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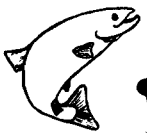

Anadromous Fish Law Memo

Issue 50 August 1990

ANADROMOUS FISH LAW -- 1979-90

This issue culminates over a decade of analysis and commentary on laws affecting efforts to preserve and restore the anadromous fish runs of the Pacific Northwest. During that time, the Memo has examined a diverse array of legal issues, including Indian treaty fishing rights, federal and nonfederal hydropower development, land management activities such as timber harvesting and grazing, ocean harvest management under international treaties and the Magnuson Act, wild fish management in Oregon, and habitat protection under a variety of initiatives. The scope of study has been extremely broad, but that is hardly surprising given the immense migratory range and environmental sensitivity of the primary anadromous species, Pacific salmon and steelhead trout.

We hope that our efforts in these pages have and will continue to prompt others to see the value of studying the legal and institutional structure affecting these majestic fish, some of whom migrate from the mountain streams of Idaho to the icy waters of Alaska and back. Anadromous fish are not only of considerable economic value to sport, commercial, and tribal harvesters, they also represent a barometer of the health of aquatic ecosystems to support a host of other uses, both consumptive and nonconsumptive. Salmon and steelhead trout are to the water resource what the miner's canary is to air quality in a mine. For these reasons, we believe that anadromous fish may rightly be considered the Pacific Northwest's most important natural resource, just as they were 135 years ago at the signing of the Indian treaties guaranteeing the tribes a harvest share.

In this issue we survey developments in anadromous fish law and policy over the last decade and highlight a number of recent and still pending issues. The latter may serve as an agenda for the future because, while Pacific salmon law has grown significantly during the past ten years, it is not at all clear that the species themselves are materially better off. It is true that some runs have rebounded from historic lows they suffered in the 1970s, and the national goal is to double Columbia Basin run sizes during the next 20 years. But other runs, especially those spawning high in river basins, have not fared well. And wild stocks are in trouble throughout the Pacific Northwest. Many of the latter have in fact gone extinct during the last decade.

Thus, although this publication terminates with this issue, the challenge of preservation and restoration remains very large. We hope that other students and teachers decide to pursue this rewarding area of law and policy analysis, and that policy makers take action commensurate with the environmental and economic importance of anadromous fish to the sport, commerce, culture, and identity of the Pacific Northwest. The next ten years may well determine whether wild salmon remain part of the fabric of the region or are, like the Snake River coho runs, a mere memory, sacrificed in pursuit of other goals.

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I. Introduction

It is a daunting task to attempt to encapsulate a decade of events in as fast a moving field as anadromous fish law. And, frankly, this lengthy, long-delayed Memo does not seek to accomplish that objective. To do so, we felt, would sacrifice breadth for depth, and perhaps lose the opportunity to supply the public and decision makers with a detailed analysis of the issues that are central to fate of the Northwest's anadromous fish in the 21st century: those involving the preservation and restoration of fish habitat.

Thus, in this last issue of this publication we concentrate on some familiar issues to our readers, such as Indian treaty fishing rights[1] and implementation of the Northwest Power Act[2] -- as well as emerging issues, such as the prospect of Endangered Species Act listing for various Columbia Basin salmon stocks[3] and the effect of the Supreme Court's recent decision in California v. FERC.[4] We pay special attention to the necessity to secure adequate mainstem fish flows,[5] for we view that as the single most important issue on the habitat agenda. Proposed actions, such as the Bonneville Power Administration's (BPA's) "Non-Treaty Storage Agreement," which would reduce the flexibility of the hydroelectric system to supply biologically-based fish flows, are most alarming.[6]

The scope and detail of this issue necessarily led us not to cover some issues that we have devoted attention to in the past and which we believe warrant analysis in the future. In particular, we believe that the effect of timber and grazing practices on anadromous fish habitat deserves greater attention.[7] Similarly, although benefiting from a fine recent study,[8] the effects of hatchery practices on wild stocks must begin to occupy the attention of biologists and policy makers. Harvest management issues need in-depth coverage, especially the effects of the judicially-approved Columbia River Fish Management Plan,[9] the implementation of the U.S.-Canadian Pacific Salmon Interception Treaty,[10] and the interaction between regulation under the Magnuson Fishery Management Act and the decline of upriver fish stocks.[11] And the highly publicized issue of high seas salmon interception deserves detailed analysis.[12] We hope that others will pursue these important topics in the years ahead. At the end of this Memo we list other publications that researchers might find to be of value.

Much of the tone of this Memo, especially the analysis of the Northwest Power Act's Columbia Basin Fish and Wildlife Program, is critical. It is critical because we believe that the 1980 Act and the 1982 program it spawned have squandered valuable time, while avoiding confronting issues that are central to the mission of restoring the Columbia Basin fish runs, such as adequate mainstem flows. However, it is a mistake to think that all the news is bad. Congress has recently demonstrated its commitment to the Columbia Basin fish restoration effort by appropriating large sums to finance fish bypass systems at mainstem dams.[13] The region's fishery agencies and Indian tribes have successfully negotiated an agreement with hydroelectric

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1. See below § III; see also Memo #12 (Apr. 1981).
2. See below § V; see also Memos #4 (Oct. 1979), #11 (Jan. 1981), #13 (May 1981), #19 (Sept. 1982), #22 (July 1983), #24 (Mar. 1984), #30 (June 1985), #38 (Nov. 1986).
3. See below § II.
4. See below § VI.
5. See below notes 142-56 and accompanying text.
6. See below notes 136-40 and accompanying text (non-treaty storage); see also below notes 156-57 (fishery agencies' proposed mainstem flows).
7. See Craig, National Forest Planning and Anadromous Fish Protection: A Trilogy of NEPA Cases, Memo #41 (May 1987); Weber, National Forest Planning and Its Downstream Fishery Effects, in Memo #39 (Feb. 1987) at 9; Braun, Livestock Grazing in Riparian Zones: Ensuring Fishery Protection in Federal Rangeland Management, Memo #37 (Oct. 1986).
8. See Goodman, Preserving the Genetic Diversity of Salmonid Stocks: A Call For Federal Regulation of Hatchery Programs, 20 Envtl. L. 111 (1990); see also Klarquist, Oregon's Wild Fish Management Policy: Large Promises, Few Deliveries, Memo #25 (May 1984).
9. See Oregon Dept. of Fish and Wildlife, Summary of Columbia River Fish Management Plan (n.d.); see also Heineman & Rosenbaum, Securing a Fair Share: Indian Treaty Rights and the Comprehensive Plan for the Columbia River, Memo #21 (Mar. 1983); Harrison, The Evolution of a New Comprehensive Plan for Managing Columbia River Anadromous Fish, 16 Envtl. 705 (1986); Oregon Trout, Columbia Plan Ignores Wild Fish, 5 Riverkeeper no. 2 (Summer 1988).
10. See Twitchell and Todd & Jensen, Implementing the U.S.-Canada Pacific Salmon Treaty: Two Perspectives, Memo #47 (Dec. 1988); Jensen, The United States-Canada Pacific Salmon Interception Treaty: An Historical and Legal Overview, 16 Envtl. 363 (1986).
11. See Kennedy, Habitat Protection and the Magnusen Fishery Conservation and Management Act Amendments of 1986, Memo #44 (Dec. 1987); see also Oregon Sea Grant, Wild Trout, Steelhead and Salmon in the 21st Century (conference proceedings, July 19, 1986).
12. See Sathre, The International North Pacific Fisheries Commission: A Thirty-Year Effort to Manage High Seas Salmon and Some Suggestions for the Future, Memo #29 (May 1985); National Marine Fisheries Service, Northwest Area Law Enforcement, Report on High Seas Salmon Interception (presented at the joint session of the Western Assoc. of Fish and Wildlife Agencies and the Northwest Fish and Wildlife Law Enforcement Assoc., Jan. 24, 1990); Moratorium Urged On Drift Nets, The Trout & Salmon Leader (Nov. 1989) at 9.
13. See below note 268 and accompanying text.

operators that will guarantee sufficient spills of water pending installation of the bypass systems.[14] The Northwest Power Planning Council's "protected areas" system will help protect thousands of stream miles from future hydroelectric development.[15] And the U.S. Fish and Wildlife Service and the National Park Service have recently recommended dismantling dams on the Elwah River to help restore that river's fabled fish runs.[16] Clearly, these developments are evidence of how serious the public and decision makers are about restoring the region's anadromous fish.

Yet in the past ten years some salmon stocks have gone extinct; others are perilously close.[17] Thus, we begin, in section II, with a review of the status of many of those stocks and an overview of the Endangered Species Act, for that law and its processes seem destined to eclipse the Northwest Power Act in importance in the near future. Section III then reviews the Indian treaty guarantee of "the right to take fish," some of the case law interpreting that 19th century promise, and its potential habitat protection implications in the late 20th Century. Section IV considers some of the chief events in the development of the Columbia Basin hydroelectric system and its effect on the fish runs, including BPA's recent Non-Treaty Storage Agreement with British Columbia Hydro. Section V is a detailed examination of the Columbia Basin Fish and Wildlife Program, the largest biological restoration program ever attempted. Section VI analyzes the Supreme Court's decision in California v. FERC, which held that the Federal Energy Regulatory Commission, no friend of fishery advocates, may ignore state conditions designed to protect fish in licensing hydroelectric projects. Finally, section VII concludes with some parting observations about the nature of anadromous fish law and its future.

II. The Prospect of Endangered Species Act Listing

Nearly twelve years ago, in 1978, the National Marine Fisheries Service and the U.S. Fish and Wildlife Service initiated a status review to determine whether upriver Columbia Basin salmon runs might qualify for listing as threatened or endangered species under the Endangered Species Act (ESA).[18] However, passage of the Northwest Power Act encouraged the two federal agencies to suspend their review and devote their attention to participating in the 1980 Act's call for a Columbia Basin Fish and Wildlife Program. A decade spent helping to design and implement that program failed to reverse serious declines of wild stocks throughout the region, prompting several petitions to list stocks under the ESA.[19]

On March 30, 1990 the Shoshone-Bannock Tribe submitted a petition calling for the listing of Snake River sockeye. Two months later, on May 30, a coalition of environmental groups led by Oregon Trout (also including the Northwest Environmental Defense Center, the Oregon and Idaho chapters of the American Fisheries Society, and the Oregon Natural Resources Council) filed petitions seeking listing of the spring, summer and fall runs of Snake River chinook and lower Columbia River coho. The filing of these petitions, along with the recent designation of the winter run of Sacramento River chinook as a threatened species, has ushered in a new era of anadromous fish law.

A. The Sacramento River Designation

In 1985, the American Fisheries Society, a 7000-member scientific association, petitioned the National Marine Fisheries Services (NMFS) for threatened status for the winter run of Sacramento chinook. NFMS rejected that petition in early 1987,[20] but drought conditions in 1987 and 1988 caused the agency to reconsider its rejection. In late 1988, NFMS again determined that listing was not appropriate because other protection measures (such as a state-initiated 10-point restoration plan) were mitigating the effects of the drought. The run seemed to have stabilized at about 2,000 spawners after two decades of decline -- chiefly due to the operation of the Bureau of Reclamation's Central Valley Project (there were some 118,000 spawners as late as 1969).[21] However, when the 1989 run plummeted another 75% to a mere 550 spawners, NMFS published an emergency rule listing the winter run as a threatened species on August 4,

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14. See below notes 280-85 and accompanying text.

15. See below notes 269-77 and accompanying text.

16. See Egan, Dams May Be Razed So the Salmon Can Pass, N.Y. Times (July 15, 1990) at 1. Bruce Brown traces the decline of the remarkable Elwah tyee chinooks in his wonderfully written Mountain in the Clouds: A Search For the Wild Salmon (1982) at 61-74, 102-05.

17. See below notes 19, 26-33 and accompanying text; see also Loftus, Coho Extinct in Snake River, Lewiston (Id.) Tribune (July 9, 1987).

18. 43 Fed. Reg. 45,628 (1978). For a thorough discussion of the issues involved in the listing process, see Bodi, Protecting Columbia River Salmon Under the Endangered Species Act, 10 Envtl. L. 349 (1980).

19. Citizen petitions are authorized by 16 U.S.C. § 1533(c)(2); they must be supported by "substantial evidence" in order for the agencies to propose a listing. 50 C.F.R. § 424.14. For some of the biological evidence that might support a listing, see Oregon Trout, Areas Where Anadromous Fish Have Gone Extinct In Oregon (July 7, 1989) (listing 57 areas of wild steelhead extinctions, 29 of wild coho, 15 of wild sockeye, and classifying 51 other stocks as "endangered" (run size of less than 100 fish), "threatened" (100 to 400 fish), and "special concern" (400 to 1,000 fish)).

20. 52 Fed. Reg. 6041 (Feb. 17, 1987).

21. 53 Fed. Reg. 49,722 (Dec. 9, 1988); see Pacific Coast Federation of Fishermen's Associations, 18 PCFFA Friday no. 10 (May 11, 1990) at 10.

1989.[22] On April 2, 1990, NMFS extended the emergency listing, while also designating some 60 miles of the Sacramento River between Red Bluff and Keswick Dams as critical habitat.[23]

Threatened species designation invokes the ESA's conservation measures, including (1) consultation procedures with other federal agencies to implement conservation programs, (2) prohibitions against takings, and (3) promulgation of recovery plans. In the case of the Sacramento winter chinook, NMFS consulted with the Bureau of Reclamation regarding operation of Red Bluff Dam, the Corps of Engineers regarding gravel mining and flood control operations, and the Pacific Fishery Management Council regarding the effects of sport and commercial fishing. The thrust of the emergency rule promulgated by NMFS was to require the Bureau of Reclamation to change operations at the Red Bluff Dam to maintain suitable water temperatures in the designated critical habitat during the spawning season. This will reduce power generation, but NMFS tailored its rule to have no effect on irrigation diversions or fishing practices authorized by the state or the Pacific Fishery Management Council.[24] Additional protection may be provided when NFMS promulgates a final rule.

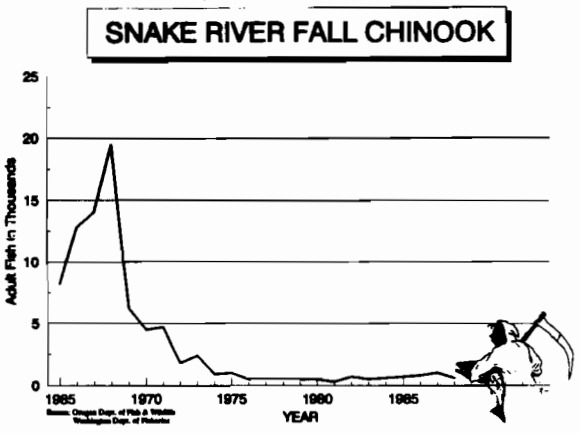
B. The Status of Columbia Basin Stocks

On June 1, 1990, NMFS and the Oregon Department of Fish and Wildlife submitted a status report to Senator Mark Hatfield on Columbia Basin runs subject to the ESA petitions.[25] Although cautioning that the report did not necessarily represent "best scientific information available" required by the ESA, nevertheless the report supplied a good indication of the relative health of runs under petition.

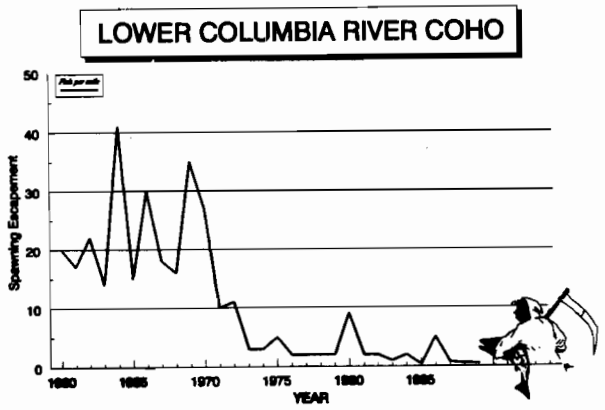
The numbers are, if anything, more alarming than those which propelled NMFS to list the Sacramento winter chinook. In the last twenty years Snake River spring chinook have declined from about 3,000 spawners in the Grande Ronde subbasin to 338 in 1989, and from about 1,500 spawners in the Imnaha subbasin to 412 in 1989.[26] Spring chinook in the Salmon and Clearwater subbasin show similar declines; the 1989 annual redd count in the Salmon was only 6% of 1961, and natural escapement was near the lowest ever observed.[27] 1989 summer chinook redds in the Salmon subbasin numbered 501, whereas annual escapement averaged 20,000 between 1962 and 1970.[28] Only around 4,200 adult summer chinook passed Lower Granite Dam in 1989 compared to a peak of nearly 31,000 twenty years before.[29] Fall chinook are in even worse shape; adult escapement over Lower Granite was below 1,000 annually between 1983 and 1989, with an increasing number of straying hatchery after 1988.[30]

Columbia Basin sockeye once had run sizes of up to three million fish, but of eight lake-riverine systems that supported the bulk of the runs, only three remain: the Okanagon and Wenatchee River systems in Washington and the Salmon in Idaho. Unfortunately, Idaho-bound sockeye are now virtually extinct: yearly counts at Ice Harbor Dam have dropped from 1,276 in 1964 to 4 in 1989, and sockeye spawners in Redfish Lake during 1981 to 1984 were 26, 50, 0 and 22, respectively.[31]

Wild runs of coho salmon above Bonneville Dam have essentially disappeared, and the few remaining wild stocks spawn in the lower basin, below Bonneville Dam. Thus, to the extent these runs are in trouble, their problems are not principally attributable to the hydroelectric system, but rather to harvest management and hatchery operation. Between 1969 and 1977 coho escapement collapsed, declining 32% per year, and have remained at low levels since that time.[32] Lower Columbia tributary rearing densities declined from 19 juveniles/pool in 1972 to 8 juveniles/ pool in 1985, about 10% of optimum carrying capacity.[33] The graphs below, courtesy of Oregon Trout, depict the decline of the lower river coho as well as the Snake fall chinook.



22. 54 Fed. Reg. 32,085 (Aug. 4, 1989).
23. 55 Fed. Reg. 12,191 (Apr. 2, 1990).
24. Id. at 12,192-93.
25. See National Marine Fisheries Service & Oregon Dept. of Fish and Wildlife, Past and Present Abundance of Snake River Sockeye, Snake River Chinook, and Lower Columbia River Coho Salmon (June 1, 1990); see also Oregon Dept. of Fish and Wildlife and Washington Dept. of Fisheries, Columbia River Fish Runs & Fisheries, 1960-88 (1989).
26. Id. at 7.
27. Id. at 11.
28. Id. at 14.
29. Id.
30. Id. at 20-21.
31. Id. at 23.
32. Id. at 28.
33. Id.



Although the figures above are chilling, they may represent only the tip of an iceberg. The American Fisheries Society considers 73 anadromous fish runs from central California to the Canadian border to be in serious trouble; even BPA concedes that 13 runs in the Columbia Basin alone are in critical condition.[34] Oregon Trout estimates that wild stocks in the basin are at 2% of historic levels.[35] The American Fisheries Society's list of Columbia Basin stocks in trouble includes the following:[36]

DEPRESSED AND DECLINING

Sandy River fall chinook
Hood River fall chinook
Hood River spring chinook
Tucannon River spring chinook
Asotin Creek spring chinook
Salmon River (ID) spring chinook
(Middle Fork)
Salmon River (ID) summer chinook
(Middle Fork and upper river)
Lower Columbia River coho
(tribs below Willamette)
Sandy River coho
Yakima River coho (if present)
Snake River coho (believed extinct)
Snake River sockeye
(functionally extinct)
Wind River winter steelhead

DEPRESSED AND STABLE

COLUMBIA RIVER BASIN

Snake River fall chinook (above
Little Goose Dam)
Klickitat River spring chinook
Grande Ronde River spring chinook
Imnaha River spring/summer chinook
Lower Columbia River chum
Asotin Creek summer steelhead
Salmon River (ID) summer steelhead
(South and Middle Fork)
Rapid River (ID) summer steelhead
Grays River winter steelhead
Hood River winter steelhead
15-Mile Creek winter steelhead
Klickitat River winter steelhead

SPECIAL CONCERN

John Day River spring chinook
Clackamas River late coho
Hood River coho
Walla Walla River summer steelhead
Wenatchee River summer steelhead
Tucannon River summer steelhead
Imnaha River summer steelhead

C. The ESA Listing Process[37]

After receiving a listing petition, NMFS (or the U.S. Fish and Wildlife Service in the case of non-marine species) generally has 90 days to make a preliminary determination as to whether the petition presents substantial scientific or commercial information indicating that listing may be warranted.[38] If it finds in the affirmative, NMFS then has 12 months from the filing of the petition to perform a status review, issue a general notice, and propose protective regulations, if warranted, on the basis of best available scientific knowledge.[39] A final determination must be made within a year of the general notice.[40] There are opportunities for public comment throughout this process.[41] The process may be expedited through the use of emergency listings where there exists "a significant risk to the well-being of any species,"[42] as was the case with the Sacramento winter chinook.[43]

Currently the NMFS status review concerning the petitioned Columbia Basin stocks is concentrating on the following two questions: (1) whether a particular fish run qualifies as a "species" under the ESA; and (2) what the biological threshold is for declaring a species threatened (i.e., "likely to become endangered") or endangered.[44] NMFS has convened an Interagency Coordinating Committee that began meeting on May 30, 1990 to help it acquire appropriate biological information.

In 1982, Congress amended the ESA to make clear that listing decisions are to be based

34. See Koberstein, Battle Lines Form Over Wild Salmon's Future, Sunday Oregonian (May 27, 1990) at A18.

35. Oregon Trout, The Listing Post (May 30, 1990).

36. See Pacific Coast Federation of Fishermen's Associations, 18 PCFFA Friday no. 6 (Mar. 16, 1990) at 9.

37. In addition to Bodi, above note 18, at 350-67, see D. Rohlf, The Endangered Species Act: A Guide To Its Protections and Implementation (Stanford Envtl. L. Socy. 1989) at 37-58.

38. 16 U.S.C. § 1533(b)(3)(A).

39. Id. § 1533(b)(3)(B).

40. Id. § 1533(b)(6).

41. See id. §§ 1533(b)(5)(B)-(E).

42. Id. § 1533(b)(7). Emergency listings are effective only for 240 days.

43. See above text between notes 23 and 24.

44. See Past and Present Abundance Report, above note 25, at 2.

"solely" on the best scientific and commercial data available.[45] The legislative history indicated that economic considerations should play no role in listing decisions.[46]

Since 1978, the ESA has required the designation of critical habitat concurrently with listing a species "to the maximum extent prudent and determinable."[47] Although indications are that Congress intended the "prudent and determinable" exception to be narrowly construed, failure to designate critical habitat during the listing process occurs regularly.[48] Critical habitat is that which is "essential" to the conservation of listed species,[49] or that which the species needs to make a successful biological recovery.[50] Unlike the listing decision, however, the designation of critical habitat is influenced by consideration of economic impacts.[51]

D. The Effect of Listing

Listing species benefit from both prohibitions against harmful activities as well as affirmative duties imposed to improve the biological status of the species. The most important prohibitions against federal agencies are contained in § 7 of the Act; more broad-ranging prohibitions against taking listed species are contained in § 9. The chief affirmative duty is the promulgation of recovery plans required by § 4(f).

1. § 7 Duties

Section 7 prohibits federal agencies (including their licenses and permittees) from taking any actions likely to jeopardize the continued existence of listed species or modify their critical habitats.[52] The means to achieve this end is a consultation process between federal fish and wildlife agencies (NMFS or the U.S. Fish and Wildlife Service) and federal action agencies which begins by the latter asking the former whether their actions might affect listed species.[53] If so, then the action agency must prepare a "biological assessment" evaluating the likely biological effects.[54] If the assessment concludes that there is likely to be an effect, the agency must formally consult with the federal fish and wildlife agencies, culminating in a "biological opinion" prepared by the latter.[55] If that opinion concludes that the action would jeopardize the species or destroy or adversely modify its critical habitat, the action may not go ahead unless the fish and wildlife agencies can suggest an alternative that avoids jeopardy or adverse habitat modification.[56] The fish and wildlife agencies may also require mitigating measures for actions that do not violate § 7.[57]

These provisions effectively give federal fish and wildlife agencies (NMFS in the case of the salmon petitions) decision-making authority over any federal actions adversely affecting listed species or habitat. Unlike the Northwest Power Act, where decisions affecting the viability of Columbia Basin fish runs are frequently left in the hands of federal power managers,[58] the ESA allocates decision-making authority to agencies with fish and wildlife expertise.

2. § 9 Prohibitions

While Section 7 procedures apply only to federal activities, § 9 prohibits all persons (including corporations, states, localities, as well as federal agencies) from "taking" fish and wildlife species listed as endangered.[59] "Taking" is defined proudly to include "harass, harm, pursue, hunt" and so forth.[60] "Harm" has been judicially interpreted to include adverse habitat modification, even that taking place on non-federal land without involvement of federal permits.[61]

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45. Id. § 1533(b)(1)(A).

46. See H.R. Rep. No. 567, 97th Cong., 2d Sess. 20 reprinted in 1982 U.S. Code Cong. and Admin. News 2820:

> The addition of the word "solely" is intended to remove from the process of the listing or delisting of species any factor not related to the biological status of the species. The Committee strongly believes that economic considerations have no relevance to determinations regarding the status of species.... Applying economic criteria ... to any phase of the listing process ... is specifically rejected by the inclusion of the word "solely" in this legislation.

47. 16 U.S.C. § 1532(a)(3).

48. See D. Rohlf, above note 37, at 50-52.

49. 16 U.S.C. § 1532(5)(A)(i).

50. See D. Rohlf, above note 37, at 52-53, 153.

51. 16 U.S.C. § 1532(b)(2); see D. Rohlf, above note 37, at 56-58.

52. 16 U.S.C. § 1536(a)(2).

53. Id. § 1536(c)(1); see 50 C.F.R. § 402.12.

54. Id.

55. Id. § 1536(a) and (b). See generally Thomas v. Peterson, 753 F.2d 754, 763 (9th Cir. 1985) (outlining the § 7 process). For a detailed analysis of § 7's implementing regulations, see D. Rohlf, above note 37, at 107-110, 114-116.

56. 16 U.S.C. §§ 1536(a)(2), (b)(3)(A).

57. Id. §§ 1536(b)(4)(ii)-(iii).

58. See below § V.

59. 16 U.S.C. §§ 1538(a)(1)(B-C), 1532(1). Takings of endangered plants are subject to different restrictions, see D. Rohlf, above note 37, at 71-72.

60. Id. § 1532(19).

61. See Palila v. Hawaii Dept. of Land and Nat'l Resources (Palila I), 471 F. Supp. 985 (D. Hawaii 1979), aff'd. 639 F.2d 495 (1981) (habitat modification is a taking). See also Palila II, 649 F. Supp. 1070 (D. Hawaii 1986), aff'd. 852 F.2d 1106 (9th Cir. 1988) (habitat modification a taking, despite no evidence of death or injury to individual birds, because it would prevent the population as a whole from recovering). See generally D. Rohlf, above note 37, at

Takings of species listed as threatened are not flatly prohibited by ESA, but the fish and wildlife are agencies are required to issue regulations to conserve threatened species.[62] In the case of the Sacramento winter chinook, the emergency regulations included the § 9 prohibition against takings.[63] One court has ruled that regulations protecting threatened species may authorize takings only in extraordinary circumstances, where population pressures on the ecosystem cannot otherwise be relieved.[64]

Certain exceptions to the ban on takings are available, including threats to human life and incidental takings.[65] Incidental takings in connection with federal activities may be authorized through the section 7 consultation process.[66] This usually involves inclusion of an "incidental take" statement in the biological opinion[67] and must ensure that the proposed activity will not jeopardize the species' continued existence or adversely modify its critical habitat.[68] For non-federal actions, "incidental take" permits are available, although the criteria are quite stringent, including ensuring that any taking will not appreciably reduce the likelihood of species survival and recovery.[69]

An important feature of the ESA is its citizen suit provision which allows enforcement of its provisions by citizens as well as the government. Section 11 of the Act authorizes citizens to either force the government to take action or restrain violators from acting contrary to the statute's prohibition, provided that 60 days notice is given to the government and the alleged violator.[70]

3. § 4(f) Recovery Plans

Section 4(f) of the ESA requires the development and implementation of recovery plans for all listed species.[71] However, to date fewer than half of listed species have operative recovery plans. "Recovery" means that the species no longer needs the ESA's protections.[72] Recovery plans include discussion of the listed species current and past biology, the reasons for its listing, a target population, and actions or conditions necessary for recovery.[73] Since 1988, the public has had the opportunity to review and comment on recovery plans.[74] Plans must contain (1) "site specific management actions," (2) "objective measurable criteria" with which to measure progress toward recovery, and (3) estimated time and resources needed to implement the plan goals.[75] However, there is some question whether recovery plans promulgated by the fish and wildlife agencies can bind other federal agencies.[76] Reports to Congress on implementation of recovery plans are required every two years.[77]

E. "God Committee" Exemptions

In 1978, in response to the well-known "snail darter" case,[78] Congress created a 7-member, cabinet-level committee to authorize exemptions to the § 7 duties imposed on federal agencies where the committee determines (1) that no reasonable and prudent alternatives to the proposed federal action exist, and (2) the proposal's benefits clearly outweigh the preservation of the species in question.[79] A biological assessment is a prerequisite to an exemption, as is a finding that there has been no irretrievable commitments of resources prior to granting the exemption.[80] This exemption process has been invoked only three times; and just one exemption, conditioned upon a mitigation plan, has been granted.[81]

59-71 (discussing § 9's judicial interpretations).

62. 16 U.S.C. § 1533(d).

63. 55 Fed. Reg. at 12193 (to be codified at 50 C.F.R. § 227.21(a)). But see the exceptions mentioned above at note 24 and accompanying text.

64. Sierra Club v. Clark, 557 F. Supp. 783 (D. Minn. 1984), aff'd. and rev'd., 755 F.2d 608 (8th Cir. 1985), discussed in D. Rohlf, above note 37, at 74-77 (concluding that threatened species regulations which allow a taking "are valid only to the extent that they promote recovery of specific threatened species").

65. 50 C.F.R. §§ 17.21(c)(2), 17.31(a) (threats to human life); 16 U.S.C. § 1539(a)(1)(B) (incidental takings).

66. See above notes 53-57 and accompanying text.

67. 51 Fed. Reg. 19,925, 19,953 (1986).

68. 16 U.S.C. § 1536(b)(4).

69. Id. § 1539(a)(2)(B). For an evaluation of the incidental take provisions, see D. Rohlf, above note 37, at 78-86.

70. 16 U.S.C. § 1540(g).

71. 16 U.S.C. § 1533(f). A recovery plan is not required if the agency finds that one would not promote the conservation of the species. Id.

72. 50 C.F.R. § 402.02.

73. See generally D. Rohlf, above note 37, at 87-88.

74. 16 U.S.C. § 1533(f)(4).

75. Id. § 1533(f)(1)(B).

76. See D. Rohlf, above note 37, at 41.

77. 16 U.S.C. § 1533(f)(3).

78. TVA v. Hill, 437 U.S. 153 (1978) (affirming an injunction of construction of the Tellico Dam).

79. 16 U.S.C. § 1536(h). Members of the Committee are (1) the Secretary of Agriculture, (2) the Secretary of the Army, (3) the Chairman of the Council of Economic Advisors, (4) the Administrator of EPA, (5) the Secretary of the Interior, (6) the Administrator of the National Oceanic and Atmospheric Administration, and (7) a state representative. Id. § 1536(e). An exemption requires the support of 5 of the 7 members. Id. § 1536(h).

80. Id. §§ 1536(h)(2)(A), (h)(1)(A)(iv).

81. See D. Rohlf, above note 37, at 136 n.161 (discussing the Grayrocks Dam case).

F. Outlook for the Future

No one can predict whether any of the petitioned salmon stocks will be listed under the ESA, nor what activities might be affected by a listing. However, if the recent listing of the Sacramento winter chinook is a guide, it seems quite likely that there will be some listings, for many Columbia stocks are at levels more depressed than the 550 spawners and the 75% decline that prompted NMFS to list in that case.[82] A listing would also seem to mean increased mainstem flows, as changed project operations were ordered to benefit the Sacramento run.[83] And restrictions on harvest cannot be ruled out, especially for stocks like Snake River fall chinook, which are harvested heavily in the ocean and the lower river.[84] Finally, in the Sacramento listing, NMFS demonstrated a sensitivity to genetic diversity,[85] which may mean that the federal fishery agency will devote particular attention to depleted Columbia Basin wild stocks. We are not likely to know the accuracy of these predictions for at least a year, and perhaps two.

III. Indian Treaty Fishing Rights[86]

Shortly after the first issue of the Memo was published in mid-1979, the U.S. Supreme Court affirmed Judge George Boldt's landmark ruling that the Northwest Indian tribes that signed Stevens Treaties in the 1850s were entitled to 50% of the harvestable share of anadromous fish destined to pass through their "usual and accustomed" fishing grounds.[87] The Court noted that the tribes treaty rights forbade the state from "crowding out" the Indian fishery, that neither party to the treaties could destroy the other's share of the resource, and that

> the central principle here must be that Indian treaty rights to a natural resource that was once so thoroughly and exclusively exploited by the Indians secures so much as, but not more than, is necessary to provide the Indians with a livelihood -- that is to say, a moderate living.[88]

According to the Court, under this "moderate living" standard the tribes' share could be reduced below 50% where a tribe dwindles "to just a few members" or finds "other sources of support that lead it to abandon its fisheries."[89] In the decade since, however, no court has reduced the tribes' harvest share. Instead, subsequent decisions have expanded the scope of the treaty right.

The most prominent of these decisions came only a year after the Supreme Court's ruling in Phase II of U.S. v. Washington. There, District Judge William Orrick ruled that (1) hatchery fish were included in the treaty share, and (2) implied in the treaty right to fish was a right to protect the habitat upon which the fish depend.[90] The hatchery ruling was affirmed by the Ninth Circuit, but the habitat ruling was vacated on procedural grounds.[91] The appellate court determined that articulating the scope of the treaty in a proceeding that was not based on

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82. Compare above notes 21-22 and accompanying text with above notes 26-33 and accompanying text.

83. See above text between notes 23-24.

84. See Past and Present Abundance Report, above note 25, at 17 (78% harvest rate in 1983-84). If harvest restrictions were imposed due to the ESA, even Indian treaty harvests could be affected; see U.S. v. Dion, 476 U.S. 734 (1986) (Eagle Protection Act abrogated on-reservation right to hunt eagles). However, ESA regulation probably could not restrict the tribe's 50% harvest share. See below note 87 and accompanying text.

85. 55 Fed. Reg. 12,191 (April 2, 1990) (estimating that a run size of between 400 and 1,000 fish is necessary to maintain genetic diversity).

86. The organization and some of the text of this section and the next is adapted from Blumm, Why Study Pacific Salmon Law?, 22 Idaho L. Rev. 629 (1986). Helpful comments on a draft were received from Lorraine Bodi, Rob Lothrop, and John Volkman, but they are not responsible for any errors or oversights.

87. Washington v. Passenger Fishing Vessel Ass'n, 443 U.S. 658 (1979), largely affirming U.S. v. Washington, 384 F. Supp. 312 (W.D. Wash. 1974). See Memo #2 (July 1979). Judge Boldt was twice affirmed by the Ninth Circuit prior to the Supreme Court's decision, see 520 F.2d 676 (9th Cir. 1975) and 573 F.2d 1123 (9th Cir. 1978). See generally Fay Cohen, Treaties on Trial: The Continuing Controversy Over Northwest Indian Fishing Rights (1986).

88. 443 U.S. at 686.

89. Id. at 687.

90. 506 F. Supp. 187 (W.D. Wash. 1980), discussed in Memo #48 (Jan. 1989) at 2. This section draws heavily from that discussion. See also Monson, United States v. Washington (Phase II: The Indian Fishing Conflict Moves Upstream, 12 Envtl. L. 469 (1982); Meyers, United States v. Washington (Phase II) Revisited: Establishing An Environmental Servitude Protecting Treaty Fishing Rights, 67 Or. L. Rev. 771 (1988).

91. 759 F.2d 1353, 1357, 1360 (9th Cir. 1985) (en banc). A Ninth Circuit panel first modified Judge Orrick's decision on the habitat protection issue, 694 F.2d 1374 (9th Cir. 1982) (treaty right only requires the state to take "reasonable steps" commensurate with its ability and resources to protect fish habitat). This decision was vacated by the Ninth Circuit en banc in an unpublished opinion -- on the ground that there was no appellate jurisdiction to review a district court's rulings on motions for partial summary judgment under § 54(b) of the Federal Rules of Civil Procedure (28 U.S.C. § 1292(b)). Finally, in a second en banc opinion, the Ninth Circuit ruled that the interests of the public were not served by declaratory judgment announcing legal rules that are "imprecise in definition and uncertain in dimension." 759 F.2d at 1357.

any concrete facts was impermissible.[92]

Nevertheless, the court did not rule that the treaty right contained no habitat protection. It did not overturn a number of lower court decisions concluding that such a right exists. And in specific factual contexts, the treaty right has enjoined the construction of dams,[93] altered dam operations,[94] limited irrigation withdrawals,[95] and halted construction of a marina.[96] Thus, the environmental right is powerful enough to protect waterflows upon which the fish are dependent and appears to give the tribes tantamount to a veto over developmental activities damaging the fishery resource, especially projects that block access to fishing grounds.[97]

The geographic scope of this environmental right is considerable, not only because of the immense migratory range of the salmon runs but also because it is not limited to tribal land reservations. The treaty right attaches to all "usual and accustomed" fishing grounds. These have been judicially determined to exist at numerous locations throughout the Northwest, including not only rivers and streams but also bays and ocean waters.[98]

The right to a share of the harvest springs from the treaty language promising the tribes a right to fish "in common" with others. The environmental right, however, does not appear to depend necessarily upon express treaty language, since it has been implied in the existence of Indian reservations -- many of which have been reserved by statute or Executive Order in a manner similar to the reserved water rights doctrine.[99] Thus, tribes without treaties have secured sufficient water flows to protect on-reservation fisheries.[100] This implied right is limited to the boundaries of the reservation. Nevertheless, it can affect off-reservation activities that have on-reservation effects.[101]

In recent years, the tribes have chosen to use their incompletely defined right to protect fish habitat as a negotiating tool. Thus, they have become a significant force in regional water management issues. Both the Northwest Power Act and the Pacific Salmon Treaty Act recognize the tribes as resource managers on an equal basis with the states.[102] The tribes also

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92. 759 F.2d at 1357.

93. Confederated Tribes of the Umatilla v. Alexander, 440 F. Supp. 553 (D. Or. 1977) (congressionally authorized dam cannot abrogate treaty rights without express congressional intention to abrogate).

94. Kittitas Reclamation Dist. v. Sunnyside Valley Irrigation Dist., 763 F.2d 1032 (9th Cir. 1985) (requiring dam releases to preserve salmon redds); Confederated Tribes of the Umatilla v. Callaway, No. 72-211 (D. Or. Aug. 17, 1973) (Columbia River hydroelectric operations cannot "impair or destroy" treaty fishing rights).

95. U.S. v. Adair, 723 F.2d 1394 (9th Cir. 1983) (treaty right dates from "time immemorial" and includes water flows necessary to support fishing as necessary to support the livelihood of tribal members).

96. Muckleshoot Indian Tribe v. Hall, 698 F. Supp. 1504, 1516 (W.D. Wash. 1988) (enjoining a dredge and fill permit that would have blocked access to tribal usual and accustomed fishing grounds, ruling that "the treaty fishing right cannot be impaired or limited without an act of Congress").

97. Id. at 1515 (amount of damage to treaty fishing right not to be balanced against project benefits, not "a factor to weigh in reaching its decision"); see also Pyramid Lake Pauite Tribe v. Morton, 354 F. Supp. 252 (D.D.C. 1973) (enjoining a "judgment call" of the Secretary of the Interior allocating water to an irrigation district that injured tribal uses). At a minimum, the environmental right should be construed to require administrators to (1) ensure that the tribes participate fully in their decision-making processes, (2) adopt the least burdensome alternative on fishery resources, (3) include all feasible mitigating measures in their proposals to eliminate impacts, and (4) convince a court that a project will not adversely affect treaty property rights. See U.S. v. Washington (Phase II), 694 F.2d at 1389, 1391 (9th Cir. 1982) (panel decision) (concurring opinion of Judge Reinhardt). Judge Reinhardt's criteria also included compensation to the tribes for any losses sustained. However, it is clear that administrators lack the authority to terminate treaty property rights; Congress must authorize such takings. Muckleshoot, 698 F. Supp. at 1512.

98. See, e.g., U.S. v. Washington (Phase I), 459 F. Supp. 1020, 1058-60 (W.D. Wash. 1974) (marine and fresh water usual and accustomed fishing grounds of the Tulalip tribe).

99. See generally Ranquist, The Winters Doctrine and How It Grew: Federal Reservation of Rights to Use Water, 1975 B.Y.U. L. Rev. 639; Pelcyger, The Winters Doctrine and the Greening of the Reservations, 4 J. Contemp. L. 19 (1977) J. Folk-Williams, What Indian Water Means to the West (1982); D. Getches, Water Law in a Nutshell 308-46 (2d ed. 1990); P. Sly, Reserved Water Rights Settlement Manual (1988).

100. See, e.g., Colville Tribe v. Walton, 647 F.2d 42, 48 (9th Cir. 1981) (tribes entitled to sufficient water to allow establishment of a wild trout fishery); U.S. v. Anderson, 6 Am. Ind. L. Rep. F-129 (E.D. Wash.), aff'd in part, rev'd in part on other grounds, 736 F.2d 1358 (9th Cir. 1984) (tribe entitled to streamflows sufficient to maintain water temperature at 68°F).

101. See, e.g., Colville Tribe v. Walton, 752 F.2d 397 (9th Cir. 1985) (holding that the reservation fishing right has a priority date of the date of the establishment of the reservation, meaning that water rights junior to that date would be curtailed in times of shortage).

102. See 16 U.S.C. § 839b(h) (Northwest Power Act), see Memo #11 (Jan. 1981); 16 U.S.C. §§ 3631, 3632(a), (f)-(g) (Pacific Salmon Treaty Act), see Memo #47 (Dec. 1987), Jensen, The United States-Canada Pacific Salmon Interception Treaty: An Historical and Legal Overview, 16

(1) negotiated a long-term comprehensive plan for allocating and rebuilding Columbia River runs,[103] (2) secured an agreement to increase spills at mainstem dams to facilitate juvenile fish passage,[104] and (3) successfully argued for greater fishery protection under the state of Washington's timber management regulations.[105]

However, while the tribes have become a political force in water resources management during the decade since the Supreme Court affirmed the Boldt decision, the future may see the tribes back in court seeking injunctions against habitat damaging activities. Three likely areas of litigation involve (1) the continued failure of Columbia Basin hydroelectric system planners to supply biologically sound flows for adult and juvenile migration; (2) national forest management plans which set timber harvest levels without providing for specific measures to protect sensitive watersheds from sediment loadings due to accompanying timber sales and road building; and (3) comprehensive water rights adjudications such as are ongoing in the Yakima and Snake River Basins. If the processes established under the Pacific Northwest Coordination Agreement,[106] the National Forest Management Act,[107] and state water law do not sufficiently protect fish habitat, the tribes may conclude that they must return to court in order to protect their treaty rights.[108]

IV. Hydroelectric Power Production and Fishery Protection

Although there are many causes for the decline of Pacific salmon runs, there is no question that the chief cause of the decline of the largest runs -- the Columbia Basin runs -- is the development and operation of numerous dams, especially those on the mainstem Columbia and its tributary, the Snake River.[109] Even dams with fish ladders present a myriad of problems for anadromous fish: they inundate spawning grounds, change water temperatures, alter flow regimes, increase pollutants like supersaturated gases, disrupt downstream gravel recruitment, and kill about 15% of downstream migrating juvenile fish per project.[110] The development and operation of the Columbia River Power System, now the largest interconnected hydroelectric system in the world,[111] severely injured Columbia Basin anadromous fish runs -- which now are estimated to be less than 25% of the size they would have been without the dams.[112] However, fishery concerns were largely ignored in the development and operation of the system until the 1980s.

A. System Development

Abundant low-cost hydroelectric power has been the engine driving the Northwest's economy since completion of the Bonneville Dam in the late 1930s.[113] Cheap hydropower was the key to

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Envtl. L. 363 (1986).

103. U.S. v. Oregon, 699 F. Supp. 1456 (D. Or. 1988). This plan was approved as a 10-year settlement agreement in litigation continuing for more than 2 decades. See Sohappy v. Smith, 302 F. Supp. 899 (D. Or. 1969), aff'd, 529 F.2d 570 (9th Cir. 1976); Memo #21 (Mar. 1983); Harrison, The Evolution of a New Comprehensive Plan for Managing Columbia River Anadromous Fish, 16 Envtl. L. 705 (1986); U.S. v. Oregon Update, CRITFC News (Feb. 1990) at 6.

104. See Fish Spill Memorandum of Agreement (1988), reprinted in Fish Passage Center, 1989 Annual Report at App. C-5. See also below notes 50-51 and accompanying text.

105. Wash. Admin. Code § 222-30 (1987). See Halbert & Lee, The Timber, Fish and Wildlife Agreement: Implementing Alternative Dispute Resolution in Washington State, 6 Northwest Envtl. J. 135 (1990).

106. See Memo #10 (Oct. 1980); Blumm, Hydropower vs. Salmon: The Struggle of the Pacific Northwest's Anadromous Fish For A Peaceful Coexistence With the Federal Columbia River Power System, 11 Envtl. L. 211, 245-56 (1981) (discussing the Coordination Agreement).

107. See Memo #41 (May 1987) (discussing 3 case studies involving timber harvest activities damaging fish habitat).

108. Some recent Supreme Court decisions implying that tribes enjoy no special government status vis-a-vis local governments, see, e.g., Brendale v. Confederated Tribes, 109 S. Ct. 2994 (1989) (Yakima Nation may not zone land on reservation owned by nonmembers if open to the public), may discourage tribes from seeking judicial protection of their fishing rights. However, cases like Brendale ought to be distinguished because there the tribe was attempting to assert sovereignty over non-members by regulating land use. The fishing right situation involves no assertion of sovereignty over non-members, but rather the protection of vested tribal property rights.

109. See Northwest Power Planning Council, Columbia Basin Fish and Wildlife Program § 203 (fish losses attributable to hydropower are 8 million annually; current run size is around 2-1/2 million). Comptroller General, General Accounting Office, Impacts and Implications of the Pacific Northwest Power Bill at 20 & App. IV at 1 (Rep. No. EMD-79-105, 1979); see generally Hydropower vs. Salmon, above note 106.

110. See Hydropower vs. Salmon, above note 106, at 214-21; Thatcher, The Pacific Northwest Electric Power Planning and Conservation Act: Fish and Wildlife Protection Outside the Columbia River Basin, 13 Envtl. L. 517, 520 n.11 (1983); Memo #24 at 3-4 (Nov. 1985).

111. Comptroller General, General Accounting Office, Region At the Crossroads -- The Pacific Northwest Searches For New Sources of Electric Energy at 3.1 (Rep. No. EMD-78-76, 1978); see generally Wandschneider, Managing River Systems: Centralization Versus Decentralization, 24 Nat. Resources J. 1043 (1984) (case study of Columbia River management).

112. See above note 109.

113. Actually, the first large mainstem Columbia River dam was the Rock Island Dam. See Federal Power Comm'n, Tenth Annual Rep. 229 (1930); Hydropower vs. Salmon, above note 106,

rural electrification, large-scale irrigation, and economic diversification provided by the electricity-intensive aluminum industry.[114] The blueprint for today's hydroelectric system was etched in a series of Corps of Engineers' studies on the Columbia River and its tributaries. The first of these studies, labeled "308 Reports" by the Corps,[115] was submitted to Congress in 1932 and recommended construction of ten multiple use dams on the mainstem Columbia River.[116] All of the sites were subsequently developed.[117] Six years later, a revised 308 Report focused on the Snake River, largely in response to local interest in providing slack water navigation from the ocean to Lewiston, Idaho.[118] Like its predecessor, nearly all the sites identified in the 1938 Report were subsequently developed, although some by Idaho Power Company, not the Corps.[119]

The 308 Reports, which established criteria for site selection and operation of the projects, of course, were approved without the benefit of any Environmental Impact Statements or even notice and comment rulemaking. Moreover, these reports were formulated by the Corps, the agency which hoped to construct and operate the projects, on the basis of engineering criteria with little or no involvement of the public or other agencies, save for local Congressmen. It is hardly surprising, then, that the 308 Reports emphasized maximum development of those purposes traditionally associated with the dam construction agency and the Corps gave little attention to the effects of development on the existing fish runs. Even when fishery agencies raised such questions, dam building continued.[120] With the fishery effects of development unknown, the issue was resolved by placing the burden of producing information on the affected fishery resource and those who spoke for it.[121]

B. System Operations Under the Coordination Agreement

Although not authorized primarily for hydroelectric purposes,[122] Columbia Basin dams are operated principally for power generation, largely on the basis of intergovernmental agreements and other contractual arrangements.[123] These agreements effectuate the provisions of the Columbia River Treaty of 1964,[124] which doubled the Basin's water storage capacity and effectively harnessed the spring freshet upon which downstream migrating juvenile fish depend for safe transport to the marine environment.[125]

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at 229. For an excellent historical overview of dam building in the Columbia Basin, including pre-Rock Island dams, see Goble, Introduction to Symposium on Legal Structures For Managing Pacific Northwest Salmon and Steelhead: The Biological and Historical Context, 22 Idaho L. Rev. 417 (1986).

114. See generally Blumm, The Northwest's Hydroelectric Heritage: Prologue to the Pacific Northwest Electric Power Planning and Conservation Act, 58 Wash. L. Rev. 175 (1983).

115. So named after the original 1926 Corps of Engineers' Report, estimating the costs of undertaking comprehensive investigations of the nation's river basins. H.R. Doc. No. 308, 69th Cong., 1st Sess. (1926).

116. H.R. Doc. No. 103, 73d Cong., 1st Sess. (1932) (recommending development for navigation, water power, and irrigation, as well as for work relief programs to combat the effects of the Great Depression).

117. In the end, 11 dams were constructed, since 2 mid-Columbia projects (Priest Rapids and Wanapum) were substituted for the original recommendation. See Hydropower vs. Salmon, above note 106, at 225-26 n.62.

118. See id. at 229-30 (noting that the Corps of Engineers originally estimated the navigation and irrigation benefits of lower Snake River development at about 15% of its costs).

119. See id. at 233, 238-41.

120. See id. at 228-29 (1938 Report of the Commission of Fisheries, prompting enactment of the 1938 Mitchell Act, 16 U.S.C. § 755 (1982), to fund Columbia River fish hatcheries), 236-37 (1950 "308" Report, including a Fish and Wildlife Service plan to compensate for upriver fishery losses with lower river hatcheries); Columbia River Inter-Tribal Fish Comm'n., The Mitchell Act: An Analysis (1981). However, no Mitchell Act funds were appropriated until 1948, and the overwhelming emphasis has been on construction of hatcheries below The Dalles Dam, not upriver. See Platt & Dompier, A History of State and Federal Fish Management in the Columbia and Snake River Basins, CRITFC News (July 1990) at 9, 10 (40 hatcheries below The Dalles, only 2 above).

121. See Blumm, Fulfilling the Parity Promise: A Perspective On Scientific Proof, Economic Cost, and Indian Treaty Rights In the Approval of the Columbia Basin Fish and Wildlife Program, 13 Envtl. L. 103, 110-11 (1982); Lothrop, The Misplaced Role of Cost-Benefit Analysis in Columbia Basin Fishery Mitigation, 16 Envtl. L. 517 (1986); Bodi, FERC's Mid-Columbia Proceeding: Ten Years and Still Counting, 16 Envtl. 555 (1986). Imposing the burden of proof on those seeking to change the status quo is, of course, not unusual, especially where change might require foregoing benefits. See, e.g., J. Krier & E. Ursin, Pollution and Policy: A Case Essay on California and Federal Experiences With Motor Vehicle Pollution 1940-75, at 257-63 (1977).

122. See Hydropower vs. Salmon, above note 106, at 228.

123. See Pacific Northwest Coordination Agreement, Agreement for Coordination Among Power Systems of the Pacific Northwest (1964), discussed in Hydropower vs. Salmon, above note 106, at 245-46, 249-56.

124. 15 U.S.T. 1555, T.I.A.S. NO. 5638 (1964). See Johnson, The Canada-United States Controversy Over the Columbia River, 41 Wash. L. Rev. 676 (1966) (analysis of the background, negotiations, and issues involved in the treaty).

125. See Hydroelectric Heritage, above note 114, at 215-19.

The agreement of most significance, the Pacific Northwest Coordination Agreement, established detailed operating criteria and power exchange principles, allocated downstream benefits, and required annual systemwide planning to optimize hydroelectric production.[126] Like the 308 Reports, the Coordination Agreement and its annual plans assume that (except for specified non-power constraints such as flood control requirements) maximum power production is the end to be achieved and ignore operations that might benefit the fish runs but reduce power production.

By default, the Coordination Agreement is the primary vehicle for planning the coordinated operation of the entire system. While the agreement establishes detailed mechanisms for coordinating power operations, other purposes such as fisheries, irrigation, and recreation are simply treated as "constraints" on power operations. The Coordination Agreement contains no provisions to integrate operations for all system purposes, except to state: "Nothing in this agreement shall require a party to operate a project in a manner inconsistent with its requirements for non-power uses or functions...."[127] As a result, the operation of the coordinated system is primarily responsive to hydropower purposes, whereas non-power operation are dealt with on a project-by-project basis. The upshot is that the coordinated system plan seeks to store water in the spring and summer for release fall and winter (when power sales are most lucrative), while the biological needs of the fish require high flows in the spring and summer (for downstream transport) and lower flows in the fall (to facilitate upstream migration and spawning).

The Coordination Agreement does contain a provision which appears to allow for operations more consistent with the biological needs of migrating fish,[128] but the signatories to the agreement (including BPA, the Corps, and generating utilities) have consistently rejected biologically-based flows requested by federal and state fishery agencies and Indian tribes. They point to the fish flows authorized under the Northwest Power Act's Columbia Basin Fish and Wildlife Program (the "Water Budget," discussed in the following section, which the agencies and tribes consider inadequate) as the full extent of their nonpower obligations.[129] Yet, the power managers recently rejected a fishery agency request to incorporate "base power flows," a critical assumption of the Water Budget, into Coordination Agreement planning. Equally troubling is the fact that these entities appear to believe that the Columbia Basin Program's measures implicitly sanction their actions which damage fish and fish habitat outside of the two-month Water Budget period.

No Coordination Agreement annual plan has ever satisfied the National Environmental Policy Act's requirement of public and interagency analysis in an environmental impact statement.[130] Until Coordination Agreement planning satisfies NEPA,[131] this occurs, there is no assurance that the level of spring and summer flows in the Columbia is in the public interest. Further, the Northwest Power Act requires all actions of federal water managers to give "equitable treatment" to fish and wildlife, quite apart from any measures called for by the Columbia Basin Program.[132] While the exact nature of this obligation is not yet certain, it is clear that this provision is designed to put fish and power "on an equal footing," and that it imposes substantive duties on the water managers that are enforceable by the courts.[133] In a subsequent statute Congress used a phrase similar to "equitable treatment" to imply imposition of a nondegredation-like standard.[134] And apart from

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126. Bonneville Power Admin., Agreement For Coordination of Operations Among Power Systems of the Pacific Northwest (1964); see J. Jolliffe, C. Mohler & L. Dean, The Pacific Northwest Coordination Agreement (paper presented at the Inst. of Electric and Electronic Engrs., Jan. 31-Feb. 5, 1965).

127. Coordination Agreement, above note 126, at § 15.

128. See above note 127 and accompanying text.

129. See, e.g., Bonneville Power Admin., Non-Treaty Storage Agreement, Issue Summary and Response To Comments, at 7 (Sept. 1989) ("Equitable treatment is guaranteed by the fact that BPA is taking the Council's Program into account").

130. The argument for an EIS on annual system plans was made in Hydropower vs. Salmon, above note 106, at 262-68.

131. BPA, the Corps, and the Bureau of Reclamation are initiating a system-wide review to develop a new multiple use plan that will, among other things, produce a revised Coordination Agreement. See Collette, A Gathering of Authorities: A Broad Review of the Columbia River System May Refine the Roles of Federal Entities, 9 Northwest Energy News no. 4 (July/Aug. 1990) at 8. While indications are that this process will include NEPA evaluation of the new plan, NEPA compliance must take place on an annual basis, for critical decisions about system operations are made in the annual system plans. Moreover, future NEPA compliance with respect to the new plan is no cure for the current annual NEPA violations.

132. 16 U.S.C. § 839b(h)(11)(A)(i).

133. Confederated Tribes of the Yakima Indian Nation v. FERC, 746 F.2d 466, 473-74 (9th Cir. 1984), cert. denied, 105 S. Ct. 2358 (1985), discussed in Blumm, A Trilogy of Tribes v. FERC: Reforming the Federal Role in Hydropower Licensing, 10 Harv. Envtl. L. Rev. 1, 34-46 (1986); Bodi & Erdheim, Swimming Upstream: FERC's Failure to Protect Anadromous Fish, 13 Ecology L.Q. 7, 19-20, 34, 39-40 (1986). See also National Wildlife Federation v. FERC, 801 F.2d 1505, 1515 (9th Cir. 1986).

134. See 16 U.S.C. § 803(j), added by the 1986 Electric Consumers Protection Act, requiring the Federal Energy Regulatory Commission to "adequately and equitably protect, mitigate damage to, and enhance fish and wildlife and habi-

the EIS requirement and the equitable treatment obligation, there is no indication of how and why annual power system planning satisfies Indian treaty rights.[135]

C. Expanding the System Through Non-Treaty Storage

If current annual system planning is of questionable legality, a BPA proposal to expand hydroelectric system capacity through a "Non-Treaty Storage Agreement" with British Columbia Hydro is on even more tenuous ground. Prompted by the twin facts that (1) B.C. Hydro constructed at least 5 million acre-feet of storage in excess of the 15.5 million acre-feet called for by the Columbia River Treaty (principally behind Mica Dam) and (2) power forecasts now indicate that the surpluses of the 1980s will not persist in the 1990s, this proposal would enable BPA to meet anticipated demands and reduce pressure for new generating resources. Fishery agencies and Indian tribes fear that the proposal could exacerbate problems in obtaining spring and summer flows, since the purpose of the proposal is to store more water in these months. Moreover, unless the proposal is modified to dedicate a portion of the non-treaty storage for spring and summer releases (or store water only when specified flow levels are achieved), it will reduce prospects of increasing fish flows in the future. As a result, the fishery agencies and tribes have charged that an EIS must be prepared on the proposal, and that any non-treaty storage agreement must provide for improved spring and summer flows during the fish downstream migration season in order to comply with the equitable treatment standard of the Northwest Power Act.[136]

BPA, on the other hand, has maintained that no EIS is necessary because the environmental impacts associated with a non-treaty storage agreement will be insignificant.[137] Notably, in 1984, when the power agency entered into a non-treaty storage agreement with B.C. Hydro involving 2 million acre-feet, it did not write an EIS, contending that the impacts would be insignificant.[138] That contention went unchallenged by the fishery agencies and tribes. However, 4 years later, in 1988, when BPA attempted to upgrade one of its Intertie lines with California without writing an EIS, the state of Idaho and the National Wildlife Federation sued the agency.[139] The suit was dropped only after BPA agreed to a 10-year program providing spills for safe juvenile bypass at dams without fish screens and mechanical bypass systems.[140] The Intertie suit and subsequent spill agreement may prove to be an omen as to how the controversy over non-treaty storage and fish flows may be ultimately resolved.

In late June, 1990, BPA decided to proceed with its non-treaty storage proposal without any promise of improved fish flows. However, the power agency has committed itself to negotiate with fishery interests for an 80-day period (until mid-September) to reach a mutually beneficial settlement. The public will want to scrutinize carefully the results of these negotiations. A number of environmental groups have indicated they may sue to enjoin BPA's proposal for violating NEPA and the Northwest Power Act if suitable fish flows are not agreed to.[141]

D. The Failure of Fish Flows Under the Northwest Power Act

The prospect of another NEPA suit and settlement negotiations to resolve the flow issue reflects badly on the institution that Congress authorized to resolve such fish vs. power questions, the Northwest Power Planning Council. Charged with developing innovative measures to fish/power tradeoffs,[142] the

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tat"; see also H.R. Rep. No. 507, 99th Cong. 2d Sess. 30 (1986) reprinted in 1986 U.S. Code Cong. & Admin. News 2496, 2517-18 (the "equitable" language "seeks to ensure that nonpower values are, to the greatest extent possible, as healthy and abundant after licensing as before").

135. See above note 107 and accompanying text.

136. See, e.g., Letters from the Columbia River Inter-Tribal Fish Comm'n. to BPA (May 3, 1989); National Marine Fisheries Serv. to BPA (Mar. 24 and May 10, 1989); U.S. Fish and Wildlife Serv. to BPA (May 22, 1989); Oregon Dept. of Fish and Wildlife to BPA (Apr. 27, 1989); Washington Dept. of Wildlife (Apr. 28, 1989).

137. Non-Treaty Issue Summary, above note 129, at 30-31, 54; Bonneville Power Admin., Non-Treaty Storage Agreement: Preliminary Environmental Assessment at 3-3 (Mar. 1990). The FISH-PASS computer model employed by BPA to estimate impacts has, however, been criticized by the fishery agencies and tribes for employing monthly average flows, overlooking daily fluctuations which they claim can cause severe biological damage. See, e.g., Letter of U.S. Fish and Wildlife Serv. to BPA (May 22, 1989); Jones, Intertie Expansion and Fish Protection: Idaho Objects to BPA's Draft EFS, Memo #39 (Feb. 1987) at 2.

138. See BPA, Administrator's Record of Decision Relating to BPA's Contract For the Initial Filling of Revelstake Reservoir and Additional Uses of Storage Space in Canada and BPA Companion Agreements With 17 Mid-Columbia Project Owners and Purchasers (Jan. 1984).

139. Idaho v. Herrington, Nat'l. Wildlife Fed'n. v. BPA, nos. 87-7704, 87-7705 (9th Cir. 1987). Additional parties included the Umatilla and Warm Springs tribes and the Washington Department of Fisheries.

140. See Fish Spill Memorandum of Agreement, above note 104. The agreement was subsequently adopted by the Northwest Power Planning Council as an amendment to its Columbia Basin Fish and Wildlife Program on February 15, 1989. See below notes 281-85 and accompanying text.

141. See Letter of Daniel Rohlf (representing the Northwest Environmental Defense Center, Oregon Trout, and the Northwest Resource Information Center) to BPA Administrator James Jura (July 11, 1990).

Council's Columbia Basin Program was, when first promulgated in 1982, in many ways as innovative as its authorizing statute.[143] Unfortunately, some of the program's most innovative measures, such as the Water Budget (designed to increase spring flows), have either been unenforceable or the Council has been unwilling to push for their implementation. For example, the Budget has never been met on the Snake River;[144] Budget amounts actually provided have been less than half the amount provided for in the program. In effect, the amount of water supplied to Fish Passage Managers (who manage the Budget) is sufficient for only about 8-10 days of flow for a fish migration lasting over 3 months, despite the fact that the Budget's function is to supply ensurance against just such low water years.

The Water Budget experience on mainstem Columbia, which has considerably more available water, is equally discouraging, for while the recent record shows technical compliance with Budget requests, the underlying "firm power flows" (on which the Budget flows are built) have been consistently below the level specified in the Council's program, and "share the wealth" assumptions about higher flows in good water years have never materialized.[145] Thus, the Water Budget has persistently failed to supply minimum fish flows during the 60-day spring migration period, the program's chief mitigation goal. As recently as Memorial Day 1990 the Columbia River Inter-Tribal Fish Commission reported that flow levels at The Dalles Dam were only 176,000 cubic feet per second, far less than the 220,000 cfs the Commission's biologists believe is the minimum biologically necessary.[146] Moreover, the program has actually exacerbated low summer flows outside of the budget period, as BPA, the Corps, and the Bureau of Reclamation attempt to compensate for spring flows by devoting high priority to reservoir refill.[147] The Fish Passage Managers, the representatives of the fishery agencies and tribes who manage the Water Budget, conclude that "the present Water Budget is not sufficient to protect downstream spring migrants."[148] Arguably, this lack of protection is a violation of the Northwest Power Act.[149]

On notice of the Water Budget's failures for several years, the Council's reaction has been essentially "no response." Some blame might be due to Congress' inclusion of ambivalent enforcement provisions in the Northwest Power Act.[150] Some is due to the inability of the Council to take on controversial issues such as fish flows and assume an enforcement role for its program; some is also attributable to the Council's unwillingness to defer to the biological expertise of the federal and state fishery agencies and Indian tribes.[151] Some blame also can be directed to the fishery agencies and tribes for not presenting comprehensive flow proposals to the Council after their initial recommendations in 1981, although the Council has discouraged such initiatives through its insistence that the agencies and tribes "prove" the biological and cost effectiveness of their proposals.[152]

Whatever the causes, the result is that fishery managers no longer look to the Council to achieve the "co-equal partnership" the Northwest Power Act promised the fishery resource.[153] As in the case of spills, resolution of the flow issue will probably have to come as a result of actions taken outside the Columbia Basin Program. Although the Council will undoubtedly ratify any settlement of the flow issue (as it did with the spill issue),[154] it no longer seems to have the institutional capability to devise innovative solutions to tough fish/power tradeoffs to achieve the congressional goal of parity

142. See, e.g., Memos #11 (Jan. 1981), #17 (Apr. 1982), #19 (Sept. 1982); Blumm, Reexamining the Parity Promise: More Challenges Than Successes to the Implementation of the Columbia Basin Fish and Wildlife Program, 16 Envtl. L. 461, 466-69 (1986).

143. See, e.g., Memos #22 (July 1983), #24 (Mar. 1984), Reexamining Parity, above note 142, at 469-74.

144. See Fish Passage Center, 1987 Annual Report at 48 (Columbia River Water Budget not met 36 of 60 days; Snake River Water Budget not met 51 of 60 days); id. 1988 Annual Report, at 21 (Water Budget almost never met on the Snake).

145. Fish Passage Center, 1988 Annual Report, at 26, 81.

146. See Continued Resistance to Water Budget Implementation, CRITFC News (July 1990) at 8 (noting that the 220,000 cfs level at The Dalles Dam was not met in 1988 or 1989).

147. 1989 Annual Report, above note 145, at 81.

148. Id. See Northwest Power Planning Council, Columbia Basin Fish and Wildlife Program § 303(b) (establishing the Fish Passage Center).

149. See Northwest Power Act, § 4(h)(6)(E), 16 U.S.C. § 839b(h)(6)(E) (provide "improved survival" of anadromous fish and supply "flows of sufficient quality and quantity ... to improve production, migration, and survival of [anadromous] fish as necessary to meet sound biological objectives").

150. See Northwest Power Act, § 4(h)(11)(A)(ii), 16 U.S.C. § 839(h)(11)(A)(ii) (BPA, Bureau of Reclamation, Corps of Engineers, and FERC to take the Council's program "into account at each relevant stage of [their] decisionmaking processes to the fullest extent practicable"); see also id. § 839b(h)(10)(A) (BPA to use its funding and authority "in a manner consistent" with the Council's program).

151. See, e.g., Blumm, The Northwest Power Act's Institutional Innovations and Unfulfilled Promises, 2 J. Envtl. L. & Lit. 165, 174 (1987).

152. For a discussion of this burden of proof issue, see the colloquy in Memo #39 (Feb. 1987) between Gerald Mueller, a former Northwest Power Planning Council member, and the Editor; see also above note 121 and accompanying text.

153. H.R. Rep. No. 976, Pt. I, 96th Cong. 2d Sess. 49 (1980) (House Commerce Report on Northwest Power Act).

154. See above note 140 and accompanying text.

between the two resources.[155] It is a sad reflection on the implementors of the Northwest Power Act that a decade after its passage, Endangered Species Act reviews loom on the horizon.

E. The Fishery Agencies Flow Proposal

In recognition of the failure of the Columbia Basin Program to deliver sufficient mainstem flows, in March of 1990 the Columbia Basin Fish and Wildlife Authority, a coalition of the region's fishery agencies and tribes, proposed a comprehensive flow regime along with institutional changes necessary to implement it. The institutional changes concerned (1) full representation in Pacific Northwest Coordination Agreement planning, and (2) the flows to be treated as "hard constraints" on system operations; that is, they would be met under all conditions.[156] The flow level the coalition recommended for migrating fish are set forth in the chart below:[157]

Fish Flow Recommendations

In thousand cubic feet per second
First figure = minimum instantaneous
Second figure = daily average

MONTH	THE DALLES	PRIEST RAPIDS	ICE HARBOR
JAN	80/80[F]	70/70[E]	10/20
FEB	80/80[F]	70/70[E]	10/20
MAR	80/80[F]	70/70[E]	10/30[A]
APR 1-15	80[F]/250[B]	70/140[B]	30/100[B]
APR 16-30	80[F]/300[B]	70/140[B]	30/140[B]
MAY	80[F]/300[B]	70/140[B]	30/140[B]
JUN 1-15	80[F]/300[B]	36/140[B]	30/140[B]
JUN 16-30	80[F]/200[C]	36/120[C]	30/80[C]
JUL 1-15	80[F]/200[C]	36/120[C]	30/80[C]
JUL 16-31	80[F]/160[C]	36/110[C]	30/50[A]
AUG	80[F]/160[C]	36/110[C]	30/50[A]
SEP	80/80[F]	36/40	30/35[A]
OCT 1-15	80/80[F]	36/40	30/35[A]
OCT 16-31	80/80[F]	50/125[D]	30/35[A]
NOV 1-15	80/80[F]	50/125[D]	30/35[A]
NOV 16-30	80/80[F]	50/125[D]	30/35[A]
DEC	80/80[F]	70/70[E]	30/35[A]

Notes:

A. Adult passage.
B. Juvenile migration: steelhead, sockeye, chinook, coho.
C. Juvenile migration: subyearling chinook.
D. Spawning/maximum.
E. Incubation, emergence.
F. Adult passage, Bonneville Dam.

The fishery agencies are in the process of developing a detailed biological justification for these flow levels. It is a virtual certainty that achievement of these flows will be the goal of fishery advocates in the forthcoming ESA proceedings and ongoing non-treaty storage negotiations.

V. The Columbia Basin Fish and Wildlife Program

Nearly a decade ago, in December 1980, President Carter signed into the law the Northwest Power Act, a statute calling for revolutionary changes in hydroelectric project operations in order to "protect, mitigate, and enhance" fish and wildlife adversely affected by Columbia Basin projects.[158] The chief vehicle for producing such changes was the program mandated by section 4(h) of the Act, the Columbia Basin Fish and Wildlife Program, which was promulgated in 1982 by the Northwest Power Planning Council, an interstate regional council also authorized by the Act.[159]

Eight years after its promulgation, the program has failed to produce the fundamental changes in system operations that the Act envisioned, although it has been more successful in

155. House Report, above note 155, at 57 (intent of "equitable treatment" obligation, above notes 132-36 and accompanying text, was to place fish and wildlife "on a par" with other water project purposes).

156. Columbia Basin Fish and Wildlife Authority, Proposed Mainstem Flows for Columbia Basin Anadromous Fish (March 1990) at 3.

157. Id. at 9. The coalition also made flow recommendations for resident fish affected by the operation of Hungry Horse, Libby, Grand Coulee, Chief Joseph, Dworshak, and Brownlee Dams. Id. at 10-12.

158. See Memo #18 (May 1982); see also above note 142 and sources cited therein.

159. See Hemmingway, The Northwest Power Planning Council: Its Origins and Future Role, 13 Envt. 673 (1983). The constitutionality of the Council was upheld in Seattle Masters Builders v. Northwest Power Planning Council, 786 F.2d 1359 (9th Cir. 1986), cert. denied 479 U.S. 1059 (1987). See Symposium on Seattle Master Builders and Creative Cooperative Federalism, 17 Envtl. L. no. 4 (1987) (articles by Dave Frohnmayer, Dale Goble, Randall Weisberg, John Volkman, and Maryhelen Sherrett); Blumm, The Appointments Clause, Cooperative Federalism, and the Constitutionality of the Northwest Power Planning Council, 8 J. of Energy L. & Policy 1 (1987).

protecting areas from future hydroelectric development and in lobbying Congress for funding of mechanical bypass systems at Corps of Engineers dams on the mainstem Columbia and Snake Rivers.[160] There are two basic reasons for the inability to make the fishery resource a co-equal partner with the power resource. First, although instructed not to become a super fish and wildlife agency in the Northwest Power Act's legislative history,[161] the Council has been unable to resist such a role. As a result, it has rejected a number of program amendments proffered by the fishery agencies and tribes aimed at making the program more effective. Frequently, the Council overruled the agencies and tribes by saddling them with an impossible burden to prove the precise biological benefits of their proposals would justify their costs.[162] The Council also interjected its staff into basic fishery management issues and imposed additional bureaucratic hurdles as preconditions for implementation of various program measures. One participant estimates that the Council's procedural inclinations usually produce delays of between one to two years for implementation of measures included in its program as opposed to fishery measures outside the program.[163]

A second reason the "co-equal" partnership has not materialized has to do with the federal water managers' consistent failure to implement the program, especially in the area of fish flows. The worst offender has been the U.S. Army Corps of Engineers which neither believes it must implement the program, nor supply written reasons why it cannot.[164] Moreover, the Council has not proved especially interested in enforcing the program, seeing its role as one of a mediator between fish and power interests rather than an advocate for its restoration program.

This section explores some of the reasons for the program's shortcomings, beginning with its promulgation in 1982 and continuing through program amendments adopted in 1984, and during 1986-89. This history shows that, from the beginning, the Council has been unwilling to defer to the biological expertise of federal and state fishery agencies and Indian tribes on the issue of mainstem fish flows. Until it does, or until the agencies and tribes seek remedies outside the program, the restoration promise of the Northwest Power Act seems destined to go unfulfilled.

A. The 1982 Columbia Basin Fish and Wildlife Program

In 1982, after extensive public participation and a detailed set of recommendations formulated by a coalition of the region's fish and wildlife agencies and Indian tribes, the Council promulgated the Columbia Basin Fish and Wildlife Program.[165] The program contained a number of innovations, notably (1) the "Water Budget," a block of water to assist downstream fish passage in the spring;[166] (2) a schedule for fish bypass installation at mainstem dams to improve fish passage;[167] a fish propagation plan that favored restoration of wild stocks over new hatchery construction;[168] and conditions which any new hydroelectric project must satisfy.[169]

While generally viewed as a sound, workable program that offered significant hope for restructuring the balance between fish and power at mainstem projects, the Council's program did not accept many key recommendations of the fishery agency and tribal coalition. For example, the Council rejected the fishery coalition's recommended "sliding scale" fish flows, whereby the fish runs would share a water shortage in low flow years but would also share abundance in high flow years.[170] In addition, the Council

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160. See below notes 270-76 (protected areas) and below note 269 (mechanical bypass) and accompanying text.

161. 126 Cong. Rec. 29,810 (daily ed. Nov. 17, 1980) (remarks of Cong. John Dingell).

162. See above notes 121 and 153 and accompanying text. The Act called for action based on "best available scientific knowledge," not scientific certainty. Although one former Council member insightfully propounded a form of biological policy analysis of "learning by doing," which would effectively lower the burden of proof for taking action, "adaptive management" apparently has never been applied to the fish flow issue. See generally Lee & Lawrence, Adaptive Management: Learning from the Columbia River Basin Fish and Wildlife Program, 16 Envtl. L. 431 (1986).

163. Interview with Rob Lothrop, Columbia River Inter-Tribal Fish Comm'n (May 1990) (also noting that additional delays may occur if the Council schedules interim milestones that trigger hearings or Council votes, but also acknowledging that some measures -- such as the Umatilla Basin Water Enhancement Program -- would have experienced delays without the Council's assistance).

164. Section 1304(a)(A) of the Columbia Basin Fish and Wildlife Program directs federal water management agencies to implement the program or supply written explanations why implementation is physically, legally, or otherwise impractical, including all possible allowances to permit implementation.

165. See Memo #22 (July 1983); Blumm, Implementing the Parity Promise: An Evaluation of the Columbia Basin Fish and Wildlife Program, 14 Envtl. L. 277 (1984).

166. Columbia Basin Program, §§ 301-04.

167. Id. §§ 401-04.

168. Id. §§ 701-04.

169. Id. §§ 1202-04.

170. Id. § 301-04. See Memo #16 (Dec. 1981) at 6-7 (describing the fishery coalition's recommended flows, which were reprinted at Northwest Power Planning Council, 1 Recommendations for Fish and Wildlife Programs Under Pacific Northwest Electric Power and Conservation Act (Nov. 1981) at 163-210)); see also J. Lawrence, K. Lee & R. Palmer, The Water Budget: A Step Toward Balancing Fish and Power in the Columbia Basin (U. Wash. Water Resources Tech. Rep. No. 81, Aug. 1983) at 70-93.

failed to set specific spill requirements to improve fish passage at dams without structural bypass systems.[171] The 1982 program also rejected the fishery coalitions' recommended pre-McNary goal, which would have committed the program to restoring the fish runs to 1953 levels (prior to construction of the McNary Dam).[172] All of these rejections have produced program implementation problems, and the flow issue continues to be the program's Achilles Heel 8 years later.

B. The 1984 Amendments

In 1984, the Council recognized the lack of specificity in its program measures produced implementation problems, causing disputes over the pace of funding, the scientific basis for action, and anticipated biological consequences among BPA, its customers, other federal project operators and regulators, and the region's fishery agencies and Indian tribes.[173] Consequently, the 1984 amendments to the program included a 5-year "Action Plan" specifying numerous time deadlines for implementation entities.[174] In the wake of BPA's inability to effectively supervise studies to enable the Council to establish program goals,[175] the 1984 amendments set 3 interim goals for the program.[176]

However, the principal thrust of the 1984 dam amendments was to improve mainstem dam fish passage efficiency. Efficient fish passage at mainstem dams is absolutely critical to the success of the entire program, for investments in habitat and fish flows will not materially increase run sizes without significant reductions in fish mortality at mainstem dams. For example, if 80% of downstream migrating juvenile fish survive each of 8 mainstem dams, cumulative systemwide losses are more than 70-80% of the total run.[177] There are essentially 3 ways to improve mainstem passage: (1) installing mechanical bypass systems to keep juvenile fish out of the dams' power turbines, (2) providing spills of water to pass fish around the dams, and (3) barging and trucking of fish downstream below the dams. The 1984 amendments concentrated on the former by setting time deadlines for installation of bypass systems at a number of mainstem dams.[178] These bypass facilities are to achieve a fish guidance efficiency of 90%[179] (i.e., 90% of the fish pass through the bypass system), an improvement over the existing "state-of-the-art" facilities at McNary Dam, where 85% efficiency has been achieved.[180] In addition, the 1984 amendments required the Corps of Engineers to achieve 85% fish guidance efficiency at Bonneville Dam's second powerhouse or (subject to certain exemptions) shut the project down during the downstream migrant season.[181] The 85% standard has proved difficult to attain in practice.

While scheduling bypass installation and requiring the Bonneville Dam's second powerhouse to meet state-of-the-art results, the amendments did little to improve existing passage at dams without bypass. The Council set no minimum spill requirements: it simply called for a 90% survival rate at each mainstem dam -- a less stringent standard than one based on bypass efficiency (since not all juvenile fish passing through power turbines perish), one much more difficult to monitor and control, and one which the fishery agency and tribes maintained suppli-

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171. The fishery coalition recommended that the Council set "sufficient spills ... to minimize losses of juvenile salmonids during the spring and summer migration periods." Fish and Wildlife Program Recommendations, above note 170, at 247. The Council's program simply required "a plan for spills which will achieve a level of smolt survival comparable to or better than that achievable by the best available bypass and screening systems." Columbia Basin Program, § 404(b)(3) (1982).

172. Columbia Basin Program § 201; see Implementing Parity, above note 165, at 289-93.

173. Id. § 1501 (1984).

174. See id. § 1504 (effectively reorganizing the program into 11 "Action Items"); see generally Memo #30 (June 1985) at 5-7; Reexamining Parity, above note 142, at 474-79.

175. See Implementing Parity, above note 165, at 291-92 n.58 (BPA's allegation that funding the goals study proposed by the fishery agencies and tribes was "unacceptable to BPA management" and "not consistent with ratepayer interests" because it would amount to "funding advocacy" be inconsistent with "sound business principles").

176. The interim goals were: (1) to increase the quality and quantity of salmon and steelhead produced in the Columbia Basin by providing Water Budget flows, by protecting against adverse effects of new hydroelectric development, and by increasing systemwide productive capacity; (2) to protect ratepayer investment in the program by improving harvest controls and monitoring the effectiveness of program measures; and (3) to proceed with wildlife and resident fish measures only where they do not conflict with anadromous fish measures. Columbia Basin Program § 102 (1984).

177. See Lothrop, The Failure of the Fish Passage Provisions of the Columbia Basin Fish and Wildlife Program and Some Suggested Remedies, Memo #34 (Nov. 1985) at 4.

178. Columbia Basin Program § 1504, Action Items 32.5 (complete bypass system installation at John Day Dam by the end of Mar. 30, 1986); 32.12 and 32.13 (complete bypass installation at Rocky Reach and Wells Dams by Mar. 20, 1987); 32.9 (complete bypass installation at Little Goose Dam by the end of fiscal year 1987); 32.11 (complete bypass installation at Priest Rapids and Wanapam Dams by Mar. 20, 1988); 32.4, 32.7 and 32.8 (complete bypass installation at The Dalles, Ice Harbor and Lower Monumental by the end of fiscal year 1989) (1984). No specific date for bypass installation at Rock Island Dam was established. Id. at 32.12.

179. Id. § 403.

180. Id. § 404(b)(5)(B).

181. Id. Although designed to be state-of-the-art, the second powerhouse achieved only a 14-35% fish guidance efficiency prior to 1984.

ed inadequate protection.[182] In fact, the standard produced a cumulative survival rate of 43%, effectively supplying no passage protection over pre-Northwest Power Act operations.[183] Even some of the means to achieve this standard -- such as (1) systemwide fish passage plans developed by the Corps of Engineers and fishery agencies and (2) a comprehensive Corps report evaluating barge and truck transportation[184] -- proved to be controversial.

The 1984 amendments also included some 27 new habitat improvement and passage restoration projects and set time deadlines for a number of major capital projects such as hatcheries in the Yakima Basin and on the Umatilla Indian Reservation, acclimation ponds at John Day Dam, and a low capital propagation program on the Nez Perce Indian Reservation.[185] But, as noted above, habitat improvement and artificial propagation initiatives without mainstem passage improvements will not materially increase run sizes.[186] Many doubted that the Council's 90% survival standard satisfied the statutory directive of producing "improved survival of [anadromous] fish at hydroelectric facilities located on the Columbia river system."[187]

C. The 1985 and 1986 Amendments

Formal program amendments (under which the Council solicits recommendations from interested parties, makes a preliminary decision of those recommendations it will propose, and submits its proposal to public review and comment)[188] were not scheduled until 1987. However, in 1985 and again in 1986, the Council was forced to shore-up deficiencies in its program through unscheduled amendments. The first, approved in February 1985, eliminated BPA as a funding source for the "goals" studies.[189] The amendment thrust the Council into the role of overseeing the historical, anthropological, and biological studies it determined were necessary to establish justifiable program goals when it rejected the fish agency's and tribes' recommended "pre-McNary" goal.[190] Arguably, the role was one that the Council should have assumed from the outset, since BPA's commitment to a strong fish restoration program has always been suspect.[191]

1. The Losses Study

The 1985 amendment produced results relatively quickly. In September 1985, the Council staff released a draft report detailing historic records of fish run sizes, as well as estimating current run sizes.[192] In March 1986, the Council staff released its final report, estimating average annual run sizes of 10-16 million in the pre-development era, while current run sizes averaged around 2.5 million fish. Those estimates produce a net basin-wide loss of 7-14 million fish and 31% loss of habitat due to water development (38% above Bonneville Dam).[193] The report found that upper basin losses are "largely unmitigated" and gave as principal causes for the decline the severe cumulative affects imposed on both juvenile and adult fish that must successfully pass up to 9 dams between their spawning grounds and the ocean: 77% to 96% of the juveniles perish, while 37% to 51% of the adults fail to survive the hydroelectric system.[194] A subsequent staff issue paper estimated that of the total annual system losses of 7-14 million fish, 5-11 million were attributable to hydropower developments and operations.[195]

2. Spill Amendments

The unscheduled 1986 amendments concerned an attempt by the fishery agencies and tribes to strengthen the program's weakest link: its spill provisions. In response to an agency and tribal request, the Council began to reconsider its spill provisions in 1985. However, the Council rejected the recommendation, which the agencies and tribes claimed would have improved fish survival by about 50% over the 90% survival standard in the program, as being too expensive and complicated to implement.[196] Instead, on

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182. Lothrop, above note 177, at 4; Water Budget Center, Water Budget Managers Summary Report of Juvenile Mitigation Operations April-June 1985 at 6 (alleging that a 90% survival standard does "not provide protection above a no spill, no bypass alternative").

183. See Memo #36 (July 1986) at 11-12.

184. Columbia Basin Program § 1504, Action Item 32.2 (1984).

185. Id. §§ 704(d), table 2; 1504, Action Items 34.12-14 (1984); see Reexamining Parity, above note 142, at 475-77.

186. See above notes 142-56 and accompanying text.

187. 16 U.S.C. § 839b(h)(6)(3)(i).

188. See id., §§ 839b(h)(2)-(4).

189. 50 Fed. Reg. 11,032 (1985) (amending § 201 of the program; see Memo #30 (June 1985), at 5 n.52.

190. See above text accompanying note 172.

191. See, e.g., Institutional Innovations and Unfulfilled Promises, above note 152, at 173 (discussing BPA's delaying of implementation of program measures on cost-benefit grounds).

192. See Northwest Power Planning Council, 1986 Annual Report at 10-11 (describing the Council's Draft Compilation of Information on Salmon and Steelhead Losses in the Columbia River Basin).

193. Northwest Power Planning Council, Staff Compilation of Information in Salmon and Steelhead Losses in the Columbia River Basin (Mar. 1986) at 4.

194. Id. at 5. These figures assume juvenile mortalities of 15-30% per dam, and adult mortalities of 5-10% per dam.

195. Northwest Power Planning Council, Staff Issue Paper on Hydropower Responsibility for Salmon and Steelhead Losses in the Columbia River Basin (Apr. 1986); discussed in Cole, Northwest Power Planning Council Estimates Columbia River Basin Fish Losses and Assesses Hydropower Responsibility, Memo #38 (Nov. 1986) at 18; see also Northwest Power Planning Council, Columbia Basin Program (1987) § 203(b).

196. See generally Memo #36 (July 1986) at

December 12, 1985, the Council proposed to increase its survival standard to 95% in high or average water years and 92% in below average water years.[197]

However, two months later, in February 1986, the Council, rejecting its own staff recommendations, backed off even from this proposal. Instead, the 1986 amendment continued the 90% survival standard, because the Council could not determine that the staff proposal would produce "significant biological benefits."[198] However, the amendment did extend the spill season through August 15, if necessary to protect wild and natural summer and fall chinook runs, and clarified that the spill program is to operate regardless of any effects on firm power.[199] It also called on fishery agencies and tribes to set spill criteria that would set daily hours of spill and numbers of fish that would trigger spill sufficient to protect 80% of the typical downstream migrations. But the Council did not expressly require the Corps and the fishery agencies and tribes to agree on a spill program, as the agencies and tribes requested.[200]

Thus, in 1986 the Corps accepted some of the spill criteria of the agencies and tribes and implemented some of its own.[201] The Council did nothing to prevent the Corps from rejecting the fishery agencies' and tribes' spill criteria, although it later noted, "the Corps explained why it did not adopt the criteria of the fish and wildlife agencies and tribes but did not explain why their criteria were impracticable, as called for in Section 4(h)(11) of the Northwest Power Act."[202] The Council suggested no remedy for the Corps' violation of the statute.

The 1986 amendments displayed a Council that appeared willing to reject the biological expertise of the fishery agencies and tribes which believed that increased spill would produce significant biological benefits. The Council disagreed, largely on the basis of computer models showing that anticipated high reservoir mortality rates would overshadow the benefits of increased spills.[203] Although the Council properly rejected the arguments by BPA's Direct Service Industries (mostly aluminum companies) that a formal cost-benefit analysis was the proper litmus to evaluate alternative approaches to improve fish survival,[204] it seemed to rely heavily on modeling studies of the Corps, despite acknowledging the uncertain nature of the biological and economic estimates of the models. Moreover, by effectively overruling the fishery agencies and tribes on the nature of the biological benefits that increased spills would produce, the Council seemed to forget that Congress did not want the Council to act as a "super" fish and wildlife agency.[205] The result was that 6 years after the fishery restoration program it called for offered no significant increased mainstem dam fish passage protection, a result inconsistent with a specific provision of the Act.[206]

D. The 1987 Amendments

The bulk of the Council's 1987 amendments concerned a new framework for implementing the program, which established a systemwide perspective for the program that (1) took into account the detrimental effects of hydropower on salmon and steelhead at each stage of their life, (2) included fish passage, fish production and harvest management efforts, and (3) coordinated research and evaluation.[207] The heart of this new system planning effort is subbasin planning to identify local fish production objectives and constraints and to ensure integration with program-wide goals and policies.[208] However, the 1987 amendments largely avoided making any improvements in mainstem passage.

11-13 (discussing the 1986 amendment).

197. See Northwest Power Planning Council Staff Issue Paper on Alternative Interim Fish Passage Objectives (n.d.) at 2; Lothrop, above note 177, at 5.

198. See Northwest Power Planning Council, Notice of Final Amendments (Feb. 13, 1986) at 37-39 (amending §§ 304, 404 and 1504 of the program).

199. See Memo #36 (July 1986) at 12.

200. The Corps' willingness to "consider" fishery agency and tribal spill programs, but to develop its own spill program, has been a long-standing problem. See Lothrop, above note 177, at 4-5.

201. 1986 Annual Report, above note 192, at 7.

202. Id.

203. See Notice of Final Program Amendments, above note 198, at 25.

204. Id. at 28-30. On the inappropriateness of employing a cost-benefit test, see Memo #17 (Apr. 1982) at 15-22; see also PUD No. 1 of Chelan County, Wash., 34 F.E.R.C. ¶ 63,044 (1986) (FERC Administrative Law Judge's rejection of a cost-benefit test, discussed in Memo #36 (July 1986) at 14-15); Lothrop, above note 79.

205. 126 Cong. Rec. H10,683 (daily ed. Nov. 17, 1980) (remarks of Cong. Dingell). Section 4(h)(7) of the Northwest Power Act (16 U.S.C. § 839b(h)(7)) requires the Council to give "due weight" to the expertise of the fishery agencies and tribes in formulating the Columbia Basin Program. However, the Council alleged that the fishery agencies' and tribes' spill proposal was not a "recommendation that triggers on the procedural requirements of the Northwest Power Act. See, for example, Section 4(h)(7)." Notice of Final Program Amendments, above note 198, at 19.

206. See above note 182 (no increased fish protection); cf. 16 U.S.C. § 839b(h)(b)(E)(i) (calling for "improved fish passage"); see above text accompanying note 187.

207. Northwest Power Planning Council, Columbia River Basin Fish and Wildlife Program, as amended (1987) at § 202 [hereinafter 1987 Program].

208. Id. § 205.

1. Establishing Program Goals

At the center of the Council's new framework was an interim goal to double existing runs of approximately 2.5 million to 5 million.[209] This numerical target was the result of the Council's 1986 study which calculated hydropower responsibility to be 5-11 million of the 7-14 million annual losses.[210] Although the Council estimated hydropower related losses to be approximately 8 million -- 4 million that were produced in areas now blocked by Chief Joseph and Hells Canyon Dams and 4 million from mainstem dam passage mortality -- it set a goal short of that because current socioeconomic and biological conditions may prevent restoring to that level.[211] The Council deferred setting a target date until completion of its subbasin planning effort.

2. Inaugerating System Planning

The Council adopted a set of policies to guide planning and implementation of measures to achieve the interim goal of doubling runs, including (1) giving priority to the area above Bonneville Dam, (2) ensuring genetic diversity, (3) improving mainstem passage expeditiously.[212] To facilitate program coordination and evaluation, the amendments called for yearly roundtable discussions among hydropower operators, hatchery operators, harvest managers, and water managers, fish habitat managers, Bonneville and the Council to exchange views and information.[213] The Council also called for subbasin planning to guide future propagation efforts,[214] established guiding principles for salmon and steelhead research[215] and set a policy for resident fish substitutions.[216]

The fruits of these policies are to be embodied in individual salmon and steelhead subbasin plans for 31 watersheds in the Columbia Basin,[217] These plans developed in three phases: (1) collection of existing biological information, (2) identification of draft subbasin production objectives (such as the number of fish desired for harvest and conservation), and (3) development of final production objectives.[218] Steps 1 and 2 are complete; step 3 is underway and should be complete by late summer, at which time the Council will prepare an integrated system plan for public review and comment. The final plan will be adopted before the end of 1991.[219]

3. Ignoring Mainstem Passage Problems

a. The Water Budget

Unfortunately, the 1987 Amendments did nothing to improve mainstem passage. Prior to 1987, the Water Budget, heralded as the centerpiece of the Columbia Basin Program when first approved in 1982, failed to produce its promised fundamental shift in hydroelectric system planning and operating priorities.[220] In fact, the Water Budget seems actually to have harmed summer migrating fish, for BPA's recent response to the end of the Water Budget season in mid-June has been to reduce summer flows in order to store water for power sales in the fall and winter.[221] This has the effect of reducing the power costs of Water Budget implementation but is devastating to late migrating stocks.

But in large measure, the Water Budget has simply not been implemented. For example, during a 26-day period in 1985 (the first year since program approval in which flows were not above average), Water Budget flows were met only 6 days on the Snake River.[222] Implementation problems concerned (1) the Corps' and BPA's shaping of requested flows to maximize power sales, (2) disagreements over how to account for Budget use, (3) flood control operations frustrating Budget use, and (4) reservoir refill taking precedence over Budget requests.[223]

It should be recalled that Water Budget flows provide less than the minimum flows recommended for the Snake by the fishery agencies and tribes in 1981.[224] And while the Budget's flows are higher on the Columbia, the Council rejected a key fishery agency and tribal recommendation that would have established "sliding scale" flows -- so that while fish flows would be re-

209. Id. at § 203.
210. See above text accompanying note 203.
211. See 1987 Program § 203(b)(2). The Northwest Power Act limits ratepayer responsibility for fish losses to those losses attributable to hydropower. 16 U.S.C. § 839b(h)(8)(B).
212. 1987 Program at §§ 204(a)-(c). The other new policies were (1) a mix of wild, natural and hatchery production will be used to increase production, (2) harvest management entities are requested to regulate harvests to support the program's goal, (3) coordinating mainstem passage improvement fish production and harvest management. Id. at (d)-(f).
213. Id. § 204(g) (calling for roundtable discussions to review program goals and evaluate program implementation).
214. Id. § 205. Subbasin planning was rejected by the Council in 1984. See Memo #38 (Nov. 1986) at 6 and Memo #27 (Aug. 1984) at 8.
215. 1987 Program § 206.
216. Id. § 207.
217. See generally Northwest Power Planning Council, Staff Briefing Paper, Salmon and Steelhead System Planning Status Report (No. 90-7, Mar. 1990).
218. Id. at 4.
219. Id. at 4, 12.
220. See generally Reexamining Parity, above note 142, at 494-501 (reviewing the 1984 and 1985 seasons -- the 1986 season was one of high flows, and therefore not indicative of the Water Budget's efficacy).
221. BPA considers such action authorized by § 303(a)(4) of the Council's program which encourages power managers to seek "creative" ways to minimize the costs of implementing the Water Budget.
222. Id. at 497 (citing Water Budget Center, 1985 Annual Report (Aug. 1985) at 2).
223. See Lothrop, above note 177, at 5-6.
224. See Memo #16 (Dec. 1981) at 6.

duced in low water years, they would be increased in good water years.[225] Instead, the approved Water Budget was based on worst case low flow assumptions, with no additional water supplied in high flow years. Thus, the Water Budget is very much a compromise measure; it hardly represents an unqualified victory for fishery interests. Consequently, the failure to implement the Budget is most disturbing.

The fishery agencies and tribes did not seek a program amendment concerning the priority the Corps and BPA gave to secondary energy sales and reservoir refill over budget flows because this priority was clearly a violation of the priorities established in § 304(a)(8) of the Columbia Basin Program. Instead, they sought to encourage the Council to enforce § 304(a)(8) by requesting the Council establish a new dispute resolution process. However, the Council rejected this recommendation, alleging (rather unconvincingly) that existing program measures supply more effective dispute resolution.[226] The Council also rejected a fishery agency recommendation that BPA provide the Council with an annual report of its power marketing operations during the Water Budget period. The Council's reasoning was that this information was already required by the program.[227] However, acknowledging that BPA failed to supply such reports in the past, the Council requested BPA to specify a date by which the reports, including relevant power marketing information, would be made available to the fishery agencies and tribes, as well as the Council.[228]

Although the fishery agencies and tribes chose to negotiate to resolve Snake River Water Budget flows instead of seeking a program amendment,[229] they did seek an amendment to clarify that Water Budget "accounting" should take place on an average daily basis.[230] However, the Council rejected this recommendation, establishing instead average weekly accounting as the basis for Water Budget use, while imposing 80% flow fluctuation limits on weekends and holidays.[231] The Council believed that average weekly flows, couple with fluctuation limits, would be as biologically effective as average daily flows at a lower cost to the power system.[232] Even if this accounting technique were to resolve the budget accounting problem, successful Water Budget implementation will not occur unless the Council becomes more involved in ensuring (1) the program's priorities favoring Budget flows over secondary power sales and reservoir refill are followed, (2) sufficient water is released from storage from projects in the Snake Basin, and (3) flood control requirements and procedures are critically analyzed and revised, where feasible, to enable the region to have both adequate fish flows and flood protection.[233]

b. Spills

As noted above,[234] until mainstem dams are equipped with protective screens and effective mechanical bypass systems, spills of water are essential to reducing power turbine-related mortalities. Until 1989, one of the weakest links in the Columbia Basin Program was its spill provisions. The lack of sufficient spill at unscreened projects threatened to jeopardize the program's investments in habitat restoration, hatchery construction, and spring flows. The fishery agencies and tribes contended that without increased spills, the program's objective of restoring wild upriver runs could not be achieved.[235]

Because of a Federal Energy Regulatory Commission proceeding,[236] more generous spring spills were provided at non-federal projects on the mid-Columbia than at Corps' projects on the lower Snake. The spill programs for 4 of the 5 non-federal projects[237] have an objective of 50% passage efficiency (i.e., 50% of juvenile fish avoid the power turbines), while the Council's 90% survival standard for Corps projects requires guidance efficiency only roughly of 40%.[238] The 90% survival standard means that, even ignoring reservoir mortalities, only about 40% of upriver Snake smolts will survive to below Bonneville Dam.[239]

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225. See above note 170 and accompanying text.

226. See 1987 Columbia Basin Fish and Wildlife Program, App. C, at 21, 28.

227. See 1984 Columbia Basin Program § 1503 (calling for annual reports on, among other subjects, mainstem passage and Water Budget implementation).

228. See Northwest Power Planning Council, 1986 Draft Amendment Document (Sept. 1, 1986) at 166.

229. See Columbia Basin Fish and Wildlife Council and Columbia River Inter-Tribal Fish Commission, Restoration of Upriver Runs of Salmon and Steelhead in the Columbia River Basin (briefing paper distributed at public workshop held in Portland, OR on Sept. 27, 1986) at 9.

230. See 1987 Program, App. C, at 25. For background on the "accounting" controversy, see Reexamining Parity, above note 142, at 498 n.190.

231. See 1987 Program, App. C at 12.

232. Id.

233. On revising flood control rule curves, see Northwest Power Planning Council, Quarterly Report on Implementation of Five-Year Action Plan (Oct. 10, 1986) at 80-81 (discussing implementation of Action Item 33.5), summarizing a Corps of Engineers' study, "preliminary Review of Flood Control, Columbia River Basin" (Feb. 10, 1986), indicating that portions of flood control rule curves (those representing water supply forecasts less than 70-80% of normal) could be modified to benefit anadromous fish.

234. See above text accompanying note 176.

235. See Briefing Paper, above note 229, at 10.

236. See Bodi, FERC's Mid-Columbia Proceeding: Ten Years and Still Counting, 16 Envtl. L. 555 (1986).

237. See Memo #38 (Nov. 1986) at 6 n.64.

238. Briefing Paper, above note 229, at 10-11.

The fishery agencies and tribes attempted, without success, to convince the Council to require spills at federal projects equivalent to those at the FERC-licensed projects in early 1986.[240] They again sought to increase interim spill levels at projects without effective bypass facilities to 31% of the average daily flow at Lower Monumental Dam and 41% at Ice Harbor and The Dalles Dams in the 1986 formal amendment process.[241] The Council rejected this recommendation because a similar recommendation was rejected in February 1986,[242] and because the Council variously asserted that (1) increased spills "would be less effective than the adopted provisions," (2) it did not have time to evaluate the proposed changes, and (3) it did not want to interfere with negotiations that eventually produced an agreement on spill a year later.[243] Reiterating its conclusion that increased spill levels would not increase run sizes because cumulative reservoir mortalities would negate any biological benefits of additional spill, the Council concluded that the agency and tribal recommendation would produce only an increase in systemwide survival of 1-2%, depending on the water condition.[244] Relying on assurances from the Corps that in average water years "spill will occur in addition to that called for by the program's 90% survival standard," the Council concluded that the agency and tribal proposal was "virtually indistinguishable" from its existing program.[245]

In rejecting the fishery agency and tribal spill recommendation, the Council made clear that it considered the role of interim spills to be protecting against catastrophic losses in very low water years.[246] The biological basis for this conclusion remains obscure. If the Council intends to function as a "super" fish and wildlife agency, it must explain its biological basis for decision making, as well as how its decisions complement existing and future activities of the fishery agencies and tribes, as the Northwest Power Act expressly requires.[247]

The 1987 amendments did authorize summer spills, provided for spills irrespective of firm power commitments, and called upon the Corps to make spill decisions on the basis of spill criteria developed by the fishery agencies and tribes.[248] However, all of these measures were reiterations of decisions made in February 1986.[249] No additional protection was provided by the 1987 amendments. Further, the Council rejected a fishery agency and tribal request that the program specify that the Corps and the fishery agencies and tribes jointly agree on an annual fish passage plan.[250] This rejection invited a repetition of the unhappy events of 1986, when the Corps rejected agency and tribal spill criteria requests without sufficient explanation.[251]

Also rejected was a recommendation from fishery agencies and tribes that the program include a dispute resolution provision to speed implementation of program measures.[252] Under the recommendation, an allegation that a program measure was not being implemented would trigger a Council investigation and report within 60 days. The Council staff claimed the recommendation would be less effective than existing measures,[253] ignoring the growing evidence indicating that those measures have failed to produce timely program implementation.[254]

c. Juvenile Fish Transportation

The Corps of Engineers has always favored increased reliance on barge and truck transportation as a substitute for instream fish passage. Trucking or barging juvenile fish might reduce pressures to spill or install juvenile bypass facilities, both of which are expensive. Transportation on the Snake has in fact benefited the fish runs, particularly steelhead, especially in low flow years.[255] However, spring chinook have not responded well to transporta-

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239. Id. at 11.

240. See above text accompanying notes 197-98.

241. See 1987 Program, App. C at 25.

242. See Institutional Innovations and Unfulfilled Promises, above note 152, at 171-72 (describing the Council's original rejection, on a 4-4 vote).

243. 1987 Program, App. C at 25.

244. See Reexamining Parity, above note 142, at 483-85 (describing the Council's reasoning in rejecting the proposed amendment of the fishery agencies and tribes in February 1986).

245. 1986 Draft Amendment Document, above note 228, at 167-68. The Council gave no indication that when such additional spills might be supplied, how they could be managed to improve mainstem fish passage, or who would make these decisions. The Council also evidently convinced itself that Congress mandated that alternatives to spill be explored, although it cited no congressional directive to that effect. Id. at 168.

246. Id.

247. 16 U.S.C. § 839b(h)(6)(A). See also above note 205 and accompanying text.

248. 1987 Program §§ 403 and 404(b)).

249. See Reexamining Parity, above note 142, at 484 nn.126-28.

250. See Memo #38 (Nov. 1986) at 7 n.79.

251. See above text accompanying notes 200-202; see also Council Quarterly Report, above note 232, at 3, acknowledging that the Corps' 1986 spill passage plan was "largely inconsistent" with the Council's program.

252. 1987 Program, App. C at 14.

253. 1986 Draft Amendment Document, above note 228, at 180 (citing § 1304(a) of the program, requiring written explanations when implementation is impracticable; § 1304(c), calling for consultation and coordination procedures; and a quarterly reporting system instituted by Council staff).

254. See, e.g., above text accompanying notes 200-202 and below text accompanying notes 262-68. See Memo #38 (Nov. 1986) at 7 n.83.

255. See Briefing Paper, above note 229, at 12.

tion, and in higher flows chinook seem to survive better in-river.[256] Moreover, the fishery agencies and tribes do not believe that transportation could ever substitute for safe passage conditions at individual projects, because substantial numbers of fish cannot be connected and transported. Further, they cite a lack of studies showing the relationship between transported fish and adult returns, fearing that transported fish suffer from stress that adversely affects them after their release in the lower river.[257]

The Corps proposed a "full transportation" amendment to the Council that would maximize use of transportation for all species under all flow conditions. The Council rejected this amendment because it would take the fishery agencies and tribes out of the decision-making process on transportation, inconsistent with provisions of both the program and the Act.[258] Therefore, the 1987 amendments make clear that the fishery agencies and tribes possess the biological expertise and legal authority to set transportation policy.[259] Thus, their policy -- which is to maximize transportation of all stocks in average or below average water conditions, but to minimize transportation of spring chinook in above average flows[260] -- is likely to continue.

The Council also rejected a Corps amendment that would have given the Corps transportation credits that could be employed to reduce in-stream migration protection. The Council considered the proposal likely to reduce juvenile survival and therefore inconsistent with a number of statutory standards.[261]

d. Bypass Installation

While turbine passage kills approximately 10-30% of juvenile fish per project, passage through a mechanical bypass system or over a spillway kills only about 1-2% of the migrants.[262] The key to upriver restoration is mechanical bypass installation in the long run and sufficient spills in the interim. Spill is the most biologically benign way of passing fish safely at dams, but the water spilled cannot be used to generate power. This has prompted widespread interest in mechanical bypass systems.

Of the 13 mainstem dams on the Columbia and Snake which pass anadromous fish, only 6 are equipped with adequate juvenile fishways: Wells (on the mid-Columbia); Little Goose and Lower Granite (on the Snake); and McNary, John Day, and Bonneville first powerhouse (on the lower Columbia). The Bonneville second powerhouse's bypass system has proved particularly problematic.[263] And recent studies have raised serious questions about the efficacy of the Bonneville first powerhouse.[264] Bypass installation schedules at the remaining 7 projects have continuously slipped, generally by 2-3 years.[265] According to the spill agreement, expected bypass installation dates for Lower Monumental, Ice Harbor, and The Dalles are 1992, 1993, and 1994, respectively.[266]

Spillages in installation dates have been largely due to difficulties in securing congressional appropriations. These difficulties have been exacerbated by the Corps of Engineers' unwillingness to support and occasional opposition to appropriation results.[267] However, in June of 1990 the Appropriations Committee of House of Representatives approved a $17.5 million appropriation that will fund improvements at six Corps Dams.[268] The measure now awaits action by the Senate. In contrast to its inability to secure sufficient mainstem fish flows, the Northwest Power Planning Council showed itself to be a successful congressional lobbyist for Columbia Basin fish runs.

E. The 1988 Amendments

In 1988 the Council approved two amendments to the Columbia Basin Fish and Wildlife Program. Both promise substantial protection and some restoration for Columbia Basin anadromous fish.

1. Protected Areas

The first amendment, approved in August, designates approximately 44,000 miles of streams as protected from future hydroelectric development. This amendment was the result of the studies called for in the Council's 1982 Fish and Wildlife Program and its 1983 Northwest Conservation and Electric Power Plan[269] and initi-

256. Id.
257. See Northwest Power Planning Council, Minutes for Meeting No. 100 (June 10-12, 1986) at 19 (testimony of Fred Olney and Doug DeHart).
258. See Memo #38 (Nov. 1986) at 8 n.87.
259. 1987 Amendments, § 404(b)(17).
260. See Briefing Paper, above note 229, at 12.
261. See Memo #38 (Nov. 1986) at 7 n.90.
262. See Briefing Paper, above note 229, at 9.
263. Id.
264. See Letter of Columbia Basin Fish and Wildlife Authority to Corps General Stevens (Jan. 1990).
265. Id. See Council Quarterly Report, above note 233.
266. Fish Spill Memorandum of Agreement, above note 104, at C-9.
267. Most of the opposition came from Corps' headquarters in Washington, D.C., not from officials in the Pacific Northwest.
268. See Northwest Power Planning Council, News Release (June 13, 1990) (funding improvements at Lower Monumental, Lower Granite, Little Goose, Ice Harbor, The Dalles and McNary Dams); see also Crow, Fish Bypass Funds Begin to Flow, 9 Northwest Energy News no. 2 (March/April 1990) at 29.
269. The 1982 Fish and Wildlife Program called on BPA to conduct an 18-month study of alternatives for designating certain streams and wildlife habitat in the Columbia River Basin to be protected from future hydroelectric development. The Council said that based on the study, it would designate stream reaches and wildlife habitat areas to be protected from future hydro-

ated by the Council in 1984. After two years of study and several months of comment, the Council approved a list of river reaches to be "protected areas." The Council concluded that hydropower development in these areas would entail unacceptable harm to critical fish spawning grounds or wildlife habitat.[270]

The 1988 amendments are necessarily limited to the Columbia Basin, since the Northwest Power Act restricts the program to the Columbia Basin.[271] Further, protected area designation does not absolutely foreclose hydroelectric development, since the Act only requires federal agencies like FERC to take the program into account "to the fullest extent practicable."[272] However, as a practical matter, protected area status will make hydroelectric development extremely difficult.[273] Moreover, the Council also extended protection to river stretches outside the Columbia Basin but within the Pacific Northwest (e.g., the Puget Sound Basin and the Oregon coast) by amending the Northwest Power Plan which guides BPA's resource acquisitions and which is not limited to the Columbia Basin.[274] This means that BPA may not purchase the output of projects in protected areas outside the Columbia Basin, but FERC and the other federal water managers (the Corps and the Bureau of Reclamation) are not restrained by the Northwest Power Act beyond the boundaries of the Columbia Basin. Thus, FERC recently released a final environmental impact statement recommending construction of the proposed Salt Cover Hydroelectric Project on the Upper Klamath River in southern Oregon despite the fact that the Upper Klamath is listed as a protected area in the Northwest Power Plan.[275]

In 1990 the Council proposed numerous changes to its protected area list.[276] Around 30 of the proposed changes would affect pending FERC applications.[277] Final decisions are expected before the end of the year. Protected area designations curb only new hydropower projects, not existing dams.

2. Umatilla River Flow Enhancement

In November 1988, the Council approved an amendment to the program that allows water to be pumped from the Columbia River to the Umatilla to augment low flows in the Umatilla River.[278] Anadromous fish runs in the Umatilla Basin declined due in part to mortalities at mainstem Columbia dams, but primarily because of large irrigation withdrawals from the river.

The amendments complement the Umatilla Project Act which Congress enacted in 1988, authorizing $42 million for the Bureau of Reclamation to construct, operate and maintain a flow enhancement project.[279] The Act directed BPA to provide power to exchange water in the Columbia for water in the Umatilla consistent with the Council's program. The water in the Columbia would be made available for irrigators who would then leave water in the depleted Umatilla for fish habitat. The Council's amendment conforms the program to the Act by approving interim pumping, establishing a process to govern long-term pumping, and calling for Bureau of Reclamation studies monitoring and evaluating the pumping and water conservation measures.

F. 1989 Amendments

Two additional Columbia Basin Program amendments occurred in 1989. First, in February the Council adopted the spill agreement negotiated by the fishery agencies and tribes, resolving longstanding disagreements about the magnitude and timing of spills to facilitate fish passage at mainstem dams. Second, in November the Council amended the program to establish a basinwide wildlife mitigation program.

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electric development. The 1983 Power Plan called for a regionwide study to rank potential hydropower sites based on fish and wildlife concerns.

Because the protected areas and site ranking studies were related, the Council established the Hydropower Assessment Steering Committee in October 1983 to help coordinate them. Based on the Committee's work, the Council adopted the Pacific Northwest Hydro Assessment Study Work Plan in August 1984. See Northwest Power Planning Council Staff Issue Paper, Protected Areas Designation (Oct. 8, 1987).

270. See Northwest Power Planning Council, Protected Areas Amendments and Response to Comments (No. 88-22, Sept. 14, 1988).

271. 16 U.S.C. § 839b(h)(1)(A).

272. Id. § 839b(h)(11)(A)(ii).

273. The Columbia Basin Program qualifies as a "comprehensive plan" under § 10(a) of the Federal Power Act (16 U.S.C. § 803(a)). See, e.g., Smith Falls Hydropower, 49 FERC ¶ 52,305 (1989). Section 10(a) requires FERC's licensing decisions to be "best adapted" to comprehensive plans, so it will require some creative legal interpretations for FERC to license a project in a river reach designated as a protected area.

274. See Northwest Conservation and Electric Power Plan, App. 1-C (amended Sept. 14, 1988 by Protected Areas Amendments, above note 271, at 9-13).

275. However, FERC may have difficulty licensing projects in protected areas outside the Columbia Basin for the reason suggested in above note 273, because the Northwest Power Plan is similarily a comprehensive plan for purposes of section 10(a) of the Federal Power Act.

276. See Northwest Power Planning Council, 1990 Proposed Amendments to Update the Protected Area Designations (Feb. 26, 1990, revised Mar. 20, 1990).

277. See Letter of Dulcy Mahar, Northwest Power Planning Council Public Information Director (March 20, 1990).

278. See amended §§ 703(a)(17), 1403 "action item" 4.6.

279. Both the Act and the Council's amendments are discussed in Northwest Power Planning Council, Final Amendments Regarding the Umatilla Pumping Proposal (No. 88-30, Dec. 19, 1988).

1. Ratifying the Spill Agreement

In late 1988, the fishing agencies and tribes concluded a year-long negotiation with BPA and the Pacific Northwest Utilities Conference Committee, a coalition of hydroelectric project operators, resulting in a Fish Spill Memorandum of Agreement.[280] The agreement requires that an annual spill plan be developed by November 1 each year to govern the following spill and summer migration seasons that is to be integrated with the fishery agencies and tribes' annual smolt monitoring program.[281] The agreement calls for spills over a ten-year period at 4 Corps of Engineers claims that do not have effective bypass systems: Lower Monumental, Ice Harbor, John Day, and The Dalles. Spill is to be provided sufficient to protect the middle 80% of fish runs between April 15 and August 21, affording formal passage protection outside of the Water Budget period (April 15 to June 15) for the first time.

The results of the spill agreement in 1989 were encouraging. Even though the Corps of Engineers refused to sign the agreement, the Fish Passage Managers reported that "all parties carried out the Agreement as written, and no deviations were made."[282] Indications are that 1990 implementation was similarly successful.[283]

Securing adequate spills resolves one of two long-standing shortcomings with the program's mainstem passage provisions. However, it bears noting that this agreement was not reached as a result of the Council's leadership. Instead, it was the product of difficult, protracted negotiations between fishery and power interests that frankly was made possible only by the filling of a lawsuit.[284] Rather than devising the innovative and imaginative solutions to fishery/power tradeoffs as Congress envisioned, the Council now seems relegated to the role of ratifying deals reached by others. Resolution of the other long-standing mainstem passage problem, that of flows, seems destined to follow a similar path.[285]

2. Establishing a Wildlife Program

The development and operation of the Columbia Basin hydroelectric system damaged not only fish but also wildlife. Losses occurred due to inundation of riparian habitat, fluctuating water levels, wetlands loss, stream channelization, shoreline riprapping, and transmission line corridors.[286] While both Congress[287] and the Council[288] recognized the need for wildlife mitigation long ago, efforts outside of Montana[289] stalled over disagreements over how much wildlife and habitat was lost and whether the hydroelectric system was responsible for mitigating all or a portion of the loss.

In late 1989, the Council finally adopted a process to mitigate wildlife losses basinwide.[290] Despite arguments that the program should compensate for the entire adverse effects of dams,[291] the amendment establishes an interim goal of mitigating approximately 35% of lost wildlife habitat over the next 10 years.[292] The amendment also calls for auditing individual losses statements prior to BPA funding of mitigation plan,[293] sets a number of standards mitigation plans must satisfy,[294] and promises wildlife representation in all matters of planning and operating the hydroelectric system.[295] In addition, the Council directed that FERC take into account wildlife mitigation projects at federal dams when licensing nonfederal dams to ensure that nonfederal projects are consistent with such programs and "contribute fully and proportionately to regional mitigation goals."[296]

G. Evaluating the Columbia Basin Program

Ten years after the passage of the Northwest Power Act, 9 years after the region's fishery agencies and Indian tribes submitted comprehensive fish and wildlife recommendations to the Northwest Power Planning Council, 8 years after the Council adopted the Columbia Basin Program, upriver salmon and steelhead stocks are under consideration for listing under the Endangered Species Act. Obviously, the mechanisms Congress established a decade ago to restore the Columbia's fish runs have not accomplished their purpose.

Nevertheless, there have been some notable accomplishments. Chief among them has been the

280. See Northwest Power Planning Council, Notice of Final Action On Spill Amendments (No. 89-5, Feb. 15, 1989); Fish Spill Memorandum of Agreement, above note 104.
281. See 1989 Fish Passage Center Report, at 30.
282. Id. at 39.
283. Conversation with Rob Lothrop, Columbia River Intertribal Fish Comm'n. (July 16, 1990).
284. See above note 139.
285. See above text following note 140.
286. See Northwest Power Planning Council, Background and Text of Proposed Wildlife Amendments (No. 89-24, July 26, 1989).
287. See Brown, Breathing Life Back Into a Drowned Resource: Mitigating Wildlife Losses In the Columbia Basin Under the Northwest Power Act, 18 Envtl. L. 571, 177-78 (1988) (citing legislative history).
288. See Implementing Parity, above note 165, at 331-34.
289. See 1987 Columbia Basin Program, § 1004(d), table 4 (mitigation at Hungry Horse and Libby Dams).
290. See Northwest Power Planning Council, Wildlife Mitigation Rule and Response to Comments (No. 89-35, Nov. 21, 1989) (amending § 1000 of the Columbia Basin Program).
291. See Brown, above note 287, at 591-96.
292. Wildlife Mitigation Rule, above note 290, § 1003(b)(1)(C). The draft program would have established a 50% goal.
293. Id. §§ 1003(b)(3) and (4)(A) and (B).
294. Id. § 1003(b)(4)(C).
295. Id. § 1003(a)(1).
296. Id. § 1003(e).

Council's designation of protected areas which will safeguard anadromous fish habitat from further hydroelectric development.[297] The Council has also proved to be an effective advocate for funding mechanical fish bypass systems at existing dams,[298] no small achievement in an era of large federal deficits. And while it is too early to evaluate the success of the program's approach to production planning on a subbasin basis,[299] its effort to increase fish runs while maintaining genetic integrity is laudable in principle.

These successes, unfortunately, have been overshadowed by the program's inability to restructure Columbia Basin hydroelectric operations to accommodate the biological needs of anadromous fish. The Council has proved itself unwilling or unable to secure sufficient spills to allow safe bypass at dams without adequate mechanical systems and sufficient flows to transport juvenile fish to the ocean. The long struggle over spills was finally resolved in late 1988,[300] but it was not the Council which proved to be the problem solver. Only the filing of a lawsuit prompted negotiations that culminated in an agreement between the fishery agencies and tribes and the hydroelectric managers. The Council merely ratified the agreement; it did not precipitate it.

The flow issue remains unresolved, and the Council shows no signs of being able to effectively tackle it. BPA's Non-Treaty Storage Agreement seems likely to reduce the hydroelectric system's ability to supply sufficient flows,[301] yet the Council has virtually ignored the issue. At this writing, the region's fishery agencies and Indian tribes are negotiating with BPA in hopes of securing some fishery benefits from the agreement. If they do not succeed, the considerable investments the region has made to restore the Columbia Basin fishery will be jeopardized by a river that has insufficient spring and summer flows to transport enough fish to rebuild run sizes. Even if they do succeed in obtaining some fishery benefits from the agreement, the results are hardly likely to supply the flows the fishery agencies have determined are biologically necessary.[302] It is increasingly likely that such flows must be secured through an Endangered Species Act recovery plan,[303] a reflection of the failure of the Northwest Power Act.

Why has the Act and the institutions it created been unable to secure fish flows? There are a variety of reasons. First, flows involve power tradeoffs. While fish flows do not reduce the system's ability to generate hydropower, they do change the timing of the generation, making it less valuable economically, at least if the current market for power is the standard. Second, there has been no incentive on the part of the power managers to look seriously at the fish flow issue. Although the fishery agencies and tribes have been requesting flows since 1981, they have not been able to convince either the Council or federal water managers like BPA and the Corps of Engineers of their biological necessity. The Council diffused some of the urgency of the issue with the adoption of its Water Budget, but that measure proved to be too little and unenforced.[304] A third reason might have to do with ambiguities in the Northwest Power Act, which directs federal water managers only to "take the program into account to the maximum extent practicable,"[305] language that seems to have weakened the Council's resolve to act as a fishery advocate, and the Council has been unwilling to test its powers to enforce its program in court. Nevertheless, the Act does explicitly call for improved fish flows and deference to the biological expertise of the fishery agencies and Indian tribes,[306] but these provisions have apparently not been interpreted as being related to each other.

It may be that the chief failure to secure fish flows is attributable to institutional dynamics. The congressional choice to vest authority to make hydropower/fish tradeoffs into new institution composed of members with no biological expertise and with a high turnover rate seems, in retrospect, an unwise one. The Council has always devoted greater attention and resources to its power planning responsibility than to its fish and wildlife restoration mandate,[307] despite (perhaps because of) the difficult biological, technical, economic, and legal issues involved in the latter. By the time Council members begin to fully appreciate the magnitude of their task, their term is over, and the learning curve must begin again. Many

297. See above notes 269-77 and accompanying text.
298. See above note 268 and accompanying text.
299. See above notes 217-19 and accompanying text.
300. See above notes 280-85 and accompanying text.
301. See above note 136-40 and accompanying text.
302. See above note 157 and accompanying text.
303. See above notes 71-77 and accompanying text.
304. See above notes 142-55 and accompanying text.
305. 16 U.S.C. § 839b(h)(11)(A)(ii).
306. Id., § 839b(h)(6)(E)(ii) (calling for fish flows of "sufficient quality and quantity to improve production, migration, and survival as necessary to meet sound biological objectives); Id., §§ 839b(7) ("due weight" fishery agency and tribal expertise); 839b(h)(6)(A) (program to "complement existing and future activities" of fishery agencies and tribes).
307. See Northwest Power Planning Council, Draft Fiscal Year 1992 Budget (No. 90-8, May 14, 1990) at 3, 13-14 (FY 1990-92 budgets for fish and wildlife estimated at $1.62 million, $1.16 million, and $1.19 million, respectively, while budgets for power planning were $2.34 million, $1.58 million, and $1.57 million, respectively; 3-year totals were under $4 million for fish and wildlife, $5.5 million for power planning).

members simply have no fish and wildlife experience or interest, and are reluctant to assume an active oversight role over other, more longstanding institutions. The result is that agencies like BPA and the Corps continue old ways of doing business, or make small, incremental changes -- while claiming that meaningful change would be uneconomical.

It now seems that Congress would have made a wiser choice by vesting greater decision-making authority in the entities that know the fishery resource best, the region's fishery agencies and Indian tribes -- which, incidentally, have been prompted by the Northwest Power Act to set aside old differences and form an effective coalition under the name of the Columbia Basin Fish and Wildlife Authority. Allocating more decision-making authority to the fishery agencies and tribes and setting a time deadline for the establishment of biologically justified flows would have better overcome the institutional inertia that seems to have settled around Northwest Power Act and the Columbia Basin Fish and Wildlife Program. That inertia is now likely to be broken through the Endangered Species Act, which vests decision-making authority in federal fishery agencies and sets deadlines for taking action.[308]

H. The Challenge Ahead

The challenge of securing adequate fish flows in the Columbia should not be minimized. The task was much easier 8 years ago when the region was enjoying a long-term power surplus. Now, without a surplus, and with severe economic and environmental questions inhibiting further development of coal and nuclear power, there is every incentive for power managers to maximize use of hydropower to meet the region's electric needs.[309] Yet mainstem fish flows are an absolute necessity if the Columbia's fishery is to be restored. Congress declared 10 years ago the Columbia was to produce both hydropower and fish; biologically justified mainstem flows are not inconsistent with that directive. The great virtue of the hydroelectric resource is its flexibility. That flexibility must now be used to restructure the system around fish flows. The fishery resource has shown that it is not flexible; the accommodation must come from the hydroelectric resource.

Clearly, biologically justified fish flows will cost money. But it is a cost the region can afford. Unlike the costs of preserving old growth forests to maintain spotted owl habitat -- which are concentrated disproportionately on small, timber dependent communities -- the costs of fish flows can be spread broadly throughout the Northwest and in California. And there are undoubtedly ways to reduce those costs, such as dampening peak winter demands for power via creative pricing, increased conservation measures, and perhaps incentives to replace electric space heating with natural gas. New markets for electricity in the spring and early summer (when fish flows will produce increased power) need to be investigated.

Although it has failed to deliver the necessary mainstem flows, the Northwest Power Planning Council ought to be investigating how to supply biologically-based flows in the most cost effective manner possible. The state energy offices in the 4 Northwest states should be enlisted in this effort. But BPA should not be involved; the agency's long history of inflating the costs of fishery measures[310] ought to disqualify it from participating. The objective should not be to ascertain the level of fish biologically necessary -- that is a task to which the fishery agencies and tribes have already devoted years -- but to achieve the flows cost effectively. That is, after all, what the Northwest Power Act requires in directing that minimizing economic costs are a relevant, but secondary factor to achieving sound biological results.[311] The task ahead is to ensure that the biology is not overwhelmed by the economics.

VI. California FERC and the Future of Fish Flows at FERC Projects

The Federal Energy Regulatory Commission (FERC) licenses nonfederal hydroelectric projects under the terms of the Federal Power Act (FPA).[312] Over the years, FERC has earned a well-deserved reputation to being extremely insensitive to the operational effects on fish and wildlife of the projects it regulates.[313] As a result, federal and state fishery agencies and the public have been forced to play an active role in FERC licensing,[314] and the question of whether fishery agencies have the authority to set conditions that projects must meet -- especially fish flows -- has been controversial.

FERC has generally taken a broad view of its authority and a narrow view of that of fishery agencies. That view, however, has induced a number of judicial reversals. FERC cannot, for example, relicense projects while deterring fish

308. See above § II.

309. See Lee, Hyrdo Al Dente, 9 Northwest Energy News no. 4 (July/Aug. 1990) at 19 (discussing "nonfirm strategies" which will supply the Northwest to transform surplus hydropower into firm power supplies -- adding about 1,000 megawatts by 2000 and another 1,500 by 2010).

310. See, e.g., Fulfilling Parity, above note 121, at 136, 148; Institutional Innovations and Unfulfilled Promises, above note 151, at 173.

311. 16 U.S.C. § 839b(h)(6)(C), analyzed in Fulfilling Parity, above note 121, at 131-39.

312. 16 U.S.C. § 791-823.

313. See, e.g., Bodi, Swimming Upstream: FERC's Failure to Protect Anadromous Fish, 13 Ecology L.Q. 7 (1986); Memos #3 (Sept. 1979); #26 (July 1984).

314. For a good overview of how to participate in FERC decision making, see J. Echeverria, P. Barrow and R. RoosCollins, Rivers At Risk: The Concerned Citizen's Guide to Hydropower (Island Press, 1989).

protection measures, and it must comply with National Environmental Policy Act procedures in relicensing.[315] FERC cannot exempt projects from licensing where the project involves construction of a dam,[316] and FERC must satisfy NEPA proceeding prior to issuing exemptions.[317] FERC cannot issue preliminary permits to a number of projects in a single river basin without establishing a mechanism to consider their cumulative impacts.[318] And FERC may not ignore conditions set by federal land managers when a project is located on a federal reservation.[319]

Although these cases impose some limits on FERC's licensing authority, and Congress has imposed others,[320] FERC has always maintained that it may license projects over the objections of states. FERC has relied on 40-year old Supreme Court precedent to support this power to preempt state law.[321] That position was challenged by the State of California, but on May 21, 1990 a unanimous Supreme Court rejected the state's challenge and affirmed FERC.[322] This section analyzes that decision and suggests that it may not leave states vulnerable to FERC's insensitivity to fish needs as first might appear.

315. Confederated Tribes of the Yakima Indian Nation v. FERC, 746 F.2d 466 (9th Cir. 1984), discussed in Memo #26 (July 1984) at 5-7. See also Bodi, FERC's Mid-Columbia Proceeding: Ten Years and Still Counting, 16 Envtl. L. 555 (1986).

316. Tulalip Tribes v. FERC, 732 F.2d 1451 (9th Cir. 1984), discussed in Memo #26 (July 1984) at 3-5.

317. The Steamboaters v. FERC, 759 F.2d 1382 (9th Cir. 1985), discussed in Memo #35 (Mar. 1986).

318. National Wildlife Federation v. FERC, 801 F.2d 1505 (9th Cir. 1986), discussed in Feldman, FERC Ignores Ninth Circuit Rebuke on Hydropower Permitting, 15 Ecology 319 (1988). See also La Flamme v. FERC, 841 F.2d 389 (9th Cir. 1988) (NEPA requires cumulative impact analysis prior to licensing).

319. Escondido Mutual Water Co. v. La Jolla Band of Mission Indians, 466 U.S. 765, discussed in Blumm, A Trilogy of Tribes v. FERC: Reforming the Federal Role in Hydropower Licensing, 10 Harv. Envtl. L. 1, 20-34 (1986).

320. Section 18 of the FPA requires FERC to include in its licenses "such fishways as may be prescribed" by the Secretaries of Commerce and Interior, 18 U.S.C. § 811. Section 30(c) of the FPA gives federal and state fish and wildlife agencies mandatory conditioning authority over projects exempted from licensing. Id. § 823a. Section 401 of the Clean Water Act requires FERC licenses to obtain a water quality certification from the state prior to licensing. 33 U.S.C. § 1341. And FERC may not license projects "on or directly affecting" federal wild and scenic rivers, including rivers being studied for inclusion. 16 U.S.C. § 1278(a).

321. First Iowa Hydroelectric Coop. v. Federal Power Comm'n., 328 U.S. 152 (1946); see below notes 329-38 and accompanying text.

322. California v. FERC, 110 S. Ct. 2024 (1990).

A. Federalism Under the FPA

One would not suspect from a reading of the FPA that federal preemption of state laws is one of its distinguishing characteristics. Two provisions of the Act seem to indicate that Congress intended to save, not preempt, state law. Section 9(b) requires license applicants to supply FERC with "satisfactory evidence" of compliance with state laws governing the use of bed and banks of streams and "the appropriation, diversion, and use of water for power purposes...."[323] Section 27 stipulates that nothing in the FPA should be interpreted as affecting state laws "relating to the control, appropriation, use, or distribution of water used in irrigation or for municipal or other uses, or any vested right acquired therein."[324]

Further, the FPA's legislative history indicates that Congress consciously sought to save state water laws.[325] The author of section 27 stated that he "took this language ... from section 8 of the Reclamation bill and inserted it in this bill."[326] Section 8 of the Reclamation Act requires the Bureau of Reclamation to acquire water rights under state law and also to comply with state conditions unless those conditions "are inconsistent with congressional directives" pertaining to a particular reclamation project.[327] Moreover, for nearly a quarter century, the FPC interpreted the FPA as requiring licensees to comply with state laws.[328] That interpretation was one that the Supreme Court did not share, however.

323. 16 U.S.C. § 802(b).

324. Id. § 821.

325. For example, the Senate Public Lands Committee Report on a predecessor bill of the FPA, discussing a provision identical to § 27, concluded that "[i]t is framed upon the distinct theory that the State owns and controls the use of water flowing within the streams within its boundaries.... The Federal Government must contribute the use of land and the State government must contribute the use of water...." S. Rep. No. 66, 64th Cong., 1st Sess. 4-5 (1916).

326. 51 Cong. Rec. 14,067 (1914) (remarks of Rep. Taylor). See also id. at 14,070 (remarks of Rep. Raker) ("section 14 of this Act [a predecessor of § 27] does what is done in the original reclamation act....").

327. California v. U.S., 438 U.S. 645, 679 (1978).

328. See, e.g., Federal Power Comm'n., First Annual Report 27 (1921); id., Second Annual Report 225 (1922) ("the applicant [for a license] must first show that he has abstained, pursuant to the laws of the State, the right to appropriate, divert, and use the water for power purposes").

B. The Long Shadow of First Iowa

In perhaps the best known (if much lamented) judicial interpretation of the FPA, in 1946 the Supreme Court ruled that the Act did not require licensees to comply with state law in First Iowa Hydroelectric Coop. v. FPC.[329] The case concerned a large public power project (a one-and-a-half mile wide dam) impounding nearly the entire flow of the Cedar River in Iowa and diverting it from its natural destination in the Iowa River to the Mississippi River.[330] The state of Iowa objected to the project on grounds it had not received a permit under state dam licensing law and violated another state law prohibiting interbasin water transfers.[331] As a result, the Commission denied the license, but the applicant appealed to the courts.[332] The D.C. Circuit affirmed the license denial,[333] but the Supreme Court reversed.

The Court held that section 9(b) of the FPA did not require the Commission to deny the application for failure to comply with the state dam licensing statute, for that would give the state a veto over the federal licensing scheme,[334] contrary to congressional intent.[335] According to the Court, section 9(b) authorized, but did not require the FPC to demand of its applicants satisfactory evidence of compliance with state laws.[336] Thus, First Iowa did not interpret the FPA to categorically preempt state laws; rather, it authorized selective preemption at the discretion of the Commission.

First Iowa also ruled that the Iowa statute in question was not protected by the language of section 27 saving state water laws.[337] The Court suggested that a dam licensing statute was not the kind of state law Congress intended to preserve in section 27, which was intended to have "primary, if not exclusive reference to ... proprietary rights."[338] Thus, the state of Iowa could not escape the preemptive effect of section 9(b) through section 27.

C. First Iowa's Progeny

First Iowa could have been interpreted as to apply only to state dam licensing statutes that could veto federally approved projects. But the Commission, seeking to expand its powers, pushed for a broad construction of the FPA's preemptive effect. And the courts, which approved a broad construction of the FPA's jurisdiction, also ratified the Commission's expansive interpretation of its preemptive powers.

For example, the Supreme Court reaffirmed First Iowa in ruling that a license could be issued despite noncompliance with state fish protection[339] and eminent domain statutes.[340] Other courts have preempted state water diversion[341] and land use requirements.[342] Yet after the Supreme Court's 1978 decision ruling that the provision in the Reclamation Act upon which section 27 was based[343] gave states the right to condition reclamation project operations,[344] many thought that First Iowa had been implicitly overruled, or at least limited.[345] The D.C.

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329. 328 U.S. 152. See generally Plouffe, Forty Years After First Iowa: A Call for Greater Control of River Resources, 71 Cornell L. Rev. 833 (1986).

330. See 328 U.S. at 157-58.

331. See id. at 159, 161, 164-66.

332. Id. at 162.

333. 151 F.2d 20 (D.C. Cir. 1945).

334. 328 U.S. at 167-68. ("A dual final authority, with a duplicate system of state permits and federal licenses would be unworkable.")

335. Id. at 164 ("[allowing] a [state] veto power over the federal project ... easily could destroy the effectiveness of the Federal Act").

336. Id. at 169. ("[Section 9(b)] enables [the FPC] to secure, in so far as it deems it material, such part or all of the information that the respective States may have prescribed as a basis for state action") [emphasis in original].

337. See supra text accompanying note 324.

338. 328 U.S. at 176. See also id. the phrase "any vested right acquired therein" further emphasizes the application of the section to property rights. There is nothing in the paragraph to suggest a broader scope unless it is the words "other uses." Those words, however, are confined to rights of the same nature as those relating to the use of water in irrigation or for municipal purposes.

339. FPC v. Oregon, 349 U.S. 435, 449-50 (permit from state fish commission); Wash. Dept. of Game v. FPC, 207 F.2d 391, 395 (9th Cir. 1953), cert. denied, 347 U.S. 936 (1954) (written approval of project required from state fisheries and game departments).

340. City of Tacoma v. Taxpayers of Tacoma, 357 U.S. 320, 349-50 (1958), reversing a state Supreme Court decision, 307 P.2d 567 (Wash. 1957), that held the licensee lacked authority to construct the project because it would inundate a state-owned fish hatchery without permission to condemn state-owned lands.

341. Wash. Dept. of Game, 207 F.2d at 395 (permit for water diversion).

342. Town of Springfield v. Vermont, 521 F. Supp. 243, 246 (D. Vt. 1981) (land use permit for relocation of highway and development of recreational areas); see also later case at 549 F. Supp. 1134, 1154-57 (D. Vt. 1982), aff'd, 722 F.2d 728 (2d Cir. 1983), cert. denied, 104 S. Ct. 360 (1983) (preempting a state licensing statute).

343. See supra note 326 and accompanying text.

344. California v. U.S., 438 U.S. 645 (1978); see supra note 327 and accompanying text.

345. See, e.g., Arnold, Emerging Possibilities for State Control of Hydroelectric Development, 13 Envtl. L. Rep. (Envtl. L. Inst.), 10,135 (May 1983); Burke, Small Scale Hydroelectric Development and Federal Environmental Law: A Guide for the Private Developer, 9 B.C. Envtl. Aff. L. Rev. 815 (1981); Thomas, Leacox & Farman, Federal Incentives for Hydroelectric Power Projects At New Dams: FERC's Failure to Recognize Congressional Intent and Environmental Con-

Circuit's recent decision holding that the FPA does not give FERC the authority to preempt state tort law[346] gave further hope to states' rights advocates. These hopes were dashed in 1990 in the case described in the following section.

D. California v. FERC

The state of California challenged the continued viability of First Iowa in a case involving the Rock Creek hydroelectric project, located on a tributary of the South Fork of the American River. FERC issued a license to the project in 1983, including interim minimum flow requirements to protect trout.[347] FERC also required post-licensing studies to develop information, in consultation with federal and state fishery agencies, to set permanent flow rates for the project. Two years later, in 1983, the licensee submitted a report to FERC recommending permanent adoption of the interim flows, but the California Department of Fish and Game recommended significantly higher minimum flows.

The license also applied for a state water permit, which was granted in 1984 and conformed to the interim flow rates in the FERC license. However, the state reserved the right to set different permanent flows, and in 1987 -- 4 years after the license was issued -- the state water board set flow rates in the FERC license.[348] FERC then issued an order directing the licensee to comply with the lower flows in the license, concluding that setting minimum flows was an issue within its exclusive jurisdiction and allowing states to set minimum flow rates would give them a veto power over projects inconsistent with First Iowa.[349] FERC did, however, order a hearing on the flow issue, and a FERC administrative law judge set slightly higher flows than were originally in the license.[350] After being denied administrative relief,[351] California appealed to the courts. On the basis of First Iowa, the Ninth Circuit affirmed FERC,[352] and so did the Supreme Court in a unanimous opinion that may prompt Congress to reconsider the appropriate state role in hydropower licensing.[353]

Justice O'Connor's opinion was a thoroughgoing victory for FERC and its licensees, and a significant loss for the states and those concerned about preserving streamflows for nonpower uses. The Court did admit that California's argument that section 27's preservation of state water laws would present "a close question" as to whether it could set minimum flows for the Rock Creek project if this were a case of the first impression.[354] But the 4-decades-old First Iowa decision governed the Rock Creek result, the Court ruled. Section 27 saved only state laws allocating "proprietary" rights, and California admitted that its action did not establish any proprietary rights.[355]

Even though the California minimum flows were factually distinct from the Iowa Dam licensing statute,[356] the Court gave a number of reasons for adhering to First Iowa as precedent. First, the Court was unwilling to depart from such a "long-standing and well entrenched decision," especially one interpreting "a complex regulatory scheme," because the Court convinced itself that, over 4 decades, Congress acquiesced in and FERC licensees obtained a reliance interest in the First Iowa result.[357]

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cerns, 18 U.C.D. L. Rev. 287 (1984); Wolfe, Hydropower: FERC Licensing and Emerging State-Federal Water Rights Conflicts, 29 Rocky Mtn. Min. L. Inst. 851 (1983); Comment, Hydroelectric Power, The Federal Power Act, and State Water Laws: Is Federal Preemption Water Over the Dam?, 17 U.C.D. L. Rev. 1179 (1984).

346. South Carolina Public Service Authority v. FERC, 850 F.2d 788 (D.C. Cir. 1988) (FERC cannot condition a relicensing on the licensee's acceptance of strict liability in the event of an earthquake); see Note, Limitations on the Authority of the Federal Energy Regulatory Commission, 57 Geo. Wash. L. Rev. 1187, 1188-95 (1989).

347. Keating, 23 FERC ¶ 62,137, at 62,137 (1983).

348. The state's minimum flows were 60 cubic feet per second (cfs) March-June, and 30 cfs for the remainder of the year. FERC originally set flows at 11 cfs May-September, and 15 cfs throughout the rest of the year. Subsequently, FERC amended the flows to 20 cfs for the entire year. See California v. FERC, 110 S. Ct. 2024, 2027-28 (1990).

349. Rock Creek Ltd., 38 FERC ¶ 61,240, at 61,772-74 (1987).

350. Id. ¶ 41 FERC ¶ 63,019 (1987). See above note 348 on the flow rates.

351. Id., 41 FERC ¶ 61,198 (1987) (denying the state's motion for a rehearing).

352. California v. FERC, 877 F.2d 743 (9th Cir. 1989).

353. Id. 110 S. Ct. 2024 (1990).

354. Id. at 2028.

355. Id. Cf. supra note 346 and accompanying text (FPA does not preempt state tort law).

356. The state minimum flows were a condition on project operations, not -- like the state dam licensing statute in First Iowa -- a judgment on the suitability of the project itself. Thus, they appear to be similar to the state environmental regulations on mining operations on federal lands, which the Court recently sustained in Granite Rock v. California Coastal Comm'n., 480 U.S. 572 (1987). Nevertheless, the Court considered the minimum flows to exercise a veto over the project (110 S. Ct. at 2034), despite no suggestion in the record that the Rock Creek project was economically infeasible at the state's prescribed flow levels and without attempting to distinguish these impermissible state flow levels from the permissible state mining regulations in Granite Rock.

357. See 110 S. Ct. at 2029-30 (suggesting that the effect of § 10(j), 16 U.S.C. § 803(j), added by the 1986 Electric Consumers Protection Act), was to implicitly reaffirm First Iowa). Congressional acquiescence has been a dominant theme in public land law. See, e.g., U.S. v. Midwest Oil, 236 U.S. 459 (1915); PGE v. Kleppe,

The Court's second reason concerned its rejection of California's characterization of First Iowa as a section 9(b) case; according to Justice O'Connor, the First Iowa Court relied heavily on section 27,[358] even though it devoted only 2 pages of its opinion to that provision.[359] Third, the Court refused to agree that the contrary result in its interpretation of the Reclamation Act should influence its interpretation of the FPA (although it did acknowledge "some tension" between the 2 cases) because of some minor differences in the language of the 2 provisions and the Court's conclusion that "the FPA envisioned a considerably broader and more active federal oversight rule in hydropower development than did the Reclamation Act."[360] Finally, the Court dismissed legislative history indicating that section 27 of the FPA was patterned after section 8 of the Reclamation Act, stating that "[i]f a quite natural reading of the statutory language fails to displace an intervening [court] decision providing a contrary interpretation, legislative history ... provides little additional reason to overturn the [earlier] decision."[361]

E. State Fish Flows After California v. FERC

California v. FERC may encourage expansive FERC interpretations of its authority,[362] and the decision has already prompted congressional activity aimed at reversing its result.[363] But even in the absence of an amendment to the FPA, states are not powerless to secure flows from FERC-licensed projects. States may insist on flows necessary to meet water quality requirements.[364] They also may condition projects qualifying for exemptions from licensing on maintaining minimum flows.[365] They may submit recommended flows to FERC under section 10(j) of the FPA, and, based on these recommendations, FERC must include in its licenses conditions that will "adequately and equitably protect, mitigate damage to, and enhance" fish, wildlife and habitat.[366] Finally, states may influence federal land management agencies or federal fish and wildlife agencies to prescribe protective conditions where projects are on federal reservations[367] or require fishways,[368] respectively.

In addition, California v. FERC may be interpreted narrowly. The case involved the state's role post-licensing decision making, where the applicant had already been operating the project. Prior to licensing, states may have greater authority, and certainly greater leverage. Section 10(j) requires FERC deference to states in formulating fish and wildlife conditions.[369] Although the Supreme Court gave FERC great authority to reject post-licensing recommendations, it may be possible to argue that FERC cannot comply with section 10(j) by deferring consideration of state recommended conditions until after licensing.[370] Moreover,

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441 F. Supp. 859 (D. Wyo. 1977). However, a licensee reliance interest (see 110 S. Ct. at 2030) seems implausible. If an applicant for a license had a vested interest in the status quo of a regulatory regime, Congress could not amend statutes, and the Court could not hand down decisions like Granite Rock, above note 356 (allowing states to set environmental conditions for mining activities on federal lands).

358. 110 S. Ct. at 2031 ("Only the [First Iowa] Court's narrow reading of § 27 allowed it to sustain [its preemptive] interpretation of § 9(b)").

359. See 328 U.S. at 177-79.

360. 110 S. Ct. at 2032.

361. Id. at 2033.

362. Particularly troublesome may be the Court's dictum that the FPA gave FERC the authority to set minimum streamflows "after considering which requirement(s) would best protect wildlife and ensure that the project would be economically feasible and thus further power development." 110 S. Ct. 2033-34. Similarly, the Court seemed to accept FERC's contention that state minimum flows would interfere with its comprehensive planning authority, id. at 2034, despite the fact that FERC prepares no comprehensive plans.

363. See H.R. 4921, 101st Cong., 2d Sess. (1990) (which would amend § 27 of the FPA to disclaim any intent to affect state water laws, "whether or not regarding proprietary rights," and directing FERC to proceed in conformity with state water laws).

364. 33 U.S.C. § 1341 (giving states the right to condition (and veto) federally-licensed projects through a water quality certification process, which may include "any appropriate requirement of state law set forth in such certification" (id. § 1341 (d)).

365. 16 U.S.C. § 823a, discussed in Blumm & Kloos, Small Scale Hydropower and Anadromous Fish: Lessons and Questions From the Winchester Dam Controversy, 16 Envtl. L. 583, 598 (1986).

366. 16 U.S.C § 803(j).

367. 16 U.S.C. § 797(e); see above note 319.

368. Id. § 811; see above note 320. However, FERC seems to be interpreting this section 18 authority only fish screens and bypass mechanisms, not to operating conditions. See Lynchburg Hydro Assoc., 39 FERC ¶ 61,709 (1987); Clearwater Hydro, Ltd., 41 FERC ¶ 61,875 (1988); Eugene Water & Electric Bd., 49 FERC ¶ 61,211 (1989).

369. 16 U.S.C. § 803(j) requires (1) license conditions protecting fish and wildlife to be based on federal and state fish and wildlife agency recommendations (see above text accompanying note 366); (2) FERC to give "due weight" to these recommendations; and (3) if it does not adopt the recommended measures to explain why they would be inconsistent with the FPA and whether the license conditions chosen will "adequately and equitably" protect fish and wildlife. On the meaning of adequate and equitable, see above notes 133-34 and accompanying text.

370. This seems to be the implication of Confederated Tribes of the Yakima Indian Nation v. FERC, 746 F.2d 466 (9th Cir. 1984); see above note 315 and accompanying text. In retrospect, California should have registered its objections and pursued its appeals at the time the license was issued, instead of defer-

on its face section 27 of the EPA enables states to deny FERC applicants water rights.[371] Justice O'Connor repeatedly emphasized that California's fish flow conditions established no proprietary rights. But where state conditions are designed to protect pre-existing proprietary rights, they are not preempted by the FPA.[372] States like Oregon consider minimum flows to be proprietary rights,[373] so California v. FERC may not govern the result, say, in the controversial Salt Caves Dam case.[374]

California v. FERC is a blow to both states' rights and fish flows at FERC projects. But its precedential value may not be so sweeping as first might appear. Still, all fishery advocates ought to support an amendment to the FPA that would reverse the court's result.[375]

VII. Anadromous Fish Law: Looking To the Future

The past decade has witnessed remarkable national and international accomplishments in the field of anadromous fish law. The 1980 Northwest Power Act and the 1985 U.S.-Canada Pacific Salmon Treaty were pathbreaking initiatives signaling new eras of cooperation between nations and between competing resources. But by 1990 implementation of the Act and the Treaty had bogged down, the former due to an inability to secure biologically-based mainstem fish flows, the latter due to an overriding concern with short-term allocation decisions instead of long-run restoration challenges.[376] Both seem about to be elipsed on the legal landscape by the Endangered Species Act.

The ESA may be the only way to preserve many upriver salmon stocks on the verge of extinction,[377] and -- after 10 years of frustration under the Northwest Power Act -- offers a new opportunity to obtain sufficient river flows such as those proposed by the Columbia Basin Fish and Wildlife Authority.[378] The ESA also should force consideration of both harvest management and habitat requirements. The Northwest Power Act excluded the former, but some stocks -- such as Snake River fall chinook[379] -- may not be able to be rebuilt without adjustments in ocean and lower river harvests. And of course the great virtue of the ESA is that it will subject all actions of the federal water managers to scrutiny in terms of their effects on listed stocks. This could, for example, compel BPA to devote some of the additional storage it hopes to secure exclusively for power production in its Non-Treaty Storage Agreement[380] to increase fish flows in the spring and summer, instead of holding the entire 5 million acre-feet to maximize power sales later in the year.

The biggest change an ESA listing would work would be to restructure decision-making authority.[381] The Northwest Power Act contains strong directives concerning protecting and restoring fish runs and habitat, but it left implementation largely in the hands of the same entities that had disenfranchised fish in the development and operation of the federal hydroelectric system.[382] Arguably, this produced the seeds of the Act's failures. In the hands of BPA or the Corps of Engineers fishery directives mean something quite different than they do to federal and state fish and wildlife agencies. The result is that, 10 years after its enactment, the Northwest Power Act has produced the largest biological restoration program on the planet, but is making its investments in a river that is unsuitable for fish passage.[383] That hardly seems to be the kind of "co-equal partnership" Congress sought to create.[384]

In retrospect, it seems naive to expect that congressional directives coupled with federal water manager implementation could produce meaningful substantive change. Maximizing power revenues remained the predominant goal; fish and wildlife measures were accepted only if they did not threaten the dominant purpose. Multiple use to a power manager means protecting fish and wildlife after the system maximizes power revenues.

The ESA would no longer countenance such an approach. Listing decisions and recovery plans would not be up to the discretion of power managers. Instead, federal fishery agencies would be the decision makers. Arguably, they should have been all along. If the goal is to save the

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ring until completion of post-licensing studies.

371. 16 U.S.C. § 821. See above note 324 and accompanying text. California granted the Rock Creek project a water right, then attempted to attach conditions to it. 110 S. Ct. at 2027. Section 27's savings of state water laws, however, enables the states to control the issuance of proprietary rights. See id. at 2029.

372. 110 S. Ct. at 2029, 2030-31.

373. Or. Rev. Stat. §§ 537.332(1), 537.350 (defining an "in-stream water right" as "a water right held in trust ... for the benefit of the people of the State of Oregon to maintain water in-stream for public use" and stipulating that "the in-stream water right shall have the same legal status as any other water right ...").

374. See above note 275 and accompanying text.

375. See above note 363.

376. On the troubles implementing the Pacific Salmon Treaty, see Memo #47 (Dec. 1988).

377. See, e.g., above notes 26-36 and accompanying text.

378. See above note 157 and accompanying chart.

379. See above note 84 and accompanying text.

380. See above notes 135-41 and accompanying text.

381. That is also a goal of the Columbia Basin Fish and Wildlife Authority's flow proposal. See above note 156 and accompanying text.

382. See generally above § IV.

383. See above notes 142-57 and accompanying text.

384. See above notes 153 and 155 and accompanying text.

salmon, why not make those with biological expertise responsible?[385]

The changes that an ESA listing would portend recently induced Senator Mark Hatfield to call for a report on the status of the stocks in greatest jeopardy. The results of that report, discussed above,[386] make it clear that ESA listing is possible, even probable. Perhaps recognizing the handwriting on the wall, the Senator called for a "predecisional management plan." At this writing, efforts are underway to formulate such a plan. If such a plan were based on the biological needs of the fish, it might produce needed mainstem flows more quickly than ESA. However, there is real danger that the plan could result from off-the-record negotiations between power managers and fishery agency heads without the benefit of public scrutiny. Worse, it might be used as a substitute, rather than a complement, to ESA processes, or even to rubber stamp questionable deals like BPA's Non-Treaty Storage Agreement. The public will want to carefully monitor the development of this "predecisional management plan" in the coming months.

If the next few years witness a restructuring of the Columbia River Power System around biologically sound fish flows,[387] the Pacific Northwest will have taken a large step toward maintaining a sustainable fishery and a sustainable power supply.[388] If the region can overcome this chief impediment to sustainable fish habitat, it may offer the Columbia Basin Fish and Wildlife Program as a model for making difficult environmental and economic tradeoffs to the rest of the nation and the world. If, however, the necessary flows are resisted, regional decision makers will have knowingly squandered the last chance to restore a wonderous natural resource central to the history, culture and spirit of the Northwest.

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385. In an effort to cloak itself with biological expertise, BPA has accumulated a substantial fish and wildlife staff. Recognizing BPA's longstanding interest in subjecting fish and wildlife measures to cost-benefit analysis (see, e.g., Lothrop, The Misplaced Role of Cost-Benefit Analysis in Columbia Basin Fishery Mitigation, 16 Envtl. L. 517 (1986)), perhaps a cost-benefit analysis of having the ratepayers support a large BPA fish and wildlife staff is in order. If the BPA fishery staff were reassigned to NMFS or state fish and wildlife agencies -- agencies chronically short of staff -- there is no doubt that the region would obtain better fishery results.

386. See above notes 26-36 and accompanying text.

387. See the fishery agency flow proposal, discussed above at notes 156-57 and accompanying text.

388. See, e.g., Lee, The Columbia River Basin: Experimenting With Sustainability, 31 Environment no. 6 (July/ Aug. 1989) at 6.

Other Publications of Note

Readers of the Memo may wish to follow developments in anadromous fish law and policy in the following publications, some of which are available free and some of which charge fees or membership dues.

1. CRITFC News, an occasional publication of the Columbia River Inter-Tribal Fish Commission, 975 S.E. Sandy Blvd., Suite 202, Portland, OR 97214.

2. Environmental Law, the quarterly law journal of Lewis and Clark Law School, 10015 S.W. Terwilliger Blvd., Portland, OR 97219. Published some 30 articles on anadromous fish law over the past decade.

3. High Country News, a biweekly publication of the High Country Foundation, 124 Ground Ave., Peoria, CO 81428.

4. Idaho Clean Water, the quarterly publication of the Idaho Water Quality Bureau, 1410 N. Hilton St., Boise, ID 83706-1253.

5. NEDC News, an aperiodic publication of the Northwest Environmental Defense Center, 10015 S.W. Terwilliger Blvd., Portland, OR 97219.

6. Northwest Conservation Act Report, a biweekly publication of the Northwest Conservation Act Coalition, 3429 Firmont Place North, Seattle, WA 98103.

7. Northwest Energy News, a bimonthly publication of the Northwest Power Planning Council, 851 S.W. Sixth Ave., Suite 1100, Portland, OR 97204-1348.

8. Northwest Environmental Journal, a biannual publication of the Institute for Environmental Studies, Univ. of Washington (FM-12), Seattle, WA 98195.

9. Northwest River News, a bimonthly publication of the Northwest Rivers Council, 4516 University Way, N.E., Seattle, WA 98105.

10. PCFFA Friday, a biweekly publication of the Pacific Coast Federation of Fishermen's Associations, P.O. Box 989, Sausalito, CA 94966.

11. PFMC News, an occasional publication of the Pacific Fishery Management Council, 2000 S.W. First Ave., Suite 420, Portland, OR 97201.

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15. The Trout and Salmon Leader, a bimonthly publication of the Northwest Steelhead and Salmon Council of Trout Unlimited, 2401 Bristol Ct. S.W., Olympia, WA 98502.

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