action that may adversely affect a listed species to consult with the relevant federal fish and wildlife agency (the National Marine Fisheries Service in the case of salmon) to ensure that the proposed action is not likely to jeopardize the continued existence of the species or its critical habitat. As part of the consultation process, the Fisheries Service must issue a biological opinion detailing how the proposed action would affect the species. If the Service believes the action would jeopardize the species, it must suggest "reasonable and prudent alternatives" that would avoid jeopardy, 16 U.S.C. § 1536(b)(3)(A).

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The 1993 biological opinion was challenged in court. In *Idaho Department of Fish and Game v. National Marine Fisheries Service, et al.*,²³ the court faulted the biological opinion and sent it back for further work. The holding of the case was technical, that the opinion used the wrong baseline from which to measure the species' decline and relied on optimistic assumptions about mitigation measures. The court did not stop at technical defects, however, and added far-reaching observations on the underlying substantive issues, concluding that "[i]nstead of looking for what can be done to protect the species from jeopardy, the Fisheries and the action agencies have narrowly focused their attention on what the establishment is capable of handling with minimal disruption."²⁴ The court also counseled the federal parties to open up the closed process in which the biological opinion had been developed, to ensure that state fish and wildlife agency and tribal scientists were heard: "The underlying root of the litigation problem is the feeling of these parties that the federal government is simply not listening to them."²⁵

Following the court's rebuke, the federal parties organized a large-scale consultation process to reanalyze technical issues with input from the states and tribes. In March 1995, the National Marine Fisheries Service completed the new consultation process. For the first time, the Service's 1995 biological opinion found that dam operations were likely to jeopardize salmon survival and outlined a "reasonable and

²³ ___ F. Supp. ___ (D. Ore. 1994). On appeal, the Ninth Circuit remanded the action with instructions to dismiss it as moot. *Idaho Fish and Game v. NMFS*, 56 F. 3d 1071 (9th Cir. 1995). See also *Aluminum Co. of America v. Bonneville Power Administration*, 56 F. 3d 1075 (9th Cir. 1995) (related litigation involving the federal action agencies' reliance on the biological opinion); and *Northwest Resource Information Center v. National Marine Fisheries Service*, 56 F. 3d 1060 (9th Cir. 1995) (challenge to the federal agencies' barge transportation program).

²⁴ Slip opinion at 36.

²⁵ *Id.*, at 36-37.

prudent alternative”²⁶ that the Service said would avoid jeopardy. This opinion was challenged in March of 1996.

While the Fisheries Service’s 1995 biological opinion and the Power Planning Council fish and wildlife program have much in common, they differ in key respects. The biological opinion put more emphasis on barging juvenile fish and less emphasis on improving migrating conditions in the Snake River. The opinion avoids calling for the acquisition of significant amounts of water from the Snake River Basin, and reserves judgment on the strategy of drawing down the Lower Snake River reservoirs. Instead of calling for improvements in the Snake River system, the opinion draws more heavily on storage projects in the Upper Columbia arm of the system (Grand Coulee in north-central Washington and Libby and Hungry Horse in Montana), so that Snake River fish will find a faster Columbia River when they emerge from the Snake. However, this strategy raises concerns about impacts to upriver resident fish and wildlife populations which the opinion does not address. The biological opinion aims at the needs of salmon. It affords no protection for resident fish and wildlife, except insofar as these species are listed under the Endangered Species Act and protected in their own right.²⁷

2. Critical habitat designation.

Several years before the Endangered Species Act listings, the Power Planning Council had worked with the region’s fish and wildlife agencies, tribes and the Bonneville Power Administration to identify “protected areas” -- about 44,000 miles of

²⁶ See note 27, *supra*.

²⁷ Kootenai River white sturgeon, which are listed as endangered, affect operations at Montana’s Libby Dam, see 59 *Fed. Reg.* 45989 (Sept. 6, 1994). Snail species that inhabit hot springs in central Idaho also are listed and can affect Snake River flow operations; bull trout have been the subject of listing petitions, which the U. S. Fish and Wildlife Service has found warranted but precluded by other priorities.

streams in which the Council recommended against new hydropower development. These areas included all anadromous fish streams in the Pacific Northwest.²⁸ In the process, an extensive data base was developed on resource characteristics of the region's rivers. By the time of the Endangered Species Act listings, the Federal Energy Regulatory Commission and private hydropower developers were accustomed to the idea that salmon streams were risky places for new development.

The Endangered Species Act calls for the designation of critical habitat, i.e., areas that are essential to the conservation of the species.²⁹ In the Columbia, the Fisheries Service accompanied its listing proposal with a request for biological and economic information regarding critical habitat, and convened two technical committees to assist the agency to gather information.³⁰ A critical habitat proposal was issued in late 1992³¹ and a final designation was the next year.³² The designations included the spawning and rearing grounds for the listed populations and their migration corridors -- the spawning and rearing tributaries through the mainstems of the Salmon, Snake and Columbia rivers.

Critical habitat includes not just the geographical idea of habitat, specific areas that can be drawn on a map, but also "those physical or biological features essential to the conservation of the species and which may require special management considerations or protection." There was discussion in technical committees whether this might include, for example, designating a particular level of flow as a "physical or

²⁸ See *Columbia River Basin Fish and Wildlife Program* section 12.2 (1994).

²⁹ 16 U.S.C. §§1532(5), 1533(a)(3).

³⁰ Critical habitat designation is one of the few places in the Endangered Species Act process where economics is a decision factor. An area may be excluded from designation if NMFS determines that the overall benefits of exclusion outweigh the benefits of designation, unless exclusion would result in extinction of the species. 16 U.S.C. §1532(b)(1)(B)(2).

³¹ 57 *Federal Register* 57051 (December 2, 1992).

³² 58 *Federal Register* 68544 (December 28, 1993).

biological” feature essential to the species. However, in the event, the Fisheries Service listed the general habitat characteristics that are deemed essential, for which special care must be taken to ensure against adverse effects to the species, e.g., substrate, water quality, quantity, temperature and velocity, riparian vegetation and other factors.

The Fisheries Service concluded that designating critical habitat would not have a major impact on human activities. The Service reasoned that the Act’s consultation process already provided protection against habitat-damaging activities. Based on this reasoning and its economic committee’s evaluation,³³ the Service found that the economic impact of the proposed designations were likely to be minor. The Service maintained that the primary effect of a critical habitat designation would be to clarify that there must be consultation regarding federal activities that may affect designated habitat, assist federal agencies in planning further actions, and help focus federal, state and private conservation and management actions in these areas.

3. Recovery planning.

James Watt once characterized recovery plans as “the real payoff under the ESA.” The success of the Act, he said, “is really measured by the success of recovery efforts.”³⁴ In practice, however, recovery plans have a modest record at best. Recovery plans have little legal force. They tend to take a long time to develop and, once developed, do little more than maintain species at the levels that required listing in the first place.³⁵

³³ D. Huppert, et al., *Economic Effects of Management Measures Within the Range of Potential Critical Habitat for Snake River Endangered and Threatened Salmon Species* (1992).

³⁴ Letter of February 8, 1982 from James Watt to Hon. John B. Breaux, 1982 U.S. Code Cong. & Adm. News 2807, 2838.

³⁵ See United States General Accounting Office, *Endangered Species Act: Management Improvements Could Enhance Recovery Program* at (1988); and *Endangered Species Act: Types and Number of Implementing Actions*, p. (May 1992).

A 1993 study suggested that recovery plans generally do not aim for "recovery" as the term is defined by the Endangered Species Act. The study reviewed all 314 available recovery plans approved by the Fish and Wildlife Service and the National Marine Fisheries Service as of August, 1991, and found that for species for which population data were available, 28% had recovery goals set at or below the population size that existed at the time of listing.³⁶ The Fish and Wildlife Service's own report to Congress in 1990 appears to reflect the same conclusion:

A more realistic measure of the Service's recovery efforts than the number of species delisted is probably the proportion of listed species whose status has been stabilized, particularly among species that are habitat-limited and thus more vulnerable to changes in their environment. Maintenance of remaining populations of listed species and prevention of their extinction is a basic objective of the program.³⁷

In the Columbia River, recovery planning has not progressed to the point that it can be meaningfully evaluated. The Fisheries Service appointed a volunteer recovery team of non-government scientists, engineers and an economist in early 1992.³⁸ The team compiled information, consulted with various parties and, in late 1993, submitted its recommendations to the Fisheries Service. The Fisheries Service gave its recovery

³⁶ T. Tear, J. Scott, P. Hayward, B. Griffith, "Status and Prospects for Success of the Endangered Species Act: A Look at Recovery Plans," 262 *Science* 976 (Nov. 12, 1993).

³⁷ United States Department of the Interior, U. S. Fish and Wildlife Service *Report to Congress: Endangered and Threatened Species Recovery Program* at 3 (December 1990).

³⁸ The Secretary is authorized to retain help from outside the agency, and may form recovery teams to provide advice on recovery plan development and implementation, 16 U.S.C. § 1633(f)(2). Recovery teams may be drawn from experts within or outside the agency. Team recommendations are purely advisory. See U. S. Fish and Wildlife Service, *Policy and Guidelines for Planning and Coordinating Recovery of Endangered and Threatened Species*, May 1990, p. II-1.

team relatively free license to speak publicly;³⁹ various team members lobbied for their recommendations not just with the agency, but in the region and in Congress.

In the spring of 1995, the Fisheries Service issued a draft recovery plan. It incorporated the measures of the hydropower biological opinion and ambitious habitat measures. It addressed questions of institutional relationships and governance. In many of these areas, the recommendations of the Fisheries Service, the recovery team and the Power Planning Council's fish and wildlife program are aligned. On some critical issues -- the role of barge transportation, reservoir drawdowns and water for flow augmentation -- they still differ.

4. Habitat conservation planning.

There is a persuasive argument that nonfederal involvement in species recovery is essential:

[T]he conservation of biodiversity will require a financial commitment that cannot be provided by the public sector alone. Private sector contributions to endangered species conservation far surpass the federal endangered species budget. . . . Given the reality of an annual \$300 billion federal deficit and similar fiscal problems at the state and local government level, it is doubtful that the public sector contribution to endangered species conservation will increase dramatically.⁴⁰

³⁹ U. S. Fish and Wildlife Service guidelines emphasize that recovery team recommendations do not represent the position of the agency; recovery teams may or may not be asked to prepare final recovery plans; without the approval of the agency, recovery team members may not seek to influence agency policy outside agency channels; and that recovery plans are final only when they are adopted by the agency. See U. S. Fish and Wildlife Service, *Policy and Guidelines for Recovery Planning and Coordinating Recovery of Endangered and Threatened Species*, Appendix II: Organizing the Recovery Effort: Roles and Options. See also National Oceanic and Atmospheric Administration, National Marine Fisheries Service Office of Protected Resources, *Recovery Planning Guidelines*, p. 3 (October 1992).

⁴⁰ Thornton, "Searching for Consensus and Predictability: Habitat Conservation Planning Under the Endangered Species Act of 1973," 21 *Env'r'l Law* 605, 656 (1991).

The habitat conservation planning provisions of the Endangered Species Act provide a way to work with private parties toward species recovery. Private development that “harms” a listed species (harm may include habitat destruction or modification) is an unlawful “taking” under the Act, punishable by civil and criminal penalties.⁴¹ In order to proceed, a private developer must obtain an “incidental take” permit. Such permits are issued if a privately designed and funded habitat conservation plan is approved. These plans are intended to offset any incidental taking by promoting conservation of the species.⁴²

Supporters of the habitat conservation planning provisions argue that this process provides important opportunities for reconciling economic activities with endangered species protection.⁴³ For one thing, habitat conservation plans are specifically authorized to address unlisted species,⁴⁴ and for this reason they can be more responsive to ecosystem considerations than other processes under the Act.

There have been regional and national consultations regarding the possibility that the Power Planning Council’s fish and wildlife program could be structured to satisfy the habitat conservation planning requirements of section 10. Would it be possible to develop a long-term, four-state, multi-species plan backed up by the financial,

⁴¹ Section 9 (16 U.S.C. § 1538) prohibits “taking” listed species. This prohibition extends to both federal and nonfederal actions, including private activities. “Taking” is defined broadly, to include “harm” to the species. 16 USC § 1532(19). “Harm” may include harm to habitat (not just critical habitat) if it would adversely affect listed species.

⁴²16 USC § 1539(a)(2). For a detailed explanation of habitat conservation plans, see Bean, Fitzgerald and O’Connell, *Reconciling Conflicts Under the Endangered Species Act: The Habitat Conservation Planning Process* (1991). Another avenue for private developers is section 7(o) of the Act, 16 USC § 1539(a)(2), under which a private developer seeking a federal permit may secure an exemption through the Act’s consultation process. This exemption also requires a conservation plan.

⁴³*Ibid.*

⁴⁴H.R. Rep. No. 97-835, 97th Cong., 2d Sess. 30, *reprinted in* 1982 U.S. Code Cong. & Admin. News 2860, 2871.

contractual and other implementation commitments that section 10 seems to require? To date these questions have been raised but not answered.

There are significant efforts to develop smaller scale habitat conservation plans. The public utility districts that own hydropower dams in the Mid-Columbia area of Washington are working with the Fisheries Service on a plan. The Fisheries Service, the Fish and Wildlife Service and the Environmental Protection Agency have worked toward an integrated set of guidelines for habitat conservation planning efforts to satisfy the Endangered Species Act and the Clean Water Act. The U. S. Fish and Wildlife Service is working with private parties and local watershed groups to facilitate the development of plans for salmon and other species. While progress in habitat conservation planning comes piece by piece, these efforts are promising.

5. Broader effects of the Act

Not all the Endangered Species Act's effects can be seen by examining individual tools; some effects are apparent only when the Act is considered wholesale. Of these, one of the most important is what has been called the Act's "incentive structure" or the "pit bull" phenomenon: the "perception that the ESA's mandate is absolute and nonnegotiable," which prompts other actors to address the problems that cause species declines.⁴⁵

This incentive structure has played a major role in the Columbia River. It is an oversimplification to say that the Endangered Species Act caused all the salmon-related developments of 1991-1994. Other processes were did much of the heavy lifting -- the

⁴⁵ S. Yaffee and J. Wondolleck, *Negotiating Survival: An Assessment of the Potential Use of Alternative Dispute Resolution Techniques For Resolving Conflicts Between Endangered Species and Development*, p. 55 (School of Natural Resources and Environment, The University of Michigan, September 1994).

region's political leaders in the Salmon Summit, the Power Planning Council and state and tribal fish managers in the Northwest Power Act processes, litigants in the court proceedings of 1994, and a wide range of interested parties throughout. It may well be that the salmon declines and the *Northwest Resource Information Center* ruling would have prompted these efforts even if there were no Endangered Species Act. Yet, it is certainly true that the Endangered Species Act provided the immediate impetus to engage these processes in the protection of wild salmon populations.

The second broad effect is a shift in the burden of proof that accompanies Endangered Species Act listings. Protecting ecosystems from unwonted effects of new development can be heavy work. Often, the short-term economic benefits of development are obvious, while the benefits of environmental recovery are harder to predict, rarely appraisable in economic terms, and easy to discount. Although the Northwest Power Act tended to shift this burden, the Endangered Species Act listings made the shift unmistakable. For essentially the first time, proponents of development must carry a burden of proof in which they must contend with the uncertainty involved in predicting biological impacts.

These broad tools -- the Act's incentive structure and the shift in the burden of proof favoring species protection -- may well be the most significant effects of the Endangered Species Act listings.

C. The limitations of the tools.

These are impressive tools. But in judging how far the Act is can protect diverse species, it is also important to understand the limitations of these tools.

1. The focus on federal resources and activities.

One of the key limitations in the Act's consultation process is illustrated by the differences between the Endangered Species Act hydropower biological opinion and the Power Planning Council's program. The Council program puts much greater emphasis on finding solutions for Snake River fish in the Snake River Basin. The Council program calls not only for Snake River reservoir drawdowns, but efforts to find an additional million acre-feet of Snake River water for flow augmentation. The biological opinion makes only a limited commitment to these measures and instead relies more heavily on transportation and infusions of Columbia River water to augment flows.

These differences are in one sense predictable. Private property interests are associated with much of the water in the Snake River. Most of the water stored in the Snake reservoirs has irrigation water rights associated with it. Even if this water could be secured, in order to use it for salmon it must be "shaped" through privately-managed hydropower projects. It would require, in short, widespread cooperation of a kind that has seldom been seen in western water issues. Seeing these obstacles, the Fisheries Service biological opinion does not count on much of this water. Because the Columbia is less affected with private claims, it is easier to tap for endangered species purposes and the biological opinion hits it harder

However understandable this difference may be, it points to a key problem for an ecosystem strategy. Where a landscape or a river is a patchwork of federal and private property interests, an ecosystem approach is difficult at best. The waters of the Snake are

a complex, perhaps unmanageable mixture of public and private interests. Yet, if an ecosystem approach is essential, keys to such puzzles must be found.⁴⁶

2. The focus on proposed activities.

A second limitation in the Endangered Species Act consultation process is that it deals primarily with *proposed* federal activities, whereas much of the problem faced by salmon is due to development that has already occurred. Where ecosystem recovery requires that development be undone, there is only so much influence the Endangered Species Act can have.

The problem is illustrated in the reservoir drawdown debate. Drawdown advocates argue that lower reservoirs will increase the speed of the river (hence of fish migrating downstream) and help reestablish productive riparian areas at the edge of the river -- a benefit to fish and wildlife, listed and otherwise.

But drawdowns require significant changes in the dam structures themselves. Depending on their nature and timing, drawdowns could interfere with river transportation and the operation of juvenile and adult passage facilities at the dams. As noted above, the Power Planning Council program calls for drawdowns while the National Marine Fisheries Service remains undecided. Congress, seeing big risks and uncertainty, has withheld funding for studies of some drawdown evaluations.

If the Endangered Species Act process endorses drawdowns, implementation would probably require congressional action, either through appropriations or authorizing legislation. Endangered Species Act biological opinions do not bind Congress.

⁴⁶ See J. Volkman and K. Lee, "The Owl and Minerva: Ecosystem Lessons From the Columbia", 92 *Journal of Forestry* 48 (April 1994).

3. The difference between recovering species and avoiding jeopardy.

It is a commonplace that the real muscle in the Endangered Species Act is in its consultation process. So far, this commonplace has been borne out in the Columbia River. Critical habitat designation has had little effect. Habitat conservation plans may prove to be important in the long term, but gains will come in small increments over time. It is premature to pronounce a judgment on recovery planning, but the record of recovery plans generally is not promising.

The Act's biological opinions, in contrast, are making themselves strongly felt in a variety of federal activities: in the operation of the hydropower system, in habitat management and elsewhere. But biological opinions are aimed at avoiding jeopardy. They cannot reach other objectives such as protecting biodiversity or restoring salmon populations to harvestable levels. For these objectives, other tools, some provided by the Endangered Species Act and some not, will be needed.

4. Procedural limitations.

A fourth issue with the Endangered Species Act consultation process is procedural. The consultation process includes the agency that is proposing to act and the agency that administers the Act, in this case the National Marine Fisheries Service. The Fisheries Service must provide the action agency with a "biological opinion," i.e., whether the proposed activity would jeopardize the species. If there is reason to think that a federally-licensed, privately-developed project will affect a listed species, a federal

permit or license applicant may also participate.⁴⁷ However, there is no explicit provision for participation by a broader range of parties.

There is a rationale for a relatively closed process: the consultation process is supposed to last for only 90 days and broad participation could make this impossible. The judgments that are made in the consultation process are primarily scientific and technical, an area where agency expertise would seem more appropriate than the views of interested parties.

In the Columbia River, however, a closed process poses special problems. For ten years before the Endangered Species Act listings, the Power Planning Council, the region's fish and wildlife agencies and Indian tribes, utilities, environmental groups and others worked to open up the federal process in which river management decisions were made. The result was no doubt messy -- endless meetings, extended debate, more friction -- but the decision making process was at least reasonably transparent.

To the extent that the Endangered Species Act closes this process, the loss of understanding can be significant. Interested parties, unable to watch the decision making process, had little trust in the result. Indeed, the court in *Idaho Fish and Game v. National Marine Fisheries Service* attributed the hydropower litigation as much to this factor as any other: "The underlying root of the litigation problem is the feeling of these parties that the federal government is simply not listening to them."⁴⁸ The consultation process convened by the parties following the court's opinion opened things up to a

⁴⁷Endangered Species Act, § 7(a)(3); "Interagency Cooperation--Endangered Species Act of 1973, as amended, Final Rule," 51 Fed. Reg. 19926, 19939 (June 3, 1986).

⁴⁸ *Id.*, at 36-37.

degree. But many interested parties continue to chafe under continuing procedural restrictions, and the litigation has not stopped.

5. Broader limitations of the Act

Just as the Endangered Species Act has had impacts beyond the effects of specific tools, some of its limitations are more apparent from a distance. Perhaps the most important of these is the converse of the Act's "incentive structure." Pit bulls are fearsome, untrusted. The fact that the Endangered Species Act process is federal generates mistrust with some people and injects a political element that is not directly related to the needs of the species. And while some of these reactions are unavoidable, the Act's procedural limitations, discussed above, can add fuel to the fire. The fact that the Act takes little account of economic considerations does not mean that economic issues disappear; they simply come back as obstacles to some aspect of the recovery program.

These are important limitations. They are not insurmountable, but they put a premium on building as much collaboration into Endangered Species Act processes as possible. The more the recovery effort is local without compromising the Act's purposes and requirements, the more durable it will be.

IV. Columbia River biodiversity and the Endangered Species Act

The Columbia River Endangered Species Act process is focused on salmon, not biodiversity. Biodiversity protection implies protection for whole communities of organisms, what Aldo Leopold described as the "hundred distinctive species of grasses, herbs, and shrubs; . . . mammals and birds, all interlocked in one humming community of

co-operations and competitions, one biota.”⁴⁹ To conservation biologists, soil organisms may be more significant than animals, and the overall structure and complexity of a biological system are more important than any individual species.⁵⁰ In contrast, species protection emphasizes what Leopold called “show pieces”: individual species like salmon, which people treasure. In focusing on show pieces, we pay attention to one set of issues and may neglect others.

The Endangered Species Act does not ignore the importance of ecosystems. One of the Act’s purposes is to “provide a means whereby the ecosystems upon which endangered species or threatened species depend may be preserved.”⁵¹ Nevertheless, critics contend that the Act actually diverts attention from biodiversity.⁵² The Clinton Administration favors an ecosystem approach, but the Act’s decision criteria remain focused on individual species.

In the Columbia, salmon-centric decisions are to some degree inevitable. Salmon are the flagship species for the Northwest. They are central to tribes’ cultures. They are important to countless sports fishers and to a commercial industry. Indian and international treaty commitments hinge on them. They are a key part of the Columbia River ecosystem. So, for better or worse, salmon will continue to be central to Columbia River policy. But this does not preclude a focus on biodiversity and ecosystems.

⁴⁹Leopold, *A Sand County Almanac* p. 193 (Sierra Club/Ballantine Books 1966).

⁵⁰See Leopold, *A Sand County Almanac*, *supra*, p. 253.

⁵¹ 16 USC § 1531(b).

⁵²Knickerbocker, “Biodiversity: Top Concern in Saving Species,” *The Christian Science Monitor* p. 8 (December 23, 1991); Doremus, “Patching the Ark: Improving Legal Protection of Biological Diversity,” 18 *Ecol. L. Q.* 265, 30 (1991); Goodman, “Preserving the Genetic Diversity of Salmonid Stocks: A Call For Federal Regulation of Hatchery Programs,” 20 *Envl L.* 111, 148-155 (1990). Winckler, “Stopgap Measures,” *supra*, *Atlantic Monthly* pp. 74, 78.

For decades, salmon protection efforts have relied on technological surrogates for salmon habitat -- barges to transport fish down an increasingly inhospitable river, hatcheries to make up for lost habitat and feed the region's appetite for fish. The assumption has been that these technological solutions have given the region flexibility to develop economically and still maintain salmon fisheries. But it also has fed a willingness to see wild fish disappear. This not only overlooks the long-term biological value of wild populations, it poses a head-on conflict with the Endangered Species Act.

Under the Endangered Species Act, the question is how to rebuild wild salmon runs.⁵³ Yet, ironically, the Endangered Species Act process continues to rely on technological surrogates such as barge transportation of salmon. There is a rationale for this in the short term. The question is how to build a bridge to ecosystem recovery for the long term.

A recent draft report from a group of independent scientists convened by the Power Planning Council suggests that over the long term, technological mitigation can play only a small role in salmon recovery:

The history of salmon restoration is rooted in technology, such as bypass facilities and hatcheries. [We recommend] keeping the salmon in their habitat and letting the river do the work.⁵⁴

The draft report predicts that without basic changes in the region's approach, wild salmon runs will not survive to the end of the next century. To avoid these extinctions, the report urges the region to focus on all parts of the ecosystem: headwater areas, the

⁵³ Waples, "Definition of 'Species' Under the Endangered Species Act: Application to Pacific Salmon," *NOAA Technical Memorandum NMFS F/NWC-194* p. 9 (March 1991).

⁵⁴ *Clearing Up*, no. 722, p. 6 (April 29, 1996), quoting Dr. Jack Stanford, a member of the Independent Scientific Group.

mainstem of the river, estuary and the ocean. In headwater areas, they emphasized the need to restore interconnecting salmon habitats. In the mainstem of the river they criticized barge transportation as "irrelevant", and urged measures such as reservoir drawdowns to help restore natural stream channels, expose shoreline, produce nutrients, and reestablish habitat that salmon need for feeding, resting and spawning.

If the real path to biodiversity is ecosystem protection, what contribution can we expect the Endangered Species Act to make? The preceding discussion demonstrates that the Act is bound to play a powerful role. Yet, there are too many facets to the ecosystem of the Columbia River salmon with too many potential impacts for the Endangered Species Act to carry the entire burden. Salmon recovery will require as broad a collaboration of energies and initiatives as possible: federal and nonfederal, public and private, international, region and watershed. The process so far has been collaborative, but it needs a durable foundation. Over the last five years, the Power Planning Council and the National Marine Fisheries Service have taken turns at the plate, each building on the work of the other. As a result, the Council program and the Endangered Species Act program are consistent in many areas. But in 1995, the Council and the National Marine Fisheries Service still face some key issues.

The search for durable collaborative foundations is unlikely to be an easy one, but it is underway. In an energy and water appropriations bill adopted in November, 1995, Congress directed the Power Planning Council to report to Congress within 180 days "regarding the most appropriate governance structure to allow more effective regional control over efforts to conserve and enhance anadromous and resident fish and wildlife

within the Federal Columbia River Power System.”⁵⁵ While the report will not be issued until mid-May, there is a clear consensus in the region that more consistency in fish and wildlife policy is needed.⁵⁶ Differences between the Council plan and the Fisheries Service plan need attention. The Columbia River Treaty tribes find neither plan aggressive enough, and have proposed their own strategy. The Council’s independent scientific evaluation is nearly complete. It casts new light on salmon recovery, suggesting the need for a much clearer focus on the basin as an ecosystem.

These efforts are occurring in the midst of a sea change in the energy industry that is likely to have an important effect on salmon recovery. The industry, long a staid, matronly presence in the American economy, is becoming intensely competitive. In 1995, to help ensure that the Bonneville Power Administration could compete in this new milieu, the Clinton Administration established a six-year budget for Bonneville fish and wildlife funding.⁵⁷ For the longer term, the region is engaged in a process called the “Comprehensive Energy Review” to assess the implications of industry changes, including the role of the Bonneville Power Administration and the Power Planning Council. The industry’s role in energy conservation, renewable energy development and other matters of public policy are on the table. And the hydropower system’s ability to finance Columbia River fish and wildlife mitigation; the governance of the Columbia

⁵⁵ Energy and Water Appropriations bill, adopted November 13, 1995.

⁵⁶ See D. Getches, Report to the Northwest Power Planning Council From the Workshop on Fish and Wildlife Governance (February 12, 1996).

⁵⁷ The budget provides for an average \$252 million fish and wildlife spending for 1996 to 2001, not including the cost of river operations called for in the National Marine Fisheries Service’s biological opinion on hydropower operations. The federal agencies, in consultation with the Council and the region’s tribes, are still in the process of negotiating a Memorandum of Agreement that is to describe the accounting and other financial workings of the budget.

River dams; and the federal, regional and tribal roles in managing the river's resources are key questions.

Finally, the Endangered Species Act process is again in court. In the spring of 1995, a collection of environmental groups challenged the National Marine Fisheries Service biological opinion.⁵⁸ No rulings in the case have been issued, but, as the region learned in the last round of litigation, there is always the possibility of an outcome that will rearrange the landscape of Columbia River salmon policy.

V. Conclusion

Unprecedented pressures are coming to focus in the Columbia River: the continuing decline of salmon, Endangered Species listings, an emerging sense that ecosystem protection is the foundation for species protection, uncertainty surrounding the electric energy industry's role in species protection, and the shrinking purses of federal and state governments.

No one in the Northwest is willing to write a new entry for Microsoft *Encarta* telling of the salmon's continuing slide to extinction, and this leaves two possibilities. One is that Microsoft will leave the current entry unchanged, and in the future salmon will exist only in *Encarta's* virtual world. The other is that the Northwest will find a way to translate its commitment to salmon into rivers and communities that are not just part of an economy, but part of an ecosystem.

⁵⁸ *American Rivers, et al. v. National Marine Fisheries Service*, U. S. District Court, District of Oregon (March, 1996).