Conflicting stakes and governance relating to the co-management of salmon in the Columbia river basin (U.S.A.)

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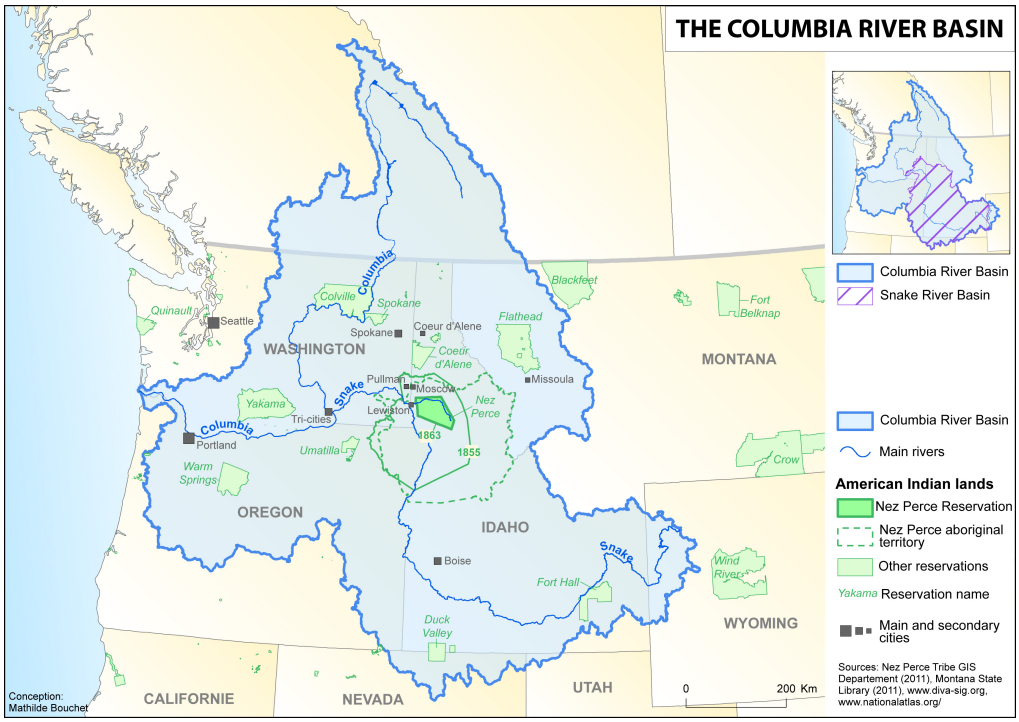
Introduction

1 The governance brings together federal and State agencies as well as Indian tribes within the Columbia River Basin in the States of Idaho, Oregon and Washington. This basin covers 670,000 km², 80 percent of which are concentrated in the U.S. Pacific Northwest region. The remaining 20 percent are located in southwestern Canada (British Columbia). Its ecosystems are varied, from the semi-arid plains and canyons in southern Idaho to the humid climate of the Pacific Coast. They also encompass vast forested mountains in the east as well as steppe on the central continental shelf. In the west, the Cascade Range is characterized by record high snowfall totals. Ecosystem connections between the lower and upper parts of the basin require a governance in its whole U.S. portion. I study this governance at two different levels : this portion and the thirteen million acre Nez Perce aboriginal territory located in the east (Figure 1).

Figure 1. The Columbia Basin



2 The regional challenge is tremendous. It is about restoring salmon populations whose returns at the mouth of the Columbia River declined from eleven to sixteen million in the 19th century (Taylor, 2009) to less than 2.5 million at the beginning of the 21st century (Fish Passage Center, 2013).

3 The co-management of salmon is connected to one critical environmental issue (the quality of aquatic ecosystems) and four main economic issues : fishing and the agricultural, hydroelectric and recreational uses of water (Figure 2). In addition, an underlying geopolitical issue is related to the legal status of regional Indian tribes. They have been struggling for the restoration of treaty rights relating to fishing resources since the 1950s. They have been significantly but partially successful so far.

Figure 2. Photographs of the study area

Nicolas Barbier, 2006.

A Nez Perce fishing salmon on the Rapid River in Idaho.

Daryl Hunter.

Non-Indians fishing salmon on the Salmon River in Idaho.

Dean Forbes, 2011.

Pesticides are sprayed on wheat fieds in the north of the Nez Perce aboriginal territory.

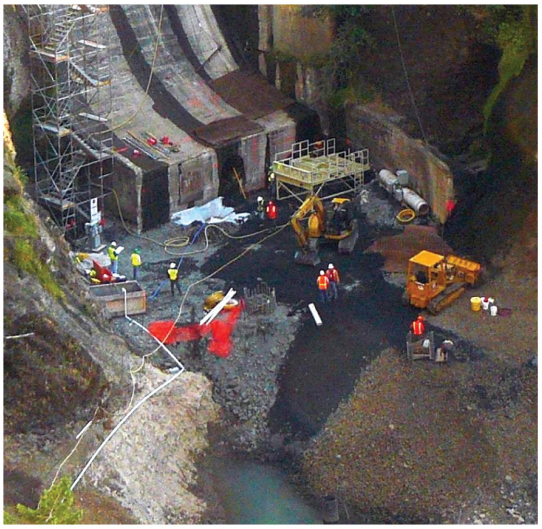
VisitIdaho.org, 2013.

Hells Canyon (Snake River).

Columbia River Inter-Tribal Fish Commission, 2013.

A Nez Perce releases salmon in the Nez Perce National Forest (Idaho).

Steve Stampfli, 2011.



Pre-removal operation on the Condit Dam on the White Salmon River (western Washington).

4 This article focuses on a series of related themes : the socio-environmental and politico-legal contexts ; regional issues connected to salmon ; the relationships between the protagonists of the governance ; the division of their roles in terms of capacity to operate on the ground, decision-making responsibilities and intervention areas ; the impacts of these regional issues, relationships and division of roles on the results of co-management.

5 This study is hinging on four main questions. What are the socio-environmental context and legal framework of the governance relating to the co-management of salmon ? To what extent

do regional issues connected to salmon steer this governance and influence the results of co-management ? What are the common ground and conflicts between the protagonists involved ? Which strategies, pragmatic, sustainable and respectful of American Indian treaty rights, can be considered in order to increase the chance of salmon recovery ?

Methodology and conceptual framework

A methodology based on extensive field work and in-depth analyses

6 This article is partly based on my PhD dissertation whose title is *Conflicts between Indians and non-Indians over the management of land, the environment and natural resources in the Nez Perce aboriginal territory (Idaho, Oregon, Washington). A case study of the Nez Perce in the Indigenous context of America since the 1800s*. My PhD fieldwork as a visiting scholar at the University of Idaho geography department for three years had two main dimensions. The first was the collection of information from competent people. In order to achieve this goal, I carried out semi-structured filmed interviews with persons either directly or indirectly involved in the governance relating to the co-management of salmon (e.g., biologists, the director of the Nez Perce Tribe department of fisheries resource management, a salmon hatchery manager, the manager of the port of Lewiston, Idaho, lawyers, etc.). Before starting the interviews, I was introduced to different people by geography professor Gundars Rudzitis (my U.S. PhD advisor). They suggested valuable contact for my research. I also directly contacted persons (usually by telephone) whose names were mentioned in local newspapers. Besides, I got a research permit from the Nez Perce Tribe following a presentation of my research project. Thus I was able to develop a personal network of people who either agreed to be filmed or provided useful information. Through a qualitative analysis of the filmed interviews, I was able to extract their most relevant excerpts. The second dimension of my PhD fieldwork was the synthesis of scientific articles and book chapters, press releases, legal and governmental documents related to the environmental, economic, legal and political aspects of salmon co-management. Professors at the University of Idaho directed me to appropriate materials. I furthered this research when I returned to France. I notably gathered information from other competent persons (e.g., the director of a local salmon restoration project; a NOAA Fisheries Service employee) via emails. My research resulted in a thorough analysis of the governance. I laid out its fundamental components (issues at stake; legal framework; environmental context; distribution of co-management responsibilities, etc.). I simultaneously examined the scope of the American Indian involvement and I detailed the role of the Nez Perce Tribe (Barbier, 2012). Before addressing this topic, the concept of governance should be explained and contextualized.

The governance circumscribed by federal law

7 According to Mick Dodson and Diane Smith, “governance can broadly be defined as : the processes [scientific studies that influence decision-makers], structures [the political and legal systems] and institutions [governments, courts] through which a group, community or society [the U.S., State and tribal protagonists, associations] :

- makes decisions, distributes and exercises authority and power [court decisions, executive orders, federal regulations, intergovernmental agreements],
- determines strategic goals [biological opinions ; recovery plans],
- organizes group and individual behavior and develops rules [fishing quotas ; maximum contaminant levels],
- and assigns responsibilities” [hatchery management, salmon habitat restoration] (Dodson and Smith, 2003).

8 The various jurisdictions where a system of governance is implemented are supposed to fit together in a coherent manner. Within the study area, the missions of the different protagonists are distributed according to the boundaries of States, watersheds, Indian and Non-Indian fishing areas. They are part of a supposedly coherent territorial organization.

9 Within the framework of co-management, the primary goal of governance is the effectiveness on the ground of the action plans designed to meet the needs of the population represented by co-managers. Good co-management and governance are meant to be transparent and controllable by civil society (Rosière, 2008). In this instance, the enforcement of U.S. federal law is the paramount objective of the governance. Federal law restricts the role of civil society mostly to consultation by means of public hearings and lawsuits.

10 In theory, governance consists in decentering decision-making mechanisms and decentralizing State functions (Guay and Martin, 2008). In the Columbia Basin, these functions are decentralized, but decision-making mechanisms are essentially concentrated in the decision-making apparatus of the federal government. The federal executive branch (through the U.S. Secretary of Commerce) establishes the criteria whereby a species is listed under the Endangered Species Act. The authority of the U.S. Congress (through amendments to the ESA or riders) is potentially superior to that of the Secretary of Commerce. Federal courts have the obligation to enforce acts of Congress as long as they do not violate the U.S. Constitution. They must invalidate any federal department's or agency's project violating an act of Congress or the U.S. Constitution (Connelly, 2006). Therefore, in the study area the governance is thoroughly demarcated by law.

A co-management dominated by the federal government

11 What does management mean when it comes to salmon in the Columbia Basin ? A salmon management plan is written before its implementation on the ground. Several entities divided into groups [governments and their agencies for the most part] plan to restore this fish while establishing fishing seasons. This management translates into a specific territorial organization and action areas [of the various agencies ; for the restoration of salmon habitat ; spatial distribution of salmon hatcheries ; fishing areas]. It includes harvesting methods and quotas based on the objectives of the management plan. The overall management is guided by policies designed by elected officials [federal, State, tribal governments] who must respect federal law.

12 In the Columbia Basin, co-management results from agreements and compromise between co-managers. The compromises and modes of co-management can be imposed by the co-manager(s) that has (have) greater authority and enforcement powers. Such is the case of the federal government (whether it is represented by the U.S. Congress, a federal court, a department or an agency). Co-management means that co-managers agree with its terms on the basis of common interests [increasing salmon populations]. In theory, its decision-making process must stem from the free, prior and informed consent (FPIC) of all co-managers. This study will demonstrate that the process was developed by the federal government without the regional tribes' FPIC. Tribal governments must abide by the process in order for their departments to get significant co-management responsibilities on the ground.

13 Co-management implies a sharing of activities. Its means of action are supposed to be shared between co-managers according to their respective operational capacity. A co-manager whose operational capacity is minor can be offered resources to develop it. Tribes in the Columbia Basin have been getting some resources, most of which are controlled by the federal government. With the support of their scientific staff, co-managers evaluate together the results of their projects whose risks and benefits should be fairly shared. Fishing quotas can be considered fairly shared between Indians and Non-Indians today. However, tribes often disagree with the risks taken by the federal government. Numerous federal laws, projects, policies and regulations adversely affect salmon populations [weak pollution regulations ; dam operations ; hatchery salmon prevented from spawning in rivers, etc.]. Before the conquest of the West, tribal management of salmon was a crucial part of the Columbia Basin tribal cultures. The tribes have been trying to reclaim and revive this key element of their identity. Overall, American Indians have been disproportionately affected by the risks taken by the federal government. Unlike in American Indian cultures, salmon has never been at the core of most regional Non-Indian cultures.

Salmon, territorial practices and resistance to the erosion of identity

American Indian territoriality closely related to salmon

14 According to Non-Indians living in the Columbia Basin, salmon is a natural resource. Some value it, others much less. A lot of them would like their habitat to be protected to varying degrees. Environmentalists usually demand a high level of environmental protection. On the contrary, Non-Indian farmers and industry leaders often reject this type of protection when it can reduce their profits.

15 The relationships between American Indians and Pacific Salmon precede Euro-american settlement. They could be thousands of years old. Before the conquest of the West, salmon comprised about 40 percent of the Pacific Northwest's American Indians' diet (Wilson, 1999, p. 12). Today, their consumption of salmon remains way above the regional average (CBFWNB[1], 2011). For tribal members, salmon is a major food resource that binds them to their ancestors and a traditional lifestyle that was largely dependent upon fishing. Salmon species also connect them to numerous harvest areas located in the vicinity of old village sites and their spirituality. In the Columbia Basin, the careful management of salmon and its environment is consubstantial to tribal spiritual identity. The regional territoriality of American Indians (their relationship with the lands they live on) rests on cultural values (e.g., the obligation to respect salmon habitat), symbolic representations, memory and customs related to salmon. During tribal ceremonies, the fish is honored. Some Non-Indians are sometimes invited to attend. According to the former chairman of the Nez Perce Tribe, Allen Pinkham, salmon is the "chief of the river" (Rudzitis, 2005). The current chairman (2013), Silas Whitman, adds : "if the salmon goes, we go" (Whitman, 8/4/2006)[2].

The Nez Perce aboriginal territory : colonized, sparsely populated and marked by social inequalities

16 At the end of the 19th century, the risk of extinction for the Nez Perce was real and mostly due to waves of epidemics. Since then, their population has more than doubled. In 2011, the 3,500 Nez Perce tribal members only retained 627 square kilometers (1.2 percent) out of a 54,000 square kilometers aboriginal territory. Uninhabited federal lands, mostly dominated by coniferous national forests, cover 68 percent of its area (Cronce, 5/25/2011).

17 Aside from four main metropolitan areas (Boise, Eugene-Springfield, Portland, Spokane), this territory is somewhat reflective of a large part of the Columbia Basin. It is predominantly rural and mountainous. Its agricultural lands are a minority but locally vast (Palouse Hills, Camas Prairie). Outside its driest canyons, annual rainfall is usually moderate and abundant at high elevation.

18 It is located within the Snake River Basin and lies at the crossroads of northcentral Idaho (about 75 percent of its area), northeastearn Oregon (15 percent) and southeastern Washington (10 percent). Its population density is less than four inhabitants per square kilometer while its biggest cities do not exceed 40,000 people. The regional population growth over the last twenty-five years has been slower than in the Pacific Northwest in general. Nonetheless, the education, tourism, telecom or real estate sectors have been growing in its wake. Service activities employ most workers in this area, but agriculture and logging remain important regional industries (Barbier, 2012).

19 Locally, salmon recovery activities have created quite a few jobs as well. Many of them are federally funded. The historical roots of the current federal dominion over the governance relating to the co-management of salmon go back to the second half of the 19th century. Throughout treaty negotiations, federal officials used coercive diplomacy against the tribes of the Columbia Basin. During the 1863 Treaty negotiations and meetings in 1889 (to implement the Dawes Act on their reservation), the Nez Perce Indians were subject to it (Gay, 1987 ; Greenwald, 2002 ; Josephy, 1997). The Nez Perce have always recognized the validity of the first treaty signed with the United States in 1855 whereby they reserved 30,000 square

kilometers. They have always protested federal coercive diplomacy in 1863 and 1893. The 1863 Treaty decreased tenfold the size of the 1855 reservation. The implementation of the 1887 Dawes Act resulted in the division of the 1863 reservation into individual allotments and opened up two-third of its area to Non-Indian settlers. That is why the current Nez Perce land holdings are small and fragmented. Most tribes in the basin (Colville, Spokane, Umatilla, Yakama, etc.) have experienced similar problems or other forms of major land dispossession. However, the Warm Springs whose reservation was not much coveted by settlers were able to keep most of their original reservation (Barbier, 2012).

20 Tribal land issues are associated with and often directly related to economic hardships. For instance, the per capita income for American Indians living on the Nez Perce Reservation between 2006 and 2010 was about $15,400. By comparison, between 2008-2012, it was $20,400 for all races on the reservation and $28,000 in the United States as a whole (University of Idaho, 2013 ; U.S. Census Bureau, 2014). The federal government takes part in tribal economic development. But this financial support is minimal when it is assessed in comparison with U.S. gains arising from lands taken from American Indians. Within the Nez Perce community, casinos and other usually small businesses (gas station, coffee-shops, plumbing, landscape architecture, tree trimming, construction, etc.) contribute to a largely service-based economy. The tribal government and its departments like the department of fisheries resources management (170 employees) mostly depend on federal funding. Tribal programs for salmon are for the most part contingent upon federal recovery goals (Barbier, 2012).

ESA listing criteria

21 The federal government funds most of the activities of tribal departments in the Columbia Basin. In 2010, it paid for nearly all of the $17 million Nez Perce Tribe department of fisheries resources management budget (Barbier, 2012). The majority of federal funds allocated to salmon management is supposed to mitigate for the harmful impacts of hydroelectric systems on the fish.

22 Salmon that hatch in the Snake River Basin grow and then go downriver before they are two years old. After that, they spend one to five years swimming in the Pacific Ocean (Streamnet, 2008). More than 90 percent of the salmon that survive in the ocean come back to the rivers where they hatched in order to spawn and die (Quinn, 2005).

23 In February 2014 within the Nez Perce aboriginal territory, three species of salmon (Snake River spring/summer chinook, fall chinook and steelhead) were listed as threatened on the Endangered Species List (ESL). The Snake River sockeye was endangered. Coho salmon was not listed. In the Pacific Northwest as a whole, five salmon species were endangered and twenty-three threatened (NOAAFS, 2008[3]). ESA listing criteria are as much about the abundance of salmon as they are about their diversity (genetic and habitat characteristics, life history), productivity (the average number of surviving offspring per parent) and geographic distribution within their historic range (Blumm et al., 2006).

24 The ESA makes the distinction between hatchery salmon, most of which are not listed, and wild (listed). There is an economic reason among others for making this distinction : the harvesting of hatchery salmon generates substantial revenues.

Salmon, an economic issue

25 Between 2008 and 2011, thanks to recovery efforts including the work done in salmon hatcheries, a little more than two million salmon returned to the mouth of the Columbia (lower returns in 2012). Although a far cry from the 19th century's yearly estimated returns, the recent progress is undeniable. Indeed, annual returns sometimes hardly reached one million between 1999 and 2007, with important discrepancies from one year to the next (Fish Passage Center, 2013).

26 From 70 to 80 percent of salmon returning to the Columbia Basin were raised in hatcheries at the beginning of their life (Northwest Fisheries Science Center, 2006). The building of the first federal dam (Bonneville) on the lower Columbia in 1938 led to the development of major hatchery programs. More than seventy years later, their regional profitability is high : in

2010, the federally-funded management of some eighty salmon hatcheries in the basin cost $80 million and generated $220 million of direct or indirect income (Learn, 2010). Economically though, these profits do not match those made through the management of large dams which provide most of the electricity in the Northwest.

The prioritization of issues connected to salmon : an obstacle to recovery

A great physical obstruction : the dams and their reservoirs

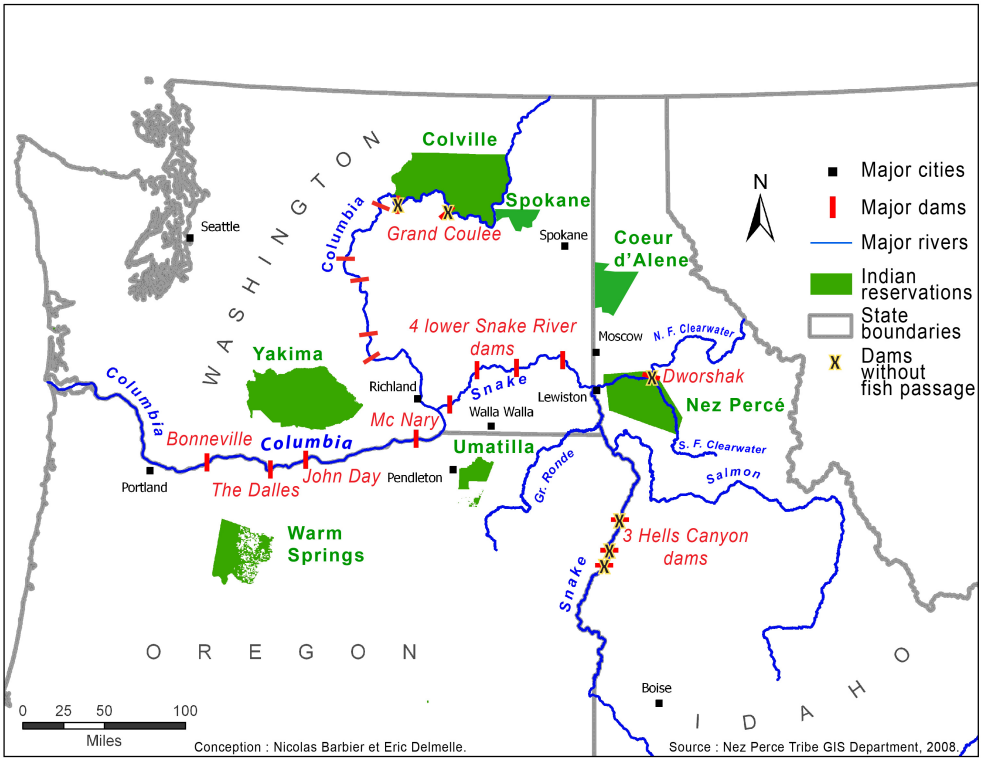
27 The dams provide about 60 percent of the electricity used in the Northwest (Northwest River Partners, 2013). The John Day Dam alone on the Columbia could ensure the electricity supply of two cities the size of Seattle (U.S. Army Corps of Engineers, 2008). Though equipped with fish passage, the eight dams between Portland in Oregon and Lewiston in Idaho on the Columbia and Snake rivers are major obstacles for ocean-bound salmon. In moderate or high runoff years, these eight dams and their reservoirs kill on average : between 44 percent and 81 percent of juvenile Snake River fall chinook salmon ; between 55 percent and 65 percent of juvenile Snake River steelhead salmon. Mortality is higher during lower runoff years (Federal Caucus, 2009). There are several causes of direct mortality of juvenile salmon at dams and their reservoirs :

- weak water currents in the reservoirs which increase downriver migration and exhaust some fish ;
- low dissolved oxygen levels in these reservoirs ;
- their high water temperatures in the summer ;
- new predators in and around them ;
- fish passage through dams, although the building of new spillways in the 2000s has reduced mortality (Cech, 2009 ; NOAAFS, 2000 ; U.S. Army Corps of Engineers, 2007).

28 The weakening of salmon after their downstream passage through dams and reservoirs sometimes results in delayed mortality (Milstein, 2008). Overall, reservoirs are a much bigger contributing factor of the mortality rate among juvenile salmon than their downstream passage through dams alone (NOAAFS, 2000).

29 By contrast, fish ladders are very efficient and cause a negligible mortality rate among adult salmon going upriver. Other major dams (Chief Joseph north of the basin ; Dworshak in its eastern portion on the Clearwater ; the three Hells Canyon dams on the middle Snake River) are not equipped with fish passage. They eliminated salmon on thousands of miles of habitat upriver. Mostly because of their economic value, no elected official is considering their removal. Quite a few smaller aging dams have been removed in the Columbia Basin for the last twenty years or so. The removal rate is slow. Some populations had been extinct for more than hundred years following the building of dams. The removal has partially restored small populations and their habitat. Other weighty impediments to salmon recovery exist alongside dams.

Figure 3. Large dams on the Columbia, Snake and Clearwater rivers



Legal impediments to recovery

30 There is little dialogue about inland overfishing within the Columbia Basin. Yet, it is a one of the factors of low salmon populations. Federal and State salmon hatcheries are mainly used to maximize fishing inland. There is no federal, State or tribal plan and regulation designed to substantially reduce fishing quotas. In the ocean however, a treaty signed in 2008 between the United States and Canada has reduced Alaskan salmon fishing by 15 percent and Canadian fishing by 30 percent (Todgham Cherniak, 2009).

31 A further element explaining low salmon population is the degradation of a part of their habitat due to sedimentation (from agriculture, logging, etc.), the building of canals (to make industrialization along the rivers and barge transportation possible) and riparian vegetation removal (to make way for development and agriculture). Degradation of water quality can be especially harmful to salmon. Most of the aquifers and streams in the regional farmland are polluted to varying degrees due to agricultural practices based on pesticides, herbicides and chemical fertilizers. There is also industrial pollution in some rivers (Columbia, Snake, Yakima, etc.) and other types of point source pollution such as discharges from aging wastewater treatment plants (New York Times, 2010). Federal maximum fish consumption rates have been set because the level of protection and restoration of aquatic ecosystems does not guarantee safe consumption (Environmental Protection Agency [EPA], 2013). The federal government has taken steps to reduce pollution in the ecosystems of the basin. Federal regulations ban the use of a minority of pesticides in buffer zones around salmon waters and more regulations should be implemented in the future (EPA, 2004 ; Oregon Department of Agriculture, 2013). However, these zones are small in comparison with the extent of polluted agricultural lands ; they do not prevent a lot of agricultural pollutants from running off into salmon waters. In 2009, the EPA committed itself to better controlling the biggest polluters (Jackson, 2009), but means of action and results remain largely uncertain. These measures will locally reduce pollution. On the flip side, their limited objectives should not lead to major improvements in water quality. Stricter maximum contaminant levels for a small minority of chemical pollutants within the State of Oregon since 2011 should not produce critical results either (EPA, 2011).

32 A part of the ESA, insufficiently clarified by legislators and courts, further hampers salmon recovery. The ESA is meant to protect and recover threatened and endangered species as well as the ecosystems they depend upon. Under this act, governmental agencies, groups or individuals can obtain an incidental take permit that allows them to unintentionally kill some ESA-listed salmon or degrade their habitat if two principal conditions are met. First, “the taking will not appreciably reduce the likelihood of the survival and recovery of the species in the wild”. Second, “the applicant will, to the maximum extent practicable, monitor, minimize, and mitigate the impacts of such taking” or damage to its habitat. Mitigation can take the form of a participation in recovery efforts on the ground or funding programs (NOAAFS, 2009).

33 Some applicants to incidental take permits like the U.S. Army Corps of Engineers have always gotten permit renewals. This agency runs the eight dams between Portland and Lewiston. These renewals are disputed. Two litigants have been involved in a lawsuit in a district court in Oregon for more than ten years :

- on the one hand, groups of environmentalists and fishermen, the Nez Perce and Spokane Indian tribes as well as the State of Oregon consider that the breaching of the four lower Snake River dams could be a critical step to recover Snake River salmon ;
- on the other hand, federal agencies (including the National Oceanic and Atmospheric Administration Fisheries Service and U.S. Army Corps of Engineers) as well as the States of Idaho and Washington reject the possibility to breach these dams.

34 The court tries to determine whether or not the management of the four dams respects the ESA. It has the authority to order changes in the actions recommended in federal biological opinions (BiOp) to mitigate the impact of the four dams on ESA-listed salmon. The National Oceanic and Atmospheric Administration Fisheries Service (NOAAFS) writes up these BiOps. In theory, the ESA empowers the judge to order the breaching of the dams. In August 2011, judge Redden gave the NOAAFS two years and a half to write up an improved BiOp (a supplemental BiOp) on the basis of a cooperative work between the federal and State agencies and the tribes (U.S. District Court of Oregon, 2011). But the judge did not require a tribal co-decision-making role that would include meaningful tribal participation in the writing of BiOps. The supplemental opinion released in January 2014 by the NOAAFS did not reassure opponents of the former BiOp. According to the executive director of Northwest Sportfishing Industry Association, the amount of water that is projected to be released over the dams to aid the migration of young salmon is insufficient. Save Our Wild Salmon was dissatisfied with the lack of actions planned to address the impacts of climate change on the fish. The NOAAFS admitted that differences between the new BiOp and previous ones were minor (CBFWNB, 2014 ; Goldfarb, 2014). The lawsuit is not likely to stop. Before the 2011 court ruling, the Umatilla, Warm Springs and Yakima tribes had committed themselves to not filing a lawsuit between 2008 and 2017 against federal agencies regarding dam breaching. In exchange, they got additional federal funds for salmon management activities (FCRPS Action Agencies, Three Treaty Tribes, 2008).

35 The regional public opinion is divided regarding the fate of the four lower Snake River dams. According to a 2011 poll, which involved 1,200 people in Idaho, Oregon and Washington, 9 percent of respondents wished that dams be breached in order to recover some salmon species. 34 percent agreed with the breaching provided that it neither have an economic impact nor translate into a significant rise in electricity rates. 31 percent responded that dam breaching would be an unacceptable solution. The remaining 26 percent did not respond (Oregon Public Broadcasting, 2011). This poll was an indicator of the existence of a hierarchy of issues guiding the governance.

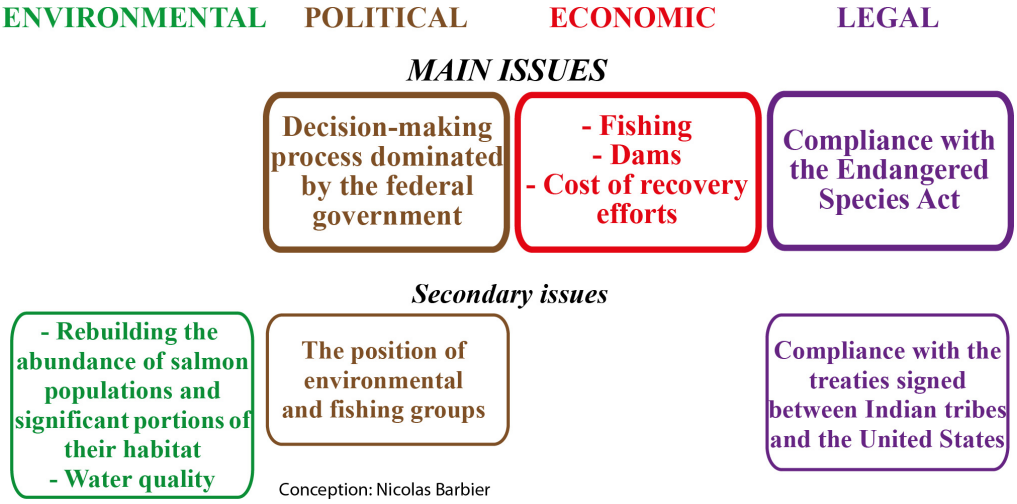
36 Nowadays, the issue revolving around the eight dams between Portland and Lewiston, primarily economic, precludes the removal of some of them on the ground of predominant environmental considerations.

The environment and the rights of Indian tribes : secondary issues

37 Federal and tribal governments have different priorities in terms of salmon management. The tribes have two co-dominant priorities : the recovery of abundant salmon runs (Brigham, 2013)

and fishing. American Indians consider salmon to be sacred and essential to their survival. Maximized fishing year after year is the first priority of federal and State agencies. The latter also have a legal obligation : compliance with the ESA. As the dominant decision-making body, the federal government is responsible for the hierarchy of issues that steers the governance relating to the co-management of salmon.

Figure 4. Issues underlying the governance



38 The hierarchy goes hand in hand with the unbalanced distribution of decision-making powers.

The unbalanced distribution of co-management powers

Overwhelming federal powers

39 The distribution of decision-making powers between co-managers is clarified in Table 1.

Table 1. The role of the protagonists of the governance in the decision-making process

DOMINANT	The legislative branch of the U.S. government: the **U.S. Congress**, author of the ESA
SECONDARY DOMINANT	**Federal courts**: **can reorientate the actions of federal agencies** if they do not comply with the ESA; can order changes in biological opinions (see below).
TERTIARY DOMINANT	The **Secretary of Commerce** has the authority to **list salmon species as threatened or endangered** under the ESA and can delist them. The **NOAA Fisheries Service** within the **U.S. Department of Commerce**: - **Must implement the ESA**, recover ESA-listed species without obligation to rebuild their abundance. - **Must protect and restore the critical habitat of ESA-listed species** on both public and private lands. - **Writes up recovery plans**. These **non-binding** documents describe necessary actions, specify the delisting criteria of species and assess recovery costs. - **Writes up a biological opinion** when a federal agency undertakes, authorizes or finances an action that is going to either kill ESA-listed salmon or risk harming them (e.g., the maintenance of federal dams). The biological opinion must prove that the action does not jeopardize the survival of the species. It includes measures to minimize its impact and mitigate it (e.g., sal--mon habitat restoration or hatchery programs).
CONSULTATIVE/ INTERESTS PROTECTED/ POTENTIALLY CO-DOMINANT	The **State agencies**: - **Apply federal decisions relating to ESA-listed species**. So far, these decisions have taken into consideration most State interests. - **When species are delisted**, they decide on their management.
CONSULTATIVE/ INTERESTS PARTIALLY PROTECTED	**Indian tribes** have no decision-making power. **Federal agencies have an obligation to:** - **Cooperate with tribes**. - Establish intergovernmental relations with them. - To the extent possible, **consult them** and give them opportunities to reach a consensus when a federal action has an impact on tribal fishing resources or tribal fishing rights. **If salmon species were delisted**, State authority on tribal activities would probably be extremely limited. However, the federal government could strictly limit funds allocated to the tribes for these activities or eliminate them altogether.

Conception: Nicolas Barbier ; Sources: Federal Caucus, 2013; NOAAFS, 2013; U.S. Congress, 1973; U.S. Department of the Interior and U.S. Department of Commerce, 1997.

40 On the ground, the two other main federal agencies involved in the governance are :

- The Bonneville Power Administration which sells the electricity generated by the eight major dams between Portland and Lewiston on the Columbia and Snake rivers. It funds hatchery programs in order to compensate for the loss of fish due to dams and their reservoirs.
- The U.S. Army Corps of Engineers. It recently installed improved spillways for salmon on the eight major dams. It releases water from dam reservoirs in order to facilitate fish migration downriver. Release volumes and periods are sometimes set by the U.S. District Court of Oregon when it orders changes in recommendations made by the NOAAFS. This flow augmentation is often considered to be one of the main reasons for recent increases in salmon populations[4]. This agency organizes the transportation by truck or barge of some hatchery salmon downstream. In 2009 for instance, between 25 and 45 percent of salmon raised in four hatcheries located in the Nez Perce aboriginal territory were transported by barge or truck. They were released in the Columbia below Bonneville dam. The survival rate of adult salmon that were transported by barge or truck as juveniles is often higher than that of salmon which went through the eight dams (NWFishletter, 2012 [b]).

41 States and tribes sign cooperation agreements with the NOAAFS and are assigned salmon recovery tasks. They get federal funds (as well as State funds for State agencies) for

salmon habitat restoration (rehabilitation of portions of watersheds), hatchery management, supplementation programs or scientific research (NOAAFS, 2006). Thanks to these federal funds, the tribes have become crucial co-managers of ESA-listed salmon. This position is the result of the determination to stand out as such.

Tribal legal and territorial powers and assets

42 The staff working for the tribes has a consequential co-management role on the ground because of several legally-binding instruments. Tribes have secured treaty fishing rights. The Nez Perce and other American Indians in the basin (Umatilla, Walla-Walla, Warm Springs, Wasco, Yakama, etc.) can exercise fishing rights "at all usual and accustomed places". According to the Treaty of 1855 signed between the Nez Perce Tribe and the United States, the Nez Perce share these rights "in common with [Non-Indian] citizens of the territory" in these places (rights confirmed in 1863 and 1893) (Nez Perce Tribe, United States of America, 1855 ; 1863)[5]. Moreover, the 1974 Boldt Decision allows tribes to catch up to 50 percent of the harvestable salmon. First exercised in Washington State, this tribal right was then enforced in the whole Columbia Basin. Under this court ruling, Non-Indians can catch the remaining 50 percent (U.S. District Court, W. D. Washington at Tacoma, 1974). Five years later, the U.S. Supreme Court (Washington v. Washington State Commercial Passenger Fishing Vessel Association) set limits on claimable tribal fishing resources. It stressed that treaties signed between the tribes and the United States guaranteed tribal fishing harvest that must not exceed what "is necessary to provide the Indians with a livelihood, that is to say, a moderate living" (U.S. Supreme Court, 1979). The tribes wanted more than fishing rights. They had never given up their role as managers of salmon. It took time for the federal government to define the nature of relationship between the U.S. agencies and tribal departments in terms of salmon management. A 1997 executive order issued by the U.S. Department of the Interior required federal agencies to provide funding, scientific and technical assistance to the tribes. The goal of this assistance is tribal participation in the implementation of federal objectives for ESA-listed salmon (U.S. Department of the Interior and U.S. Department of Commerce, 1997).

43 Four of the largest tribes in the basin (Nez Perce, Umatilla, Warm Springs and Yakama) intend to rebuild abundant salmon populations (CRITFC[6], 2013). The environmental, geopolitical and legal conditions for achieving this goal are not met. Because federal officials used coercion against the Nez Perce in order to implement the 1863 Treaty and 1893 Agreement, the tribe insists that its management role should be more consistent with the 1855 Treaty than it is now. For example, within the Nez Perce aboriginal territory, the size of the area where the tribal staff works to restore salmon habitat is restricted. The Nez Perce Tribe is the main co-manager within tribal lands and surrounding private lands owned by willing Non-Indians (about one third of all local Non-Indian landowners according to a tribal official [Hills, 9/20/2011, email]). On federal lands, the federal government is the main co-manager and the tribe is a secondary co-manager, mostly in three national forests (Clearwater, Nez Perce, Wallowa-Whitman) out of six in the aboriginal territory. In this territory, the tribe releases more hatchery salmon in rivers that will spawn there upon their return from the ocean than federal and State agencies do. But it only works in a minority of salmon bearing rivers, most of which are concentrated in the 1855 Treaty Area. Besides, in the Idaho portion of the aboriginal territory, the State of Idaho releases about one third more hatchery chinook salmon in the rivers to be harvested upon their return from the ocean than the tribe does (Cleary, 1/11/2013 ; East, 1/23/2013). The federal restriction on the number of hatchery salmon released to spawn in rivers does not call the governance into question. However, it is not a minor malfunctioning.

Controversies, compromises, persistent conflicts and potential solutions

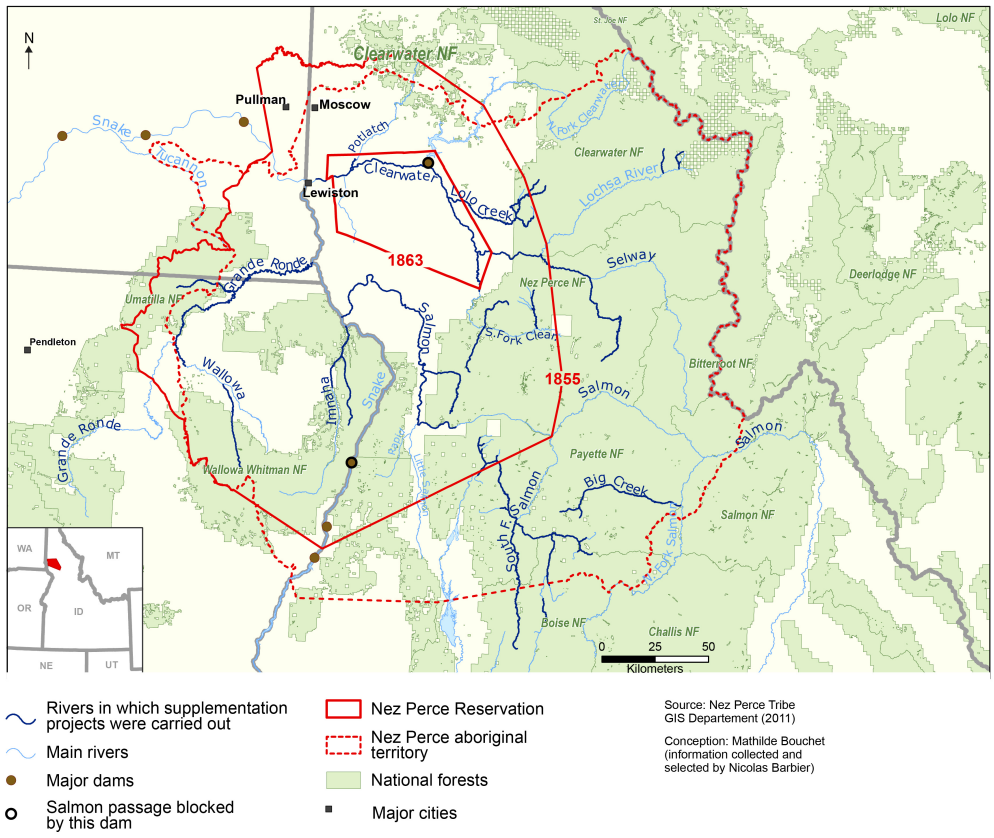
Downplaying the supplementation of salmon

44 Supplementation consists in raising salmon in hatcheries before releasing them in rivers so that they spawn in the wild and contribute to restore populations. Most salmon are released as smolts (before they go downriver). Supplementation is a tribal priority. In the Columbia Basin,

more than half of the salmon raised in tribal hatcheries are released as part of supplementation projects. By comparison, more than three-quarters of the salmon raised in federal or State hatcheries are released to be harvested after they come back from the ocean (CBFWNB, 2012 ; NWFishletter, 2012 [a]). Retired salmon biologist Douglas Dompier summarizes the conduct of federal and State agencies toward tribal supplementation : “They are constantly finding ways to make the tribal programs less efficient [...] rather than helping the tribes and helping the salmon in these rivers and streams. This tremendous need to control the fish to serve their constituencies is what has really been a major, major factor in the decline of salmon” (Dompier, 11/2/2006).

45 There have been numerous successful tribal supplementation projects in the Columbia Basin since the 1990s. In the Nez Perce aboriginal territory for instance, the annual returns of Snake River fall chinook past Lower Granite dam (one of the four lower Snake River dams) increased from a few hundred in the 1990s to an average of 34,000 from 2010 to 2012 (Fish Passage Center, 2013 [b]) ; in the Clearwater River Basin (northeastern portion of the territory) where Snake River coho was declared extinct in 1994, between 1,500 and 5,000 adults returned each year from 2007 to 2012 ; in the Lookingglass River Basin in northeastern Oregon where Snake River spring chinook were extinct in the 1980s, more than 1,000 adults spawn each year (Nez Perce Tribe, 2012 [a]).

Figure 5. Nez Perce supplementation projects carried out in 2010



46 The probability of a much greater impact of tribal supplementation would considerably increase if three conditions were met: more funds allocated to this activity; a greater tribal autonomy to carry out projects ; temporarily lower fishing quotas. But a growing number of tribal successes over larger areas could erode the federal control over the mechanisms of the governance. From a geopolitical perspective, the significance of tribal supplementation is critical: will the federal government someday agree to introduce fairness into the decision-making process of the governance between its agencies and tribes ? Would the government

agree that this fairness be based on a territorial division more in line with the content of treaties ?

47 The NOAAFS determines which salmon populations need hatchery salmon to reach recovery goals, and the tribes have no say in this decision. These hatchery salmon can in turn be protected under the ESA. The NOAAFS sets their numbers (Vidargas, 2009). The percentage of ESA-listed hatchery salmon varies considerably within the different protected populations (Wilson, 2/4/2013, email).

48 Federal and State arguments against an expansion of supplementation projects face tribal counterarguments in favor of it. The opposing positions are first and foremost related to the distinction between wild and hatchery fish. The two parties are involved in a scientific controversy which has not fundamentally evolved for the last fifteen years or so. Table 2 presents a synthesis of the arguments put forth by the two parties.

Table 2. The scientific controversy about supplementation

State and federal arguments to restrict supplementation	***Tribal counterarguments to develop supplementation***
The alteration of the **genetic diversity** of wild salmon through interbreeding between wild and hatchery salmon, hence changes in **fitness**.	*Strict selection criteria for supplementation projects (migration period; physical charac--teristics; specific evolution of the selected group, etc.).* *A minority of hatchery salmon has been breeding with wild salmon since the 1930s.* *The progeny of hatchery salmon that spawn in rivers is labelled wild.*
The reduced **productivity** of wild salmon following supplementation.	*Productivity naturally decreases as competition for spawning areas increases within a growing population.*
Hatchery salmon spread **diseases**.	*Recently in hatcheries, lower salmon density in ponds, better food, less stressful handling of fish and improved disinfection reduced the use of antibiotics.*
A fluctuating and spatially disparate **efficiency**.	*Multiple examples of successful projects inclu--ding: Snake River fall chinook [ID]; coho in the Methow and Wenatchee [WA]; Spring chinook in the Walla Walla [OR], etc.*

The other tribal scientific assets

Rare studies showing that some supplementation projects have significant harmful impacts (diseases, adverse effects in the fitness of salmon, etc.). *Apart from problems due to human impacts, most hatchery salmon fare well in rivers.*

American assets to keep restricting supplementation

Regulations, based on above-mentioned arguments, require federal, State and tribal employees to trap some hatchery salmon (that were released to spawn in rivers or that escaped a fishery) before they spawn. Some American Indian leaders are influenced by some federal arguments to restrict supplemen--tation.

Conception: Nicolas Barbier.
Sources: Federal and State arguments/assets: Bonneville Power Administration, 2000; Chilcote et al., 2011; Lackey, 2000; *Tribal counterarguments/assets*: Cleary, 11/29/2011, email; CBFWNB, 2010, 2012; CRITFC, 2012; Learn, 2011; NWFishletter, 2012 [a]; Zollman, 1/19/2010, email.

49 In the end, there is a compromise on supplementation between tribes, federal and State agencies. Other aspects of co-management are more confrontational.

A co-management disturbed by conflicts and incomplete agreements

50 Partial agreements and conflicts are, for the most part, the result of the level of respect for Indian tribal treaty rights. Two main protagonists are involved : the tribes and the federal government (table 3). States are also involved in the issues of water rights, the quality of aquatic ecosystems and the impacts of global warming on salmon. On Non-Indian private lands on Indian reservations, tribes are faced with the lack of cooperation of some groups or individuals.

Table 3. Cooperation, partial agreements, conflicts

COOPERATION OPTIMUM ENFORCEMENT OF TREATY RIGHTS	*PARTIAL AGREEMENTS* PARTIAL ENFORCEMENT OF THESE RIGHTS	*CONFLICTS* NO ENFORCEMENT OF THESE RIGHTS
Fishing quotas Restoration of a minor fraction of salmon habitat Scientific studies	Federal efforts to improve spillways in the eight major dams between Portland and Lewiston Minor progress in the legal protection of water quality, but significant pollution continues Water rights could harm salmon in many rivers due to possible future decreases of instream flows Federal restrictions of supplementation Lack of participation in restora--tion of salmon habitat on the part of a lot of Non-Indian landowners on Indian reservations Measures to mitigate the impacts of global warming remain inadequate	The tribes have no co-decision making power in the develop--ment of co-management plans and the law that frames them Breaching of major dams (lower Snake River) and installation of fish passage (Hells Canyon) have been ruled out so far Unbalanced distribution of federal funds between tribal and State activities to the advantage of the States

Conception: Nicolas Barbier.

51 According to director of the Nez Perce Tribe Department of Fisheries Resources Management Dave Johnson, the inequity in the distribution of federal funds between the States and the tribes reduces the impact of tribal work. “We are still on a very unequal footing in regards to funding. We get money from grants and contracts, whereas the States have got not only license revenues, but also compete for the same grants and contracts as we do. The States also got an infrastructure and federal funding (taxes) that are provided for them, millions of dollars per year. [...] There is a block on the part of the various State agencies to prevent the tribes from having access to these federal dollars” (Johnson, 11/27/2006).

52 Tribes ask Non-Indians to better comply with the treaties that they signed with the United States. Tribal officials consider that a greater compliance would make the tribal role in salmon co-management more consistent with the content of the treaties. It would also abide by the U.S. Constitution whereby U.S. treaties are “the supreme law of the land” (article VI, clause 2). Furthermore, it would conform to the United Nations Declaration on the Rights of Indigenous Peoples which states that “Indigenous peoples have the right to the recognition, observance and enforcement of Treaties […] concluded with States […] and to have States honour and respect such Treaties” (ONU, 2007, article 37).

Disregard for the UN Declaration on the Rights of Indigenous Peoples

53 The General Assembly of the United Nations recognized "the urgent need to respect" and promote the rights of Indigenous peoples affirmed in treaties" (ONU, 2007). According to the current chairman of the Nez Perce Tribe, Silas Whitman, there is an "urgent need" for a better respect for tribal rights related to salmon : "That's a tragedy, the consequences of the decline of fish. It's a loss of a cultural tradition on how to fish, where to fish, when to fish. It's a loss on nutritive values, and a loss of a lifestyle that helped us to survive and live longer and in better conditions. It has caused us to be more prone toward cancers, blood diseases, diabetes, cholesterol problems"[7] (Whitman, 8/4/2006).

54 The United States adopted the UN declaration in 2010 (Office of the High Commissioner for Human Rights, 2010). Although it is not legally binding, lack of respect for it on the part of Nation-States that adopted it is not insignificant. It underscores the continuing dominion of Nation-States, as holders of greater coercive authority, over Indigenous peoples. The tribes of the Columbia Basin are recognized as Indigenous peoples by the United Nations and United States. As French lawyer and political scientist Frédéric Deroche points out, in international law, Indigenous peoples have the right to self-determination. They can establish their own political and legal systems, social and cultural norms, methods for the management of land and natural resources, and organize their development (Deroche, 2005). According to Erica-Irène Daes, law professor and expert at the UN Working Group on Indigenous Populations, the only difference between the notions of "Indigenous people" and "people" is that "groups generally called *Indigenous* have not been able to exercise their right to self-determination by participating in the rebuilding of contemporary Nation-States" (Daes, 1996).

55 The United States respect some Indigenous peoples' rights to manage natural resources as specified in the UN declaration. According to its article 29, "Indigenous peoples have the right to the conservation and protection of the environment and the productive capacity of their lands or territories and resources. States shall establish and implement assistance programs for Indigenous peoples for such conservation and protection, without discrimination" (United Nations, 2007). Federal agencies have implemented some programs and funded tribal activities (hatchery management ; salmon habitat restoration). However, a comprehensive strategy to rebuild abundant salmon populations, deemed necessary by tribes, is still lacking[8].

56 The United States infringe partially or entirely four excerpts of four articles in the UN declaration:

- Article 26 specifies that "States shall give legal recognition and protection to [...] resources [...] that [Indigenous peoples] have traditionally owned, occupied or otherwise used or acquired" (United Nations, 2007). The ESA does not adequately protect tribal fishing resources to meet tribal restoration goals ;
- Article 19 : "States shall consult and cooperate in good faith with the Indigenous peoples concerned through their own representative institutions in order to obtain their free, prior and informed consent before adopting and implementing legislative or administrative measures that may affect them" ;
- Article 27 : "States shall establish and implement, in conjunction with Indigenous peoples concerned, a fair, independent, impartial, open and transparent process [...] to recognize and adjudicate the rights of Indigenous peoples pertaining to their [...] resources [...]. Indigenous peoples shall have the right to participate in this process" ;
- Article 32-2 : "States shall consult and cooperate in good faith with the Indigenous peoples [...] in order to obtain their free and informed consent prior to the approval of any project affecting their [...] resources" (ONU, 2007).

57 The Indigenous peoples of the Columbia Basin do not have the right to give their free, prior and informed consent [FPIC] to the federal salmon recovery plans, measures specified in the federal biological opinions or federal court decisions that affect their fishing resources. Today, tribal legal action against these plans and decisions is limited to the federal system and its laws. At best, tribes can appeal to the U.S. Supreme Court. Neither can they exercise this right about maximum contaminant levels in water which are set by the EPA except on a small minority

of Indian reservations (Umatilla for instance). Tribes that have the staff and competence may be able to set these MCL, but it is usually much easier for them to do so when two conditions are met : the percentage of American Indians in the whole reservation population is high ; the State does not oppose this tribal claim.

58 In addition, in terms of biological opinions and recovery plans that affect tribal fishing resources, “a fair process to adjudicate rights pertaining to [Indigenous] resources” (article 27) in the development of the opinions and plans (such as a co-decision making process) is nonexistent. Tribes can give their FPIC to cooperation agreements with federal and State agencies. But they give it on condition that they abide by federal law beforehand. This law was imposed upon them in the first place following multiple treaty violations. Nevertheless, U.S. law and public opinion related to Indian tribes are not static. What could be pragmatic solutions to persistent legal, environmental and territorial problems ?

Toward a “meta co-management” in conformity with Indian and Non-Indian perspectives ?

59 We could argue that this “meta-co-management” already exists, no matter if it is unbalanced in favor of federal priorities. However, Indian and Non-Indian perspectives would be equally respected in a balanced co-management. With a view to increasing respect for Indian treaty rights and rebuilding abundant salmon runs, a “meta-co-management” would require several simultaneous changes. More American Indians could teach their management practices at school and university. The issue of dams could be approached from a long-term environmental and economic perspective. The size of protected or restored salmon habitat in mid to high elevation could expand more rapidly in order to cope with the impacts of global warming. More water from large dam reservoirs could be released to assist migrating salmon. Finally, federal funds could be equally distributed between Indian and Non-Indian agencies.

60 Because of diverging opinions and in order to respect the rights of the Non-Indians, this “meta-co-management” seems realistic only in portions of aboriginal territories. A path forward could have two dimensions. The latter would better take into consideration tribal projects while complying with the UN Declaration on the Rights of Indigenous Peoples. The first dimension would address the issue of dams. Measures to address the impacts of dams would be developed by an equal number of tribal and federal representatives. Thus, an agreement on the most aging dams and the most costly to upgrade should be easier to reach. The second dimension would focus on supplementation and maximum contaminant levels in water. On parts of federal lands concentrated or not in treaty areas, tribes would be solely responsible for supplementation and habitat restoration on a significant number of river segments. Indian and Non-Indian representatives (in equal numbers) would define together maximum contaminant levels, the fines that can be imposed on polluters and law enforcement practices. In case of persistent conflicts between Indians and Non-Indians, varying MCL could be established in different areas : Indians could decide on MCL in specific areas and Non-Indians in others, both of which would be of equal size. Perhaps only an act of the U.S. Congress giving the UN declaration the same legal authority as any other act of Congress could result in this kind of solution. Such a federal decision is highly unlikely in the medium term.

Conclusion

61 In the U.S. portion of the Columbia Basin, the dominant authority of federal agencies and State interests are protected by U.S. law at the expense of Indian treaty rights. Within the regional system of governance relating to the co-management of salmon, Indian tribes exercise extensive co-management powers on the ground in their respective aboriginal territories. But the Non-Indians reserve all of the decision-making powers. The protagonists involved in this governance have varying objectives that are often related to different perceptions about the environment. As a consequence, the rebuilding of abundant salmon populations is unlikely. Federal and State agencies as well as the vast majority of the regional population are not ready to get rid of some major aging federal dams that guarantee relatively low electric bills while generating substantial revenues. Yet, their inevitable upgrading costs will be high. Another

obstacle to salmon recovery stems from Non-Indians landowners: not many of them get involved in the restoration of salmon habitat often degraded on their lands. U.S. law does not force landowners to participate in it. In terms of fishing quotas, most Indian and Non-Indian fishermen do not contemplate a temporary significant reduction in order to rebuild abundant fish stocks. Salmon habitat restoration and supplementation projects carried out by Indian and Non-Indian agencies have already demonstrated that they can contribute to increase some salmon populations. A consequential reduction in fishing quotas could make a difference. The effectiveness of this ambivalent governance is also diminished by conflicts related to the continuing disrespect that the United States have shown to treaties signed with tribes. Its effectiveness is further weakened by conflicts about the management of water resources and quality as well as the funding deficit in useful projects in the context of global warming.

62 Solutions that would combine more ambitious recovery goals and compliance with the 2007 UN Declaration on the Rights of Indigenous Peoples are currently out of reach. Indian co-management activities on the ground concentrate on small fragments of the historical salmon habitat range. Stretches of valleys that benefit from restoration projects have been expanding since the 1990s. But they are often geographically scattered. This fragmentation of restored areas, water pollution and current fishing quotas prevent the recovery of healthy salmon populations on the scale of the Columbia Basin. One can imagine at least two alternatives. In the first scenario, restored areas and supplementation projects multiply while the environmental protection of aquatic ecosystems improves. Abundant salmon stocks can be rebuilt. There is another alternative : restored areas and supplementation continue to be confined to small fragments of the basin, thus perpetuating rather low salmon populations.

63 As long as the territorial fragmentation of co-management is coordinated on the scale of the Columbia Basin, it does not hinder the rebuilding of abundant salmon stocks. But the downgrading of this recovery to a secondary regional objective, overfishing, multiple and widespread environmental degradation do hinder it.

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Notes

1 Columbia Basin Fish and Wildlife News Bulletin.

2 This article includes excerpts of semi-structured filmed interviews carried out during my PhD fieldwork (Barbier, 2012).

3 The list has not changed since 2008.

4 The U.S. Bureau of Reclamation releases water from dam reservoirs located in the Upper Snake River Basin.

5 The 1855 Treaty reserved exclusive fishing rights for the Nez Perce on the 1855 reservation (the 1863 Treaty on the 1863 reservation). These tribal exclusive fishing rights on the reservation no longer apply. Non-Indians can fish there if they purchase a fishing license from the Idaho Department of Fish and Game.

6 Columbia River Inter-Tribal Fish Commission.

7 Some 2010 data support Silas Whitman's words : that year, twice as many Nez Perce (16 percent) as people in Idaho or the United States (8 percent) had diabetes ; the rate of cancers was twenty times higher among the Nez Perce population than the U.S. population as a whole (Nez Perce Tribe, 2012 [b]) ; moreover, 40 percent of American Indian adults were obese in the United States (U.S. Department of Health and Human Services, 2012).

8 It is worthy to point out that tribes cannot transfer some federal funds they get for hatchery programs (salmon raised to be harvested) to supplementation projects (salmon raised to spawn in the wild). According to Nez Perce project leader Peter Cleary, "government funds are tightly regulated and spending must match a *statement of work*". A transfer could be "considered a misappropriation of funds" (Cleary, 5/14/2013, email).

9 Diplôme obtenu avec la mention très honorable et les félicitations du jury à l'unanimité.

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Référence électronique

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Résumé

In the U.S. portion of the Columbia Bassin, salmon populations are five times lower than 150 years ago. They are co-managed by federal, state and tribal protagonists in order to restore them. On this territory larger than France, the federal government dominates the governance relating to the co-management of endangered and threatened species of salmon. The NOAA Fisheries Service writes up recovery plans and biological opinions that guide the actions on the ground. State and tribal agencies carry out multiple tasks on the ground, including the reintroduction of local salmon populations, the restoration of riparian areas, the management of salmon hatcheries or the enforcement of fishing rules. At the same time, a federal court in Oregon has authority to change the federal plans and biological opinions if the latter do not comply with the 1973 Endangered Species Act. During the 2000s, this court notably contributed to reduce the lethal impact of dams on salmon. If some local salmon populations have been partially restored, major problems remain unresolved: large dams keep hindering the overall recovery, just like continuing pollution and environmental degradation in parts of watersheds. Conflicts of interest between different groups go on. Environmental and fishing groups as well as Indian tribes call for more ambitious recovery targets. They come up against major agricultural and industrial interests generally protected by federal and state governments. These two governmental protagonists are opposed to the development of elements of tribal projects related to salmon hatcheries. The adoption of the United Nations Declaration on the Rights of Indigenous Peoples by the Obama administration in 2010 could defuse conflicts and bring about changes in the governance.

Entrées d'index

Keywords : governance, co-management, salmon, Columbia River Basin, conflict