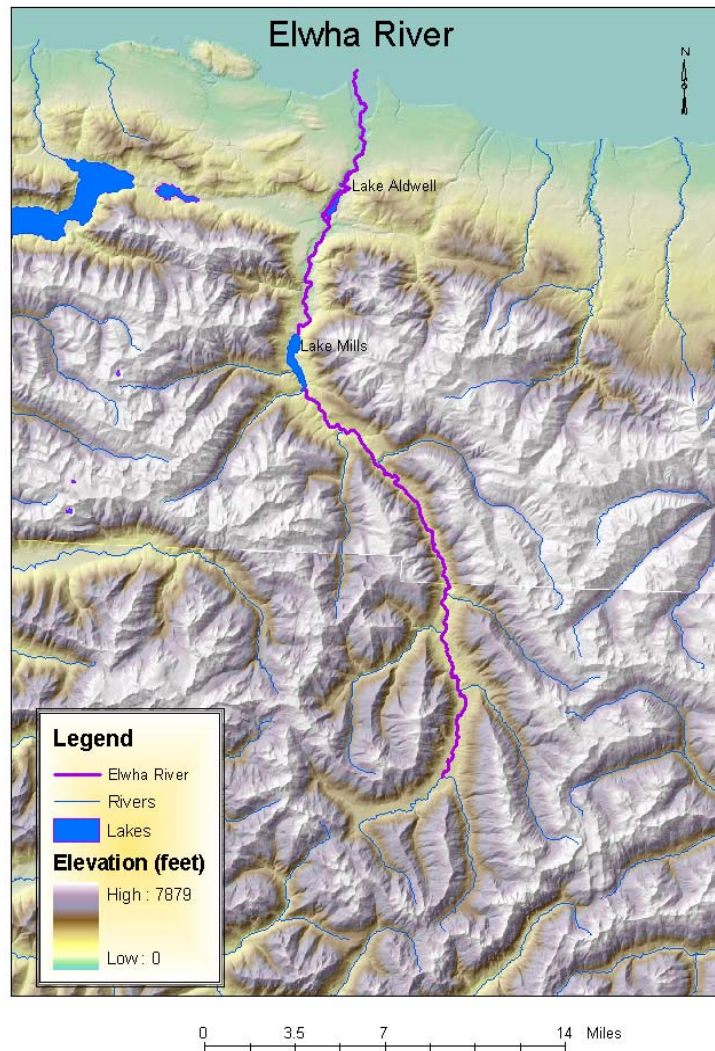


ENVS 295: Environmental Conflict Resolution
Professor: Saleem Ali

Elwha River Dam Removal

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Introduction

This paper examines the Elwha River Restoration Project and specifically the issue of dam removal on the Elwha River in Washington State. Dam removal was proposed in 1980 as an option to restore declining fisheries. The debate continued until 1994 when *The Elwha Report* selected dam removal as the preferred alternative to accomplish river restoration (Department of Interior, 1994a). The dams are now in Federal ownership but removal has been delayed from until 2007.

- **General Overview on Dam Removal**

Currently there are more than 76,000 dams listed on the US National Inventory of Dams (<http://crunch.tec.army.mil/nid/webpages/nid.cfm>). Some people estimate that there are as many as 2 million dams within the US (Graft, 2002). Over 400 have been intentionally removed during the 20th Century with the majority removed within the last 20 years (Pohl, 2002 and www.amrivers.org).

Dams were constructed to provide water to generate hydroelectric power, for city and agricultural use, for flood control, for navigation, for recreation, and for wildlife management. The benefits derived from dams were development focused but as their environmental impacts become more apparent we question their individual need. Dams interfere with geomorphic, hydrologic and biologic processes. They can completely alter a river ecosystem. These impacts can be deemed unacceptable to local or national interests.

By the end of the 20th Century changes in social, economic and ecological values have resulted in dam removals. The social arguments for dam removal focus the perceived recreational, ecological and economical values associated with a specific dam. Social values for public safety, clean water, a healthy environment and economic stability

interact in unpredictable ways and vary greatly in relation to dam removal. The economic arguments for dam removal often center on maintenance and licensing costs which can outpace economic output over time. Dam owners may see removal as an economic benefit by reducing costs and liabilities while fostering goodwill. Finally, the ecological arguments for dam removal focus on ecosystem health. Dams have a significant impact and have drastically altered river ecosystems. Dams have altered stream flows, changed the deposition and dispersal of sediments, change water temperatures, and changed fish and aquatic communities in many watersheds (Heinz Center, 2002).

- **The Elwha River**

The Elwha River runs north out of the heart of the Olympic Mountains in northwestern Washington (Figure 1). Its 45 mile course absorbs over a 100 miles of tributary streams and encompasses a 321 square mile watershed. The upper reaches and bulk of that watershed, 267 square miles, is pristine wilderness and lies within Olympic National Park. (Department of Interior, 1994b).

The Elwha River was renowned for its salmon fishery and provided habitat for 10 anadromous fish runs (spring and summer/fall Chinook, Coho, pink, chum, and sockeye salmon, winter and summer steelhead, sea-run cutthroat trout, and native char). The presence of these fish provided food for at least 22 species of birds and mammals (Department. of Interior, 1994b). The Lower Elwha Klallam Tribe lived along the lower reaches of the Elwha River. Under the Treaty of Point-No Point (1855) local tribes were granted fishing rights to the Elwha River by the United States Government (www.pbs.org/americanfieldguides/teachers).

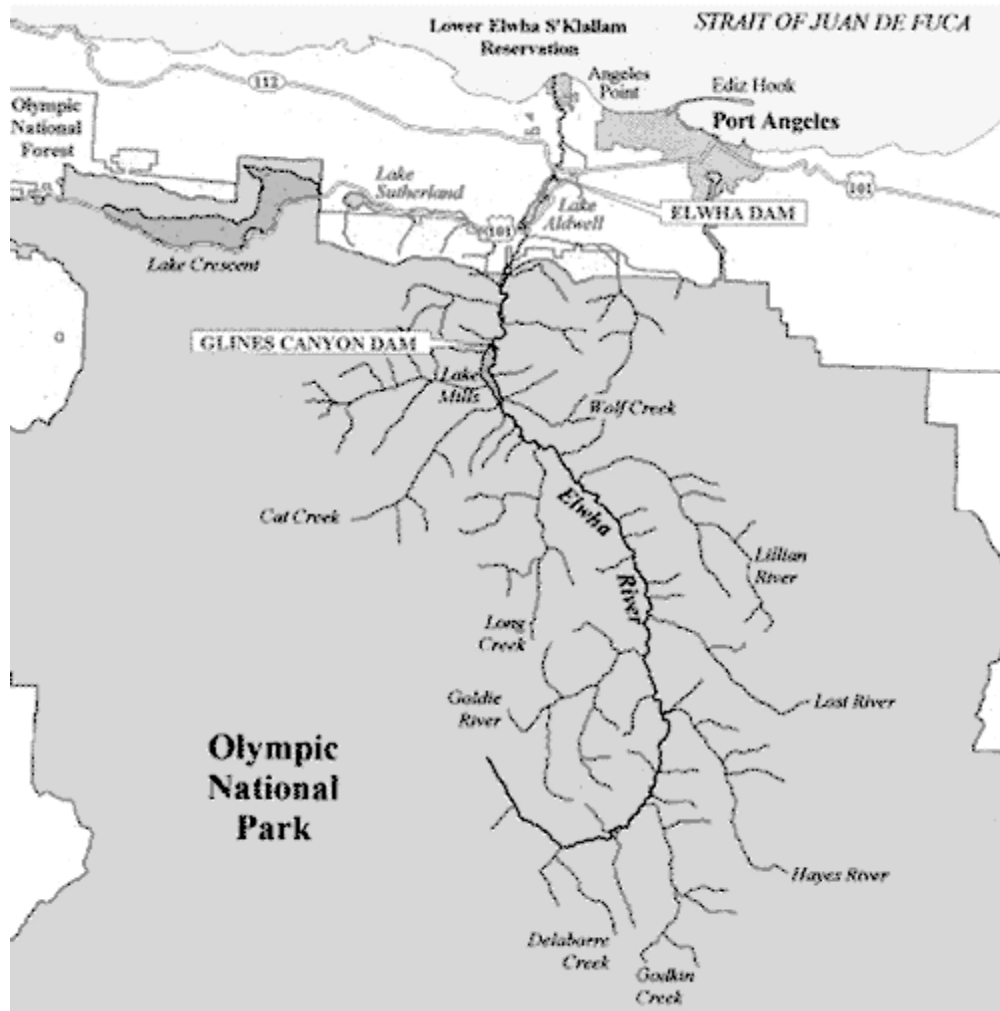


Figure 1: Elwha River Watershed (www.nps.gov/olym/elwha/documents.htm)

In 1910 Olympic Power Company began construction of the Elwha Dam at river mile 4.9 (Figure 2). Although the State of Washington required fish passage devices on all dams where fish “are wont to ascend” as early as 1890 none were built for the Elwha Dam (Brown, 1982 p. 64). In 1912 the Elwha Dam was completed but in October its foundation failed. The dam had been placed on top of deep gravel deposits which gave way under the pressure. A “jury-rigged patchwork of trees, rocks, dirt and concrete held

in place by gravity and the original concrete structure” completed the repair and has held to this day (www.elwha.org/hist.htm).

In the Fall of 1911 Clallam County game warden, James Pike wrote, “I have visited the Dam several times lately...and there appear to be Thousands of Salmon at the foot of the Dam, where they are continually trying to get up the flume. I have watched them very close, and I am satisfied now that they cannot get above the Dam.” He further stated that he could not find a salmon in the Elwha River or its tributaries above the Dam (Brown, 1982 pp 63-64). In 1915 a fish hatchery was established on the lower Elwha River as a compromise for the failure to provide fish passage. It was abandoned in 1922. In 1925 construction on a second dam, the Glines Canyon Dam at river mile 13.5 began (Figure 3). It received a license by the Federal Power Commission (FPC was the precursor to FERC), in 1926 to operate for 50 years. After 1976 it was licensed on an annual basis. Again, it did not allow for fish passage. The Elwha Dam was never licensed. Both dams provided power for a local paper mill in the town of Port Angeles, Washington.

In 1979 the two dams were considered one project for licensing purposes by Federal Energy Regulatory Commission (FERC). In 1980 the Lower Elwha Klallam Tribe filed a motion before FERC asking for an interim fish restoration plan and removal of the dams. In 1986 the Department of Interior claimed that FERC did not have jurisdiction to license the Glines Canyon Dam since it was within the boundaries of Olympic National Park. During the late 1980s the National Park Service, FERC, other federal, state and local government agencies, Crown Zellerbach (the owner of both dams who later changed its name to James River), Olympic Park Associates (an advocacy and watch dog group of Olympic National Park), environmental groups, and Native American tribes debated the fate of the Elwha River dams. The focus of the debate was who had jurisdiction over

the dams and was ultimately responsible for their impacts. FERC maintained that it had jurisdiction to license the dams but was challenged in court by both public and private entities. The court case drew in many of the stakeholders and was eventually resolved by a legislative act of the US Congress; Public Law 102-495 of October 24, 1992. The law, The Elwha River Ecosystem and Fisheries Restoration Act, authorized the Secretary of Interior “to acquire the Elwha and Glines Canyon Projects...” if he thought it necessary for the full restoration of ecosystem. The Secretary was to report to Congress, no later than January 1994, on alternatives that would best accomplished “full restoration.”¹ *The Elwha Report* stated that full restoration could only be accomplished by removal of both dams (Department of Interior, 1994a). In 1996 a Record of Decision was signed in favor of the preferred alternative; removal of both dams. In 1999 negotiations began for the Federal acquisition of both dams. On February 29, 2000 Federal acquisition of the Elwha and Glines Canyon Dams was completed and dam removal was to begin in 2004. The cost of acquisition was \$29.5 million. In September, 2002 a Supplemental Environmental Impact Statement (SEIS) was initiated due to “new research and changes...” (US EPA, 2002) The primary purpose of the SEIS is to identify and analyze potential impacts of a new mitigation measures.”² Final engineering design for dam removal is expected to be completed in 2004. Water quality mitigation measures are expected to be completed in 2006. Actual dam removal is to begin in 2007 with restoration and monitoring efforts to continue for sometime after the dams are removed.

¹ Public Law 102-495 – October 1992. *An Act to Restore Olympic National Park and the Elwha River Ecosystem and Fisheries in the State of Washington*. Section 3 (a) and (c).

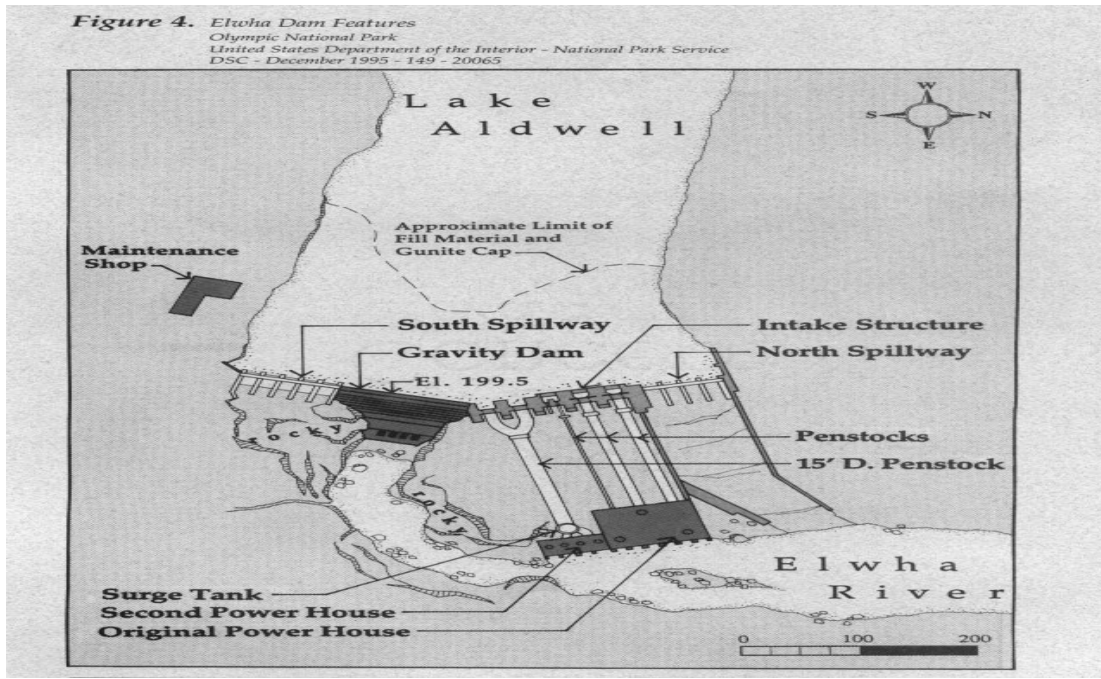


Figure 2: Elwha Dam (www.nps.gov/olym/elwha/documents.htm)

² US EPA. *Elwha Ecosystem Restoration Implementation; Olympic National Park; Clallam and Jefferson Counties, WA; Notice of Intent To Prepare a Supplemental Environmental Impact Statement*. United States Federal Register, September 12, 2002 (Volume 67, Number 177; pages 57834-57836).

Figure 5. *Glimes Canyon Dam*
Olympic National Park
United States Department of the Interior - National Park Service
DSC - December 1995 - 149 - 20066B

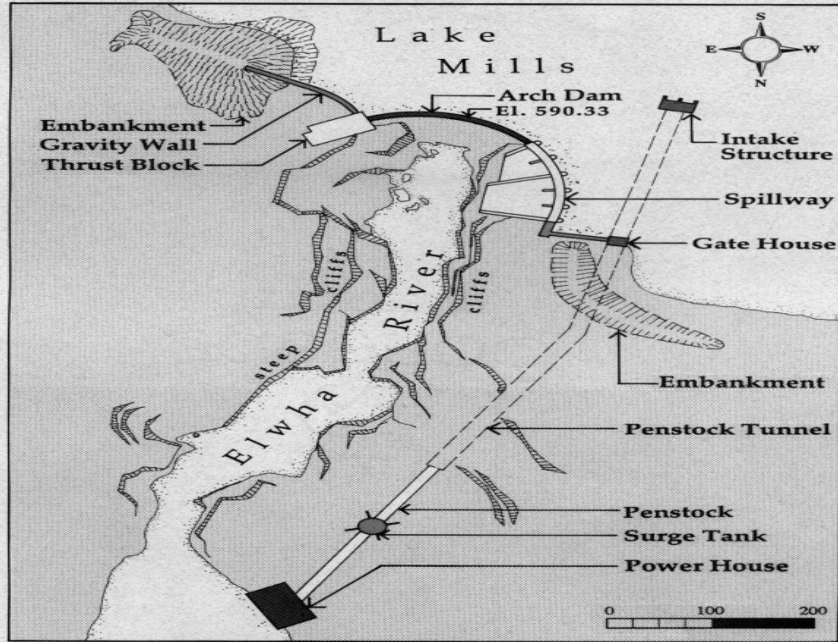


Figure 3: Glines Canyon Dam (www.nps.gov/olym/elwha/documents.htm)

The Conflict

- **Issues**

The catalyst that propelled this issue to the national stage was the issue of licensing. Who had the right to license a hydroelectric dam within a national park? This was aggressively pursued in order to determine;

1. who was responsible for the negative impacts, i.e. the dramatic decline in fisheries, and
2. how to restore the Elwha River ecosystem (regardless of the dams' existence).

The conflict actually started when the dams were built in violation of state fisheries laws by not providing for fish passage. In a time before an understanding of environmental science existed, when economic development drove social values, the dam's construction outweighed ecological concerns. Although people warned of future damage to the Elwha River salmon their voices were ignored.

The Lower Elwha Klallam Tribe watched the salmon decline and some species disappear (Department of Interior, 1994a and www.elwha.org/hist.htm). The Point No Point Treaty of 1855 was signed by Washington tribes and Washington Territorial Gov. Stevens. It stated Native Americans had, "The right of taking fish **at usual and accustomed grounds** and stations is further secured to said Indians **in common with all citizens** of the territory." [emphasis added] The "Boldt Decision" of 1974 interpreted this to mean tribes had a right to 50 percent of those salmon stocks they historically

used. In 1979 the US Supreme Court upheld the Boldt Decision. In the Elwha River, with the construction of the dams, salmon stocks had been severely reduced. In 2001 the Washington Department of Fisheries estimated the value of lost Elwha River salmon at \$500,000 annually (Burke, 2001). The owners of the Elwha River dams could be seen as having significant liability.

Fisheries restoration was not the only issue that was debated regarding the Elwha River and its dams. The hydroelectric power generated by the dams was used locally. If the dams were to be removed an alternative power source for the local mill would be needed. The Daisowha America Paper Mill in Port Angeles received between 34 and 42% of their power from the Elwha and Glines Canyon Dams. If effective replacement power was not found it could cost 1,000 local jobs or up to 7% of the counties workforce (Hearing on S. 2527, 1992 p 117).

Another issue confronting dam removal is water quality. The Elwha River supplies water for both municipal and industrial use. The town of Port Angeles, the Lower Elwha Klallam Tribe, Washington Department of Fisheries, and the Dry Creek Water Association all rely on water from the lower Elwha River. The Washington Department of Ecology rates the Elwha River's water as Class AA; extraordinary quality (Wunderlich et al. 1994 as cited in Pohl 1999 p 24). Removal of the dams and the release of sediments will, at times, impact water quality. The movement of both fine and coarse sediments will result in river aggradation and alter river channel stability in the Lower Elwha River (Pohl, 1999 and Abbe, 2003). These impacts on water quality and supply intakes will need mitigation.

As the above issues played out and continued to be discussed a shadow lay over the Elwha River restoration effort. If the dams were to be removed, who and how would they be paid for? Estimated costs for dam removal and river restoration varied between

\$66 and \$307 million (Department of Interior, 1992a p xviii). Public Law 102-495 gave the discretion to the Secretary of Interior to look into cost sharing (Section 3{c} {5}) but there was Congressional debate and concern (Joint Hearing on H.R. 4844, 1992 pp 75-77). As of 2004 the estimated project cost was \$182 million of which \$135 million had been secured by the National Park Service through appropriations. Cost sharing attempts were unsuccessful (Winter, 2004).

- **Stakeholders and Frames**

If you look at the list of “Persons and Agencies Consulted” over 50 agencies and more than 100 people became involved in this project (Department of Interior, 1994a). In reality this was only a partial list. Six stakeholders will be discussed in this paper; the Federal Energy Regulatory Commission, James River Corp., the Lower Elwha Klallam Tribe, Daisowha America Paper Mill, the town of Port Angeles, and Olympic National Park.

The Federal Energy Regulatory Commission licenses and inspects private, municipal, and state hydroelectric projects (www.ferc.gov). For a variety of reasons the Elwha Dam was never licensed. The Glines Canyon Dam was licensed by the Federal Power Commission (FPC was the precursor to FERC) in 1926 for a 50 year period. In 1976 the Glines Canyon Dam owner (Crown Zellerbach Corp. who became James River Corp.) questions FPC authority to license the dam. In 1978 an Administrative Law Judge (ALJ) decided that FERC does have jurisdiction over the Glines Canyon Dam. The following year FERC determines that the Glines Canyon and Elwha Dams are hydraulically, electrically, and operationally interconnected. FERC affirms the ALJ’s decision and combines the two dams under one licensing project. In 1986 the Department of Interior, Olympic National Park asserted that FERC did not have

jurisdiction to license Glines Canyon Dam since it is within a national park. In addition, Federal, State, Tribal, and environmental groups began to pressure for dam removal to restore the fishery.

Over much heated debate and through court challenges FERC maintained its licensing jurisdiction contrary to the opinions of the Departments of Interior, Commerce and Justice. FERC fiercely defended its authority to license the dams. The issue was ultimately resolved by Public Law 102-495 (www.nps.gov/olym/elwha/history.htm).

FERC was demonstrating both institutional and power frames (Lewicki, et al., 2003). They firmly believed only they could deal with the licensing of a private dam.

Questioning their authority on a dam they had licensed for 50+ years was a perceived threat and the removal of licensing authority on the dam would set an unacceptable precedent.

The James River Corporation was the owner of the dams prior to Federal purchase in 2000. They worked diligently in attempts to license the Glines Canyon Dam (prior to 1979). When FERC ruled that the two dams were interconnected and should operate under one license in 1979 James River Corp. (previously Crown Zellerbach) filed an updated license application. It is obvious that they tried to work with other stakeholders to navigate the licensing process. In 1975 they reached an agreement with the State Department of Fisheries to contribute \$145,000 for a spawning channel and to regulate river flows for fisheries management (www.nps.gov/olym/elwha/history.htm). As the debate grew in intensity they continued to work towards a resolution.

It is worth quoting Robert J. Morgan, Vice President/Resident Manager of James River, “...**James River has pursued in good faith** and at very substantial expense FERC licenses for the Elwha projects.” (Hearing on S. 2527, 1992) Mr. Morgan also stated, “It has become increasingly apparent to James River, as well as to the sponsors of this bill,

that FERC licensing for these projects will inevitably be accompanied by very substantial political and legal conflict. The resultant cost will be substantial to all interests... To avoid such a result and to best serve all interests under the circumstances, James River accepted well over 1 year ago the offer of Chairman Bradley, Senator Adams, Senator Gorton, Congressman Swift, and other in the Washington State delegation to seek ***a consensus resolution*** on the Elwha issues.” (Joint Hearing on H.R. 4844, 1992). [emphasis added]

James River is a private, for profit, business. As the debate over licensing and dam removal continued it became apparent that costs would rise. In addition, the liability over lost fisheries and tribal interests could be significant. James River supported a legislative resolution that would benefit them by Federal purchase of the dams and release from any liability.

The use of positive characterization frames helped James River not only to shed light on their own organization but also to understand the other organizations involved (Lewicki, et al., 2003). Once the dams were purchased by the Federal Government in 2000 James River Corp. was free of the conflict.

The Lower Elwha Klallam Tribe has a historic and pre-historic connection to the Elwha River watershed that dates back thousands of years (Department of Interior, 1994a). This was their aboriginal land. During the 1800s growing pressure from traders and settlers resulted in the Point No Point Treaty (1855) of which they were one of the signature tribes. In the late 1800s some families were given public domain allotments along the lower Elwha River but their legal right to the land was often questioned. During the 1930s the Indian Reorganization Act recognized the landless status of the Lower Elwha Klallam Tribe. In 1968 the Lower Elwha Indian Reservation established 572 acres near the mouth of the Elwha River and finally legally connected the Tribe to

their homeland (www.elwha.org/hist.htm and www.jamestowntribe.org/historyandculture.htm).

Klallam is translated as meaning “Strong People” and they were often referred to as “Fish-Eaters” because of their heavy reliance on a variety of native fish (<http://users.aol.com/donh523/navapage/elwha.htm>). Not only did the Elwha River provide the fish they relied on but it also provided them with sacred sites.

When the Elwha Dam was built it not only interrupted the life cycle of anadromous fish but it buried sacred sites. When the Glines Canyon Dam was completed it further disrupted the connection between the Elwha River and the Lower Elwha Klallam Tribe (Department of Interior, 1994a). The Tribe’s continued pressure to restore a viable fishery gained strength over time. The Boldt Decision reinforced concern over the dams’ liability and by the 1980s significant attention was given to dam removal as a way to remedy the issue of fisheries recovery.

The issue of dam safety also supported removal. The Elwha Dam failed in 1912 and the repair was hasty. The Dam was inspected by the Army Corps of Engineers in 1978 and concerns over its stability of were raised. Dam modifications were completed in 1986 to address these concerns however, the Dam was never licensed by FERC and questions of dam safety persist. Dam safety issues prevented the Tribe from obtaining over a million dollars from the US Department of Housing and Urban Development in the late 1970s (www.elwha.org/hist.htm).

The dams also prevent gravel from moving downstream. This has caused shoreline erosion along the Strait of Juan De Fuca, increased flood risk and reduce habitat for anadromous fish (Abbe 2003, Pohl 1999, Department of Interior 1994a, and www.elwha.org/htm).

It is not hard to see the Lower Elwha Tribe has a strong identity based frame (Lewicki, et al., 2003). They have been connected to the Elwha River for thousands of years. It is their intention to restore the lands and resources (anadromous fish) that have been altered and impaired by non-native peoples. The removal of the dams would end the oppression they have been subjected to in both a figurative and literal sense. Dam removal would give the River and the Tribe a chance to heal.

The Daisowha America Paper Mill is one of the major employers for Clallam County and contributes significantly to the economy of Port Angeles. In 1991 the Mill employed more than 300 people, had invested more than \$100 million in modernization since acquiring the facility in 1988 and contributed \$43 million to the local economy in the form of salaries, miscellaneous expenses and property taxes (Joint Hearing on H.R. 4844, 1992 p 135). The Elwha River dams have provided 34-42% of the Mills electrical power needs (Hearing on S. 2527, 1992 p 117). Daishowa America (DA) had been negotiating with James River to purchase the dams once licensed by FERC. Since licensing appeared to be headed into lengthy litigation DA accepted an invitation from members of Congress to seek a legislative solution (Joint Hearing on H.R. 4844, 1992). The continued access to cheap power was the primary concern for DA. The proposed legislation would allow for power to be supplied by the Bonneville Power Administration (BPA). A sticking point was the rate at which BPA would have to charge DA. Since the Elwha dams provided cheap power, lower than the rate BPA could charge, the legislation would have to compensate for the difference. This would amount to a Federal subsidy to DA if the dams were removed. There was strong opposition to this from the Washington Public Utility Districts Association and the American Public Power Association (Hearing on S. 2527, 1992 pp 165-170). The final legislation states, "The local industrial consumer shall pay the local preference customer for such project

replacement power at the same rate as all other industrial consumers of the local preference customer.” (Public Law 102-495, 1992 Section 5{b}).

Conflict management frames of appeal to political power and joint problem solving can be attributed to DA. In addition, power frames due to DA’s economic impact on the area were used. (Lewicki, et al., 2003). Ultimately a mutually agreeable solution was found for DA in Public Law 102-495.

Port Angeles (PA), Washington provided economic and social weight to the Elwha River Restoration debate. The town was the home to DA, to individuals and groups both for and against dam removal and had municipal and industrial water supplies drawn from the Elwha River. The Major of PA, James D. Hallett stated, “The city doesn’t seek to gain anything through the dam removal... What we are saying is that we want to *maintain the status quo*.”³ [emphasis added] The primary concern for PA was deterioration of water quality if the dams were removed. Perhaps more important to this issue was the local communities reaction. The issue had the potential to divide the community. This was recognized and lead to the creation of the Elwha Citizens Advisory Committee. It was a 16 member committee comprised of local community leaders with a diversity of backgrounds and views. The Committee met weekly for six months and drafted a 30 page document, “The Elwha River and Our Community’s Future.” This document was provided to the Washington congressional delegation and the US Secretaries of Commerce and Interior. It demonstrated community consensus supporting dam removal (Lydiard, 1996).

Port Angeles, as an official entity, demonstrated a variety of frames. All of PAs frames attempted to maintain the present quality of life. Identity based frames may have been

³ Hearing on S. 2527, June 4, 1992. p 120. Testimony from J. D. Hallett, Major of Port Angeles, Washington.

strongest however, the social control frame of egalitarianism was also present (Lewicki, et al., 2003). A wide variety of frames could be found for the individuals and groups that became involved.

Olympic National Park (ONP) and the Department of Interior played, and continue to play, a significant role in the restoration of the Elwha River. As stated in the Introduction the Elwha River watershed is predominately wilderness and within ONP. ONP is mandated to protect the ecological processes and integrity of the lands within its boundary. There was criticism over fisheries recovery within the Elwha River watershed based on ONP unwillingness to study options including dam removal (Lein, 1991 p 365). In fact it was a group of environmental organizations that pressed for dam removal, in 1984, and questioned FERC authority to license a dam in a national park. This was a turning point. Public attention surrounding dam removal on the Elwha grew rapidly drawing in a multitude of agencies, business interests, environmental groups and the general public. In 1986 ONP and the Department of Interior asserted that FERC did not have jurisdiction to license the Glines Canyon Dam. The Lower Elwha Klallam Tribe, the National Marine Fisheries Service, the U.S. Fish and Wildlife Service, and ONP began to actively support dam removal as the best way to restore the Elwha River. Growing tensions moved the debate into the court system. It became apparent to ONP and all stakeholders that a court ruling may solve the licensing issue but not the bigger picture of river restoration. At this point attempts were made to find a legislative solution. ONP provided expertise and scientific support for river restoration options, including dam removal. Also, ONP took on the primary responsibility for producing *The Elwha Report* and several environmental impact statements. More than most of the other stakeholders, ONP would have to live with the consequences of restoration efforts as they were the primary land owner within the Elwha River watershed.

The frames that ONP and the Department of Interior operated under were variable. Arguments can be made that ONP demonstrated organizational, power, social, characterization and identity frames. True to its nature and history, once it obtained a focus on how to resolve the issue, ONP and the Department of Interior steadfastly and aggressively pursued their chosen alternative; dam removal. This is most likely manifested in power and political frames.

- **Political and Social Power Structures**

The Elwha River restoration debate has been on going for decades. It appears that public pressure and mounting support for dam removal grew from environmental organizations. It was the Seattle Audubon Society, Friends of the Earth, Sierra Club and Olympic Park Associates that pushed to intervene in the FERC licensing process and advocated dam removal. Not only would dam removal provide the best opportunity for fisheries and river restoration but the social justice issue involving the Lower Elwha Klallam Tribe could be addressed.

These initial groups gained the support of other environmental groups, state and federal agencies. By the early 1990s the debate over FERC jurisdiction to license the dams was moving toward a costly and lengthy legal battle; the issue was heading to court. FERC insisted it had jurisdiction. Business, industrial and power interests hoped to continue reaping dam benefits but a long list of private, state and federal agencies argued for dam removal.

The controversy garnered the attention of the Washington Congressional delegation. They were split over dam removal and wary of a protracted legal battle (especially after the Northwest timber wars and the Spotted Owl controversy). Although lacking

agreement amongst themselves they invited a wide range of stakeholders to work on finding consensus. There was immediate acknowledgement that a legislative solution would be preferable over court battles. The process involved an intimidating list of stakeholders but all seemed willing to come to the table. Many of the stakeholders had opportunities to testify at Congressional hearings (Hearing on S. 2527, 1992 and Joint Hearing on H.R. 4844, 1992). Ultimately consensus was achieved and legislation was enacted. The story does not end there. The legislation that passed required a study of alternatives for river recovery of which dam removal was one option. Dam removal was strongly opposed by Washington Republican Senator, Slade Gorton, who chaired the Senate Interior Appropriations subcommittee. Funding for dam removal would be difficult, especially after the 1994 election and Republican control of Congress. Eventually, Gorton would reluctantly support the dam removal. Funding for the purchase of the dams was appropriated and Federal acquisition was completed in 2000.

Dam removal was to begin in 2004 however, another environmental impact statement was announced by the Department of Interior in 2002. This delayed dam removal until 2007. The cost of dam removal requires strong political support. This support was weakened in the 2000 Presidential election and due to significantly altered national priorities. Although approved dam removal will have to wait for a more politically favorable environment or a much more aggressive social movement.

- **Role of Science**

As a society we have traditionally looked to science to allow for informed decisions. Presently, science is no longer considered unbiased and free of political debate. During this conflict science was used by both opponents and proponents of dam removal.

In a report produced by Rescue Elwha Area Lakes (REAL) the author states, “We learned that the main argument used by the other side – that the dams were ruining the river for salmon spawning by starving it of gravel – *is a hoax...* We have the written opinions of two biologists, both holding PhD’s from the University of Washington, that there is no truth to the ‘gravel starvation’ theory.”⁴ (www.buchal.com/tgsh/chap7/c8fn-04.htm) As the debate continued more scientific data was accumulated in support of dam removal but significant questions remained. One study acknowledged that, “‘full restoration’ and ‘reestablishment of natural physical and biological ecosystem processes’ (U.S. National Park Service, 1995), are not scientifically achievable and are generally ambiguous.” (Pohl, 1999)

There was, and is, significant scientific support for dam removal to achieve the majority of river restoration goals. Environmental groups cited numerous studies supporting dam removal and pushed for a timely removal of the dams early on. In 1992 Shawn S. Cantrell sated, “I would point out that there have been over 7 years worth of very detailed, very specific scientific study done...”⁵ Science can be used as a tool to delay progress. Perhaps the most insightful comments were provided by Keith O. Fultz, Director of Planning and Reporting, Resources, Community, and Economic Development Division of the US General Accounting Office. He said, “In summary, Mr.

⁴ Footnote #50 from The Northwest Power Planning Council’s Second Try, the “Normative River” on website listed (www.buchal.com/tgsh/chap7/c8fn-04.htm)

⁵ Hearing on S. 2527, June 4, 1992 p 144. Statement from S. O. Cantrell; Assistant Northwest Representative, Friends of the Earth Seattle, WA.

Chairman, whether and how to restore the Elwha River ecosystem and fisheries are essentially ***public policy decisions in which value judgments*** must be made about costs, benefits, and trade-offs.”⁶ [emphasis added]

Controversy analysis has been defined by several approaches that may help us understand the role of science in a conflict (Martin and Richards, 1995). The Elwha River conflict is best described by the integration of the *group politics* and *positivist* theories. The group politics theory is demonstrated through the interaction of a wide range of interest groups and the attention to both technical and social issues. Although not as strong, the positivist theory is demonstrated by the strong reliance on science as provided by the Federal government. Opposition to dam removal weakened as additional studies supported dam removal from a social, economic and biological perspective.

The Elwha River case can be used to demonstrate a positive example of the decision framework provided by The Heinz Center shown in Figure 4 (Heinz Center, 2002). The goal of river and fisheries restoration were identified (Step 1). Then, not with any well organized collaborative effort, major issues of concern were identified (Step 2). Extensive legal, physical, biologic, economic, and social information was collected and amassed into numerous studies (Step 3). Both the natural and social sciences needed to be involved to insure an agreeable outcome was reached but ultimately, a decision based on “value judgments” was made (Step 4 & 5). Assessment and monitoring of will begin once dam removal occurs (Step 6).

⁶ Fultz, K.O. July 9, 1992. United States General Accounting Office Testimony on Hydroelectric Dams Proposed Legislation to Restore Elwha River Ecosystem and Fisheries. GAO/T-RCED-92-80.

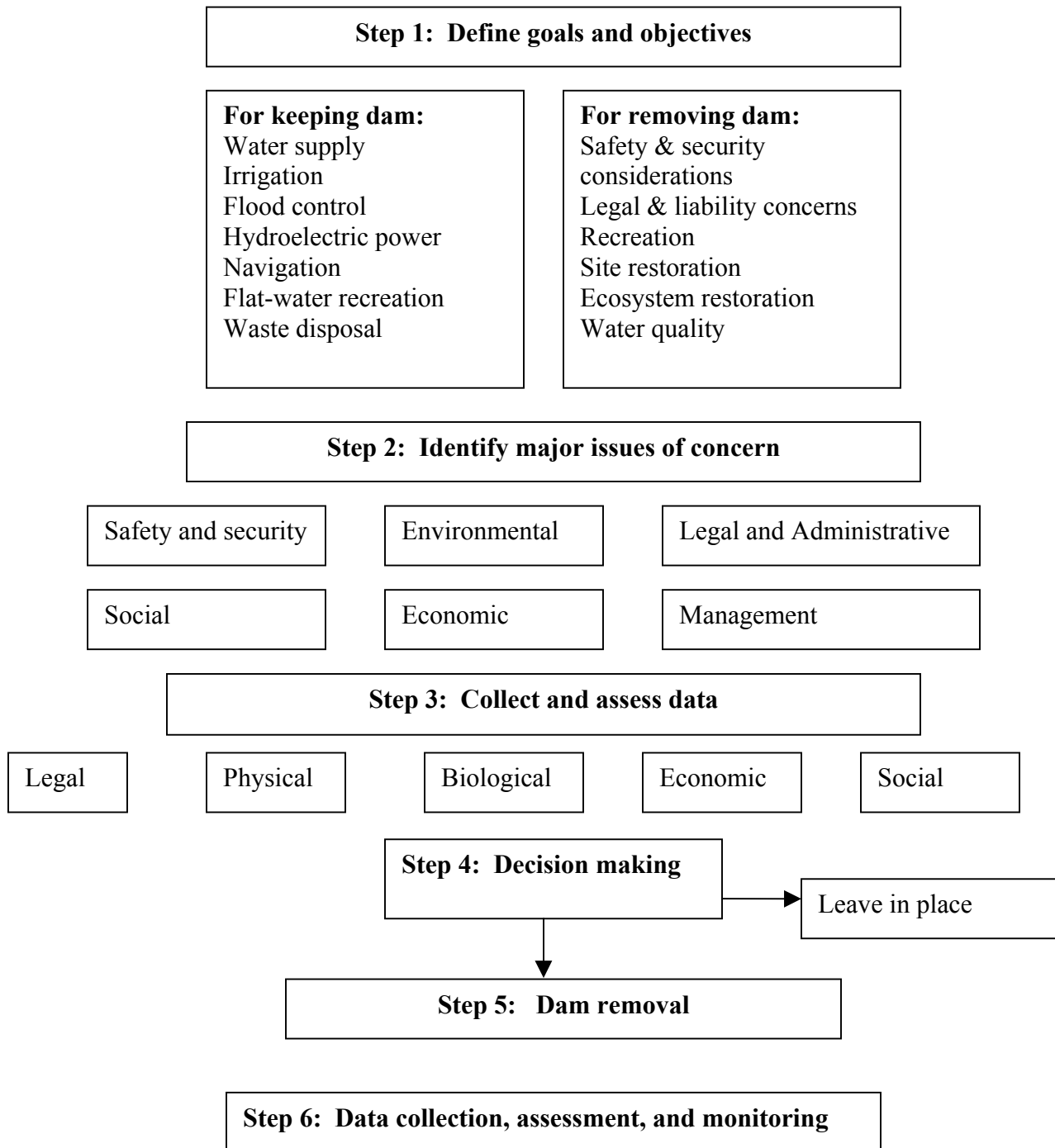


Figure 4: General method for dam removal (Heinz Center 2002. p 6)

- **Best Alternatives To a Negotiated Agreement (BATNA)**

Reaching consensus implies compromise. The study of negotiation analysis often refers to the *best alternative to a negotiated agreement* (BATNA) when analyzing how agreements were reached among participants (Watkins, 2000). For simplicity, the Elwha River case is broken down into two groups; those who favored dam removal and those who opposed. The BATNA for those who opposed dam removal would have to consider the cost of dam maintenance, licensing (including legal challenges), environmental compliance (support fisheries restoration), and liability (which could be significant considering Native American fisheries rights and safety issues). The cheap cost of power supplied by the dams could prove minor compared to these accumulating costs. This can allow us to speculate that the BATNA for this group was low and would include removal of the dams without Federal support as long as they were released from dam removal and liability costs.

The BATNA for dam removal proponents would have to consider continued legal battles, reduction in fisheries production (with probable local extinction of some species) continued alteration and degradation of the Elwha River ecosystem, continued inaccessibility to cultural sites, and continued risk associated with dam safety. Many of these components are difficult to value but significant economic benefits were predicted if both dams were removed (Meyer, 1995). Both groups would gain value if they entered into negotiations.

The strong desire by all parties to keep the conflict out of the court system and to find a legislative solution may have indicated the “zone of possible agreement” for the two

parties was larger rather than smaller. Figure 5 shows the zone of possible agreement but where were they in relation to the “Efficient Frontier” or the optimal benefit curve?

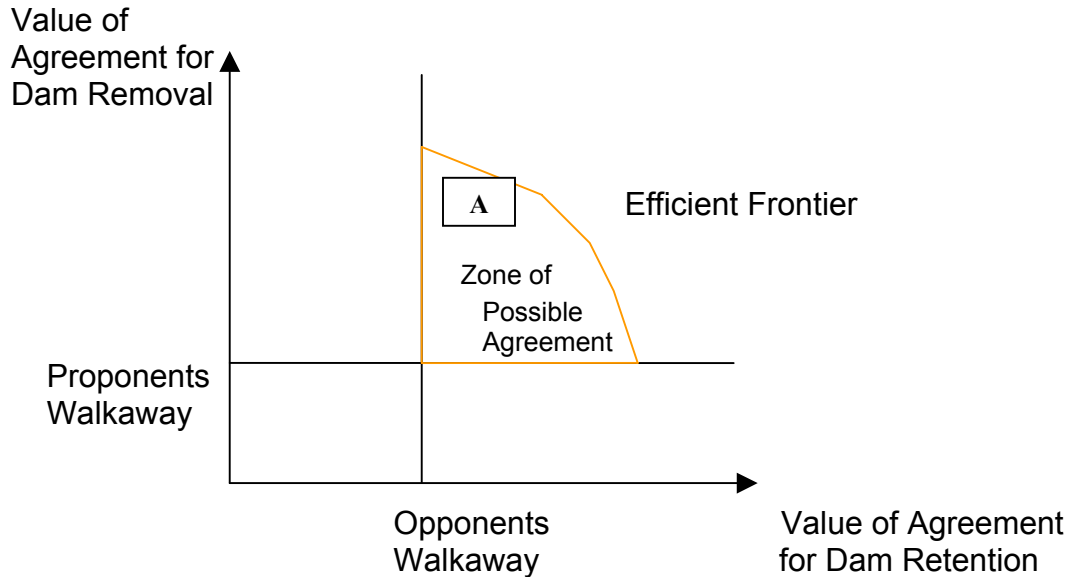


Figure 5: Zone of Possible Agreement Graph (Watkins 2000. p 20.)

I would argue that the legislation that was passed, the negotiated agreement, lay somewhere around the location of A. The justification for this reasoning is based on the considerable cost associated with the continued operation of the dams. The Opponents did not see a strong operational or economic reason for retaining the dams. This agreement would generate goodwill within an increasingly environmentally conscious public, release them from liability and they would be financially compensated. This would place the agreement’s benefit higher on the y axis.

For Proponents there was a higher long term value in dam removal. Although they may have had a stronger negotiating position, they relied on the long term benefits of river restoration to far outweigh any costs of dam retention. For these reasons the

agreement seemed to slightly favor dam removal opponents from a short term economic standpoint.

Conflict Evolution

It is apparent that as this conflict evolved it was moving towards a point of intractability. The long term nature of the conflict, the divisive and intense nature over dam licensing, the environmental impacts associated with the dams and the courts involvement are all characteristics of intractability (Lewicki, et al., 2003). Although the elements for intractability were present something needed to move the conflict in a more productive direction. What was the catalyst that moved the conflict away from intractability? I believe it was the stakeholders recognition that litigation and the courts would not be able to provide a workable solution (Congressional Hearings, 1992). Then again, this may have been a component but not the true catalyst. The growing societal awareness of the opportunities for ecosystem restoration presented by the Elwha River is unique and unprecedented. It is the first opportunity to restore an ecosystem on such a scale and is economically, biologically and socially feasible. This unique opportunity to restore an ecosystem was something all stakeholders could believe in. If it were not for this general societal awareness the stakeholders could not have come to consensus on a remedy. The legislative solution provided hope and promise that the conflict had indeed ended. Unfortunately financial and political realities have delayed implementation of the agreed upon solution.

Conclusions

In the hopes of providing some focus and insights for future conflicts of a similar nature I have listed some recommendations. My only significant criticism lies with the longevity of the debate and implementation of the negotiated agreement; dam removal.

Federal Energy Regulatory Commission

- FERC should have been more accepting of the mounting legal evidence that questioned their jurisdiction over licensing the Glines Canyon Dam.
- FERC shared similar conclusions regarding river restoration and may have facilitated a more timely recovery if they had accepted their lack of jurisdiction.

James River Corp.

- James River appeared willing to work with all agencies in pursuit of licensing but never seemed to consider dam removal. This may have prolonged the negotiations once dam removal was actively considered.
- James River should have developed win-win scenarios for river restoration and not viewed the situation as a zero sum game.

Lower Elwha Klallam Tribe

- The Tribe should have more aggressively investigated the economic loss of salmon stocks. This could have been used as leverage for a timely river restoration effort or monetary restitution.
- The Tribe had other social justice issues tied to the dams. Publicity campaigns or other educational programs could have raised public consciousness and public support for dam removal.

Daisowha America Paper Mill

- The Mill should have been more pro-active in dealing with the issue. Developing win-win scenarios may have allowed them to shift public and business attitudes away from a zero sum game situation.

Port Angeles, Washington

- Port Angeles (PA) should have recognized, early on, that this issue could polarize the community. PA could have actively organized and supported a diverse citizens' group which did happen well into the conflict.
- Port Angeles should have more actively supported social and economic impact studies of river restoration and dam removal.

Olympic National Park

- A clearly stated position, stressing a long term goal, of Olympic National Park was to remove the dam in order to restore the Elwha River ecosystem should have occurred prior to 1976.
- The Park should have seen this one coming and considered possible outcomes.

Considering the scale, social and ecological significance of this conflict it is surprising that few, if any, stakeholders developed scenarios with alternative outcomes earlier on. Some stakeholders possessed the economic resources to more proactively predict possible outcomes. The case demonstrates a reactive, as opposed to pro-active, style of management within public and private sector planning.

Overall, it appears that the Elwha River Restoration Project is a positive example of conflict management but, it continues to present some challenges. The major issues that defined the conflict have been resolved but the resolution has not yet been fully implemented. It is the implementation of dam removal that lingers. The opportunity for ecosystems restoration involving the removal of, not one but, two significant dams is unprecedented. This provides both inertia and resistance. Few people will debate on whether the dams will be removed; it is more a question of when. Unfortunately, continued delays threaten the anadromous fishery. Since the decision for dam removal was made the National Marine Fisheries has listed 2 of the Elwha's salmon as "Threatened" or "Candidate" species under the Endangered Species Act (www.nwr.noaa.gov/1salmon/salmesa). This reinforces the need for dam removal sooner rather than later. Why has dam removal been delayed? It can be speculated that significant political pressure has to be maintained at all levels of government to see this project through. A change in the Federal Administration in 2000 and terrorists attacks in 2001 dramatically changed national priorities. These changes shifted attention away from the Elwha River. The new political climate may have provided agencies a convenient excuse to delay dam removal? Whatever the true cause for delays the Elwha River Restoration will provide us with a unique opportunity. Not only can we study ecological restoration but we can also study the ways in which we make decisions surrounding a complex problem, decisions that are ultimately judgmental and subjective.

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Internet Resources

Government Sites:

- U.S. Dam Inventory: <http://crunch.tec.army.mil/nid/webpages/nid.cfm>
- National Park Service; Elwha River Recovery: www.nps.gov/olym/elwha/history.htm
- Federal Energy Regulatory Commission: www.ferc.gov
- National Oceanographic and Atmospheric Administration; northwest salmon recovery: www.nwr.noaa.gov/1salmon/salmesa

Native American Sites:

- Lower Elwha Klallam Tribe; River Restoration: www.elwha.org/hist.htm
- Jamestown Klallam Tribe: www.jamestowntribe.org/historyandculture.htm
- Lower Elwha Klallam Tribe; history:
<http://users.aol.com/donh523/navapage/elwha.htm>

Other Sites:

- American Rivers: www.amrivers.org
- Salmon vs. Dams: The Dam Removal Debate on the Elwha River:
www.pbs.org/americanfieldguides/teachers