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Lonely Waters: the Decline of Northwest Salmon

The Pacific Northwest rivers once swelled with majestic salmon runs, harboring around “ten to sixteen million salmon” (*Columbia River Chronology*). Wild salmon could dash freely through the waters and their journey from the Pacific Ocean to spawning grounds went unhindered. Northwest Native Americans were the only salmon fishers at this time, and their conservative fisheries caused no stifling of the flourishing fish population. Natives cautiously fished only what they needed, not wanting to harm the balance of salmon. However, when European settlers moved into the Northwest, the environment was soon drastically altered. Europeans, unfamiliar with the Native’s concept of sustainable fishing, immediately began exploiting the natural resources of the land by “erecting dams, excessively logging, and overfishing” (*Changing Columbia Basin*). Salmon began being harvested by the thousands, decimating once bountiful runs and fertile spawning grounds. This opting for economic gain over conservation of a resource has translated to present day, where businesses continue to abuse the Northwest salmon population. Researchers have been stunned by the dramatic decline in the numbers of wild salmon and see no end to the plummet. We now face an ultimatum to either rigorously pursue an end to the careless depletion of Northwest salmon or continue to allow damming and salmon harvesting to extirpate the remaining population.

During the twentieth century, Americans became engrossed with technological advances and modernization. Innovators, encouraged by a sharp rise in the national economy, began searching for the most efficient power sources. Their search led them to the conception of hydropower, ultimately resulting in mass construction of dams. “The first hydroelectric dam in the Pacific Northwest was built in Spokane in 1885”

(nwcouncil.org), but the West would not get an appetite for dams until the 1930s, when “the production of hydropower was the primary instrument of economic change in the West” (nwcouncil.org). With all the excitement and cash flow, no one paused to consider the ecological damage being unleashed on the natural rivers. This changed when a shocked “United States government initiated salmon investigations” (*Columbia River Chronology*) due to an alarming decrease in the Columbia River salmon catch. The investigation uncovered that dams were interrupting the journey of Pacific Northwest salmon on their runs to spawning grounds. But, by then a total of “more than 55% of the spawning and rearing habitat once available to salmon” (nwcouncil.org) had been blocked off by dams, permanently separating the salmon from their natural breeding grounds and making their swim to the Pacific a grueling task.

Amends were attempted. “Installations of fish ladders” (nwcouncil.org) onto dams made an effort to help salmon pass. But these ladders only aid adult salmon who pass upriver; the juveniles heading downstream can barely surmount such ladders. The juveniles that do struggle through often drown from exhaustion, further worsened by the man-made lakes of dams which greatly lengthen a juvenile’s first journey to the Pacific. Unfortunately, hydroelectric dams use turbines and have no bypass system, requiring salmon to maneuver through lancing blades. This generates a bloody mortality rate of “10 to 15%” (nwcouncil.org) of all incoming juveniles at each dam. Many salmon must pass multiple dams on their runs, increasing their probability for death. The repercussions of dams have been so detrimental, that the Klamath River, which “once supported the third largest salmon run in America” (*Klamath River Dams*), now has a Chinook salmon population of “only 8%” of pre-dam populations. An estimated loss of “seven to fourteen

million fish” has occurred “due to development in the Columbia Basin” (*Columbia River Chronology*). These numbers are abysmal. Wild salmon have been forced from their natural runs and killed by the thousands, all to increase business’ bottom line. Such capitalistic ends should no longer be endured by the struggling salmon. If several choice dams were removed, such as the Klamath dam and a few of the “fourteen dams” (nwcouncil.org) currently crowding the Columbia River, the salmon population could begin to rebuild itself. With fewer dams to navigate through, more adult salmon would make it to spawning grounds, resulting in a greater output of juveniles. And the juveniles that are spawned would have a far less deadly journey to the Pacific. Consequently, more spawning grounds would become accessible to salmon, meaning more opportunities for reproduction. It may take several years for the salmon to significantly repopulate themselves, but make no mistake, they would flourish again. Hydropower is a fair cut of the Northwest economy, but compromising to cut a couple dams would benefit the salmon population far more than it would hurt the economy. Saving the trademark Northwest salmon should be worth a small loss in dollars. The salmon population has been in decline because these dams have been blocking their runs and grant them no place to spawn, throwing them into complete confusion. If we find no compromise to alter the current dam system, it will not just be the unique salmon runs that become extinct, but the Northwest salmon as well.

Salmon harvesting has plagued the fish population continually, slaughtering thousands of salmon annually for commercial industry. The newest form of mass harvesting is salmon farming. “Since that late 1980s”, the “production of farm salmon has increased fivefold” (Stanford.edu), promptly establishing itself as a leading cause of

wild salmon death. Salmon farms present several ecological threats that are completely devastating the salmon population in the Northwest. One threat being that “farm salmon are particularly susceptible to diseases and parasites” (Stanford.edu), and because they are raised near wild salmon runs, those diseases are easily transferred onto the wild population. Of these contaminations, sea lice are among the most common and lethal. Salmon farms are havens for these parasites because stock salmon are kept in close confinement, offering lice effortless access to a plentiful supply of host bodies. When wild salmon begin their spawning runs, many must pass salmon farms where residing sea lice will latch on in deadly quantities. The problem is not that sea lice exist, as they are “naturally occurring parasites of wild salmon” in the open ocean (eurekalert.org), but that they have begun to exist in rivers at such potentially high concentrations as a result of salmon farming. Adult salmon can endure “a small number of lice”, but it is the juveniles heading downstream that are especially weak and “vulnerable” to sea lice because they are “thin-skinned” (eurekalert.org). Normally, juveniles would not be exposed to sea lice this prematurely as the “adult salmon that carry the parasite are offshore” (eurekalert.org), but salmon farms have brought the parasite to the rivers. This infestation has been annihilating the wild salmon population, and with no cure at hand, a collapse of the population is imminent. In fact, researchers found that when salmon farms temporarily closed, “sea lice numbers dropped and salmon populations increased” (euraklert.org). Therefore, an agreement to substantially reduce the number of salmon farms would allow wild salmon to regain population and dilute the concentration of parasites. At the very least, salmon farms should be relocated away from major migratory salmon runs, affecting wild salmon populations less seriously.

The prominent threat of salmon farms is the fish that escape their pens. These escaped farm salmon invade runs and compete with “wild salmon populations for food and habitat” (Stanford.edu). Farm salmon can reproduce and thrive in the wild, potentially eradicating existing wild salmon. The issue is that salmon farms raise Atlantic salmon which are not native to the Northwest, but are an invasive species. Therefore, when Atlantic salmon do out-compete indigenous salmon, they are not filling their place, but killing off the native species. It is estimated that “over a million salmon have escaped Washington and British Columbia during the past decade” (Stanford.edu) and mixed into the wild salmon population. This has caused several indigenous salmon species to plunge in numbers, and has also muddled the strength of wild salmon. Because, when wild salmon breed with farm salmon, their genetics weaken, possibly hampering future salmon survival rates. To prevent farm salmon from competing and breeding with wild salmon, farms must tighten pen security. If the current number of escapees persists, salmon of the Northwest will soon lose their luster.

For the past hundred years, the Northwest has treated salmon deplorably. Practices of overfishing, fish farming, and excessive logging and damming have continued, despite knowledge of their disastrous effects on wild salmon populations. Not only is their natural habitat being devoured, but they now face competition from farm fish for the remnants. Wild salmon have been on the decline for years, most runs are “less than 10% of their pre-1850s levels” (*Facing the Facts*). This can be turned around by restructuring the current dam and salmon farm layout of the Northwest. Unless the rehabilitation of salmon population is given high priority, the once bounteous salmon runs of the Northwest will fade into oblivion.

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