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ARTICLE

SNAKE RIVER DAM BREACHING: RIVER & SALMON POLITICS IN THE GEORGE W. BUSH ADMINISTRATION

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I. INTRODUCTION

Its people, diverse environments, rivers and salmon define the character of the Pacific Northwest region. Beginning millions of years ago the Snake and Columbia River system began to carve and mold the character of the watershed and region.

The Columbia River watershed, including the Snake River Basin, drains over 259,000 square miles of the Pacific Northwest.¹ This puts the Columbia River watershed at a comparative level with the Colorado River Basin (248,000 square miles).² Historically the hydrology of the Columbia River system was seasonally defined with flow levels defined by snow pack from the Canadian, Wyoming and Idaho headwaters and fall rains along the Cascade Mountains in Washington and Oregon.

Five of the seven species of Pacific salmon, White sturgeon, and Pacific lamprey are directly and indirectly dependent on river habitats in the Northwest. The salmon species evolved over the last 400 million years and developed life history requirements that depend upon freshwater rivers for spawning and rearing and the Pacific Ocean during their adult life.³ The combined historical numbers of salmon that utilized the

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¹ JIM LICHATOWICH, SALMON WITHOUT RIVERS: A HISTORY OF THE PACIFIC SALMON CRISIS, at 9-23 (Book News Inc., 1999) [hereinafter LICHATOWICH].

² David Wegner, Looking Toward the Future: The Time Has Come to Restore Glen Canyon, 42 Ariz. L. Rev. 239 (2000) [hereinafter Glen Canyon].

³ LICHATOWICH, *supra* note 1 at 10.

420 GOLDEN GATE UNIVERSITY LAW REVIEW [Vol. 33:3

Columbia/Snake system ranged from eight to ten million fish.⁴ Today the combined runs range are less than 2.5 million and have disappeared from approximately forty percent of their historic range.⁵

Approximately twelve million years ago, the Cascade Mountains rose from the landscape and the drainage patterns of the Columbia, Snake, Klamath, Rogue and the many rivers of the Northwest set their course and developed watersheds that evolved into the habitats that the salmon species utilized.⁶ Historic habitats included the Columbia and Snake River habitats along with the network of tributaries that define the drainage basin and watershed.⁷

Today eleven federal agencies and two countries are involved in the management of anadromous salmon and steelhead recovery efforts in the Columbia/Snake river basin.⁸ The National Marine Fisheries Service ("NMFS"), which the National Oceanic and Atmospheric Administration ("NOAA") also refers to as NOAA Fisheries, is the federal agency responsible for the management and recovery of the listed salmon and steelhead species.⁹ In addition to the federal agencies, states, tribes, local governments and over sixty-five interest groups, task forces and the Country of Canada are involved in decisions related to the river system.¹⁰

Dams, first in the tributaries and later in the mainstem Columbia and Snake Rivers, were constructed for water and economic control. Today over 150 dams exist in the Columbia River watershed with thirty-one of them managed and operated by the federal government.¹¹

Dams have had a tremendous impact on the physical, biological and cultural integrity of rivers.¹² Reviews conducted in the U.S.¹³ and elsewhere¹⁴, have identified how dams fragment rivers, disrupt ecosystems and lead to a long-term demise of the native species that historically inhabited the rivers. It is the combined effect of dams; habitat degradation and over fishing that have ultimately led to the demise of the salmon.

⁴ Nat'l Research Council, *Upstream: Salmon and Society in the Pacific Northwest*, at 18 (1996) (on file with author) [hereinafter NRC].

⁵ NRC, *supra* note 4 at 2 (1996).

⁶ NRC, *supra* note 4 at 34.

⁷ LICHATOWICH, *supra* note 1 at 15.

⁸ Gen. Acct. Off., *Columbia River Basin Salmon and Steelhead: Federal Agencies' Recovery Responsibilities, Expenditures and Actions*, 2 (2002). [hereinafter GAO].

⁹ GAO, *supra* note 8 at 2.

¹⁰ *Id.*

¹¹ NRC, *supra* note 4 at 60-66.

¹² NRC, *supra* note 4 at 9-11.

¹³ NRC, *supra* note 4.

¹⁴ *See generally* World Comm'n on Dams, *Dams and Development: A New Framework for Decision-Making*, (2000).

The Snake River is the major tributary to the Columbia River. The Snake River flows for 1,040 miles and drains a watershed area of 109,000 square miles.¹⁵ The Corp of Engineers (“COE”) operates and manages four dams along a 140-mile stretch of the lower Snake River in southeastern Washington.¹⁶ The four dams — Ice Harbor, Lower Monumental, Little Goose, and Lower Granite — began operations between 1961 and 1975 to provide hydropower, irrigation, recreation, fish and wildlife and upriver navigation as far as Lewiston, Idaho.¹⁷ Combined, the four dams produce an average of 1,250 megawatts per year, which is approximately five percent of the total energy generated in the Pacific Northwest.¹⁸ The dams provide limited flood control and supply irrigation water to only a few agricultural users.¹⁹

It is the objective of this paper to outline some of the administrative and legislative history that has led to the present state of salmon affairs in the Snake River basin. In addition, it is the intent to outline some of the compounding reasons that have led to the decline of the salmon and finally to outline some of the actions that are necessary to move beyond the bureaucratic stalemate that the salmon find themselves in today.

It is clear that the environment is not benefiting from the Bush Administration. Instead of the headline grabbing environmental actions taken during the Reagan/Watt years, the Bush Administration has quietly been altering the nation’s environmental policies.²⁰ These actions have occurred through issuing executive orders that don’t require congressional approval, appointing industry friendly people into key policy positions, rewriting highly technical environmental regulations and muzzling dissent within the Administration.²¹ The Bush Administration’s environmental policy actions are centered on changing fundamental laws; rolling back Clinton Administration policies; making new proposals; altering the rules governing the use of federal lands; and dismissing many issues associated with the growing evidence of global warming.²² In the past year the Bush Administration has proposed altering the nation’s three fundamental anti-pollution laws or changing the way that they are administered. The three are the Clean Water Act of 1970, the

¹⁵ NRC, *supra* note 4 at 65-66.

¹⁶ U.S. Army Corp. of Eng’rs, Draft Lower Snake Juvenile Salmon Migration Feasibility Report/Environmental Impact Statement, 2-2(1999). [hereinafter COE-EIS].

¹⁷ COE-EIS, *supra* note 16 at 2-2.

¹⁸ Rand Corp., *Generating Electric Power in the Pacific Northwest: Implications of Alternative Technologies*, at 28 (2002). [hereinafter Rand].

¹⁹ COE-EIS, *supra* note 16 at 2-2.

²⁰ How Bush Gets His Way on the Environment, TIME MAGAZINE, Jan. 27, 2003, at 48-50.

²¹ See Bush Quietly Changing Nation’s Environmental Policies, San Jose Mercury News, Jan. 17, 2003. [hereinafter San Jose Mercury News].

²² *Id.*

422 GOLDEN GATE UNIVERSITY LAW REVIEW [Vol. 33:3

Clean Water Act of 1972, and the National Environmental Policy Act (“NEPA”) of 1969.²³ These activities all have direct and indirect impacts related to the issue of the future of the lower Snake River dams.

II. WATERSHED TO WORKHORSE: A SHORT HISTORY OF THE COLUMBIA AND SNAKE RIVER DEVELOPMENT

A. DEVELOPMENT OF THE SALMON PROBLEM — HOW DID WE GET HERE?

The decline of salmon in the Pacific Northwest has stimulated a wide range of technical, social, and political debates concerning what could and should be done to maintain or restore native populations.²⁴ The salmon situation is difficult due to the complexity and overlapping nature of the species life history requirements, biological requirements, variable ocean conditions, unregulated harvest outside of national boundaries, and the wide range of anthropogenic activities and land uses that affect them.²⁵

European man first cast his eyes on the Columbia and Snake River system in 1805.²⁶ Prior to this discovery, the traditional economy of the Native cultures was shifted radically from living within the limits of the natural salmon cycles towards a market economy.²⁷ The market economy was driven by the *Lords of Yesterday*, the trappers, loggers, miners, ranchers, farmers, fishermen and entrepreneurs who emigrated to the Northwest to make a living largely at the exploitation of the natural economy.²⁸ The control of water for agriculture, transportation, electricity, and flood control became essential to the long-term development plans for the region.²⁹ An orgy of dams led to the fragmentation of the river and added to the demise of the native salmon populations.³⁰

The potential for dams to affect salmon runs was recognized early in the Pacific Northwest’s development.³¹ The constitution of the Oregon Territory, drafted in 1848, prohibited dams on any river or stream in

²³ *Id.*

²⁴ NRC, *supra* note 4 at 46.

²⁵ *Id.*

²⁶ LICHATOWICH, *supra* note 1 at 52.

²⁷ LICHATOWICH, *supra* note 1 at 33.

²⁸ LICHATOWICH, *supra* note 1 at 54.

²⁹ LICHATOWICH, *supra* note 1 at 76-80.

³⁰ LICHATOWICH, *supra* note 1 at 169.

³¹ NRC, *supra* note 4 at 60.

which salmon were found,³² unless the dam were constructed to allow salmon to pass freely upstream and downstream.³³

Initially seasonal splash dams were made to manage the downstream movement of logs gave way to more extensive dams for irrigation and saw mills.³⁴ Dam construction began a rapid expansion in the late 1800s when hydroelectric facilities were built on Willamette and Spokane Rivers, tributaries, to the Columbia River.³⁵ Initially dams were restricted to the tributaries of the Columbia and Snake River basin until Congress, beginning in the 1930's, authorized large sums of money to control the mainstem river.³⁶ Congressional funds signaled the beginning of a period of intense dam construction throughout the watershed with the intent to "tame the Columbia" for flood control, farmers, transportation and electricity generation.³⁷ Salmon and tribal rights were ignored or set aside in the zeal to develop the water resources of the Columbia and Snake Rivers.³⁸

By 1975, fourteen mainstem Columbia River and thirteen Snake River dams were completed within the natural range of the anadromous fish runs.³⁹ Within the entire Columbia River basin, fifty-eight dams were constructed exclusively for hydropower⁴⁰ while another seventy-eight are classified as multipurpose.⁴¹

Concurrent with the big dams, many smaller dam projects were developed in the watershed to provide water for municipal, industrial, irrigation, livestock and rural uses.⁴² Many of these additional dams are too small to require federal or state permits and consequently are not identified.⁴³ The cumulative number of dams in the Columbia/Snake basin has led to a rapid and massive change in the natural hydrology of the basin.⁴⁴ The impact of this development has been a fragmentation of the river basin and the direct loss of habitat accessibility and usability, and the total loss of over fifty-five percent of the total area and thirty-one percent

³² *Id.*

³³ See M. Stahlberg, THE REGISTER-GUARDIAN, (Eugene, OR), Aug. 3, 1993, P.1D.

³⁴ NRC, *supra* note 4 at 58-59.

³⁵ NRC, *supra* note 4 at 60.

³⁶ *Id.*

³⁷ NRC, *supra* note 4 at 60-66.

³⁸ LICHATOWICH, *supra* note 1 at 81.

³⁹ NRC, *supra* note 4 at 61.

⁴⁰ *Id.*

⁴¹ See generally NORTHWEST POWER PLANNING COUNCIL, COLUMBIA RIVER BASIN FISH AND WILDLIFE PROGRAM (1982).

⁴² NRC, *supra* note 4 at 62.

⁴³ NRC, *supra* note 4 at 62.

⁴⁴ NRC, *supra* note 4 at 62-63.

424 GOLDEN GATE UNIVERSITY LAW REVIEW [Vol. 33:3

of the stream miles⁴⁵ historically used by the anadromous species⁴⁶ in the Columbia River basin.

B. SNAKE RIVER DEVELOPMENT

Dam development on the Snake River portion of the Columbia River basin has followed the same course as the rest of the watershed. Water development represented by private, state and federal dams and diversions, have led to a fragmentation and direct loss of hundreds of miles of historically used anadromous fish habitats.⁴⁷

The upper portion of the Snake River basin, above the Hells Canyon Reach, was developed first in response to the needs for water for crops and grazing.⁴⁸ Private development coupled with Bureau of Reclamation technical and financial support immediately affected the quantity and quality of water delivered to the lower Snake and Columbia Rivers.⁴⁹ As the need for cheap hydropower developed Idaho Power Company began planning and construction of the Hells Canyon Complex of three dams along the Idaho and Oregon border.⁵⁰ Concurrently the Corp of Engineers, through pressure from politicians and developers, began planning and constructing the four COE dams on the lower Snake River.⁵¹ The last of the dams were completed in 1975.

The four lower Snake River dams — Lower Granite, Little Goose, Lower Monumental, and Ice Harbor — are multiple use facilities that provide public benefits for inland navigation, hydropower generation, irrigation, recreation, and fish and wildlife.⁵² Project facilities include dams and reservoirs, hydroelectricity power plants, navigation channels and locks, juvenile and adult fish passage structures, fish hatcheries, parks and recreational facilities, lands dedicated to project operations and areas set aside as wildlife habitat.⁵³

All four lower Snake River dams are managed as run-of-the-river facilities. They are not authorized, designed or operated as flood control facilities.⁵⁴ The four reservoirs have a total combined reservoir capacity of 1,887,500 acre-feet with a normal operation range of 143,000 acre-

⁴⁵ NRC, *supra* note 4 at 63.

⁴⁶ *Id.*

⁴⁷ NRC, *supra* note 4 at 169.

⁴⁸ See generally TIM PALMER, THE SNAKE RIVER: WINDOW TO THE WEST (1991).

⁴⁹ See generally TIM PALMER, THE SNAKE RIVER: WINDOW TO THE WEST (1991).

⁵⁰ IDAHO POWER CO., History of the Hells Canyon Complex (Don Chapman), Technical Report Appendix E.3.1-2, Chapter 2 at 2. (2002) [hereinafter IDAHO POWER].

⁵¹ LICHATOWICH, *supra* note 1 at 180-190.

⁵² COE-EIS, *supra* note 16 at 2-2.

⁵³ *Id.*

⁵⁴ *Id.*

feet.⁵⁵ The end result is that while the dams are operated as run-of-the-river facilities (the amount of water entering is released) over 1.5 million acre-feet of pooled water continuously remains behind the dams.⁵⁶ These reservoirs exhibit detrimental water quality and flow characteristics to the migrating salmon and other anadromous species.⁵⁷

C. ESA AND ITS IMPORTANCE TO RIVER MANAGEMENT

Congress passed the Endangered Species Act (“ESA”) in 1973⁵⁸, and it remains the primary legal tool the federal government uses to protect and conserve threatened and endangered species in the U.S. and elsewhere.⁵⁹ The act is essentially divided into two parts: one part addressing federal government actions and the other part addressing actions by all other parties.

The trigger to the application of the ESA is the listing of a species as threatened or endangered under Section 4 of the Act.⁶⁰ Once a species is listed, restrictions on federal actions apply, primarily under ESA Section 7.⁶¹ All federal agencies must “insure that any action authorized, funded, or carried out by such agency ... is not likely to jeopardize the continued existence of any endangered or threatened species.”⁶² Agencies are required to consult with the NMFS on issues related to anadromous fish and to determine whether their actions will jeopardize the existing of the species or adversely modify critical habitats.⁶³

Any federal action that causes jeopardy or adversely modifies critical habitat is barred from proceeding unless the Endangered Species Committee grants an exemption.⁶⁴ Prior to initiation of formal consultation, all agencies must complete a biological assessment for the purpose of identified anticipated impacts to threatened and endangered species.⁶⁵ The Biological Assessment is then applied in the consultation process if there is a finding by NMFS that a species is “likely to be affected by such actions”,⁶⁶ if there is no affect then consultation is not required.⁶⁷

⁵⁵ COE-EIS, *supra* note 16 at 2-3.

⁵⁶ *Id.*

⁵⁷ LICHATOWICH, *supra* note 1 at 180-190.

⁵⁸ Endangered Species Act of 1973, 16 U.S.C. §§ 1531-1544 (2000).

⁵⁹ *Id.* See also 16 U.S.C. §§ 1531, 1535, 1536 (2000).

⁶⁰ See *supra* note 58. See also 16 U.S.C. § 1536(b)(3)(A) (2000).

⁶¹ See *supra* note 58. See also 16 U.S.C. § 1536. (2000).

⁶² *Id.*

⁶³ *Id.*

⁶⁴ *Id.*

⁶⁵ *Id.*

⁶⁶ *Id.*

⁶⁷ *Id.*

426 GOLDEN GATE UNIVERSITY LAW REVIEW [Vol. 33:3

The ESA requires that NMFS develop and implement recovery plans for the conservation and survival of the threatened and endangered species.⁶⁸ Recovery Plans are required to have site-specific management actions to achieve the plans goals, criteria, time and funding necessary to delist the species.⁶⁹

D. COLLISION COURSE — THE MOVE TOWARDS SNAKE RIVER DAM REMOVAL

Salmon have been documented as declining in the Columbia and Snake Rivers since the 1800's.⁷⁰ The decline of wild salmon populations in the Columbia/Snake Rivers worsened as dams on the mainstem rivers began to directly impact the migration of salmon in both the upstream and downstream directions. As early as 1925,⁷¹ fisheries professionals identified dams as detrimental to the movement of salmon. A great deal of discussion ensued but no actions were taken. It was not until the Endangered Species Act focused legal attention on the reduction of the salmon populations that leverage could be applied to dam operators.

In 1978, the NMFS began a review of the status of the Snake River salmon⁷² in response to public ESA-related concerns. The initiation of this status review focused the debate on a need to develop a larger assessment of the impacts of basin water management and the effects that it was having on the salmon of the Columbia/Snake River system. Ultimately this assessment and the discussion it stimulated led to several actions to increase salmon and steelhead populations, including: (1) 1985 treaty between the U.S. and Canada limiting the ocean harvest of salmon;⁷³ (2) passage of the Pacific Northwest Electric Power Planning and Conservation Act ("NWPPA") (P.L. 96-501),⁷⁴ which called for the creation of an interstate compact to develop a program to protect and enhance fish and wildlife affected by hydropower development in the Columbia River Basin and mitigate the effects of development; and (3) the initiation of state, local, and tribal coordination efforts to address habitat restoration through watershed plans. None of these efforts have

⁶⁸ *Id.*

⁶⁹ *Id.*

⁷⁰ *Id.*

⁷¹ LICHATOWICH, *supra* note 1 at 180.

⁷² LICHATOWICH, *supra* note 1 at 202.

⁷³ Treaty Concerning Pacific Salmon, Jan. 28, 1985, U.S.-Can.T.I.A.S.No. 11,091, available at www.salmonlaw.net (last visited March 15, 2003).

⁷⁴ Pacific Northwest Electric Power Planning and Conservation Act, Pub. L. No. 96-501, 94 Stat. 2697 (1980) (codified as amended at 16 U.S.C. §§ 839-839h (2000)).

stopped or reversed the impacts that dams and watershed development have had on the Columbia River System.⁷⁵

In 1995, there were only three stocks of salmon that had been listed as endangered or threatened.⁷⁶ Since 1995, another nine species of Columbia basin salmon have been listed⁷⁷ and on December 28, 1993 critical habitat was designated for the listed Snake River salmon.⁷⁸ The twelve listed populations are:⁷⁹

- Snake River Fall-run chinook
- Snake River Spring/Summer-run chinook
- Lower Columbia River chinook
- Upper Willamette River chinook
- Upper Columbia River Spring-run chinook
- Snake River sockeye
- Middle Columbia River steelhead
- Upper Willamette River steelhead
- Upper Columbia River steelhead
- Snake River steelhead
- Lower Columbia River steelhead
- Columbia River chum

The passage of the NWPPA and other administrative actions resulted in an administrative delay in the NMFS status reviews. The intent of the NWPPA was instead to refocus the salmon discussion on the development of a collaborative, regional, approach to the salmon issues rather than one driven by NOAA.⁸⁰ The administrative body established to direct the salmon efforts was the Northwest Power Planning Council (“NWPPC”), which includes representatives from all of the affected federal, state, tribal and public interest groups.⁸¹ The NWPPA contains three principal mandates for the NWPPC:⁸²

⁷⁵ See Michael C. Blumm & Melissa Powers, *Avoiding Dam Breaching through Offsite Mitigation: NMFS'S 2000 Biological Opinion on Columbia Basin Hydroelectric Operations.*, 32 ENV'T L. L.A.W 241, 243. [hereinafter *Avoiding Dam Breaching*].

⁷⁶ GAO, *supra* note 8 at 9.

⁷⁷ GAO, *supra* note 8 at 9-19.

⁷⁸ NAT'L MARINE FISHERIES SERV., Proposed Recovery Plan for Snake River Salmon, March 1995, at I-6 [hereinafter *Draft Recovery Plan*].

⁷⁹ GAO, *supra* note 8 at 9.

⁸⁰ LICHTOWICH, *supra* note 1 at 202-221.

⁸¹ GAO, *supra* note 8 at 10-15.

⁸² See NORTHWEST POWER PLANNING COUNCIL website, available at www.nwcouncil.org (last visited March 15, 2003).

428 GOLDEN GATE UNIVERSITY LAW REVIEW [Vol. 33:3

- Develop a 20-year electric power plan that will guarantee adequate and reliable energy at the lowest economic and environmental cost to the Northwest.
- Develop a fish and wildlife plan to protect and rebuild fish populations affected by hydropower development in the Columbia River Basin.
- Conduct an extensive program to educate and involve the public in the NWPPC's decision-making processes.

During the initial ESA status reviews the state of Idaho, through former governor Cecil Andrus,⁸³ called for a plan to draw down the four lower Snake River reservoirs to aid salmon migration and improve juvenile salmon survival.⁸⁴ The governor's plan called for drawing down the four lower Snake River reservoirs to minimum operating pool between April 15 and December 15 each year and releasing water from upper basin reservoirs for flow augmentation.⁸⁵ While not calling for dam removal public sentiment began to move in that direction.

After initial consultation on the Federal Power System, which included the four lower Snake River dams, the NMFS concluded that their operations did not jeopardize the salmon species continued existence.⁸⁶ In response to the NMFS findings, Idaho Department of Fish and Game challenged the biological opinion and in 1994 an Oregon District Court ruled that the NMFS was *arbitrary and capricious* in their determinations and forced the development of a new biological opinion, which was issued in 1995.⁸⁷

⁸³ See Michael C. Blumm et al., *Saving Snake River Water and Salmon Simultaneously: The Biological, Economic, and Legal Case for Breaching the Lower Snake River Dams, Lowering John Day Reservoir and Restoring Natural River Flows*, 28 ENVTL. L. 997, 1012-23 (1998).

⁸⁴ *Id.* at 1018.

⁸⁵ Minimum Operating pool is the lowest water level of an impoundment at which navigation locks can still operate, which is higher than a drawdown to spillway crest. NORTHWEST POWER PLANNING COUNCIL, *Columbia River Basin Fish and Wildlife Program G-9* (1994).

⁸⁶ NMFS, *Biological Opinion on Reinitiation of Consultation On 1994-1995 Operation of the Federal Columbia River Power System and Juvenile Transportation Program in 1995 and Future Years*. (1995) (on file with author) [hereinafter 1995 BiOp].

⁸⁷ Draft Recovery Plan, *supra* note 78. See also United States Corp of Engineers, Walla Walla District, *Lower Snake River Juvenile Salmon Migration Feasibility Study*, available at www.nw.usace.army.mil/lsr/HISTORY/section2.htm#211-topics (last visited Apr. 19, 2003). The Idaho Department of Fish and Game (IDFG), the State of Oregon, and four treaty Indian Tribes, challenged the legal adequacy of NMFS' 1993 BiOp in Federal district court proceedings (*Idaho Department of Fish and Game v. National Marine Fisheries Service*, Civ. No. 92-973-MA (Lead Case), 93-1420-MA, 93-1603-MA, (D. Or.) (IDFG v. NMFS). *Id.* On March 28, 1994, Federal

In 1994, an independent scientific peer review of the Snake River salmon problem was completed.⁸⁸ The report concluded that transportation of juvenile salmon around the dams would not halt the decline of listed salmon in the Snake River basin.⁸⁹ Subsequently, the Northwest Power Planning Council included seasonal reservoir drawdowns and restricted reliance on barge transportation in the annual Columbia Basin Fish and Wildlife Program.⁹⁰

The 1995, NMFS biological opinion, after significant review, concluded that the dams *were likely to jeopardize* the continued existence of the salmon.⁹¹ As a result of this finding the COE initiated a consultation process with NMFS to evaluate the options for the four lower Snake River dams, including breaching that should be considered to bring the COE into compliance.⁹² This ultimately led to the development of the COE EIS.

In 1995, the NRC completed a report that endorsed artificial transportation as a short-term action while simultaneously advocating for a return to natural river conditions in the long-term to achieve salmon recovery.⁹³

While the NWPPA has increased the level of debate and focused attention on specific basin issues, the numbers of salmon have continued to decline to levels where action for the listed species could no longer be delayed. In March 1995, the NMFS published a draft recovery plan strategy and supporting documentation for the Snake River salmon.⁹⁴ This

District Judge Malcolm Marsh issued his judicial opinion that set aside NMFS' BiOp. *Id.* The Court, in a April 28, 1994 judgment

FURTHER ORDERED AND ADJUDGED that the Biological Opinion on 1993 Federal Columbia River Power System operations prepared by the National Marine Fisheries Service, and the Records of Decision prepared by the Corps of Engineers and Bureau of Reclamation in reliance upon said biological opinion, for the reasons stated in this court's opinion of March 28, 1994, are arbitrary and capricious and otherwise not in accordance with the purposes of the Endangered Species Act, Section 7(a)(4), with respect to the chosen jeopardy standard and their consideration of reasonable and prudent alternatives to avoid jeopardy. That the 1993 biological opinion and records of decision are set aside and remanded to review and reconsider them, or at their option, to review and reconsider the 1994-98 hydropower biological opinion, in light of the (sic) court's order of March 28, 1994, and to submit a biological opinion and records of decision to address that ruling by June 27, 1994, unless that date is extended by further order of this court. *Id.*

⁸⁸ INDEP SCIENTIFIC GROUP, RETURN TO THE RIVER: RESTORATION OF SALMONID FISHES IN THE COLUMBIA RIVER ECOSYSTEM xvii, 5, 19 (1996).

⁸⁹ *Id.*

⁹⁰ NORTHWEST POWER PLANNING COUNCIL, Columbia River Basin Fish and Wildlife Program G-9 (1994).

⁹¹ Draft Recovery Plan, *supra* note 78.

⁹² COE-EIS, *supra* note 16

⁹³ NRC, *supra* note 4.

⁹⁴ Draft Recovery Plan, *supra* note 78.

430 GOLDEN GATE UNIVERSITY LAW REVIEW [Vol. 33:3

plan stimulated actions within the federal, state and tribal entities to aggressively address the salmon problems. Multiple inter agency groups, federal agencies and independent consultants initiated independent efforts studying relationships and proposing actions.⁹⁵

In 1998, then-Secretary of the Interior Bruce Babbitt identified the battle over the four lower Snake River dams as the next big step for river restoration.⁹⁶ In 2000, while campaigning in the Northwest, candidate Bush stated that he would not support the removal of the four lower Snake River dams if he was elected President.⁹⁷

On December 21, 2000, the NMFS issued a biological opinion addressing operation of the federal Columbia River Power System, which includes the Snake River dams, and an additional nineteen Bureau of Reclamation projects.⁹⁸ The biological opinion was issued after the Presidential election and defined a Reasonable and Prudent Alternative (“RPA”) consisting of 199 actions, which are intended to improve survival and the likelihood of recovery of the listed salmon and steelhead in the Columbia River basin.⁹⁹

On September 9, 2002, the COE issued its Final Record of Decision on the Lower Snake River Juvenile Salmon Migration Feasibility Study process (“EIS”).¹⁰⁰ In the Record of Decision the COE determined that they would attempt to perform “system improvement” on the Snake River rather than decommission the four dams.¹⁰¹ The COE methods, including barging and trucking juvenile salmon around the four dams will be officially re-evaluated in 2003.¹⁰²

III. FROM RIVER TO CONTROLLED CONDUIT: THE IMPACTS OF RIVER DEVELOPMENT

Federal and state agencies responsible for the management of the fish and wildlife resources in the Columbia River basin¹⁰³ have inde-

⁹⁵ NAT’L MARINE FISHERIES SERV., Federal Coordinated River Power System 2000 Biological Opinion, Salmon Recovery Strategy (on file with author) [hereinafter 2000 NMFS BiOp].

⁹⁶ INT’L RIVER NETWORK, WORLD RIVERS REVIEW, Dec. 2002, at 6 [hereinafter IRN].

⁹⁷ IRN, *supra* note 96 at 6.

⁹⁸ NAT’L MARINE FISHERIES SERV., Findings Regarding Adequacy of the FCRPS Action Agencies’ 2002 Annual Implementation Plan, at 5 (on file with author) [hereinafter referred to as NMFS FINDINGS 2002].

⁹⁹ NMFS FINDINGS 2002, *supra* note 98 at 5.

¹⁰⁰ Lower Snake River Juvenile Salmon Migration Feasibility Study, (Newsletter 11) Sept. 2002, at 3 [hereinafter Newsletter 11, COE-EIS].

¹⁰¹ See COE-EIS, *supra* note 16 - Newsletter 11 at 3.

¹⁰² IRN, *supra* note 96 at 6.

¹⁰³ GAO, *supra* note 8 at 10.

pendently developed a Salmon Recovery Strategy.¹⁰⁴ The essence of the recovery strategy is to enlist all federal agencies whose actions offset the life cycle of Columbia Basin salmon to attempt to prevent extinction and to foster recovery of listed salmon.¹⁰⁵ Their strategy is not an ESA document and does not contain enforceable promises.¹⁰⁶

The key element of the Basinwide strategy is to develop specific actions related to four areas of impacts that limit salmon sustainability and ultimately recovery.¹⁰⁷ These actions are cumulatively referred to as the *Four H's* — *habitat, harvest, hatcheries and hydropower*.¹⁰⁸

A. THE FOUR H'S: HABITAT, HARVEST, HATCHERIES, AND HYDROPOWER

1. Habitat

Development of the Columbia/Snake watershed through logging, mining, agriculture, and development have directly and indirectly impacted the quality and quantity of aquatic habitat available for spawning, rearing and migration. Watershed impacts have resulted in the direct loss of habitat via fragmentation of the river systems, increased water temperatures, increased sediment loads, and deposition of toxic residue from mines and mine drainage. Restoration of tributary and estuary habitat is key to the salmon recovery.¹⁰⁹ Habitat improvement is the backbone of the strategy.¹¹⁰

2. Hatcheries

Salmon develop an adaptive and unique relationship with their habitats. Salmon evolved this adaptive relationship in response to the diversity of habitats and differing hydrologic regimes of the tributaries and mainstem ecosystems. Historically fish managers believed that all salmon were of the same genetic character.¹¹¹ Since the 1870's fish cul-

¹⁰⁴ The Federal Caucus consists of eight federal agencies: the U.S. Army Corp of Engineers, the Bureau of Reclamation, the Bureau of Indian Affairs, the Bureau of Land Management, the Environmental Protection Agency, the U.S. Fish & Wildlife Service, the Forest Service, and the National Marine Fisheries Service. FED. CAUCUS, Conservation of Columbia River Fish: Final Basinwide Salmon Recovery Strategy (2000) [hereinafter FED. CAUCUS PLAN].

¹⁰⁵ FED. CAUCUS PLAN, *supra* note 104.

¹⁰⁶ *Id.*

¹⁰⁷ Avoiding Dam Breaching, *supra* note 75 at 270.

¹⁰⁸ FED. CAUCUS PLAN, *supra* note 104.

¹⁰⁹ Avoiding Dam Breaching, *supra* note 75 at 271.

¹¹⁰ *Id.*

¹¹¹ LICHATOWICH, *supra* note 1 at 119.

432 GOLDEN GATE UNIVERSITY LAW REVIEW [Vol. 33:3

tourists believed that the ability to manage salmon was through the development of hatcheries. By the 1930's people began to question the impact of hatcheries on salmon populations but it was not until the 1990's that fish managers realized the necessity for preserving unique genetic stocks and that hatcheries actually have been leading to reduced salmon sustainability.¹¹² The recovery strategy must include reform of existing protocols, protection of threatened stocks of salmon, and increased co-management with tribal operations.¹¹³

3. Harvest

Native cultures harvested salmon in the Columbia/Snake system as early as the 12,000 years ago.¹¹⁴ Initially harvest levels were low and supplemented native cultures diets. The Industrial Economy¹¹⁵ developed around salmon, initially in the rivers and estuaries and then expanding into the ocean at the turn of the 20th Century. Numerous attempts were made to control the harvest levels from state and international levels but it was not until 1940 that any harvest restrictions were implemented. The federal strategy recommends the maintenance of the status quo through the continued implementation of the Pacific Salmon Treaty and *United States v. Oregon*.¹¹⁶ Additional improved fishing techniques and management of mixed fish stocks should be implemented.¹¹⁷

4. Hydropower

The development of the Columbia/Snake River began initially in the tributaries where splash dams and milldams regulated water releases.¹¹⁸ As the Industrial Economy expanded power sources were needed. Coupled with the Nation's desire for growth, mainstem dams on the Columbia River first and then the Snake River were constructed. Construction of the majority of dams was done before the advent of the NEPA and therefore constructed without the requirement of any environmental review.¹¹⁹ Consequently limited fish passage, hydrologic management, or water quality management were items not considered. The result has been a fragmentation of the river system and watershed. Physical barriers

¹¹² ECOTRUST. *Salmon Nation: People and Fish at the Edge*, at 29 (1999) (on file with author) [hereinafter ECOTRUST].

¹¹³ *Avoiding Dam Breaching*, *supra* note 75 at 271.

¹¹⁴ ECOTRUST, *supra* note 112 at 10.

¹¹⁵ LICHATOWICH, *supra* note 1 at 52.

¹¹⁶ *Avoiding Dam Breaching*, *supra* note 75 at 273.

¹¹⁷ *Avoiding Dam Breaching*, *supra* note 75 at 273.

¹¹⁸ LICHATOWICH, *supra* note 1 at 76-77.

¹¹⁹ *Avoiding Dam Breaching*, *supra* note 75 at 274.

of dams, environmental barriers of slow and warm reservoir waters, and institutional barriers of private and federal dam management have disrupted the native salmon cultures. The NMFS through their consultation process with the COE and Bureau of Reclamation (“BOR”) largely define the federal hydropower operations.¹²⁰ An additional strategy is recommended for improvement of non-federal hydropower operations through the Federal Energy Regulatory Commission (“FERC”) relicensing processes and implementation of ESA related activities.¹²¹

In relation to the dams on the lower Snake River, all of the four H’s have varying degrees of impact to the salmon populations. The four lower Snake River dams directly impact the migration of adult and juvenile salmon and block access to hundreds of miles of historic tributary habitat.¹²² Equally important is the impact that the federal, state and tribal hatchery policies and harvest allocations in the ocean and river system have on the numbers of returning salmon. The NMFS 2000 Biological Opinion and the Reasonable and Prudent Alternative identified specific action items related to hydropower, harvest, hatcheries and habitat.¹²³ Reviews of the progress taken to address the limitations to the Columbia and Snake River salmon indicates that less than satisfactory results are occurring.¹²⁴

Development of the Columbia/Snake Rivers modified the entire watershed. Pre-development the river responded to natural seasonal variability tied to snow, runoff, and rainstorms. Dams and reservoirs were built specifically to modify the natural hydrology of the river system to allow control of water delivery.¹²⁵ Reservoirs are unnatural lakes that are defined by the dams that impound them.¹²⁶ Large reservoirs typically have a retention time that reflects how long water is held before it is exchanged. Depending on their size, reservoirs allow for the direct modification of the amount, timing and quality of the water that is released downstream.¹²⁷

¹²⁰ GAO, *supra* note 8 at 10.

¹²¹ GAO, *supra* note 8 at 11.

¹²² NRC, *supra* note 4 at 60-66.

¹²³ NMFS Findings 2002, *supra* note 95 at 22-26.

¹²⁴ NMFS Findings 2002, *supra* note 95 at 27-29.

¹²⁵ NRC, *supra* note 4 at 60-66.

¹²⁶ See J.V. Ward and J.A. Stanford, *The Ecology of Regulated Streams*, at 215-236 (Plenum Press) (1979).

¹²⁷ Glen Canyon, *supra* note 2 at 251-252.

434 GOLDEN GATE UNIVERSITY LAW REVIEW [Vol. 33:3]

B. DAMS AND DEVELOPMENT: WATERSHED DISRUPTERS

Since the 1900's, attempts have been made to minimize the impacts of dams on salmon by installing fish ladders and bypass systems to assist the fish's ability to migrate up and down the rivers.¹²⁸

The COE dams on the lower Snake River are but four of the 150 plus dams that control the plumbing system of the Columbia/Snake River system.¹²⁹ The complex of four reservoirs is located downstream of most of the development in the Snake River basin.¹³⁰ Anthropogenic disturbances over the last 150 years have affected the watershed processes through the Snake River Basin directly and indirectly. Land uses include beaver trapping, mining, logging, fires, agriculture, grazing and urbanization.¹³¹ These land uses have increased sediment supplies over the pre-development levels through surface erosion and mass wasting in riparian zones throughout the Snake River Basin.¹³²

Water storage and regulation are currently the most significant anthropogenic influences in the Snake River basin, affecting streamflows, sediment loads and supplies.¹³³ Between 1901 and 1969, more than ten mainstem and thirty-five tributary dams were constructed in the Snake River watershed.¹³⁴ Snake River basin dam developers include the Bureau of Reclamation (upper Snake River), Idaho Power Company (mid-Snake River) and the Corp of Engineers (lower Snake River).¹³⁵ The Idaho Power Company's Hells Canyon complex of three dams cut off 100% of the access to upstream tributaries.¹³⁶

IV. THE POLITICAL DEBATE: SALMON WITHOUT A VOICE

A. RIVER DEVELOPMENT WITHOUT BOUNDARIES

Eight federal dams disrupt the journey that the five salmon species, the White Sturgeon and the Pacific Lamprey of the Columbia and Snake Rivers must make as they migrate from their places of origin to the ocean and back. The four Columbia River dams (Bonneville, The Dalles, John Day, and McNary) have been retrofitted to accommodate safer salmon

¹²⁸ NRC, *supra* note 4 at 9-10.

¹²⁹ NRC, *supra* note 4 at 60-66.

¹³⁰ IDAHO POWER, *supra* note 50 at 4.

¹³¹ LICHATOWICH, *supra* note 2 at 52-80.

¹³² LICHATOWICH, *supra* note 1 at 202-221.

¹³³ NRC, *supra* note 4 at 60-66.

¹³⁴ *Id.*

¹³⁵ *Id.*

¹³⁶ IDAHO POWER, *supra* note 50 at 1-4.

passage.¹³⁷ While they still have a tremendous impact on the survival of the salmon with changes in operations policy (particularly at John Day dam) and refinement of the electricity production schedule, they could keep salmon mortality at a reasonable level.¹³⁸

The four dams on the Snake River however are not the same story. Approved by Congress during the depths of the Cold War they were bitterly opposed for the damage they were certain to inflict on the salmon.¹³⁹ Concerns expressed by the basin states, downstream fishermen and thirteen of the regions Native tribes, centered on the direct impacts on subsistence fishing, commercial fishing, loss of access to historic spawning and rearing habitats, impacts to water quality, and modified flow regimes.¹⁴⁰ In spite of these concerns Congress approved the construction of the dams in 1955.¹⁴¹ The dams were built to allow for barge transportation to Lewiston, Idaho. They were not built for flood control and supply only five percent of the regions electricity.¹⁴² The four reservoirs are managed as run-of-the-river bodies of water, which requires that they be kept within three feet of being full in order to provide navigation for the barges.¹⁴³ Limited hydroelectric production and irrigation use makes these reservoirs economically limited.¹⁴⁴

The development of the four COE dams on the lower Snake River have further fragmented the river system and reduced the potential for salmon production on the mainstem. In addition, by disrupting the flow and fragmenting the Snake River, salmon are restricted from historic habitats in the Imnaha, Grande Ronde, Wenaha, Lostie, Minam, Wallowa, Powder, South and Main Clearwater, North Salmon, Middle Salmon, South Salmon, Selway, Rapid, Lochsa rivers and many smaller tributaries to the Snake River.¹⁴⁵ The result has been devastation to salmon biological genetic and biological integrity and sustainability and the economies of many towns throughout the basin.

¹³⁷ David James Duncan, *Salmon's Second Coming*, SIERRA MAGAZINE, March/April 2000, at 35 [hereinafter *Salmon's Second Coming*].

¹³⁸ *Salmon's Second Coming*, *supra* note 137 at 35.

¹³⁹ *Id.*

¹⁴⁰ LICHATOWICH, *supra* note 1.

¹⁴¹ *Salmon's Second Coming*, *supra* note 137 at 35.

¹⁴² COE-EIS, *supra* note 16 at 2-2.

¹⁴³ *Id.*

¹⁴⁴ RAND, *supra* note 18 at 35.

¹⁴⁵ *Salmon's Second Coming*, *supra* note 137 at 35.

436 GOLDEN GATE UNIVERSITY LAW REVIEW [Vol. 33:3

B. ROLE OF FEDERAL GOVERNMENT

Eleven federal agencies are involved in the recovery of salmon and steelhead in the Columbia River system.¹⁴⁶ The federal agencies are legally required to comply with the missions and responsibilities identified in their authorizing legislation while protecting salmon and steelhead under the ESA. States, tribes, local governments and over sixty-five private interest groups are involved in the recovery effort.¹⁴⁷

NMFS is the lead agency responsible for the recovery efforts for salmon and steelhead in the Columbia/Snake River system.¹⁴⁸ NMFS is responsible for: (1) identifying and listing threatened and endangered salmon and steelhead populations; (2) preparing recovery plans for listed salmon and steelhead populations; and (3) consulting with other agencies to ensure that their planned actions do not further jeopardize the listed populations of salmon and steelhead.¹⁴⁹

The other ten agencies involved in the recovery include three action agencies, three natural resource agencies, and four regulatory entities.¹⁵⁰ The primary agencies consist of:

Action Agencies

- Corp of Engineers — design, build and operates twelve dams
- Bureau of Reclamation — design, build and operate fifty-two dams in the river basin
- Bonneville Power Administration — distribute electricity

Natural Resource Agencies

- Bureau of Land Management — public land management
- U.S. Fish & Wildlife Service — ESA actions on non-anadromous species
- U.S. Forest Service — National forests and grasslands

Regulatory Agencies

- U.S. Environmental Protection Agency — Clean Water Act
- Natural Resources Conservation Service — assist landowners with management and resource conservation
- U.S. Geological Survey — conducts scientific studies

¹⁴⁶ GAO, *supra* note 8 at 10.

¹⁴⁷ GAO, *supra* note 8 at 11.

¹⁴⁸ GAO, *supra* note 8 at 10.

¹⁴⁹ GAO, *supra* note 8 at 10.

¹⁵⁰ GAO, *supra* note 8 at 10.

- Bureau of Indian Affairs — Native American Trust responsibilities

The federal government clearly has a legal, administrative and management responsibility to the salmon and the people who depend upon them. What cannot be controlled, however, are the politics of Congress and the development of a common vision and mission for the salmon.

C. ADMINISTRATIVE RELIEF AND VISIONARY LEADERSHIP SQUANDERED

In December 1999, after four years of study, the COE released the Draft EIS, which evaluated alternatives for improving juvenile salmon passage through the four lower Snake River dams.¹⁵¹ In August 2000, before the COE had decided on the preferred alternative, candidate Bush publicly opposed any effort to remove the four Snake River dams.¹⁵² Supporting Bush's stance was Senator Slade Gordon (R-WA) and Congressional Representatives from Idaho, Washington, and Oregon.¹⁵³ They concluded that electricity rates would increase, farmers would lose valuable irrigation water and transportation would become cost prohibitive.

The COE began the EIS process addressing the impact of the Snake River dams on salmon populations in 1995.¹⁵⁴ In December 1999, after four years, \$22 million in study costs and fifteen public meetings, the COE released the draft EIS.¹⁵⁵ Four alternatives were identified, one of which evaluated the potential for the removal of the four COE Snake River dams.¹⁵⁶ On September 9, 2002, COE Northwestern Division published the Record of Decision on the EIS.¹⁵⁷ The COE concluded that breaching the dams was not scientifically justified and that present operations would continue with major system improvements and Adaptive migration.¹⁵⁸

The development and formulation of the COE — EIS occurred during the Clinton Administration and became the topic of intense debate

¹⁵¹ COE-EIS, *supra* note 16.

¹⁵² IRN, *supra* note 96 at 6.

¹⁵³ See generally American Rivers website, www.AmericanRivers.org (last visited March 15, 2003).

¹⁵⁴ GEN. ACCT. OFF., An Assessment of the Draft Environmental Impact Statement of the Lower Snake River Dams, July 2000, at 9 (on file with author) [hereinafter GAO-Dam Review].

¹⁵⁵ GAO-Dam Review, *supra* note 154 at 9.

¹⁵⁶ *Id.*

¹⁵⁷ See Newsletter 11 COE-EIS, *supra* note 100 at 3.

¹⁵⁸ See generally American Rivers website, available at www.AmericanRivers.org (last visited March 15, 2003).

438 GOLDEN GATE UNIVERSITY LAW REVIEW [Vol. 33:3

during the campaign.¹⁵⁹ Vice-President Gore campaigned on the proposal to study the results and convene a *Salmon Summit* while then candidate Bush stated that he would not support dam removal in any scenario.¹⁶⁰ An opportunity for leadership with a future vision of a region that recognizes the importance of salmon was scuttled in the political debate.

With the decision to continue to operate the lower Snake River dams in the manner that they have been, the COE agreed to pursue improving water management and transportation of juvenile salmon through the four reservoirs to the Columbia River.¹⁶¹ Subsequent reviews by the General Accounting Office¹⁶² have supported the process that the COE followed in the development of the EIS and have outlined the level of effort (funding) that the federal agencies have made in the salmon recovery effort.¹⁶³

The debate has shifted from whether the dams should be removed to one focused on the implementation of 199 actions to mitigate the impacts of existing Federal Power System operations. The 2002 Record of Decision and the 2000 Biological Opinion (BiOp) were linked to provide direction to federal activities in the Columbia and Snake River system.¹⁶⁴ It is clear that the COE committed to aggressively address the impacts associated with the dams¹⁶⁵ but to date little progress has been made.¹⁶⁶

D. 2000 BIOP

On December 21, 2000, NMFS released its BiOp on federal Columbia Basin dam operations and juvenile salmon transportation program for the years of 2001 to 2005.¹⁶⁷ This BiOp integrates with the COE EIS on the operational management of the Columbia and Snake River dams.

The BiOp included a review of the operations of COE and BOR dams throughout the Columbia/Snake river basin. The BiOp made a *no-jeopardy* determination regarding four listed lower river salmon species associated with dam operations in the Columbia and Snake Rivers and

¹⁵⁹ IRN, *supra* note 96 at 6.

¹⁶⁰ *Id.*

¹⁶¹ NMFS, Letter to Federal Power Management Agencies, Sept. 19, 2001, *available at* www.nmfs.gov (last visited March 15, 2003).

¹⁶² GAO-Dam Review, *supra* note 154 at 11.

¹⁶³ GAO, *supra* note 8 at 15-20.

¹⁶⁴ NMFS Findings 2002, *supra* note 95 at 8-9.

¹⁶⁵ See Newsletter 11 COE-EIS, *supra* note 100 at 3.

¹⁶⁶ NMFS Findings 2002, *supra* note 95 at 5-7.

¹⁶⁷ NMFS, Biological Opinion, Reinitiation of Consultation on Operation of the Federal Columbia River Power System, Including Juvenile Fish Transportation Program and 19 Bureau of Reclamation Projects in the Columbia Basin (Dec. 21, 2000) (on file with author) [hereinafter 2000 BiOp].

the juvenile transportation program¹⁶⁸ but determined that *jeopardy* related to dam operations would exist for the eight up-river-spawning populations.¹⁶⁹

Consequently NMFS developed a RPA under which dam operations could continue without jeopardizing the eight upriver listed salmon species.¹⁷⁰ The RPA focused on: (1) development of annual plans; (2) evaluation of ongoing actions; (3) studies of possible alternatives; and (4) off-site mitigation measures. These actions called for an adaptive management approach to salmon restoration¹⁷¹ but provided little specific responses that would occur should the RPA not be met. The centerpiece of the RPA was a series of performance standards by which NMFS will judge the success of the 2000 BiOp. These performance standards, which included 199 actions, were designed to include population, life stage, and specific standards related to the *Four Hs*¹⁷² that were organized into biological, physical and programmatic standards.¹⁷³

After the COE recommended against breaching the Administration agreed that the system would be studied for an additional period of time with appropriate funds allocated.¹⁷⁴ In addition to providing funding for activities in the basin, additional efforts are required to acquire flow augmentation from the Bureau of Reclamation (427,000 acre-feet) from the upper Snake River and the movement of that water through the Idaho Power Company Hells Canyon Complex of dams and reservoirs.

Following the initial year of implementation of the 2000 BiOp, limited success has been reported by the NMFS.¹⁷⁵ Of the 199 actions called for in the RPA, little to no action has occurred.¹⁷⁶ Under the current Bush Administration and with the considerable deficit being faced by the federal government, significant cuts in funding for salmon recovery are occurring.¹⁷⁷

E. INDEPENDENT REVIEW

In July 2000, the General Accounting Office (GAO) issued a report entitled *An Assessment of the Draft Environmental Impact Statement of*

¹⁶⁸ Avoiding Dam Breaching, *supra* note 75.

¹⁶⁹ 2000-BiOp, *supra* note 167.

¹⁷⁰ Avoiding Dam Breaching, *supra* note 75 at 253.

¹⁷¹ Avoiding Dam Breaching, *supra* note 75 at 254.

¹⁷² Avoiding the Dam Breaching, *supra* note 75 at 261.

¹⁷³ Avoiding the Dam Breaching, *supra* note 75 at 262.

¹⁷⁴ NMFS Findings 2002, *supra* note 95.

¹⁷⁵ NMFS Findings 2002, *supra* note 95.

¹⁷⁶ NMFS Findings 2002, *supra* note 95.

¹⁷⁷ See generally COLUMBIA BASIN BULLETIN, Jan. 17, 2003.

440 GOLDEN GATE UNIVERSITY LAW REVIEW [Vol. 33:3

*the Lower Snake River Dams.*¹⁷⁸ The GAO initiated their review at the request of Senator Slade Gorton and Gordon Smith, Subcommittee on Water and Power.¹⁷⁹ The GAO was asked to review on the EIS on the content, analysis, and conclusions drawn and potential effects on electricity, transportation and air quality.¹⁸⁰ Most important, the question of what the potential effects would be on the salmon populations, fishing economies or Native Americans was *not* addressed. The GAO concluded that the process that the Corp of Engineers followed in developing the EIS was procedurally correct from a NEPA and ESA perspective.¹⁸¹ The GAO did acknowledge that the substance of the COE's analyses and conclusions have been viewed as limited and incorrect by the Environmental Protection Agency.¹⁸²

In July 2002, at the request of Senator Michael Crapo, the GAO completed a report entitled *Columbia River Basin Salmon and Steelhead: Federal Agencies' Recovery Responsibilities, Expenditures and Action.*¹⁸³ In this review the GAO identified the amount of dollars expended by the federal agencies in support of the basin's salmon populations and concluded that due to limited data quantification of the impact of the federal agencies actions on salmon recovery is not possible.¹⁸⁴ The questions addressed by the GAO did not address the potential costs of the loss of the salmon populations and the additional costs that would be incurred by the government as regional economies are impacted.

In September 2002, the Rand Corporation published a report entitled *Generating Electric Power in the Pacific Northwest: Implications of Alternative Technologies.*¹⁸⁵ The importance of this report lies in the conclusions that if the lower Snake River dams were removed and the energy production replaced with alternative sources and improved efficiency, overall influence on the Northwest's economy would be positive. These conclusion further supports the economic logic that the COE has used in maintaining the dams is questionable and should be reassessed.

¹⁷⁸ GAO-Dam Review, *supra* note 154.

¹⁷⁹ GAO-Dam Review, *supra* note 154 at 3.

¹⁸⁰ GAO-Dam Review, *supra* note 154 at 5.

¹⁸¹ GAO-Dam Review, *supra* note 154 at 10.

¹⁸² GAO-Dam Review, *supra* note 154 at 11.

¹⁸³ GAO, *supra* note 8.

¹⁸⁴ GAO, *supra* note 8 at 1.

¹⁸⁵ RAND, *supra* note 18.

F. IS IT POSSIBLE TO PROVIDE THE LEADERSHIP AND VISION FOR A SALMON FUTURE?

Several actions are essential to follow through on the 2000 BiOp and to move positively forward on salmon recovery in the Columbia and Snake River basin. These actions include:

- Funding for implementation of actions needs to be provided by Congress;
- Funding approval for new starts;
- Developing and implementing operations agreements with the Canadian government;
- Ensuring that the BOR provides 427,000 acre-feet flow augmentation to the Snake River Basin by the BOR;
- Ensuring that the Idaho Power Company moves the augmentation water through their system of dams and reservoirs when needed by the salmon; and
- Developing National and Regional leadership on the salmon issues.

V. A CASE FOR NATIVE SALMON AND SNAKE RIVER RESTORATION

The COE received over 50,000 comments on their draft EIS.¹⁸⁶ Comments largely were in favor of breaching and removal of the four lower Snake River dams. Many people and organizations suggested a combination of dam breaching and implementation of the Pacific Salmon Treaty agreement, habitat restoration, and improving water quality and quantity.

The bottom line is the recommendation for returning the lower Snake River to a natural system. The benefits of this approach would include:

- Increased areas for spawning and rearing habitats for Snake River fall chinook;
- Improved juvenile migration conditions for Snake River salmon and steelhead, including closer to natural water temperatures, decreased predation, and faster in-river migration;
- Reduced downstream migration mortality and injuries from turbines, handling and bypass systems;

¹⁸⁶ See generally American Rivers website, available at www.AmericanRivers.org (last visited March 15, 2003).

442 GOLDEN GATE UNIVERSITY LAW REVIEW [Vol. 33:3

- Improved upstream migration for adult salmon by decreasing migration time, mistimed releases from dams, and increased temperatures in the mainstem rivers;
- Improved conditions for other native species of fish and wildlife in the Snake River basin by providing near-natural habitat; and
- Improving survival of native species by putting introduced species, such as predators of juvenile salmon, at a disadvantage.

The COE elected to maintain essentially operational status quo for the management of the four lower Snake River dams. Neither the COE nor the Bush Administration believed that taking aggressive steps for the salmon were justified when compared to the potential, and unquantified, impacts to the transportation and hydroelectric system of the lower Snake River. The primary justification was that economically the impacts of dam breaching were more than the regional economy could handle.

While the dams along the Columbia and Snake rivers provide cheap hydroelectric power, enable upriver navigation and benefit agriculture, they impede the passage of salmon between the rivers from where they spawn and the ocean where they live most of their adult lives. More than three billion dollars has been spent to restore the Columbia River basin salmon runs by federal taxpayers and utility ratepayers since 1980.¹⁸⁷

The COE concluded that the breaching of the four lower Snake River dams would result in a loss of 1,250 megawatts of hydropower or approximately five percent of the total energy produced in the regional system.¹⁸⁸ Removing the dams would provide economic benefits associated with fishing, recreation, and tourism and would have significant environmental benefit.¹⁸⁹ It would also have a negative impact on some agriculture.¹⁹⁰ Results from the Rand study concluded that the lower Snake River dams could be removed without hurting regional economic growth and employment. Diversity of the electricity resources could have a beneficial impact by distributing costs and uses to more effectively take care of regional needs.¹⁹¹

¹⁸⁷ RAND, *supra* note 18 at 27-31.

¹⁸⁸ RAND, *supra* note 18 at 32-33.

¹⁸⁹ U.S. ARMY CORP OF ENG'RS, Final Record of Decision — Lower Snake River Juvenile Salmon Migration Feasibility Report/Environmental Impact Statement, Corp of Engineers, Portland, OR 2000 (on file with author).

¹⁹⁰ RAND, *supra* note 18.

¹⁹¹ *Id.*

A. AMP AND INTEGRATED APPROACHES

Salmon declines did not happen overnight. It took many years to develop and therefore its solution will require a commitment of considerable time, money and effort. The National Research Council ("NRC"), in their review of salmon and society in the Pacific Northwest, concluded that there is not "magic bullet" that will solve the decline of salmon populations.¹⁹² An integrated and regional consensus driven approach should be developed in order to develop adequate scientific data including the social and economic sciences. Accomplishment of these objectives will require a watershed-based approach that addresses:

- All causes of salmon mortality, including their estimated magnitude and uncertainties associated with the estimates;
- Ways of reducing the sources of mortality or compensating for them, their probable effectiveness and their drawbacks; and
- The probable costs of each method of reducing mortality.

Most importantly the NRC¹⁹³ recommended that all actions be considered in a comprehensive adaptive management framework.

B. SUSTAINABLE SALMON AND SNAKE RIVER — DAM REMOVAL

Essentially what is required is the development of a new salmon culture. When Aldo Leopold laid down a foundation of a new land ethic he called for moving away from the traditional approaches to managing natural resources.¹⁹⁴ The key to salmon survival lies with determining the balance between our legal and moral obligations to manage salmon for future generations.

What is clear is that the lower Snake River dams have and will continue to have a significant impact on the ability for the listed Snake River salmon and steelhead to survive. Multiple independent scientific reviews and federal agencies have agreed that dam removal is the only way that the standards of the Clean Water Act and recovery of the salmon will be possible.

The current state of the salmon's existence is not the result of the failure of our vision and our management programs. It is the consequence of their success. It has been over a year since the COE has issued

¹⁹² NRC, *supra* note 4 at 1-17.

¹⁹³ *Id.*

¹⁹⁴ LITCHATOWICH, *supra* note 1 at 225.

444 GOLDEN GATE UNIVERSITY LAW REVIEW [Vol. 33:3

their Record of Decision¹⁹⁵ and the NMFS has issued their BiOp¹⁹⁶ and the status quo remains in the Columbia/Snake River system. Despite promises to immediately improve salmon habitat along the Columbia and Snake Rivers, agencies have failed to move forward to assist the recovery of the salmon species.¹⁹⁷ What has happened is that politics in the form of lack of funding and leadership in the agencies has led to a lack of commitment to promises made.

The NMFS in their review of the actions taken to meet the RPA conclude that actions were taken in 2001 but that impacts associated with the drought, power emergencies, and Bonneville Power Administrations' electrical system reliability and financial stability, limited the ability to meet certain goals.¹⁹⁸ Some of the more significant challenges include development of the infrastructure and identification of federal agency responsibilities for implementation of habitat measures and research, monitoring, and evaluation of the action measures.¹⁹⁹

What has happened is that in 2002 the chinook salmon returned to the Columbia/Snake watershed.²⁰⁰ Scientists believe that the increased numbers are due to changing ocean conditions while policy makers believe that it is due to their efforts.

C. POLICY ANALYSIS AND PUBLIC INSTITUTIONS

Evaluation of dams and the impacts that they have on rivers and the species that utilize them requires more than a biological perspective. In reality changes will only occur in an environment of policy directives that provide the legal and administrative framework to evaluate the management and potential removal of dams. Since many of the dams on the Columbia and Snake Rivers are federal and state dams, corrections, improvements or removal will require institutional action.

Recovery of the native salmon populations of the Columbia and Snake River system requires the dedication to apply an adaptive management approach that is based on immediate actions built on a scientific credibility that reestablishes critical natural river functions for critical ecosystem processes.

¹⁹⁵ U.S. ARMY CORP. OF ENG'RS, Final Record of Decision — Lower Snake River Juvenile Salmon Migration Feasibility Report/Environmental Impact Statement, Corp of Engineers, Portland, OR, 2000 (on file with author).

¹⁹⁶ 2000 BiOp, *supra* note 167.

¹⁹⁷ NMFS Findings 2002, *supra* note 95.

¹⁹⁸ NMFS Findings 2002, *supra* note 95 at 5.

¹⁹⁹ *Id.*

²⁰⁰ See Clark County Washington Endangered Species Act Information, available at www.co.clark.wa.us/site/esa4/events.htm (last visited March 15, 2003).

The combination of many factors has led to the demise of the native salmon populations. What is required is a well articulated plan, the basis of which can and should be built around the NMFS 2000 BiOp, a commitment for application with specific performance standards and consequences for non attainment, and most importantly leadership by regional and national figures. Specific measures must be implemented if the overall decline of the native salmon populations is to be reversed.

It is clear that the four lower Snake River dams will play a critical role in the recovery of the Snake River salmon populations. The science has overwhelmingly supported the breaching of the dams for the benefit of the salmon. Leadership, a defined vision for the salmon, and a commitment to recovery is required to implement the 2000 BiOp and simultaneously prepare for the breaching of the dams. Recovery of the salmon populations of the Columbia and Snake River system depends upon administrative, scientific and social coordination and a commitment to achieve the goal.

Under the present Administration, limited dollars, commitment to solving the dilemma and an a vision for the development of a sustainable environmental and economic system compromises the ability for the native salmon populations of the Columbia and Snake River system to survive for future generations. It indeed would be a significant loss for humanity if the salmon heritage of the Northwest were sacrificed for political reasons.