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Who's Nature?

Ontological Narrative Dissonance Among Skagit River Fishery Coalitions

By

Jann Eberharter

Accepted in Partial Completion

of the Requirements for the Degree

Master of Arts

ADVISORY COMMITTEE

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GRADUATE SCHOOL

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Master's Thesis

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Jann Eberharter

March 6, 2023

Who's Nature?

Ontological Narrative Dissonance Among Skagit River Fishery Coalitions

A Thesis

Presented to

The Faculty of

Western Washington University

In Partial Fulfillment

Of the Requirements for the Degree

Master of Arts

by

Jann Eberharter

March 2023

Abstract

My research investigates narratives within fisheries management for Washington state's Skagit River, focusing on ecological restoration and diminishing salmon runs. I ask, how might differing narratives affect progress and reflect the ontological orientations of the fishery's co-stewards? Asked with a twist, Who is Nature? (abbreviated Who's Nature?), I aim to critique the classic Euro-American paradigm of nature and examine the connections between us, the who, and natural world? I hope my research illuminates these important questions. I selected three entities with varying Euro-American and Indigenous affiliations—the Skagit Watershed Council (SWC), Skagit River System Cooperative (SRSC), and Northwest Indian Fisheries Commission (NWIFC)—and then used Narrative Policy Framework to analyze literary devices of scale, villains, and victims in four publicly available documents from each entity. The results highlighted a statistically significant difference in who coalitions victimize. The SWC and SRSC only victimized nature, while the NWIFC portrayed both nature and humans as victims of ecological degradation and struggling salmon populations. I believe this dissonance is rooted in conceptions of humans as either separate from, or part of nature—perspectives that have implications for fisheries management, conservation policies and the future of salmon. If we continue to ignore these fundamental ontological differences, collaborative approaches are likely to fail, and the salmon crisis will only worsen.

Acknowledgements

I would like to acknowledge that I live on the traditional land of the Nooksack, Lummi and Coast Salish peoples. My research focuses on the Skagit River watershed, which has been home to the Swinomish, Sauk-Suiattle, and Upper Skagit, other Coast Salish tribes, and salmon since time immemorial. I hope my work can inspire ways to rethink common Euro-American concepts of land, perceptions of our relationship with the natural world, and make a positive contribution to the region's ecological systems.

Furthermore, I respect that every individual has their own valid life history and lived experiences that contribute to their reality. My own perspective as a white male with Euro-American heritage, educated at a Western institution is an underlying factor in this research. I recognize that "All non-Indigenous residents of the Pacific Northwest are, each in their own way, inheritors and beneficiaries of the dispossession of Indigenous lands and waters and the allied logics that undergird this process" (Horton 2022)—myself included. But I also bring a specific Euro-American research orientation to this thesis. The post-positivist tradition from the policy sciences as described by Clemons and McBeth (2020) guided my epistemology and methods choices.

Thank you to my parents for their encouragement and support throughout this process; my partner Shelly for her endless inspiration and thoughtful perspectives; my advisor Dr. Troy Abel for his continual guidance and willingness to challenge established ideas; Jonah White for helping interpret my statistical results and providing feedback throughout the process; my thesis committee Dr. James Miller and Dr. David Rossiter for their time, insight, and interest in my research; and my friends for being a strong foundation of community that I quite often lean on.

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Narratives of Nature

The natural world is changing at an astounding pace. For the Salish Sea, ecologically speaking, this could mean a 1.5 degrees Celsius rise in average water temperatures, a 1.5-meter sea level rise, and a 4.4% reduction of freshwater inflow by 2095 (Khangaonkar *et al*. 2019). The way Western cultures perceive the natural world, and more importantly their relation to it, is similarly changing—and has been for some time. These perceptions—by preservationists, conservationists, ecologists, and environmentalists—all have different narratives rooted in their respective notions of the human-nature relationship. As humankind addresses the challenges of the 21st century, examining these narratives of nature has never been more important.

I explore the argument that the failure to support salmon populations in the Salish Sea is a manifestation of conflicting and misconstrued narratives with very high stakes. As a keystone species, salmon are ecologically essential to the region. As a nutritional staple, and cultural and spiritual icon for Coast Salish tribes, they are vital to a way of life. And as a recreational and commercial industry, salmon are many people's livelihood and passion. If one river exemplifies the confluence of the Salish Sea's struggling salmon populations, Indigenous culture and tribes' treaty-guaranteed rights to fish, and the political battleground of agriculture, development, and restoration, it's the Skagit.

To examine narratives of nature for the Skagit, and how different ways of thinking might contribute to social and political friction, and inaction, I developed three research questions: First, how are salmon recovery efforts in the Skagit River watershed socially constructed by co-stewards? Second, what kind of scalar and narrative politics are produced by tribal and non-tribal organizations pursuing restoration of the Skagit fishery? And third, can varying discourses inhibit salmon recovery and perpetuate recognition injustices?

Research Design

My research used a mixed method approach of narrative policy analysis (NPA) and content analysis, combining qualitative data with quantitative analysis. This approach was inspired by McBeth *et al.*'s (2005) The Science of Storytelling: Measuring Policy Beliefs in Greater Yellowstone. According to Stone (2002), all problems are defined in a way that aims to produce a specific outcome. By examining the narrative surrounding an issue through various literary tactics (such as character relations, story arc, metaphors, etc.) it is possible to discern political values being used to define the problem. Narrative policy analysis "focuses mainly on the social construction of problem definitions through the use of language" (McBeth *et al*. 2005).

I used content analysis to find and code literary tactics in 12 publicly available documents directly related to fisheries management, ecological health and restoration for the Skagit. Three involved coalitions were identified, the Skagit Watershed Council (SWC), Skagit River System Cooperative (SRSC), and Northwest Indian Fisheries Commission (NWIFC), and four documents were chosen from each. I developed a coding scheme to highlight literary devices that represent spatial scales, subjects framed as victims, and subjects framed as villains. Each of these three categories was further divided into two coding options: ecological or political for scales, human or non-human for villain, and human or non-human for victim. After each document was coded, I used equations developed by McBeth *et al.* (2005) to give each document a score that represents its dominant usage of the literary devices in question. This process was developed with a goal of further understanding the underlying causes of disagreements surrounding the issue of declining salmon populations in the Skagit River.

The three coalitions were chosen because of their varying perspectives rooted in Euro-American or Indigenous ideologies. Euro-American culture is categorized as individualistic,

focusing on independence, competition, logical analysis and decontextualized information, whereas Indigenous cultures are collectivistic, prioritizing group wellbeing, collaboration, interdependence, and contextualized information with connections and patterns (Hain-Jamall 2013, Oyserman 2011). The Skagit Watershed Council represented a more traditional Euro-American perspective, the Skagit River System Cooperative a dually influenced Euro-American and Indigenous viewpoint, and the Northwest Indian Fisheries Commission a Indigenous perspective. These coalitions were chosen with the goal of discerning how such varying ideologies might contribute to each coalition's perspective toward and framing of problems underlying the Skagit's fisheries management. This methodology provides the unique ability to decode political values embedded in literature addressing declining salmon populations in the Skagit River.

Chapter One: The Story of Salmon (A Tragedy)

Can you imagine the Salish Sea and its Washington tributaries without Salmon? Fisherfolk would no longer find themselves waist-deep in world-renowned rivers, casting massive pink flies into the drizzly fall abyss. Boats of multi-generational families would no longer haul their catch—and livelihood—out of the Salish Sea's steely blue waters. The region's already declining Southern Resident Killer Whales would no longer enjoy their favored meal. Gone would be the fish that local Indigenous communities have cherished since time immemorial. This bleak future might be closer than previously thought, especially for the Skagit River.

The Skagit River originates in the Canadian Cascades, some 20 miles north of the US-Canada border. Flowing south, the river soon crosses into Washington state before turning west and eventually connecting with the Salish Sea in La Conner, Washington. Bisected by the international border, the northern portion of the Skagit's headwaters remain relatively undisturbed, with portions protected by provincial parks. Just across the 49th parallel, however, it's a different river. Evidence of long-gone old-growth trees can be seen in the graveyard of stumps exposed when the waters of Ross Lake are at their lowest. Three hydroelectric dams fragment the river, providing nearby Seattle, Washington with power, but potentially posing serious threats to the ecosystem's recovery—and the only Puget Sound river home to significant populations of all the region's native salmon and trout species.

Salmon are a valuable resource for many people of the Northwest. As a cultural icon and economic driver, the species has regional significance on multiple levels. Ecologically, salmon are a keystone species, serving as food for other animals and providing numerous ecosystem services in marine and freshwater systems throughout their lifecycle. As Lorraine Loomis, chair of the Northwest Indian Fisheries Commission, said in her opening letter of the 2020 State of our

Watersheds, “We must acknowledge that our salmon continue to decline because we are losing their habitat faster than it can be restored. We must reverse that trend. We must protect what sustains them… We aren’t managing salmon for today. We are managing them for future generations” (4).

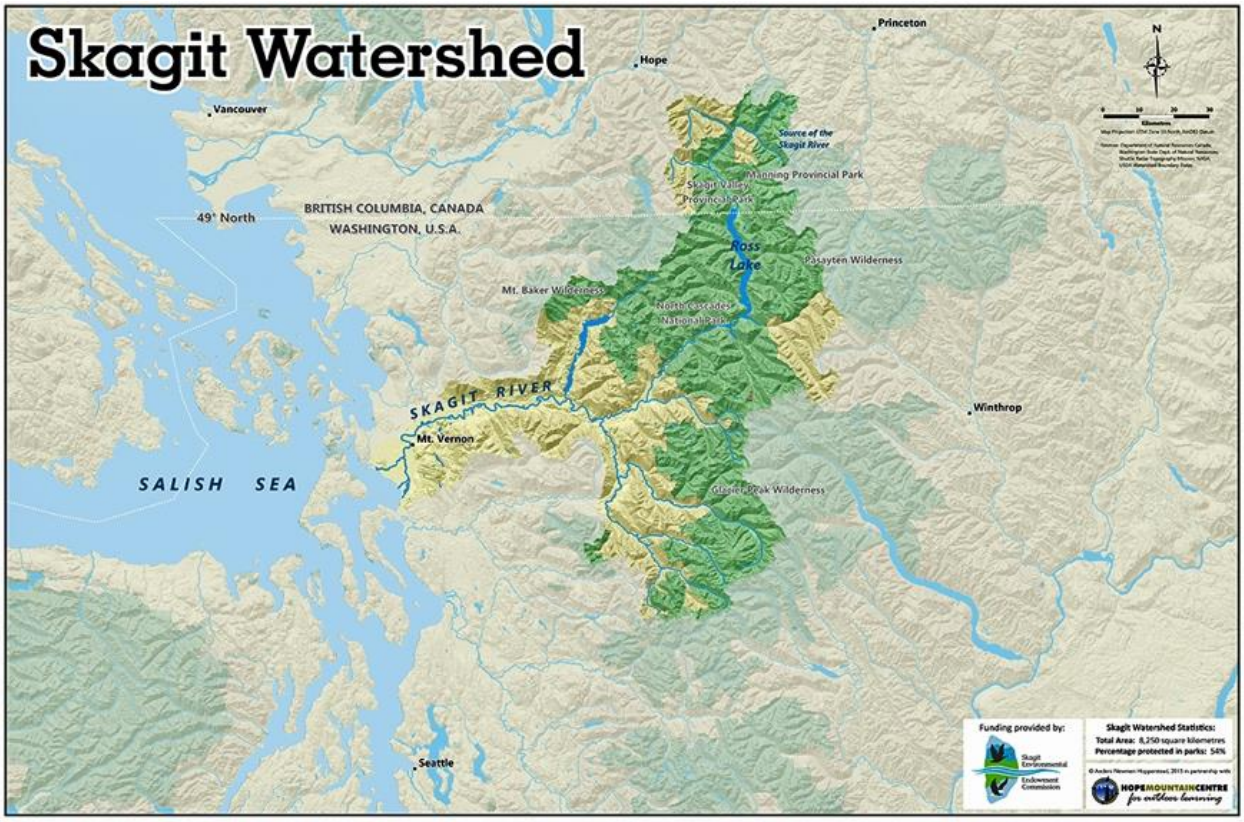


Figure 1: Map of the Skagit River watershed, Skagit Environmental Endowment Commission 2023

In 2019, the Puget Sound Partnership identified Chinook salmon as one of many vital signs of the region’s health. Together, these numerous indicators point to the sound’s overall health and trending ecological direction (PSP 2019). The region’s Chinook population was listed as “threatened” under the Endangered Species Act (ESA) in 1999 yet, in the two decades since, little progress has been made in strengthening numbers and meeting recovery goals. This dilemma is not limited to the Puget Sound, either. Thirteen distinct salmon populations are listed as either “threatened” or “endangered” under the ESA in the Columba River Basin (Schick and Hwang 2022). To try and help these wild populations, the federal government has invested more

than $2 billion into the region's hatcheries in the past 20 years—with little progress to show (Schick and Hwang 2022).

According to the Puget Sound Chinook Resource Management Plan currently under consideration for 2021-2030, the 10-year average size of wild Chinook runs in the Puget Sound is down 28 percent in comparison to pre-1999 numbers (WDFW 2021)—the year the populations was listed as "threatened" under the ESA (Federal Register 1999). Furthermore, in 2010, the EPA reported that the total abundance of Chinook salmon in the Salish Sea was down 60 percent from 1984 levels (EPA 2010). The Puget Sound Partnership's Executive Director, Laura Blackmore, went so far as to declare the region in "grave trouble" in her opening message of the 2019 report. For 2022, 250,440 Chinook were estimated to return to Puget Sound—only 31,444 of which are wild (WDFW 2022a). While these numbers are up from 2021, they are on par with 2020 Chinook returns. No forecasts have been presented for 2023 or beyond.

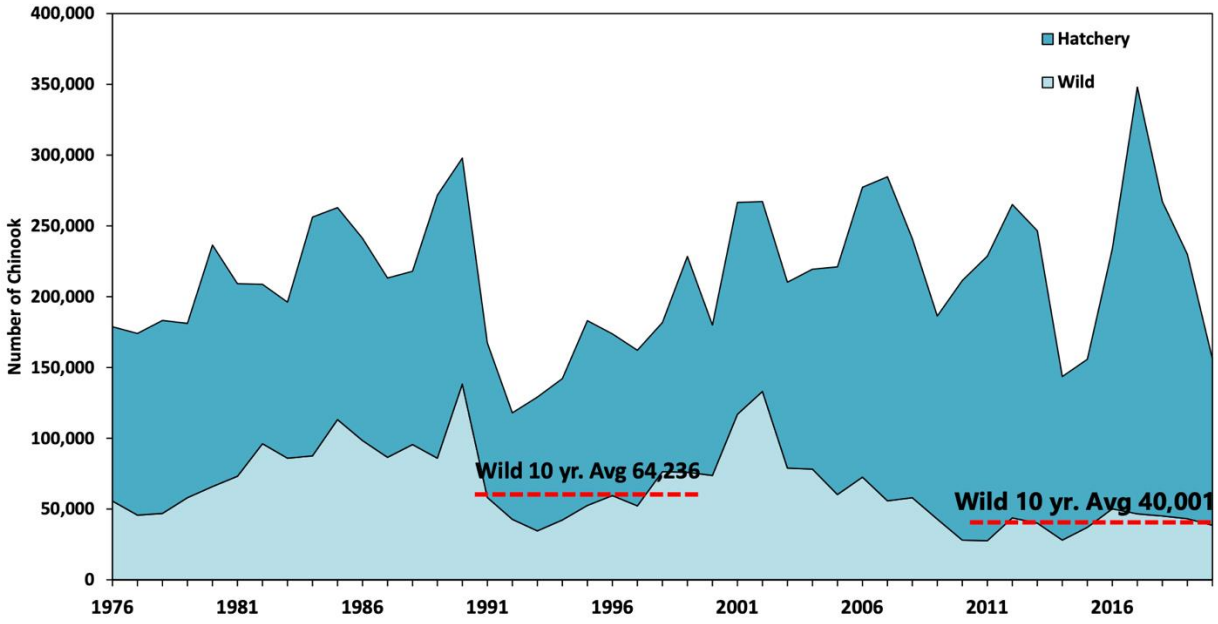


Figure 2: Historical Puget Sound Chinook run size. Washington Department of Fish and Wildlife 2022b.

There are numerous environmental factors and conditions that contribute to the health and wellbeing of Chinook populations, including mountain snowpack and seasonal temperatures. Looking at the June mean streamflow of the Skagit from 1925 to the mid 1970s, 2019 was the 5th lowest on record, while 2005 and 2015 were even lower (UW 2019a). Data from the United States Historical Climatology Network (USHCN) shows average annual air temps up across the board in Western Washington since the beginning of the century, with temps in Sedro Woolley, Washington increasing 0.11 degrees Fahrenheit per decade on average (UW 2019b). Higher air temps can equate to earlier spring runoff, depleting snowpack and extended fall droughts.

Although Chinook might receive the most attention, the Salish Sea is home to numerous populations of salmonids, additionally including coho, chum, sockeye, pink and steelhead (WSRCO & GSRO 2020a). The Skagit is home to significant populations of all these salmon, as well as several species of trout. The river accounts for more than 30 percent of all freshwater entering the sound, and regional ecologists deem the Skagit an essential part of the region's overall wellbeing (Rybczyk *et al*. 2016, Grossman *et al*. 2020).

Abel *et al*. (2022) concluded that few Puget Sound recovery goals have been met in recent years, and fragmented governance of the region is a major factor impeding progress. Two of the key takeaways listed for Puget Sound on the State of Salmon in Watersheds 2020 website bluntly lay out the region's physical and logistical challenges. First: "One of the greatest challenges is protecting critical salmon habitat from development while also respecting the needs of the more than 4 million people living in the Puget Sound region." And second: "We know what needs to be done to protect and restore the environment that salmon and orcas depend upon, what we lack is the resources to get the job done. The investment so far has been a fraction of what is needed to reach recovery goals" (WSRCO & GSRO 2020b). These two

acknowledgements highlight the disconnect between conflicting priorities, awareness, and action.

Human impacts have taken a toll on these fish. There are significantly fewer wild salmon in the region today than a century ago, along with evidence that many local populations have already vanished. Despite decades of knowledge and hundreds of millions of dollars invested in conservation, there has been little progress made in reversing this overall trend. Management and restoration tactics vary widely between actors, featuring political, ecological and societal conflicts at their core. Threats to these fish include climate change, habitat degradation, regional dams, over-harvesting, predation, hatcheries and hydropower (WSRCO & GSRO 2020a). The current status of recovering salmon population for the Skagit River is bleak. Instead, the river's iconic fish are on brink of extinction due to degraded river conditions and the lack of true political concern.

A Species' Habitat in Distress

This story took a drastic turn for the worse some 200 years ago when Euro-American colonization began in what is now the American West (Schneider 2016). Since then, modern human impact on Northwest rivers has taken a substantial toll on wild salmon. Salmon have been part of the Northwest's ecosystem since time immemorial enduring natural climate change, volcanic eruptions and geomorphic events. Their survival is a testament to their resilience (Campbell & Butler 2010). As a vital component of local Indigenous cultures, Campbell & Butler (2010) argue that historical harvesting pressure had the potential to negatively impact the species' populations but was consciously managed to ensure longevity. Northwest Indigenous communities fished sustainably for 2000-plus years before Europeans arrived in the region

(Trosper 2002). These insights infer that Euro-American ways of thinking and resource management have been detrimental to salmon runs.

It is estimated that "In Washington, 50-90 percent of land along waterways (riparian areas) has been lost or extensively modified by humans" (WSRCO & GSRO 2020a, 11). According to Beamer at al. (2005), floodplains cover 28.6% less area than they have historically, which has led to habitat loss for juvenile Chinook salmon. When assessing Coho salmon smolt production capacity in 1994, Beechie *et al*. determined that summer habitats had been reduced by 24 percent, while winter habitats had been reduced by 34 percent. Further exacerbating these problems is the fact that Washington state's population has grown by 55 percent since 1990 (WSRCO & GSRO 2020a) and is expected to reach nearly 9 million by 2040 (WA OFM 2020).

Rising in-stream temperatures are another factor affecting these fish. Diminishing snowpack in the mountains means less continuous, cold runoff throughout the summer months and longer droughts. Water released by snow melt in the western U.S. decreased 21% from 1955 to 2016 (WSRCO & GSRO 2020a). Less water typically means warmer water too, especially in the summertime. Earlier and warmer spring air temperatures contribute to peak flows happening sooner, which affects various stages of salmonid lifecycles and intensifies droughts toward the end of the summer. Water temperatures above 64 degrees are believed to add additional stress to salmon, and by 2080 it is estimated that more than 1000 miles of Puget Sound streams will exceed 64 degrees for nearly eight weeks a year (WSRCO & GSRO 2020a).

Warmer temps are not just a regional problem, either. As our planet faces the challenges of anthropogenic climate change, so will our rivers. Mantua *et al*. (2010) modeled climate change impacts on freshwater salmon habitat in Washington and predicted "significant increases in water temperatures and thermal stress" (196). Another study, using two different climate

models, predicted a 20-40 percent decline of spawning Chinook salmon populations in the Swinomish River basin by 2050 (Battin *et al*. 2007). Addressing the current state of Washington's rivers along with the future challenges they face will necessitate adaptive and long-term management. In this regard, Schindler *et al*. (2008) suggest "policies must be robust to these uncertainties rather than reliant upon prescriptive forecasts of climate and associated ecological conditions" (503).

Fish be Dam(n)ed

Three dams on the Skagit form the Skagit River Hydroelectric Project (SRHP), owned and operated by Seattle City Light, and together provide more than 20 percent of Seattle's power needs (Seattle City Light 2022). The project was envisioned by J. D. Ross, then superintendent of the newly established Seattle City Light, who in 1911 proposed a series of three dams to harness the power of the Skagit (Seattle City Light 2023b). The lowest, Gorge Dam, began generating electricity in 1924, and by 1961 Diablo and Ross dams had been completed, turning Ross' vision into reality (Seattle City Light 2023b). A 1942 plan to raise Ross Dam by 123 feet and flood 7.3 square miles of the Skagit's Canadian headwaters sparked significant environmental and political controversy in the region for 30 years (Perry 1975, Van Huizen 2011). In *Contested Terrain: North Cascades National Park Service Complex: An Administrative History* Louter gives insight to Seattle City Light's position that, as a renowned public utility, "City Light tended to see engineered nature as just as valuable as wilderness, and implied after the park's establishment that it had 'created' the recreation area by making the Skagit Valley's wilderness 'usable'" (1998).

All three dams were built without consulting the Upper-Skagit Tribe, who has called the valley home since time immemorial (Frame 2021). Furthermore, none of the dams include fish passages, as Seattle City Light has maintained that the dams do not impact salmon because the fish did not historically inhabit the upper reaches of the river (Frame 2021). However, the Study of Skagit Dams Original Impacts on Wildlife and Fish Habitat and Populations Draft Report, prepared by Envirosphere Company in 1988, alludes to salmonid run destruction and the loss of spawning habitat on numerous occasions due to the dams' development. According to the Northwest Indian Fisheries Commission, Gorge Dam blocks a three-quarter mile stretch of spawning and rearing habitat, which has long been known as "Spirit Valley" to the people of the Upper Skagit Indian Tribe (Loomis 2021). In April 2021, WDFW and National Park Service scientists found an estimated 50 young coho upriver of where Seattle City Light had claimed fish could not pass (Black 2021). Furthermore, dams interfere with a river's natural processes of sediment flow and large woody debris, both essential to salmon habitat (Pess *et al.* 2008). Overall, the dams disconnect 40 percent of the watershed from the lower river (Northwest Treaty Tribes 2022).

With the SRHP's operating license expiring in 2025, there has been a recent push by the Upper Skagit Tribe (Schuyler 2020) and other entities to reexamine the dams' impact on salmonids. The Sauk-Suiattle Indian Tribe have filed several lawsuits against Seattle City Light in recent years, one of which accused the public utility of deceptive advertising because the SRHP's "Green Power" certification does not consider the dams' impact on fish (*Sauk-Suiattle Indian Tribe* v. *City of Seattle* 2021). Another lawsuit was filed by the Sauk-Suiattle Indian Tribe in tribal court on behalf of salmon, alleging the tribe's "legal duty to protect Tsuladx^{w} [salmon] and to support healthy ecosystems from which to provide on-going food security to hunt, fish,

trap and gather…" (A-2) was being infringed upon (further discussed in Chapter Three) (*Sauk-Suiattle Indian Tribe* v. *City of Seattle* 2022).

In August 2021, Seattle City Light announced plans to assess the ongoing need for dams and conduct a "comprehensive decommissioning assessment to answer the question 'Should we consider removing any or all of the dams on the Skagit?'" (Seattle City Light 2023a). Less than two months later, the public utility company established the Skagit Habitat Enhancement Program, a $2.5 million fund, with an additional $500,000 added every year until the new relicensing agreement, dedicated to restoring the Skagit's endangered fish (Moore 2021). The program will be administered by City Light in coordination with the Upper Skagit, Sauk-Suiattle and Swinomish tribes, and other federal and state agencies (Moore 2021). Seattle City Light's Draft License Application, which was submitted to the Federal Energy Regulatory Commission on December 1, 2022, stated, "NMFS, USFWS, the Treaty Tribes and others are evaluating as part of the ongoing relicensing whether fish passage should be included within the new license… City Light anticipates implementing a Gorge Dam Fish Passage Program if a decision is made to proceed with fish passage at Gorge Dam" (Seattle City Light 2022, 3-68). The Upper Skagit Indian Tribe, NOAA Fisheries staff, WDFW and numerous other entities have all asked Seattle City Light to study and implement a fish passage program (Northwest Treaty Tribes 2022).

The Hatchery Debate

Beyond fish passage technologies, efforts to restore harvestable salmon runs have created an entire hatchery industry, costing billions of dollars. However, little progress has been made (Lackey 2017). This is because complex problems like salmon recovery are rooted in public

policy, governmental regulation, and entrenched deep core beliefs (further explained in Chapter Four), as much as they are in science. As Daniel Press says,

> *"Environmental protection and restoration are not technically overwhelming—we probably had less of the requisite know-how for putting a craft on the moon in the 1950s than we do for solving major environmental problems today. In our society, environmental problems are democratic dilemmas" (1994, 1).*

This notion highlights the fact that technology and science are unlikely to solve the Skagit's (and entire West Coast's) salmon crisis. While the democratic dilemmas of Common-Pool Resource (CPR) governance are well-studied (see Ostrom 1990 and Gardner, Ostrom and Walker 1990), I wanted to explore how differences in human-nature relationships between Indigenous and Euro-American cultures are exemplified through narratives.

Fish hatcheries were once thought of as the answer to mitigating population losses and providing enough fish to support commercial and tribal harvesting. The practice of artificial fish production in the United States dates back to latter half of the 1800s and the goal of curbing declining fish populations on the New England coast (Allard 1988, Naish 2007). In the following century, fish hatcheries were built throughout the west to address habitat loss, overfishing, forestry, and urbanization (Flagg 2015). The era of dams, including the Grand Coulee Dam on the Columbia River which blocked 1,140 miles of mainstream and tributary habitat for anadromous fish (Potter and Cooper 2018), was a significant contributor to the proliferation of hatcheries as well. To this day, hatcheries often provide up to "80% of the fish in key PNW salmon fisheries and have greatly benefited commercial, sport, tribal, and nontribal fishers" (Flagg 2015, 367).

Brannon *et al*. (2004) argue that hatchery operations can maintain large enough populations to avoid inbreeding, expand genetic diversity, and prevent extinction. Additionally, they argue that hatcheries can help when fisheries suffer from "eroding fitness," a side effect of

small populations (Brannon *et al*. 2004). Noting that hatcheries cannot make up for lost habitat or natural populations, Flagg (2015) suggests "hatchery programs must be viewed as a tool that can be used as part of a coordinated strategy to meet watershed or regional resource goals, in concert with actions affecting habitat, harvest rates, water allocation, and other important human impacts" (374). Even so, the discourse and debate surrounding hatcheries in past decades has served as more of a technological distraction, rooted in Press' (1994) notion of a democratic dilemma, than any sort of actual solution.

Although hatcheries provide harvestable fish, any hopes of the process contributing to the ecological wellbeing of the region is unlikely. Naish *et al*. (2015) outline the potential consequences of hatchery fish, which "may ultimately lead to the release of a genetically altered population that may interact negatively with any wild stocks present, by decreasing the overall fitness of the combined populations" (101). Hatchery fish additionally pose a threat to wild fish though the reduction of population sizes and hybridization, which together could push endangered populations toward extinction (Naish 2015). Wild fish suffer significant negative impacts as a result of large hatchery releases, especially when ocean conditions are subpar (Levin *et al*. 2001). Meffe (1992) declares, "Salmonid management based largely on hatchery production, with no overt and large-scale ecosystem-level recovery program, is doomed to failure" (315).

Conflict at the Core

Considering the river's ecological significance for the future of salmon in the Salish Sea, it's no surprise there's debate about the how to reverse the current trends. Local Indigenous tribes, Skagit Valley farmers and numerous other actors not only disagree on what the underlying

problem of salmon decline is, but also who is responsible for the continued losses (Breslow 2014). One of the more interesting conclusions Breslow (2014) reaches is that conflict is not necessarily always bad. Also in the context of Pacific salmon management, Ebbin (2004) concurs with this idea, claiming "the emergence of knowledge-based conflicts among stakeholders played a significant role in enhancing the quality of information used in management and ultimately the robustness of ensuing decisions" (83). Additionally, when social connections exist between those sharing common pool resources, whole-scale socio-ecological conservation has benefitted (Bodin *et al*. 2014).

Yet salmon are closer to extinction than ever before. One aspect of this conundrum is how political polarization inhibits progress. Looking at "environmental drama in the Skagit Valley" Breslow (2013) concluded that conflict in the region is predictable, rooted in colonialism, and the result of shifting power dynamics. In support of this, Whyte (2018) outlines how settler colonialism is centered on the domination of ecological landscapes, which also commits environmental injustices toward Indigenous peoples and other, often minority, groups.

Historically, there has been a scientific and technical emphasis in ecological restoration efforts that neglect social and cultural factors, despite the knowledge that humans have profound impacts on natural systems (Fox and Cundill 2018). Moreover, the subject of biodiversity loss has substantially been overshadowed by climate change in recent years, but the destruction seems to be equally (if not more) concerning—it's been suggested that only three percent of global ecosystems remain fully intact (Wallace-Wells 2022). For the Puget Sound, "habitat degradation continues to outpace restoration," (9) prompting the Puget Sound Partnership (PSP) to change course from no net ecological loss goals to net ecological gain goals in 2020 (Abel *et al*. 2022). This approach might still not be enough. As Press (1994) claims, we undoubteldly

posess the technical knowledge to combat biodiversity loss and restore the Salish Sea's degraded ecosystems, it's politics that are getting in the way.

One complicating factor is the numerous stakeholders involved in the Skagit conflict, who consist of local and state governments, tribes, famers, conservationists, and foresters, among others. However, as demonstrated by Layzer (2008), trying to appease all stakeholders often results in a political compromise that does not yield the best outcome for the ecosystem at hand. Susskind *et al*. (2012) echo this thought, noting that while collaborative adaptive management practices might be appealing in theory, the "processes can fail to live up to expectations in practice" (49). This is not to say, however, that collaboration goes nowhere. In cases of collective watershed management, Scott (2015) found watersheds that have been managed for more than four years by cooperative means had less phosphorus and nitrogen content, and turbidity, as well as more habitat complexity. Emphasis of landscape-level thinking and the use of political institutions to implement ecological restoration can help change power dynamics and achieve more effective results, according to Layzer (2008).

Bottom *et al*. (2009) suggest that traditional conservation tactics have long mirrored command-and-control governance, and that "the history of salmon conservation exemplifies the 'pathology of natural resource management'" (11). Through this approach, many complex nuances of salmon and their life histories have been neglected in modern-day so-called "solutions" (Bottom *et al*. 2009). Strengthening the "socio-ecological connections" between salmons and humans could accommodate the intricacies of these natural systems to create an approach toward resilience and subsequently healthy, sustained salmon populations (Bottom *et al*. 2009).

In line with Bottom *et al*.'s suggestions, Sayles (2018) looked at estuary restoration projects in Washington's Puget Sound (the terminus of the Skagit River) and concluded that socio-ecological mismatches often inhibited these efforts. Furthermore, Pelosi *et al*. (2010) suggest that there tends to be a lack of synergy between biodiversity and agricultural management systems that stems from socio-economic spatial scale mismatches. The State of the Salish Sea report, released by the Salish Sea Institute in May 2021, calls for the application of "social-ecological systems science." This idea is expanded upon with the statement that "understanding the complex relationships between people and their environment can stimulate wise management decisions and development actions for ecosystem restoration and protection, as well as economic sustainability" (Sobocinski 2021, 6). Breslow (2014) goes even further, declaring "Ecosystem recovery requires not only the restoration of ecosystem components, but also the renewal of social relationships and trust, and the creation of new social institutions and new kinds of knowledge" (328).

In light of these revelations, I propose that ontological dissonance is a fundamental underlying issue within the conflict, hindering restoration efforts, and inhibiting progress in reviving wild salmon populations of the Skagit River. We must act soon to ensure the region does not lose one of its most valuable cultural, historical and economic resources—a very possible outcome of the current trajectory. There could be a possible future with healthy wild salmon populations, but only if stakeholders are open to alternative conceptions of reality and species beyond their own. It would be a truly tragic end to this story if losing a fish everyone loves becomes the one thing these communities have in common.

Chapter Two: Ecocultural Dissonance

Salmon People

The relationship of land and sea is paramount to the worldviews of Northwest Indigenous cultures (Mathews and Turner 2017). Along the Northwest Pacific coast, Salmon have been deeply intertwined with Indigenous cultures for more than 10,000 years (Campbell and Butler 2010, Carothers *et al*. 2021). While salmon are a vital part of Coast Salish diets, the fish are equally embedded in tribal aspects of society, spirituality, economy, and mental and physical wellbeing (Atlas *et al.* 2021, Davis 2013). Moreover, salmon are seen as kin, as ancestors, and as an integral part of an entire sentient landscape (O'Brien 2014). Many Coast Salish communities throughout the Pacific Northwest, including Swinomish Tribe, self-identify as Salmon People (Davis 2013). It is imperative to consider this perspective when exploring the Skagit fishery.

> *"Any attempt to explain the story of the cosmos is also metaphysical as the method of research always stems from a cultural orientation, a paradigm of thinking that has a history in some particular tradition. Therefore, there can be no such thing as a fully objective story of the universe" (Cajete 2004, 46)*

Guarino *et al*. (2009) define ontology as "the branch of philosophy which deals with the nature and structure of 'reality.'" However, "reality" is inherently subjective, and so are the ways we perceive, structure, and process it. Recognizing competing ontologies within disagreements can be difficult, as they are specific to those involved and innate within individuals' mental framing (Harrison and Loring 2020). Acknowledging epistemologies, or ways of knowing and theories of knowledge production (Miller *et al*. 2008) is equally important, Cullon (2017) uses the term "relational ecology" to bring together "aspects of animism with the ecological aspects of historical and political ecology to explore the interrelationships that are ever present in the world by situating human practice within its knowable contexts" (27). This idea leads to an ontological and epistemological conception of salmon that is in stark contrast to the common Euro-American classification of natural resource.

> *"Indeed, the food resources of the Salish Sea, the salmon and shellfish, were provided by natural systems so vastly intricate that the stories of metaphysical*

> *relationships with the natural world were the methodologies for both respecting and acquiring knowledge of the sources and purposes of life." (Marker 2018, 461)*

Alaska's Yup'ik communities perceive salmon as beings within a reciprocal relationship with humans, and that being caught affirms this ongoing connection—a contrast to the typical Euro-American natural resource narrative that salmon return home to reproduce according to Schiefer (2021). Specific physical locations hold deep significance for personal and communal identities, providing experiences that form the basis of relations to people and the land (Thom 2005). While Indigenous communities of the Northwest all have their own unique histories, languages and belief systems, there are common threads that exist. Marker (2018) points out "Indigenous knowledge systems are predicated on a common sense that experience and reality cannot be abstracted from the phenomena of the power of places" (455).

Euro-American ways of thinking, which are manifested through policy, law, economics, culture and numerous other ways, dominate the Northwest and Skagit fishery management—with severe implications. Science communication inherently relies on cultural constructs, and thus has varying effects on culturally diverse audiences (Medin and Bang 2014a). In Alaska, traditional natural resource management regimes typically failed local Indigenous communities when managing social-ecological systems, but other approaches were still dominated by a singular epistemology (Miller *et al*. 2008). As an alternative, Curry (2008) makes a case for ecocentrism, a "pluralist, relational and open-ended" approach where the perspective of "nature which ecocentric epistemology, axiology and ethics take as central includes, but without being limited to, human beings—both in the sense that human beings are ecologically situated in (and literally cannot live without) nature, and in the sense that nature is equally 'in' them." This coincides with Medin and Bang's (2014b) argument of science as one "model of reality (speaking a bit loosely), but that there are an infinite number of accurate (that is, accurate enough

to be useful) descriptions of nature that may be variously relevant depending on our goals and values," (162).

Treaty Rights to Fish

Treaties between the United States and Indigenous peoples were mostly used as a method of obtaining land from tribes. In exchange for that land, the U.S. promised to protect and honor their sovereignty, among many other obligations. This established a trust responsibility, the idea that the federal government must honor its promises and uphold its commitments to tribes—although this is a moral duty, not necessarily a legal one (Pevar 2012, 33). In considering tribal treaties and their authority, it is important to note that they convey rights granted from tribes, rather than to them (Mulier 2006, Pevar 2012). Because of this notion (known as the reserved rights doctrine) tribes have many rights that are not specifically addressed in treaties but exist none the less. Additionally, the canons of treaty construction, created by the Supreme Court, established that: treaties must be interpreted in the way the tribes would have understood them at the time, must be construed liberally in favor of the tribes, and ambiguities must be resolved with favor toward tribes (Blumm 2017, Pevar 2012). These concepts have shaped the legal framework of tribal rights and both federal and state laws.

Numerous legal decisions have established tribal fisheries and Indigenous involvement in management decisions in Washington state. The most pertinent legal ruling is without a doubt *U.S. v. Washington*—otherwise known as the Boldt Decision—that, in 1974, established Indigenous tribes had the right to fifty percent of the available catch of fish, which included at off-reservation locations (DOJ 2017). Article V of the Treaty of Point Elliot asserts: "The right of taking fish, at all usual and accustomed grounds and stations, is further secured to said

Indians, in common with all citizens of the Territory…" (GOIA n.d.). All five Indian treaties signed by then-Territorial Governor Isaac Stevens contained a similar clause, signifying the importance of fishing for the region's Indigenous communities.

Five years after Judge George Boldt's initial decision, the ruling was upheld by the United States Supreme Court. The Boldt Decision was seen as a big win for tribes, as it also acknowledged that "treaty tribes had been systematically denied their rights to fish off their reservations" (Brown 1994, 2). Because of the vast economic potential of Washington state's fisheries, the issue was extremely contentious in the decades surrounding the decision, and the source of a lot of animosity toward the region's tribes. There have been connections made between the backlash to the Boldt Decision and the foundation of the region's racist anti-Indian movement (Slaney 2019).

However, Judge Boldt's 1974 verdict was only the first of a two-part decision. His ruling was extended in 1980. Commonly considered Boldt II, Judge Orrick determined that the previously established treaty-reserved right to fish also included the right to protect fish from environmental degradation (Monson 1982). The final 1982 appeal ruling stated: "the state and the tribes must each take reasonable steps commensurate with the resources and abilities of each to preserve and enhance the fishery" (*U.S.* v. *Washington* 1982, 1375). This established a treaty-based right to tribal involvement and participation in the environmental decision-making process and fisheries management—the origin of what is now considered co-management (Brown 1994).

Ongoing Effects of Settler Colonialism

The forces of settler colonialism have long shaped, and continue to shape, the geography, politics, and cultures of the Northwest. From the treaties signed between Coast Salish Tribes and

Isaac Stevens, and the promises that were never upheld (NWIFC n.d.), to Canada's cultural genocide through residential schools (Amir 2018), to the violence perpetrated against Indigenous fisherfolk throughout the 1960s Fish Wars (and beyond) (NWIFC n.d.), colonialism has taken many forms in the region. "The violence of settler colonial ideology is represented not only in the widespread dispossession of indigenous peoples but also in its attempt to effect their political, social, and cultural erasure" (Witgen 2019, 398). Furthermore, colonialism lives on through many institutions and practices that still exist today. As Wolfe (2006) says, "Settler colonialism destroys to replace" (388).

This history is imperative to understanding the current state of the region's struggling fisheries. Bacon (2019) outlines numerous eco-social forms of elimination perpetuated by colonialism: Physical/Genocide through the taking of water; cultural/assimilation by the disruption of traditional ecological knowledge; political elimination in the loss of land and treaty rights; and discursive/erasure through renaming and repurposing of culturally significant places. It is imperative to consider colonialism within the context of the various geographic locations where it exits (Schneider and Wolfe 2013), because, as Rossiter (2008) argues, "historical geographies of colonialism and their institutionalization inform interactions between environmental and aboriginal politics at their core" (113). As shown by substantial evidence throughout this thesis, all of Bacon's (2019) examples have parallels within the Skagit River watershed.

> *"By foreclosing the possibility of relationships with and responsibilities to ecologies, land management under settler colonialism contributes to physical, emotional, economic and cultural harms. I contend that these eco-social disruptions generate colonial ecological violence, a unique form of violence perpetrated by the settler-colonial state, private industry, and settler-colonial culture as a whole" (Bacon 2019, 63).*

Recognizing that these harms are rooted in the dissonance of human-nature relationships and perpetuated by state and private colonial institutions has helped shape my inquiry of Skagit fishery coalitions. "…Because Indigenous experience is invaded by histories of colonization, it is necessary to understand the contrasting Aboriginal and Settler ontologies of landscape and ways of being in places" (Marker 2018, 454). I hope my research can provide insight to this contrast. But I also hope to ground this study in the Environmental Justice (EJ) literature and those pressing for its indigenization.

Environmental Justice Movement

The environmental justice (EJ) movement is often traced back to the 1970s, when it was discovered that hazardous waste sites tended to be developed near minority neighborhoods and communities of color, rather than white or affluent populations (Brulle & Pellow 2006). Brulle & Pellow (2006) outline the framework of the movement as striving for equitable protection from environmental degradation, eliminating harm before it occurs, making polluters responsible for their actions and addressing disproportionate risks. According to Taylor (2000), the environmental justice paradigm, "uses an injustice frame to effectively reframe or transform the environmental discourse" (566). They further argue that this paradigm is used "to amplify or clarify the connection between environment and social justice and to emphasize the idea that these concepts are inseparable" (Taylor 2000, 566). More than half a century after the environmental justice movement's beginnings, inequities are still being addressed all over the U.S.

One reason for this, Pulido (2017) argues, is that environmental racism a product of racial capitalism, which is sustained through social inequalities, the economic devaluation of non-white

bodies, and state support. Land appropriation and theft from Indigenous cultures, slavery, limitations on land ownership, and the ensuing segregation and discrimination are all evidence of this (Pulido 2017). Furthermore, because state activities uphold capitalism and do not adequately address the existing environmental racism gap, the state is not only ignoring racial violence but sanctioning it (Pulido 2017). Whyte (2018) explores how settler colonialism is a form of "ecological dominance," and commits environmental injustices toward Indigenous communities by undermining social resilience.

The Environmental Protection Agency (EPA) defines EJ as "the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies" (EPA 2021b). In 2021, Washington state Senate Bill 5141, known as the Healthy Environment for All (HEAL) Act, made its way through the House and now requires the state to use the EPA's definition in state law. However, the bill extends the definition to include "addressing disproportionate environmental and health impacts in all laws, rules, and policies with environmental impacts by prioritizing vulnerable populations and overburdened communities, equitably distributing resources and benefits, and eliminating harm" (HEAL 2021, 3).

While both the EPA and SB 5141 focus on integrating EJ into decision-making practices, the later includes specific strategies of funding initiatives, highlighting Tribal sovereignty, and assessing historical bills and budgets. Indigenous communities have suffered significant environmental discrimination since European colonization and have consistently been marginalized in the policy process. These cultures have their own distinct history of oppression and inequity that must be considered as well.

Hernandez (2019) identifies four "Pillars of Environmental Justice" but goes on to argue that this must be further "indigenized" to adequately address injustices toward indigenous communities. Because traditional environmental justice is concerned with aspects like race, class or affluence, it does not fully grasp the interconnectedness of "environment, health, culture and traditions" in indigenous communities (Hernandez 2019, 181). McGregor *et al*. (2020) argue that ignoring Indigenous values in the face of our current global challenges is marginalization, and without their input we cannot achieve environmental justice.

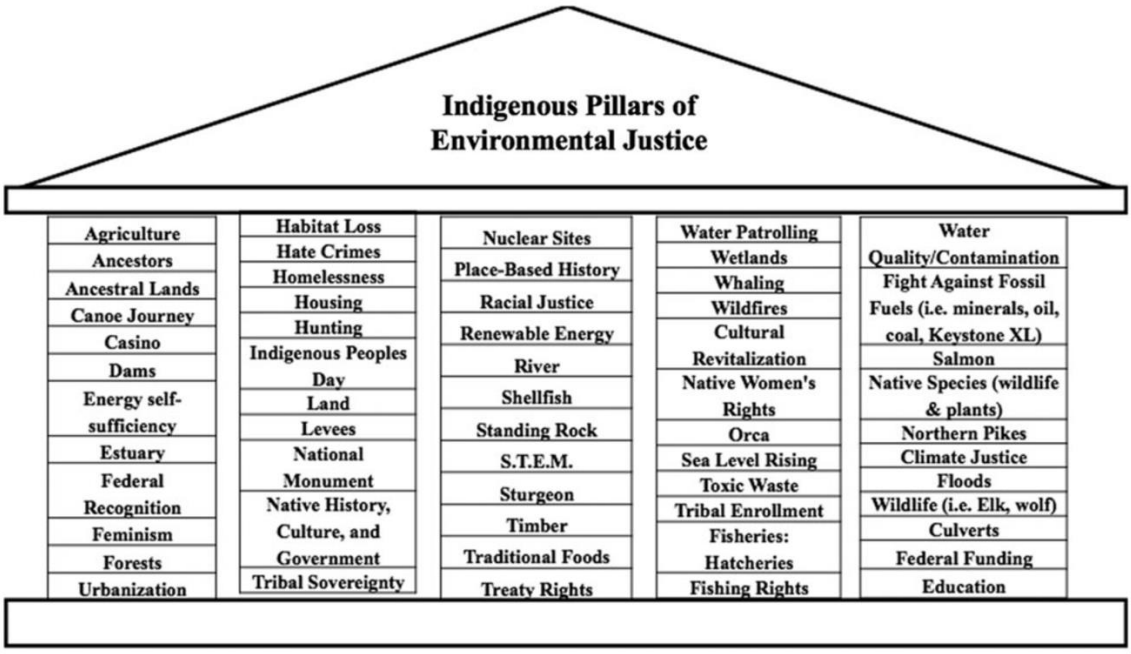


Figure 3: Indigenous Pillars of Environmental Justice, as exemplified by Hernandez (2019).

Yaka (2019) coined the term "socio-ecological justice," which is built on the interconnection "between humanity and ecology, nature and society/culture, human and non-human life. It is about recognizing the right of human and non-human worlds to live and flourish together in their environments free from social and ecological destruction and degradation" (363). This type of socio-ecological connection has long been ingrained in indigenous management systems (Atlas *et al*. 2021). "Indigenous understandings of ecosystems, and the

management systems that flow from traditional knowledge tend to incorporate a much deeper recognition of the connection between humans and ecosystems" (Atlas *et al*. 2021, 190). Duarte and Belarde-Lewis (2015) highlight how the Euro-American organization of knowledge is a tool of colonialism and suggest "creating figurative and literal spaces for the work of building, analyzing, and experimenting with Indigenous knowledge organization" (687)—a methodology they call Imagining—as a path toward decolonization.

In the matter of Indigenous fishing rights in the Northwest, Cantzler and Huynh (2016) note the necessity of distributive justice (a matter of tribes being guaranteed their right to 50 percent of the salmon harvest), procedural justice and "justice as recognition." They cite Lake (1996) who calls for "procedural redistribution of power in decision-making" (169). As stated by Cantzler and Huynh (2016), procedural justice "requires meaningful shared governance over the fisheries between the treaty tribes, the State of Washington, and the federal government" (212). "Justice as recognition" ties into the ideas presented by Hernandez (2019), recognizing the political sovereignty, cultural complexity and historical oppression of Indigenous communities (Zaferatos 2006; Cantzler and Huynh 2016). Ontological recognition is a concept I have not encountered in my research, and a realm that I believe has potential for both environmental justice and decolonization efforts. I explore this notion further in my discussion. By using a multifaceted approach to justice, as well as acknowledging different cultural paradigms, a better picture of what justice can look like begins to emerge.

Chapter Three: Narrative Politics and Beliefs

Environmental Discourses

In Judith Layzer's seminal textbook, *The Environmental Case* (2016), she states,

> *"Nearly all environmental policy disputes are, at heart, contests over values. To the casual observer, these conflicts may appear to revolve around arcane technical issues, but in fact almost all of them involve a fundamental disagreement over how humans ought to interact with the natural world."*

Layzer goes on to describes two principal perspectives engaged in environmental politics and policymaking: environmentalists and cornucopians. While environmentalism has evolved throughout US history and encompasses numerous viewpoints, the field strives to minimize human impacts on the planet, be that through a deep respect for nature, the adoption of new technologies or somewhere in between. Cornucopians, on the other hand, believe humans are superior within the natural order of the world, and primarily concerned with economic growth and individual freedom (Layzer 2016). Building from Layzer's work, John Dryzek's *The Politics of the Earth* (2013) further refines environmental discourses into a typology of four categories: Problem solving, Sustainability, Survivalism, and Green Radicalism.

	Reformist	***Radical***
Prosaic	Problem Solving	Survivalism
Imaginative	Sustainability	Green Radicalism

Table 1: Typology of environmental discourses, from John Dryzek's The Politics of the Earth, *2013.*

Problem solving centers on existing within the current political-economic status quo but trying to address environmental challenges through public policy. Survivalism is based on the notion that the Earth has limits, and unregulated economic and human expansion will exceed the planet's capacity to regulate itself. Sustainability is a discourse rooted in creative solutions to ease the conflicting pressures of environmental and economic tenets. Green radicalism rejects the

current structures of society and conceptualizes the environment, and humans' relation to it, in an entirely different way. Dryzek provides a discursive foundation for my research as the narratives and coalitions I examined all have their place within his typology. This is expanded upon in Chapter Five.

These discourses are a way of structuring the problems that we face, which determines how we attempt to address them through policy. "Defining a problem in politics is a way of simplifying a complex reality; it involves framing information to draw attention to some elements of a problem, while obscuring or minimizing others" (Layzer 2016). Creating a problem definition—or a narrative—includes establishing cause and effect, identifying villains and victims, and proclaiming responsibility. Moreover, how a problem is defined—or framed—relies on language, cultural norms, and social constructions. As Dorceta Taylor explains, "Culture, ideology and framing are closely interconnected. They are conceptually related because they deal with the content and process by which meaning is attached to objects" (2000, 513). Taylor goes on to outline the "Exploitative Capitalist Paradigm" (which she argues has been the "Dominant Social Paradigm" (Dunlap and Van Liere 1984)), the New Environmental Paradigm, and then propose the Environmental Justice Paradigm (2000).

The final three aspects of the Environmental Justice Paradigm in Figure 5 are elements of recognition justice. "Recognitional justice is based on the understanding that failure to acknowledge the lifeways, culture, and values of those affected by environmental problems devalues individuals and communities, thereby allowing injustice to exist" (Eisenhauer et al. 2021). This recognition—and lack there of—is an integral part of the Environmental Justice Paradigm and fisheries co-stewardship for the Skagit River.

Exploitative Capitalist Paradigm (Dominant Social Paradigm)	*Romantic (New Environmental Paradigm)*	*Environmental Justice Paradigm (Green Radicalism)*
Humans right to modify natural environment suiting their needs	We're approaching earth's population limit	Affirm ecological unity and interdependence of all species
Humans created to rule nature	Nature's balance delicate & fragile	Emphasizes elimination of racism, sexism & classism
Plants animals exist for human use	Human nature interference often disastrous	Right to clean air, land, water & food
Human ingenuity ensures earth's livability	Healthy economy depends on controlling industry growth	Right to safe, healthy work environment
Earth natural resources plentiful if we learn how to develop them	Human survival depends on living harmoniously with nature	Inter/Intragenerational equity
Nature's balance resilient to modern industrial impacts	Earth like a spaceship with limited room & resources	Recognizes native people's treaties/compacts
Environmentalists greatly exaggerate "ecological crisis"	Industrial society faces growth limits	Affirms all people's right to self-determination
Human learning will advance enough to control nature	Plant & animal existence rights equal to humans	Respects other natural belief systems and spirituality

Table 2: Social paradigms adapted from Taylor (2000) and Dunlap and Van Liere (1984), compiled by Troy Abel.

Ontologies and Epistemologies

The way humans interpret and interact with the world is defined by perceptions and understandings of their surroundings, which are naturally unique to each person and experience. These interpretations contribute to "presuppositions or innate conceptions about the nature of the world," otherwise known as ontologies (Chatterjee 2013, 74). These views, in turn, help shape (but are also shaped by) theories of how humans create knowledge and notions of reality—or epistemologies. As Marsh and Furlong (2018) note, "one's ontological position affects, but far from determines, one's epistemological position" (18). Acknowledging epistemologies within

research is important because these preconceived ideas of knowledge are embedded in what we believe, and thus influence what we find (Singh and Walwyn 2017).

This research is rooted in post-positivism, an epistemology that refutes the idea of an objective reality (which positivism promotes with the notion that "the world exists independently of our knowledge of it" (Marsh *et al*. 2018, 168)) as well as science's ability to understand that reality (Fox 2008). Instead of an ultimate truth, "post-positivism focuses on science's account of reality rather than on reality itself… It is not the objects nor their properties per se, but rather the vocabularies and concepts used to know and represent them that are constructed socially by human beings" (Fischer 1998, 135). Marker (2018) finds it problematic "that positivist research conventions ignore 'the diverse range in which people engaged the storied landscape and drew meaning from it ... The socially consequential nature of place is constructed not through language alone but also through phenomenological experience' (Oliver, 2010, 63)" (455). Post-positivist explorations typically use mixed method approaches (like NPF) to reflect these social constructions.

Epistemological theories are worth noting in the field of political ecology, which Roberts (2020) succinctly summarizes as the analysis of "how and why structural forces, such as capitalist economic processes and power relations, drive environmental change in an increasingly interconnected world" (1). Forsyth (2003) suggests critical realism, which "seeks to understand 'real' structures of society and the world, while acknowledging that any model or understanding of such structures will reflect only partial experience of them, and social and political framings within the research process" (15). This epistemology has the potential to incorporate biophysical environmental changes and the social framing of science in within the policy process (Forsyth 2003).

Narrative studies within policy theory are typically aligned with post-positivism because such methodologies provide a way to understand how narratives are used to shape and frame a given issue. However, Jones and McBeth's (2010) narrative policy framework centers on quantifying qualitative data to acknowledge "that narratives matter and that by studying them in a systematic empirical manner, positivists and post-positivists can engage in more productive debates over how stories influence public policy" (339). While post-positivism often considers all narrative content to be unique, Shanahan *et al*. (2018) assert that NPF can examine these variances by illuminating policy beliefs and strategies within differing narratives. In critiquing NPF, Lejano (2015) claims it is loose in definitions, similar to existing political analyses of narratives, and does not ultimately establish causality. "The difficulty is establishing 'causality of what'? The reason interpretivists try to dig into the issue of meaning is that we need to understand how things are understood before we can explain the outcomes of policy-making" (Lejano 2015, 370).

Aligned with post-modernism's interpretation of unique narratives is the existence of distinct and varying epistemologies. While Indigenous cultures of North America have a complex and intertwined understanding of and connection to the natural world (Kimmerer 2013, Budhwa and McCreary 2013), the classic Euro-American mindset "has encouraged human alienation from the natural environment and an exploitative practical relationship with it" (Callicott 1982, 293). Examining conceptions of nature among the Menominee Nation and nearby Shawano County, Wisconsin residents, Medin and Bang (2014b) found the distinction of Menominee viewing themselves as a part of nature, while Euro-American Wisconsinites saw themselves as separate from nature. "This distinction between being *apart from* nature versus *a*

part of nature reflects qualitatively different models of the biological world and the position of human beings with respect to it" (Medin and Bang 2014b, 118).

The three coalitions at the focal point of this research have their own distinct socially constructed epistemologies based on their political discourses, cultural influences, and numerous other factors. These differing worldviews inevitably lead to different narratives. In the Northwest, for the past two hundred-plus years, the Euro-American paradigm that separates humans from nature has been the dominant mindset in everything from economics to ecology. This way of thinking is a product of colonialism and has contributed to longstanding cultural erasure through assimilation (Bacon 2019, Woolford 2009), created a dichotomy in academia (Marker 2003), established racial policies that deprive Indigenous communities of wealth (Norgaard 2019), and completely changed the Skagit waterscape (Malone 2013). For example, scalar politics as conceived by critical human geographies exemplifies how regional constructions become political projects.

Scalar Narratives of the Skagit Valley

Scale is "the spatial, temporal, quantitative, or analytical dimensions used to measure and study any phenomenon, and 'levels' as the units of analysis that are located at different positions on a scale" (Cash *et al*. 2006, 2). Alternatively, Sze *et al*. (2009) defines scale as an "empirical and epistemological tool of understanding and representing the world." When it comes to delineating social, political and ecological systems, there are numerous scales throughout which these workings can be defined. And because every instance of scale is a social construction, something humans have essentially defined on their own terms, the issue is prone to inconsistency. Giordano (2003) maintains that the various spatial relations between humans and

their environment gives way to the "problem of the commons," where part of a system is used by everyone but not owned by anyone.

Common pool resources—such as salmon—tend to span multiple scales, a problem that can be destructive to social-ecological workings (Ebbin 2012). Cash *et al*. (2006) outline how interactions can take place between levels within scales, across scales, or both. Making matters more complex, the concept of scalar politics, presented by MacKinnon (2011), doesn't consider scale itself as the main misalignment, but rather inconsistent scaling within political practices.

The Skagit River is no exception to mismatched scales and variable scaling, many of which are rooted in the different cultures involved in the region. Indigenous cultures in the Northwest have traditionally seen territorial boundaries as "permeable," an idea that has the unique ability to tie people to place (Thom 2009). The Euro-American concept of land ownership, which came along with settlement in the late 1800s and still persists though the idea of private property (Glenn 2015), is a significantly contrasting view. Together, these different trains of thought lay the groundwork for significantly different spatial scales.

One particular example of these competing scales in regard to the Skagit is Washington state's Water Resource Inventory Area (WRIA) designations. WRIAs are "based on natural watersheds" which is "defined by higher elevation that capture precipitation and funnel rain and snowmelt through smaller subbasins into streams, tributaries, and rivers" according to the Department of Ecology's website. These designated regions form the physical boundaries of watershed management plans. However, WRIAs do not line up with county or other regional boundaries and often exist within multiple jurisdictions.

Sayles (2018) looked at how scale mismatches impacted restoration work in the Whidbey Basin and found difficulties attributed to permitting, private land, funds allocation, on-the-

ground work and priorities. When it comes to restoration planning, Sayles concluded, "socio-political structures and processes should be included… in the same way that ecological structures and processes are considered" (73). This suggestion that bio-physical conditions are not the only factor aligns with research done by Poe *et al*. (2016) on the consideration of human wellbeing in ecological restoration. "Access, knowledge and ecological integrity" contribute to sense of place (Poe *et al*. 2016, 12), and notably, these three underlying factors seem to align with traditional Indigenous values that connect people and place. Reinforcing the importance of scale within power dynamics, Sze *et al*. (2009) note that "scalar ambiguity does not merely imply a question of descriptive clarity. Rather, it signifies and provokes fundamental questions of political power" (809). Narrative Policy Analysis offers a method to analyze scalar politics.

Narrative Policy Framework

Narrative Policy Analysis draws on content analysis and an influential body of work known by public policy scholars as the interpretive turn. To further understand the underlying mindsets surrounding the issue of declining salmon populations in the Skagit River, this research uses content analysis and narrative policy analysis in a similar way as McBeth *et al*. (2005). In "The Science of Storytelling: Measuring Policy Beliefs in Greater Yellowstone," McBeth *et al*. (2005) examine narratives of federalism, science, and the human-nature relationship. To distinguish federalism, the authors looked at national versus local non-elected and elected allies to determine whether interest groups suggest either a compact or nationalist theory of federalism within their narrative. For science, they contrasted conservation and biology science with technological and human-based science to suggest groups' unspoken political values. And to

gauge interest groups' construction of the human-nature relationship, the authors looked at nature and wildlife victims versus human victims.

I looked at publicly available documents from three coalitions involved in salmon recovery and habitat rehabilitation initiatives. These were a mix of annual reports, technical analyses, and approach strategies. I then coded narrative devices used within the discourses from each coalition. The coding process highlighted literary tactics surrounding literary devices referring to issues of scale, villainization and victimization. The factor of scale focused on what kind of spatial levels the organizations tend to think in: interconnected and ecological, or politically fragmented and territorialized. The aspect of villains within the narrative is intended to see where these organizations place blame for salmon population declines and habitat loss, and—potentially—specifically who or what they attribute that blame to. Similarly, analyzing how these entities interpret who the victim is in this scenario, i.e. who is suffering, has the potential to reveal a lot about how they think about the natural world. This methodology provides the unique ability to decode the framing of literature surrounding the subject of declining salmon populations in the Skagit River. By discerning the discourses perpetuated by different coalitions, and the environmental paradigm notions imbued within them, there's potential recognize underlying differences.

Originally, I proposed to look at narrative aspects of federalism, the human-nature relationship, and science. Because federalism didn't seem applicable to the Skagit, I suggested replacing it with scales in an attempt to extend the NPF's potential and create a conversation about scalar politics in the region. Just as McBeth *et* al. (2005) used human and nature victims to represent the human-nature relationship, so did we. In our initial coding process, Dr. Abel and I attempted to adapt McBeth *et al*.'s (2005) science formula to contrast uses of western science

versus traditional ecological knowledge, but there barely any mention of the latter in our documents as well as a much less concrete notion of what we were looking for. This certainly seems to be because of the Euro-American paradigm that dominates conservation and natural resource literature. In line with this, Muller considers "western science as a language of domination" (2012, 73). Hoping to explore other avenue of the human-nature relationship, we decided to compare human and nature victims in lieu of science.

Narrative Form	***NPF Definition***	***Skagit Coalition Example***
Scale	Descriptors used to delineate ecological and political spaces	Skagit River valley / North Cascades National Park
Villain	The entity that is causing the problem	"…the last 150 years of human population growth and associated land use has resulted in declines in chinook…" (NWIFC 2, 255).
Victim	The entity that is harmed by the problem	"…the tribe has been forced to fish less and less to protect the fish that remain while the fish populations recover." (NWIFC 4, p. 370)

Table 3:Narrativve Policy Framework definitions and examples, adapted from Shanahan et al. 2013.

But my attention to discourses through the NPF also helps to politicize one of the most prominent frameworks for Common Pool Resource dilemmas.

Chapter Four: A Century of Unsound Governance

Fish Have Feelings, Too

In early January 2022, a civil lawsuit was brought against the City of Seattle by an unusual plaintiff: salmon. On paper, it was technically the Sauk-Suiattle Indian Tribe who filed the complaint in Tribal court on behalf of Tsuladx^{w} (the Lushootseed word for salmon), declaring these fish have an "inherent rights to exist, flourish, regenerate, and evolve, as well as inherent rights to restoration, recovery, and preservation" (*Sauk-Suiattle Indian Tribe* v. *City of Seattle* 2022, 2). But the notion of a non-human species suing the local government on grounds

of inhabitable conditions and an austere future is remarkable for not only it's anti-colonial thinking, but also as an indicator of how high the stakes of the matter currently are.

As a keystone species of the Northwest, salmon are of immense ecological importance to the region, along with their significant cultural, recreational, and economic value. Furthermore, Tsuladx^{w} "are central to [Sahkuméhu (the Sauk-Suiattle Indian Tribe)] cultural identity, spiritual traditions, and physical wellbeing" (*Sauk-Suiattle Indian Tribe* v. *City of Seattle* 2022, 3). Coast Salish culture has centered around salmon, along with many other saltwater resources, for thousands of years (Swinomish Indian Tribal Community 2022). Salmon, in the most simplistic Euro-American term, are a highly valuable natural resource and, as is more evident than ever before, on the brink of collapse due to a century of habitat loss and mismanagement (NWIFC 2020a).

Common-pool resources (CPR), like salmon, have two general characteristics. The first is that creating widespread institutions to stop people benefitting from the resource is very costly, and the second is that once a "unit" (i.e. fish) is harvested by one person, it is not available to anyone else (Ostrom 2000). Salmon are also considered an ecosystem service, in that they provide numerous benefits to humans in a plethora of ways. Rodela *et al*. (2019) noted how underexplored the overlap of CPRs and ecosystem services has been. A major commonality of ecosystem services and CPRs is that the rarely fall under one jurisdiction, and thus have numerous institutions interested in their wellbeing—potential for both conflict and collaboration.

The Northwest Indian Fisheries Commission Constitution states,

> *"We, the Indians of the Pacific Northwest, recognize that our fisheries are a basic and important natural resource and of vital concern to the Indians of this state, and that the conservation of this natural resource is dependent upon effective and progressive management. We further believe that by unity of action, we can best accomplish these things, not only for the benefit of our own people but for all of the people of the Pacific Northwest." (NWIFC 2016)*

The suggestion of progress and optimism in this statement hinges on one noteworthy necessity: collective action. To achieve a sustainable and prosperous future for salmon, it is imperative to recognize how institutional arrangements influence the potential to create "unity of action." Furthermore, the power dynamics within these arrangements—notably between state actors and Indigenous tribes—must be considered. For the Skagit River, salmon governance will benefit from the perspective of institutional rational choice because it offers attention to socio-ecological systems and power disparities.

Tragedy of the Salmon

The phrase "tragedy of the commons" was made famous by Garrett Hardin's 1968 essay in *Science*, where he presumed that rational beings will always look to maximize their own gains, which, in a scenario with communal resources, leads to the loss of those resources. Sadly, salmon populations the world over have historically reflected from this phenomenon. European rivers once held 50-pound salmon and seemingly endless runs in tributaries throughout the continent—all of which were nearly gone by the beginning of the 19th century (Montgomery 2003). Atlantic salmon were plentiful at the time of New England colonization, but wild runs dwindled quickly though the 1800s and only a handful remain today in Maine (Jenkins 2003.)

Anderies and Janssen (2016), however, point out that Hardin's example is far from the reality of how modern-day commons truly work. In the highly political world of the 21st century, the commons are governed by rules and regulations at every level, from local to global (Armitage 2007). Furthermore, people can prioritize interests beyond their own, and quite often do. "Communication, trust, the anticipation of future interactions, and the ability to build

agreements and rules sometimes control behavior well enough to prevent tragedy. So the drama of the commons does not always play out as tragedy" (NRC 2002, 5).

Institutional rational choice theory (also known as rational choice institutionalism) originated in the 1970s and looks at "politics as a series of collective action dilemmas" (Hall and Taylor 1996, 12). Through institutional rational choice, which Sabatier (2007) defines as "how institutional rules alter the behavior of intendedly rational individuals motivated by material self-interest," (8) local-level collective action dilemmas—such as struggling salmon fisheries—can be more effectively examined. As Barnaud *et al*. (2018) claim, "institutional insights on collective action can enrich our understanding of [ecosystem services] governance by highlighting both its potential and limits compared to other governance mechanisms" (2).

Elinor Ostrom, recipient of the 2009 Nobel Prize in economics for her work on commons governance, defines institutions as the "many different types of entities, including both organizations and the rules used to structure patterns of interaction within and across organizations" (2007, 22). Institutions, in this sense, are an integral component of fisheries governance for the Skagit River, from the Endangered Species Act to Washington state's Puget Sound Partnership to co-management practices with the Swinomish, Sauk-Suiattle and Upper-Skagit Indian Tribes. Because of these institutions, the fight to protect wild Chinook on the Skagit River is not simply an ecological battle, but also a political one. What Jenkins (2003) concluded of wild Atlantic salmon management (and the ensuing loss of numerous populations) is now happening all over again in the Salish Sea: "Because of a century of policy failures, salmon now provide the opportunity to regulate people. Biology thus becomes policy and the control of nature becomes the control of human beings" (872).

Toward Meaningful Co-Stewardship

For Coast Salish peoples, the Boldt decision established tribes as co-managers of the state's fisheries by declaring both parties have "concurrent jurisdiction" (Bowhay 2013). The decision was initially met with considerable backlash, prompting the federal government to assume management of the fisheries because state agencies did not initially comply with the ruling. In the decades since, state and tribal relationships have strengthened and evolved to effective co-management (Bowhay 2013). However, there is more progress to be made. My colleague Drew Slaney recently articulated the term "co-stewardship" regarding states and tribes working together, as this represents more of a caretaker relationship rather than imperialistic management approach. Rethinking the terminology and narratives surrounding these issues is one way of recognizing the differing perspectives involved.

Equally important is asking how can collaboration not only be prosperous, but truly meaningful? A long and very real history of discrimination toward tribal fisherfolk still looms large. Cultural discrepancies regarding fisheries, among many other things, certainly still exist too. Even in programs that had high hopes for progressive fisheries co-management, there were "challenges translating indigenous and community-based ideas for fish use and management into state and federal systems of law" (Richmond 2013, 1081). It must be recognized that even in collaborative relationships, western management frameworks are still the dominant structure.

Numerous scholars point to capacity building as a prerequisite to successful collaborations. Defined by the United Nations as "the process of developing and strengthening the skills, instincts, abilities, processes and resources that organizations and communities need to

survive, adapt, and thrive in a fast-changing world," capacity building seeks to create change though long-term transformation, and changes in mindset and attitude (UN 2021). Creating systemic change takes time, effort, and a willingness to evolve.

While co-stewardship can lead to empowerment, it is a complex process that involves not just social transformation, but psychological change as well. This development stems from education, communal growth, and participatory democracy (Jentoft 2005). Future policy frameworks must incorporate tribal rights and environmental justice (which necessitate financial and institutional support from state agencies), a commitment to growth (capacity building) from all communities involved, and consideration of historical and cultural factors (Richmond 2013).

Furthermore, natural resource management is only one facet that could benefit from the incorporation of Indigenous ideologies, especially when considering anthropogenic climate change, ecological degradation, and biodiversity loss. "Insufficient attention has thus far been directed towards how Indigenous knowledge and legal systems can be used to generate well-being and Indigenous-determined futures in the face of dramatic environmental and climatic change" (McGregor, Whitaker, and Sritharan 2020, 37). The western mindset all too often silos concepts and ideas within its understanding the natural world, despite all evidence of the contrary illustrating how interconnected the world truly is.

Alternatively, Indigenous views that tend to think of people and the environment in a more interconnected manner have been shown to aid in biodiversity conservation (Charnley *et al*. 2007). "Ethnographic records indicate that many Coast Salish peoples as well as many other Northwest Coast Indigenous peoples preferentially harvested male salmon" (Morin *et al*. 2021, 5), a tactic that contributed to sustainable harvests for future years and generations. Herse *et al*. (2020) assert that Indigenous peoples and local communities (IPLC) can alleviate scale

mismatches because they "engage and manage their environment through place-based institutions that are informed by detailed knowledge of local biodiversity and ecosystems which… is generated and continually updated at fine spatial and temporal resolutions" (704).

In both the "Who must plan—Summary of requirements" and "Natural resource lands and critical areas—Development regulations" of Washington's Growth Management Act (GMA), there is no reference to Indigenous tribes whatsoever. While the Act is state law and applies to counties, and Indigenous tribes have sovereign jurisdiction and operate under federal law, the failure to require—or even suggest—inclusion of affected tribes is a blatant injustice. As Zaferatos notes, "…complicating tribal planning are the ensuing problems associated with sorting out the multiple layers of reservation laws and regulations that are imposed by non-tribal governments" (2015, 119). Local city and county regulations undoubtedly affect both tribal planning and numerous shared resources.

Being able to borrow money is an incredibly valuable resource that has undoubtedly given so many Americans the ability to ascend economic ranks. The fact that tribes have been historically denied the ability to borrow from financial institutions has been a huge barrier to their economic wellbeing and ability to adequately plan for the future. Regarding the GMA, it seems this has been a significant factor in "reservation economic alienation" (Zaferatos 2021), which has prevented tribes from adequately protecting the land and resources that have been guaranteed to them through their treaty rights.

Extending the IAD Framework

Along with progressing the theory of institutional rational choice, Ostrom pioneered the Institutional Analysis and Development (IAD) framework, a conceptualization of variables

within governance arrangements. The IAD consists of "exogenous variables," which include biophysical and material conditions, community attributes, and rules, and the "action arena," which is comprised of the action situation and actors (Ostrom 2007). Clement (2010) further "politicized" the IAD framework by adding "political-economic context" and "discourse" within the exogenous variables. As shown by Dryzek (2013) in Chapter 3, environmental discourses are inherent to situations that policy aims to address. My application of the NPF in this thesis can begin to politicize the IAD application to the Skagit salmon dilemma.

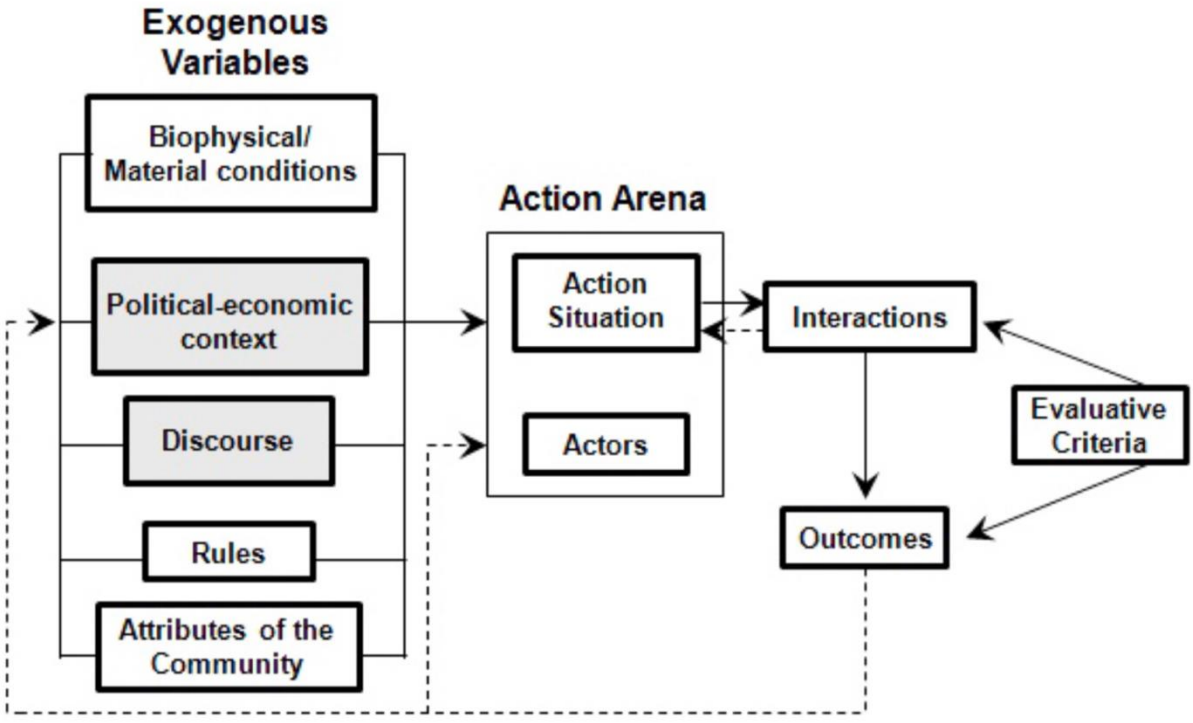


Figure 5: As seen in An Integrated Approach to Analyzing (Adaptive) Comanagement Using the "Politicized" IAD Framework by Luke Whaley and Edward K. Weatherhead (2014), adapted from Clement (2010).

Ostrom also developed a framework for analyzing social-ecological systems (SES), which helps "identify factors that may affect the likelihood of particular policies enhancing sustainability in one type and size of resource system and not in others" (2009, 420). It is

imperative to acknowledge that the problem of declining salmon populations in the Salish Sea, and more specifically the Skagit River, is not a stand-alone ecological conundrum, but one that is deeply intertwined with social dynamics. Ostrom's SES framework relies on the "presumption that humans can make conscious choices as individuals or as members of collaborative groups, and that these individual and collective choices can, at least potentially, make a significant difference in outcomes" (McGinnis and Ostrom 2014, 1). As Folke *et al*. (2005) note, "social-ecological systems have powerful reciprocal feedbacks and act as complex adaptive systems" (443).

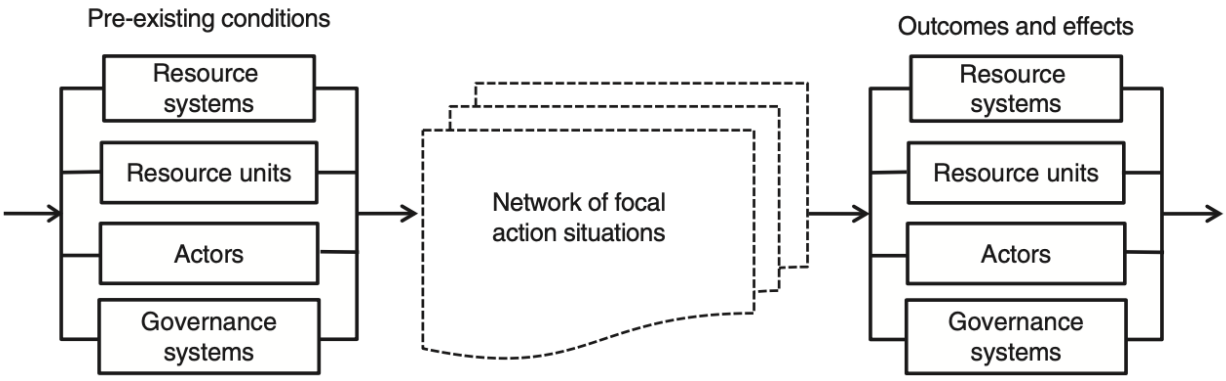


Figure 6: The IAD-SES, or CIS, framework developed by Cole et al. (2019)

In 2014, McGinnis and Ostrom proposed changes to the original IAD framework to better accommodate for the complexities of SESs. This updated framework was designed to further understand "complex SESs in which multiple sets of actors consume diverse resource units extracted from multiple interacting resource systems in the context of overlapping governance systems" (McGinnis and Ostrom 2014, 7). In developing their combined IAD-SES (CIS) framework, Cole *et al.* (2019) highlight the numerous adjacent action situations at play and emphasize their connections (Figure 7). "Networks of adjacent action situations are especially important for representing the complexity of a polycentric system of governance, in which

citizens routinely interact with each other in a variety of inter-related decisional contexts" (McGinnis 2011, 52).

To explore multi-level action situations of SESs, McGinnis and Ostrom (2014) devised tiers of variables that aim to pinpoint influences at play. First-tier variables include social, economic and political settings; resource systems; governance systems; resource units; actors; action situations, made up of interactions and outcomes; and related ecosystems (McGinnis and Ostrom 2014). Variables at the second tier hone in on unique attributes to incorporate to better understand each specific action situation.

For the Skagit River, social, economic, and political settings variables would certainly include the Skagit Valley's agriculture industry, regional population growth, land use designations, local fisheries, and media coverage, among many others. Meanwhile, governance systems factors would extend from local, county and state regulations to the Puget Sound Partnership to the tenure of local federally sovereign tribes, including the Swinomish, Sauk-Suiattle, and Upper Skagit. Regarding resource units (salmon), variables would incorporate run sizes, return rates, market prices, seasonal distribution and much more. As Cole *et al.* (2019) make clear, "the purpose of a framework is not to explain outcomes, but to provide a tool for identifying, categorizing, and organizing variables and processes for analysis" (257).

Institutional Power Disparities

While Ostrom's IAD and SES frameworks were developed to analyze institutional dynamics within collective action situations, they have been critiqued for not incorporating the potential power disparities of such relations (Epstein *et al.* 2014). As stated by Robbins (2011), "no explanation of environmental change is complete, therefore, without serious attention to who

profits from changes in control over resources, and without exploring who takes what from whom" (56). Numerous scholars have proposed and developed modifications to these frameworks that aim to acknowledge the influence of power (Clement 2010, Ratner 2013, Whaley and Weatherhead 2014, Cole *et al*. 2019).

> *"Institutions and power are closely interrelated. On the one hand, institutions directly affect power distribution and practices…On the other hand, power distribution within the group of actors who act at the collective-choice and constitutional levels directly impacts on the design of institutions and rules implementation at lower governance levels." (Clement 2010, 135)*

To "politicize" the IAD framework, Clement (2010) adds "politico-economic context" and "discourses" to Ostrom's (2007) exogenous variables that influence the action situation. Ratner *et al*. (2013) bring "patterns of conflict and cooperation" into the action situation, noting such arrangements "influence the institutional and ecosystem characteristics that either contribute to social-ecological resilience or increase livelihood vulnerability and conflict risk" (188).

Most recently, Cole *et al*. (2019) merged Ostrom's IAD and SES frameworks to better include variables that can impact social interactions and incorporate power dynamics. "When actors work together to construct any new institutional arrangement, or to revise an existing one, the result is fundamentally shaped by any asymmetries in power among those actors" (Cole *et al.* 2019, 256). Often, these influences do not play out in the primary action situation, but adjacent ones, which Cole *et al*.'s (2019) "network of focal action situations" (254). aims to include. The complexity of actors and action situations within the Skagit River fishery is potentially well suited to such asymmetrical power dynamics.

Resistance to Change

The Advocacy Coalition Framework (ACF), another method used to analyze the policy process, places importance on deep core beliefs and policy core beliefs. Deep core beliefs are

more general and concerned with ontological viewpoints, moral righteousness, and social values (Jenkins-Smith *et al.* 2014). These beliefs are unlikely to change. Also considered within the ACF are policy core beliefs, or "broad policy positions regarding basic strategies for achieving the normative positions of the deep core" (Jenkins-Smith *et al.* 2014, 486). While policy core beliefs are also resistant to change, they aren't as entrenched as deep core beliefs. It is important to acknowledge both deep and policy core beliefs for their influences on political interactions. Weible (2005) found "that stakeholders coordinate more with affiliations of similar policy core beliefs than with affiliations of dissimilar beliefs" (470).

The steadfast nature of both deep and policy core beliefs plays a role in institutional power dynamics as well. "Because normative (policy core) beliefs are rigidly held and screen out dissonant information, major policy change is unlikely as long as the advocacy coalition that instituted the program remains in power," (Jenkins-Smith *et al*. 2018, 149). When looking at ecosystem approaches to marine resource management, Murawski (2007) expressed concern that "institutions may not be capable of addressing in a timely way management problems whose solution sets vary significantly from the status quo or require broadening the identification of stakeholders and thus diluting power of the established sectoral interests" (688). So, while the ACF can be a helpful tool for examining the policy process and incorporating ideological differences within conflicts, it falls short in acknowledging—and incorporating—the role of institutional power.

The Power of Power

The status quo is a powerful position. Changing the current state, whatever it may be, is often difficult because people believe it works and there are many interests who have invested in

establishing things the way they are. But the status quo rarely, if ever, works for everyone, and those whose interests it serves are likely willing to go to great measure to ensure things do not change. As Mascia (2002) succinctly summarized, "Although it may seem counterintuitive that the foremost influences on the success of environmental policy could be social, conservation interventions are the product of human decision-making processes and require changes in human behavior to succeed" (649). As of right now, the existing state of affairs is not serving salmon of the Skagit River well. Furthermore, despite a legal mandate for fisheries co-management between the State of Washington and Tribes, institutional power dynamics are significantly limiting any possibilities of significant change.

In its 2020 State of Salmon Watersheds, the Washington state Governor's Salmon Recovery Office (GSRO) declared:

> *"Today, Washingtonians stand at a fork in the road with a clear choice: Continue with current practices and gradually lose salmon, orcas, and a way of life that has sustained the Pacific Northwest for eons. Or, change course and put Washington on a path to recovery that recognizes salmon and other natural resources as vital to the state's economy, growth, and prosperity." (3)*

Yet this statement, steeped in irony, still skirts the problem at hand: a failure to connect social and ecological systems while continuing to value salmon as a "natural resource" rather than an integral part of a complex, biological world. "Scholars of diverse disciplines, from economics and sociology to ecology and earth sciences, call out the importance of explicitly linking human and ecological processes when studying the wellbeing of both natural and social systems, particularly in urbanized areas such as the Puget Sound basin" (Wellman *et al*. 2014, 305). While this change in thinking is not out of question, it would certainly be a shift in the status quo.

Despite the GSRO's call for a change of course, along with the $187 million Governor Inslee pledged in December 2021 toward salmon recovery (The Associated Press), the Washington state legislature turned down an opportunity to potentially make a difference in

salmon recovery efforts. In early March 2022, two bills that would have ensured salmon recovery be included in planning efforts under the Growth Management Act and mitigated lost tree cover along stream banks (HB117 and HB 1838, respectively) both failed to pass into law (Mapes 2022). HB117 specifically presented an opportunity to bring a socio-ecological perspective to the forefront of conservation efforts and ignite institutional change that could have made a significant difference in the future of these fish. However, the powers that be decided maintaining the status quo was more important than acting on one, perhaps final, effort to achieve a prosperous future for salmon.

Chapter Five: Hypotheses & Methods

Hypotheses

In consideration of my research questions and following NPF practice, I devised three null-hypotheses (adapted from McBeth *et al.* (2005)) to compare differences in the narratives used by the Skagit Watershed Council (SWC), Skagit River System Cooperative (SRSC), and Northwest Indian Fisheries Commission (NWIFC). The coding results were compared using an Analysis of Variance (ANOVA) test to compare the means of each coalition's narrative scores. The rejection of a null hypothesis shows "that intersubjectively reliable content analysis can be used to demonstrate that policy narrative constructs… differ among competing groups" (McBeth *et al.* 2005, 421). In post-positivist fashion, this methodology rules out false propositions while also acknowledging the social and scientific context in which this research is being done (Kanazawa 2018).

H1: There is no statistically significant distinction between narratives of scale (ecological versus political) used by the SWC, SRSC, and NWIFC.

H2: There is no statistically significant distinction in the narratives of those villainized (either humans or non-humans) by the SWC, SRSC, and NWIFC.

H3: There is no statistically significant distinction in the narratives of those victimized (either humans or non-humans) by the SWC, SRSC, and NWIFC.

Three Coalitions of the Skagit

To answer my research questions, I chose three organizations involved in managing the Skagit fisheries that could hopefully provide deeper insight to the narratives of the issue. Considering the involvement of both Indigenous communities and Washington State, I aimed to ensure adequate representation of all participants in the coalitions I selected. While there are many more actors involved, because of the requirements and timeframe of this thesis, it would have been impossible to represent every stakeholder.

The Skagit Watershed Council was established in 1997 and focuses on involving local communities with habitat restoration efforts, monitoring various aspects of change throughout the river, and creating public awareness campaigns (Skagit Watershed Council (SCW) 2022). The coalition places significant emphasis on voluntary habitat restoration and protection efforts in the Skagit Valley. With a watershed-level perspective, in contrast to singular conservation project initiatives, and independent scientific monitoring, the SWC aims to inform and educate local landowners and community partners involved with voluntary restoration efforts. The SWC has been the lead entity for the Skagit and Samish watersheds since 1998 and oversees “local committees that are responsible for developing a science-based habitat strategy (Technical Work Group), draft list of projects that are consistent with science and technical policies (Technical

Review Committee), as well as the local community's interests and values (Lead Entity Citizen Committee)" (SWC 2023).

The Skagit River System Cooperative (SRSC) is a consortium of the Sauk-Suiattle Indian Tribe and Swinomish Indian Tribal Community focused on natural resource management in the Skagit and Samish River basins. Working to progress fisheries management in the tribes' usual and accustomed fishing areas, the SRSC is involved with "harvest and hatchery management, research, environmental review, habitat restoration, and a range of other activities" (SRSC 2023). Programs run by the SRSC include environmental review of local, state and federal permits affecting fish habitat; technical support for forestry management to ensure the protection of fish habitat and water quality; research in the Skagit watershed to aid salmon recovery goals and local restoration efforts; designing and leading on-the-ground projects to restore aquatic habitat for salmonids; and long-term planning for state and tribal fisheries management with an emphasis on salmon recovery. The coalition works with numerous private and public entities, including the NWIFC, Washington Department of Natural Resources, Washington Department of Fish and Wildlife, USFS, Skagit County, Seattle City Light, Skagit Land Trust, among others.

The Northwest Indian Fisheries Commission (NWIFC) represents 20 treaty tribes of Washington state: Lummi, Nooksack, Swinomish, Upper Skagit, Sauk-Suiattle, Stillaguamish, Tulalip, Muckleshoot, Puyallup, Nisqually, Squaxin Island, Skokomish, Suquamish, Port Gamble S'Klallam, Jamestown S'Klallam, Lower Elwha Klallam, Makah, Quileute, Quinault, and Hoh (NWIFC 2022). As a "natural resources management support service organization," the commission includes representatives from each tribe and aims to support its member tribes as co-managers of Washington state's fisheries (NWIFC 2022). The commission's work includes producing technical, harvest, and annual reports of fish and shellfish metrics, guiding fisheries

management with federal funds, enabling a forum for tribes to discuss natural resource issues, and representing a unified tribal voice at the federal level.

Returning to Dryzek's typology of environmental discourses, each coalition inevitably falls into a category. The SWC is of the "problem solving" type, which is reformist and prosaic. More specifically, the SWC in the tract of democratic pragmatism, which Dryzek (2013) characterizes as "Leave it to the people" and sums up as "interactive problem solving within the basic institutional structure of the liberal capitalist democracy" (99). This is due to the coalition's focus on local citizens and public awareness, and community science. The SRSC also falls into the "problem solving" category but more specifically as administrative rationalism, or "Leave it to the experts" (Dryzek 2013, 75). This is determined by the SRSC's reliance on scientific experts and mission to guide the Sauk-Suiattle Indian Tribe and Swinomish Indian Tribal Community. Finally, the NWIFC seems to land in Dryzek's (2013) "green radicalism" category, and more specifically "green politics." This is because of the coalition's commitment to environmental justice and its "strong conception of complex ecological connections… A stewardship relationship is more likely to be posited" (Dryzek 2013, 219)—as exemplified in individual tribe's chapters in the NWIFC's 2020 State of Our Watershed. However, because of its emphasis on management and expert science, there are elements of administrative rationalism.

Content Analysis of Scale, Victims and Villains

This research was guided by McBeth *et al.*'s "The Science of Storytelling: Measuring Policy Beliefs in Greater Yellowstone" (2005). Wanting to examine policy narratives surrounding salmon restoration for the Skagit River, I adapted their narrative policy analysis methodology to look at three coalitions, the Skagit Watershed Council, Skagit River System

Cooperative, and Northwest Indian Fisheries Commission (outlined above) and examine how each one portrays issues of scale, who is suggested to be a victim, and who is villainized. These three narratives were coded in an attempt to reveal and examine underlying themes of the human-nature relationship distinct to each coalition.

Each coalition in question operates differently, with individual objectives, funding, resources, structures, and Indigenous affiliations. Examining distinct narratives regarding aspects of scale, villains, and victims is intended to reveal underlying perspectives of the human-nature relationship within each organization's core beliefs. My hope was that in examining how these organizations inherently view humans—as either a part of or separate from nature—could reveal underlying aspects of colonialism within their tenets.

In the first conception of this research design, examining this relationship using western science versus Indigenous knowledge was proposed. However, the value placed on westernized scientific methods and metrics in the research, publication, and funding procedures for this area of inquiry leaves little room for alternative ways of knowing—a stark and pertinent example of ongoing colonialism. Similarly, this thesis uses methods of westernized science and needs to satisfy the degree requirements of a Euro-American institution of higher education—further evidence of the extent and ubiquity of colonial imperialism.

Originally, I proposed to look at elements of scale, science, and human and nature relations, similar to McBeth *et al.* (2005). However, I concluded that because there was little to no traditional ecological knowledge used by these organizations (that I could find), it would be impossible compare western forms of science to Indigenous ways of knowing. Shanahan *et al*.'s (2018) explanation that, "Policy narratives must have at least one character. As with any good story, there may be victims who are harmed, villains who do the harm…" (176) inspired me to

use these narrative devices of villains and victims to examine each entities' perceptions of the human and nature relationship, rather than coding specific instances that acknowledged the relationship explicitly. Investigating scales used by these coalitions was upheld through several rounds of the research design process, as I had not seen any similar explorations and figured the results could contribute to the larger discourse of spatial settings in policy narratives.

Scales centered on nature were defined in ecological terms, such as watersheds, floodplains, or river channels, whereas human-centric scales were expressed as those outlined by political designations, such as state or county lines, WRIAs, or human-made features. Identifying diverging scales was done in attempt to recognize scalar ambiguity between discourses and the questions of political power such anomalies raise (Sze *et al*. 2009). The victimization of nature acknowledged the loss or potential loss of species and/or habitat, while victimizing humans pertained to human suffering, impacts on human cultures, communities, societies, economies or overall wellbeing. Villainizing nature was illustrated by blame being placed on "natural causes" or climate change (without acknowledging anthropogenic factors), while human villainization provided a direct correlation of human activity and ecological degradation, or the loss of species and/or habitat. A comprehensive list of terms was developed throughout the research process to indicate these literary devices.

Scale	***Definition:***
Political designation	A scale defined by political boundaries or man-mad infrastructure, likely including a proper noun, such as Washington state, Skagit county, island, causeway, channel
Ecological delineation (Natural system)	A scale defined by ecological boundaries, such as a watershed, river system, basin, estuary, delta, reach (Note: a river is not a scale)

Victimization	***Definition:***
Human victim	Pertaining to negative impacts on human cultures, communities, societies, economies, or overall wellbeing
Loss of habitat / Loss of species (Nature victim)	Habitat: Acknowledging the loss or potential loss of salmonid habitat, negative impacts on habitat, or restriction of natural functions. Species: Acknowledging the loss or potential loss of a salmonid species or population

Villainization	***Definition:***
Human villain	Direct correlation of human activity and ecological degradation. Note if there's any reference to a specific entity responsible for harm
Nature Villain	Climate change, invasive species, "natural causes"

Table 4: Definitions of political and ecological scales, human and nature victims, and human and nature villains referred to during coding.

The Coding Process

To establish a coding process, I relied on Earl Babbie's *The Practice of Social Research* (2021), which suggest expressly manifest coding, i.e., looking at only the text, not the deeper meaning of the text. Next, I created a list of terms that were likely to signify an instance of scale usage, victimization, or villainization. While the use of these terms did not always result in a literary device or scale acknowledgment, they were useful as flags to look for phrases to code. Throughout the coding process, I continued to add more terms to create a the most comprehensive list possible (see Appendix A).

By independently coding the same chapters and comparing notes, my advisor Dr. Abel and I established general guidelines for the coding process. The unit of analysis was a sentence, we did not code anything hypothetical, entity names that include physical places were not included as scales, and we noticed that the usage of passive voice could sometimes obscure villains. After many attempts and refinements of our terms and guidelines, we were able to achieve an intercoder reliability at or above 60 percent for multiple pages. Jones *et al.'s The*

Science of Stories (2014) and Shanahan *et al.*'s "How to Conduct a Narrative Policy Framework Study" (2018) provided guidance for the Narrative Policy Framework method and coding process.

To keep track of my coding progress and have past examples readily available to reference, I printed out the documents and physically marked each mention of scale, victimization, and villainization. At the end of each page, I tallied the total uses of political and ecological scales, human and non-human victims, and human and non-human villains. Once a document was completed, the totals for each category were calculated. These totals were used to give each document a score in the respective categories of scale, villainization and victimization. Using equations adapted from McBeth *et al.* (2005) each document (based on its score) can be placed on a scale to depict its position in regard it's narratives of scale, villains and victims.

In total, I coded 12 documents, four from each coalition. While documents were chosen at my discretion, I attempted to use documents published within the previous five years and incorporate both scientific assessments as well as strategy documents. Originally, I considered also including educational materials, however, such publications were not available for every coalition in question. First, for the Skagit Watershed Council, I coded their 2017 Protection Strategy Update (SWC 1), Year 2022 Strategic Approach (SWC 2), 2017 Large Woody Debris Assessment (SWC 3), and Skagit 2020 Monitoring & Adaptive Management Report (SWC 4). Second, for the Skagit River System Cooperative, I coded the 2018 Skagit River Basin Habitat Status and Trends for Freshwater Rearing Targets (SRSC 1), the Forested Tributary Stream Temperature Monitoring in the Skagit Watershed: 2008-2018 Results and Interpretation (SRSC 2), the 2020 Skagit Basin Barrier Culvert Analysis (SRSC 3), and the 2019 Skagit River Estuary Intensely Monitored Watershed Annual Report (SRSC 4). These four documents also all fall into

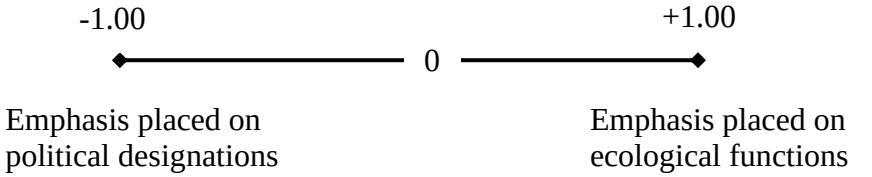
the “assessment” category, as there were no applicable strategy documents that I could find. Third, for the Northwest Indian Fisheries Commission, I coded the 2022 Tribal Natural Resources Management Annual Report from the Treaty Indian Tribes in Western Washington (NWIFC 1), and the Sauk-Suiattle Indian Tribe (NWIFC 2), Swinomish Indian Tribal Community (NWIFC 3), and Upper Skagit Indian Tribe (NWIFC 4) chapters of the 2020 State of Our Watersheds. Again, these did not include any “strategy” documents as none seemed adequate and pertinent published documents were limited.

Equations & Scores

Scale Score:

$$\frac{(Total\ ecological\ scales) - (Total\ political\ scales)}{Total\ number\ of\ scales}$$

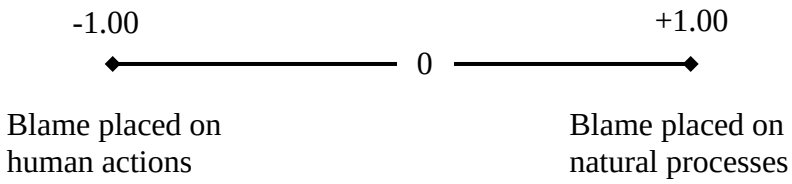
Using the above equation, each document was given a scale score. The mean was then calculated to create an overall scale score that represents a coalition’s viewpoint regarding working at the scale of ecological functions or political designations.



Villain Score:

$$\frac{(Total\ nature\ villains) - (Total\ human\ villains)}{Total\ number\ of\ villains}$$

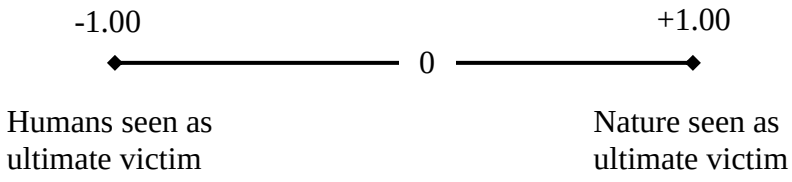
Using the above equation, each document was given a villain score. The mean was then calculated to create an overall victim score that represents a coalition's viewpoint regarding who it portrays as villain, nature or humans.



Victim Score:

$$\frac{(Total\ nature\ victims) - (Total\ human\ victims)}{Total\ number\ of\ victims}$$

Using the above equation, each document was given a victim score. The mean was then calculated to create an overall victim score that represents a coalition's viewpoint regarding who it portrays as victim, nature or humans.



Chapter Six: Results & Analysis

Document Scores

After coding 210 pages, each document was given a score for scale, villains, and victims based on the equations adapted from McBeth *et al*. (2005). The equations were set up so that a negative score means the document has a human-oriented narrative, while a positive score has an ecologically oriented narrative. A score of zero meant an equal number of human- and ecologically oriented narratives were present. All but two scale scores were ecologically oriented, seven out of twelve villain scores were human-oriented, and all victim scores fully of

majorly victimized nature. A mean score was calculated for each narrative, which represented the coalition's overall perspective.

Document Title	***Scale Score***	***Villain Score***	***Victim Score***
SCW 1: 2017 Skagit Watershed Council Protection Strategy Update	-0.013	-0.5	1
SCW 2: 2022 Skagit Watershed Council Strategic Approach	0.87	-1	1
SWC 3: 2017 Skagit Watershed Council Large Woody Debris Assessment	0.77	-0.125	1
SWC 4: Skagit 2020 Monitoring & Adaptive Management Report Executive Summary	0.89	0	1
Mean	0.62925	-0.40625	1
SRSC 1: 2018 Skagit River Basin Habitat Status & Trends for Freshwater Rearing Targets	0.92	0.43	1
SRSC 2: Forested Tributary Stream Temperature Monitoring in the Skagit Watershed: 2008-2018 Results and Interpretation	0.57	0.33	1
SRSC 3: Skagit Basin Barrier Culvert Analysis: Public and Private Stream Crossings (2020)	0.44	-1	1
SRSC 4: Skagit River Estuary Intensively Monitored Watershed Annual Report (2019)	0.64	0.34	1
Mean	0.6425	0.025	1
NWIFC 1: Annual Report from the Treaty Tribes in Western Washington 2022	-0.24	-0.6	0.92
NWIFC 2: 2020 State of our Watershed Report: Sauk-Suiattle Indian Tribe	0.63	-0.38	0.93
NWIFC 3: 2020 State of our Watershed Report: Swinomish Indian Tribal Community	0.74	0	0.83
NWIFC 4: 2020 State of our Watershed Report: Upper Skagit Indian Tribe	0.74	-0.61	0.62
Mean	0.4675	-0.3975	0.825

Table 5: All documents were scored from -1 to 1 based on coding results and given equations. The means of each coalition's scale, villain and victim scores were then compared through an ANOVA test.

Results & Content Analysis

Scale: Of the three narrative devices I coded, I was not surprised to find a lack of statistical significance in the various scales used by these coalitions. To my knowledge, investigating scalar narratives had not been done before, and thus was an intriguing element to explore. The use of ecological scales typically far outnumbered the mention of political scales, with 10 out of the 12 documents scoring between 0.44 and 0.92, leaning significantly toward using a majority of ecological scales. However, two documents were exceptions: SWC 1, the 2017 Skagit Watershed Council Protection Strategy Update and NWIFC 1, the 2022 Tribal Natural Resources Management: Annual Report from the Treaty Tribes in Western Washington. Both of these documents fall into the "strategy" category, yet while SWC 1 is much more localized, focusing on habitat protection within the Skagit watershed, NWIFC 1 focuses on the whole region and highlights numerous management policies. These two documents had the highest use of political scales of all 12, with NWIFC 1 at 61 and SWC 1 at 78 references, not just a higher political to ecological scale ratio.

One consideration is the number of ecological scale terms in comparison to politically designated scales. The list of ecological scales I assembled contained more than 30 terms, while there were only some 10 political scales (see Appendix A for all terms). This difference makes sense as there are a lot more ways to categorize and define ecosystem attributes in comparison to the number of political designations used in these types of documents. Similarly, terms like "watershed," "Skagit River valley," "mainstem," "channel," "estuary," and "floodplain," were ubiquitous throughout these documents, often occurring multiple times on almost every page, and with numerous variations. I did not anticipate this before I began, but during the process the

disproportion of terms and usage became clear. Because of the lack of significance in the comparison of means between coalition narratives of scale, I accepted H1.

Villains: The villain narrative scores were more scattered than I expected, however, there are some particulars worth noting. Both the SWC and NWIFC had negative means, where human actions are villainized more than natural processes or non-human actors. For the Skagit Watershed Council's Year 2022 Strategic Approach, such instances coded as human villainization include phrases like "Process-based restoration focuses on correcting anthropogenic disruptions…" (SWC 2, 3) and "…about 280 acres of functional riparian land cover was lost to anthropogenic activities" (SCW 4, 5). The SWC's 2017 Large Woody Debris Assessment similarly did not hesitate to acknowledge the impact humans have had on the region and its natural processes, even recognizing the harm of colonization—although notably only toward nature:

> *"Large woody debris resources have been significantly depleted in the Skagit River Basin and across the Pacific Northwest since European colonization, and this loss is directly connected to extensive salmonid habitat degradation throughout the Basin and the region." (SWC 3, 1)*

> *"In the mid-1800s, people started armoring riverbanks with riprap, building roads that constricted channel migration, removing large wood from the river, and constructing levee systems to prevent flooding in certain areas of the Skagit's natural floodplain. Unfortunately, these actions have seriously limited the Skagit River's biological productivity and intrinsic potential to create complex natural habitats." (SWC 3, 8)*

In several documents I made notes where language was used to lessen the blame placed on humans or minimize the harm. Phrases like "significantly altered" or "impacted," do not inherently equate to loss or damage, and were accordingly not coded as nature victims. However, these changes were typically attributed to anthropogenic actions, which were coded as human villains:

> *"These floodplain habitats and contributing upland areas have been significantly altered over the past 100+ years due to road building, bank hardening, hydropower operations, timber harvest in riparian and upland zones, and rural development." (SWC 2, 10)*

This highlights a challenging aspect of qualitative coding. While my parameters were manifest coding, using what is explicitly stated in the text, it seems ignorant to not equate "timber harvest in riparian and upland zones," or "rural development" with ecological degradation. This is why these phrases were coded as human villains, even when no nature victim was manifestly present.

The NWIFC's Tribal Natural Resources Management Annual Report from the Treaty Indian Tribes in Western Washington 2022 contained many phrases coded as human villains, such as "…the biodiversity of trails and forests was threatened by human overuse," (NWIFC 1, 5) "…ongoing destruction from land conversion like logging, agricultural and population growth," (NWIFC 1, 10) "Federal and state permitting regulations make it easier for new housing developments to destroy habitat than it is to restore habitat" (NWIFC 1, 10) and

> *"[The Puget Sound's] resources have been overallocated to industrial and recreational uses for decades, leading to a steady decline in the health of the estuary." (NWIFC 1, 12)*

The Sauk-Suiattle Indian Tribe's chapter in the NWIFC's 2020 State of our Watersheds Report included similar statements, including "…the last 150 years of human population growth and associated land use has resulted in declines in chinook…" (NWIFC 2, 255). This was expanded upon with statements from the Swinomish Indian Tribal Community's chapter:

> *"Since European settlement began in the middle of the 19th century, the landscape has changed to support cities, residences and agriculture, and not to support the natural estuaries, large floodplains and riparian-lined tributaries needed for healthy populations of salmon, shellfish and all the resources the Swinomish people relied upon historically," (NWIFC 3, 337)*

Because of my reliance on manifest language, this was coded as human villainization. However, it could certainly be argued that this statement infers the Swinomish people are victims

of these actions and should be coded as such (although it was not). The same can be said for this sentence being coded as victimizing nature, however, the language of "and not to support" did not feel strong enough to justify it—another example of language obscuring harm. A sentence coded as both human villainization and nature victimization is much more explicit:

> *"…the majority of the Middle Skagit River floodplain, 10,896 acres, remains in unprotected private lands that are being maintained and cleared for infrastructure, agriculture and other forms of human development." (NWIFC 4, 371)*

The SRSC on the other hand had three out of four villain scores that were positive, with the fourth being -1, which brought the mean to 0.025. The only document with a negative (villainizing humans more than nature) score was SRSC 3: Skagit Basin Barrier Culvert Analysis: Public and Private Stream Crossings (Mickelson *et al.* 2020). Examples of this human villainization included,

> *"Transportation corridors, agriculture, urbanization and other human land-use practices have diminished the availability of spawning and rearing habitats for all cold-water dependent species native to the region," (SRSC 3, 1)*

and "Culvert crossings, by a large margin, make up the greatest proportion of artificial (human-made) fish passage barriers in Washington State" (SRSC 3, 1). This type of blame was expected.

The intriguing result in this data comes from the SRSC's other three documents, which all villainized non-humans and natural processes more than human actions. In several cases, vague or obscuring language was used to divert direct human blame. In the SRSC's Forested Tributary Stream Monitoring in the Skagit Watershed (Kammer *et al*. 2020, 1), the abstract states:

> *"While alteration of natural thermal regimes in streams has historically been attributed to anthropogenic effects on streamflow and riparian shade, climate change may also play a role in the future" (SRSC 2, v)*

Here, “anthropogenic effects” was coded as a human villain, while “climate change” was coded as a non-human villain. However, this statement fails to acknowledge the human actions that are drastically exacerbating climate change. Another obfuscation of human impacts: “They found human and natural causes of habitat change with the restoration outpacing both natural and human causes of lost estuary habitat” (SRSC 4, 20). In this case, the first mention of “human and natural causes” was not coded because is simply refers to change, which is neither good nor bad. However, on the second mention, “human” was coded as a human villain, while “natural” was coded as a non-human villain because they both refer to “lost estuary habitat,” which was coded as a nature victim. This is one example of several where negative impacts are attributed to both human and natural causes simultaneously, lessening the responsibility of either party.

This type of placing blame on nature was not exclusive to the SRSC’s three documents with positive means for villainization. In categorizing the impairment of floodplains and riparian land cover, the SWC’s 2017 Skagit Watershed Council Protection Strategy Update had language such as “due to human activity” and “due to natural processes” (9)—coded as human villain and non-human villain, respectively. The SWC’s Skagit River Large Woody Debris Assessment included the statement “as climate change continues to place additional thermal stresses on salmonid populations of the Skagit River Basin,” (SWC 3, 7) which was coded as a non-human villain because it lacked a specific human reference. However, the same document had the most significant and accusatory instances of human villanization that I encountered throughout my research, including:

> *“In the mid-1800s, people started armoring riverbanks with riprap, building roads that constricted channel migration, removing large wood from the river, and constructing levee systems to prevent flooding in certain areas of the Skagit’s natural floodplain (Collins 1998). Unfortunately, these actions have seriously limited the Skagit River’s biological productivity and intrinsic potential to create complex natural habitats.” (SWC 3, 8)*

"Actions," referring to the first sentence, was coded as human villain and "seriously limited… productivity and intrinsic potential…" was coded as a nature victim. The following sentences appeared in the same document and were coded as human villains:

> *"In considering the application of large woody debris for salmon recovery, it is important to remember that the Skagit River has the innate potential to provide superior habitat for Chinook salmon and other key species if it were allowed to recover from excessive human impacts and function naturally. The river provided those ecological benefits for many millennia before the arrival of European settlers." (SWC 3, 11)*

The acknowledgment of ecological harm due colonization had multiple mentions in this document, a narrative worth noting.

Most documents that had several instances coded for non-human villains also contained an equal or larger number of phrases coded as human villainization. This ratio led to the majority (nine out of twelve) of documents having a villain score of 0 or below—villainizing human actions more than natural processes. However, due to this range and the other three positive scoring documents, scores were somewhat spread across the board. Therefore, a lack of significance in the comparison of means between coalition narratives of villains led me to accepted H2.

Victims: After completing my research and taking an initial look at the results, the contrast of victim scores was the first thing to catch my eye. Documents scoring a 1 or -1 for a singular narrative device was not that common: zero documents scored 1 or -1 for scale, and two documents scored -1 for villain narratives (overall, only two out of the 24 scale and villain narrative scores). To end up on either end of the linear scale means only one narrative was coded, with zero uses present for the alternative. Through the design of the research method, it seemed very likely for all narratives to be present in every document. However, all eight SWC and SRSC documents scored a 1 for their victim narratives—meaning the only victim present

was nature. On the other hand, NWIFC documents scored between 0.93 and 0.62, meaning they all victimized nature more than humans, *but each document had at least one instance of human victimization*. This difference immediately stood out.

I coded loss of habitat and loss of species separately for detail purposes, but both were counted as nature victims. The number of nature victims per document ranged from 5 to 58, with reference sometimes straightforward, such as "Skagit chum salmon like many other Puget Sound chum stocks are declining and at low abundance" (SRSC 4, 5) or "Degraded habitats and processes" (SWC 2, 4). Other instances coded as nature victims quantifies losses, such as, "In the past 150 years, 73% of tidal delta and 98% of non-tidal delta habitats have been lost, and the limited remaining habitats are insufficient to support juvenile Chinook salmon from the six populations" (SWC 2, 6). Many phrases coded for nature victimization were more extensive:

> *"A fourth aspect of habitat loss is the alteration of watershed processes that control tributary habitat conditions, including changes in sediment supply, flow regime, and riparian functions." (SWC 2, 2)*
>
> *"All of this information together reveals that a loss of LWD can lead to simplification of stream habitats, decreased pool frequency, reduction in productivity of juvenile salmonids, and decreased abundance and diversity of fish communities." (SWC 3, 4)*
>
> *"Fragmented and missing riparian buffers have simplified in-stream habitat and exasperated water quality issues, negatively affecting rearing juveniles, spawners and parr migrants." (SRSC 1, 19)*

The phrases coded as nature victims in NWIFC documents were on par with the other two coalitions, including sentences such as, "Habitat impacts on salmon productivity impact generations of fish until the threat is removed, in essence killing more salmon over time" (NWIFC 4, 374), although the acknowledgement of generational impact was not something I saw anywhere else. Another example stated, "summer water temperatures in many lower Skagit tributaries are already alarmingly high, causing stress and posing barriers to cold-water fish such

as salmon" (NWIFC 2, 258). Looking at the number of nature victims coded per document, the SWC had the highest average, 32.25. NWIFC came in second, with an average of 31.75 nature victims per document, while SRSC had an average of 12.25. It's worth noting that all three coalitions had similar language coded as nature victims, and that the SWC and NWIFC had very close averages of nature victims per document.

Differing narratives surrounding restoration were very apparent between coalitions. For example, SRSC's Intensively Monitored Watershed Annual Report states:

> *"Overall, the Skagit estuary is gaining more habitat than it is losing with habitat restoration being the most important reason for these gains. Direct human causes of lost estuary extent have been minor. Natural gains and losses of estuary habitat have also been documented, with a net loss observed." (SRSC 4, 14)*

This narrative focuses on the benefit of restoration in the region, minimizes human impacts and adds "natural" causes of habitat loss to the conversation. The Swinomish Indian Tribal Community tells a different story, though.

> *"…the pace of habitat restoration has slowed considerably since 2009. From 2005 to 2009, 103.3 hectares of tidal delta extent were restored (25.8 hectares per year) and since 2009, only 71.2 hectares have been restored (10.2 hectares per year)" (NWICF 3, 337)*

Lost habitat is mentioned prior to this without any specific villainization, but the focus lies on the slowing pace of restoration throughout the last decade, alluding that humans need to do more. In the same chapter, the Swinomish Indian Tribal Community directly implicates the Department of Ecology for its lack of action:

> *"The real problem, though, is that the pace of restoration has been far too slow – largely because Ecology has been unwilling to create a regulatory framework for enforcing water quality standards for temperature in salmon streams – and so no regulatory action has been taken." (NWIFC 3, 345)*

The acknowledgement of human victims was a different story throughout these documents. None of the selected publications from the Skagit Watershed Council or the Skagit

River System Cooperative made a single mention of humans as victims. All of those from the Northwest Indian Fisheries Commission did. Some of these statements were broad and somewhat disconnected, such as "… legacy sediments pose downstream risks to humans and ecological health…" (NWIFC 2020a, 264) while others made a direct connection of the loss of nature adversely impacting humans and tribes. The Swinomish Indian Tribal Community's State of our Watersheds Report stated:

> *"The difficult truth of the matter is that the tribes are running out of fish and we are running out of time to take the action needed to recover the degraded habitat and water quality our fish need to thrive." (NWIFC 3, 345).*

The Upper Skagit Indian Tribe's 2020 State of Our Watershed Report had the most instances of human victimization, with the harshest language:

> *"…the tribe has been forced to fish less and less to protect the fish that remain while the fish populations recover. This is at great cost to the Upper Skagit culture as a younger generation is not being allowed on the river to learn the lessons of their elders." (NWIFC 4, p. 370)*
>
> *"Tribal communities in the Skagit basin have sustained their cultural richness with salmon for centuries, and fragments of that habitat still support enough salmon to sustain their cultural identity. But that identity and habitat is under a constant threat due to population growth, climate change, a mismatch of regulatory frameworks, and lack of political and social will of reversing the losses from large-scale habitat destruction from the previous century." (NWIFC 4, p. 373)*

The phrases "at great cost to the Upper Skagit culture" and "that identity… is under a constant threat…" were undeniable instances of human victimization and coded accordingly. The second paragraph was also coded for nature victimization ("habitat is under a constant threat") and human villainization ("threat due to population growth, climate change, a mismatch of regulatory frameworks, and lack of political and social will…"). Another coded sentence states: "Tribal leaders have taken on the difficult task of asking their communities for continued restraint and sacrifice to their economic cultural way of life by limiting their fishing of stocks of concern"

(NWIFC 4, 370). The Upper Skagit was the only tribe to explicitly frame victimization as the loss of culture and way of life. Whereas NWIFC documents 1, 2, and 3 each had one instance of human victimization coded, the Upper Skagit Indian Tribe's State of Our Watershed's chapter (NWIFC 4) had 13. Because of the distinction in narratives of human victims between the NWIFC and the SWC and SRSR, and the statistical significance of 0.05 between the coalitions' document scores, I rejected H3.

There are many potential reasons for why the NWIFC documents victimized humans when none from the SWC or SRSC did. One could be the type of documents. Despite actively trying to ensure documents were similar across all coalitions, the number of relevant strategic and scientific documents from the NWIFC were fewer, thus the selection of three chapters from the 2020 State of Our Watersheds. These selections were broader than some of the technical reports analyzed from the SWC and SRSC, yet also allowed for the inclusion of perspectives from the three tribes involved with the Skagit fishery. Notably, all documents had a reasonable distribution of narrative devices coded in each category and none were blatant outliers.

The contrasting ontological perception of the human-nature relationship between western and Indigenous cultures could be an influence on differing victim narratives. Considering nature as the only victim signifies humans are distinctly separate from nature, a widely held perspective of western cultures. This view was exemplified by the lack of human victimization in documents from the Skagit Watershed Council and the Skagit River System Cooperative. While the level of Indigenous involvement and representation for the SWC is unclear, the SRSC manages natural resources for the Sauk-Suiattle Indian Tribe and Swinomish Indian Tribal Community, working to "actively improve fisheries management within their usual and accustomed fishing areas"

(SRSC 2023). The confines of western science and the demanding stipulations for state and federal funding could be an underling reason for narratives focused solely on nature as a victim.

A differing perspective of the human-nature relationship is that people are inextricably tied to nature—part of it, rather than separate from it as Medin and Bang (2014b) described. This narrative is exemplified in the instances coded as human victims in all four Northwest Indian Fisheries Commission documents. The human victimization in most references is because of a lack of the ability to fish, a practice that is integral to the Tribes' identity, physical and mental wellbeing, and future existence. The relationship of salmon as kinfolk and a covenant to protect them (*Sauk-Suiattle Indian Tribe* v. *City of Seattle* 2022) highlights the Indigenous notion that people and nature are intertwined, and therefore harming one can harm the other. While it was hypothesized that if any of the three coalitions had an outlying human-nature narrative it might be the SRSC and NWIFC, due to Indigenous influence on their perspectives, the difference between the two was surprising.

Statistical Analysis

Results from the ANOVA test led me to accept H1 and H2, while rejecting H3. There was no statistically significant difference in the use of scales and villains between the SWC, SRSC, and NWIFC. However, there was a statistically significant difference between the coalitions' victim scores. The p-value of 0.023 indicates with 95 percent certainty that this difference is not due to chance. This result aligns with my initial impressions after completing the coding process. Whereas individual document scores and coalition means for scale and villains were relatively mixed, there was a clear difference in the NWIFC's victim scores compared to those of the SWC and SRSC. Both the SWC and SRSC had a victim score of 1 for

all their documents—meaning nature was the victim in 100 percent of the instances coded. The NWIFC, on the other hand, had a mean victim score of 0.825, with documents ranging from 0.93 to 0.62. This is because while nature was the main victim, every NWIFC document had at least one instance where humans were victimized.

While the victim significance from the ANOVA test is important, it does not tell us which differences among the individual groups are significant. Using a post hoc Tukey Honest Significant Different (HSD) test provided further evidence that there is a statistically significant difference between the victim scores of the NWIFC and SCW, and the NWIFC and SRSC, but not between the SWC and SRSC. Because both the SWC and SRSC had mean scores of 1, there is no difference in the means and thus no significance. However, the mean victim score for the NWIFC was 0.825, resulting in a mean difference of |0.175|. The significance of this difference is 0.037, meaning that there is 95 percent certainty that the variance is not by chance.

ANOVA test

Scale Score

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	0.076	2	0.038	0.252	0.783
Within Groups	1.357	9	0.151		
Total	1.433	11			

Villain Score

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	0.486	2	0.243	0.969	0.416
Within Groups	2.257	9	0.251		
Total	2.743	11			

Victim Score

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	0.082	2	0.041	5.918	0.023**
Within Groups	0.062	9	0.007		
Total	0.144	11			

*Table 6: Variance between groups (coalitions) for each narrative. *=p<0.1; **=p<0.5*

Multiple Comparisons

Tukey HSD (Dependent Variable: Victim Score)

		Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
(I) anova_grp	(J) anova_grp				Lower Bound	Upper Bound
SWC	SRSC	0.000	0.059	1.000	-0.164	0.164
	NWIFC	0.175	0.059	0.037**	-0.011	0.339
SRSC	SWC	0.000	0.059	1.000	-0.164	0.164
	NWIFC	0.175	0.059	0. 037**	-0.011	0.339
NWIFC	SWC	-0.175	0.059	0. 037**	-0.339	0.011
	SRSC	-0.175	0.059	0. 037**	-0.339	0.011

*Table 7: SWC = Skagit Watershed Coalition, SRSC = Skagit River System Cooperative, NWIFC = Northwest Indian Fisheries Commission. *=p<0.1; **=p<0.5*

Chapter Seven: Moving Forward by Looking Back

Turning back to the questions I posed at the beginning of my thesis, I believe my findings provide insight. First, how are salmon recovery efforts in the Skagit River watershed socially constructed by co-stewards? My research shows ontological perspectives (which are social constructions) shape fisheries management and recovery efforts throughout the Skagit waterscape. The social construction of human-nature relationships varies between coalitions, affecting who they interpret as victims of ecological destruction and declining salmon runs.

Secondly, I asked what kind of scalar and narrative politics are produced by tribal and non-tribal organizations pursuing restoration of the Skagit fishery? While my examination of scalar politics in the region was not statistically significant, I believe this is an area that could

benefit from more research. Beyond spatial, what other kind of scales might be a factor? Temporal? Relational? Structural? Regarding narrative politics, my main research findings show that there is a statistically significant difference among coalitions in their victim narratives. Because of varying ontologies, coalitions and cultures of the Skagit fishery victimize humans in different ways. My results align with Medin and Bang (2014b), who consider psychological distance from nature "as one of many related aspects of many cultural differences in orientations toward nature or in world views" (123).

Finally, I asked can varying discourses inhibit salmon recovery and perpetuate recognition injustices? I believe the answer is a simple yes. Varying victim narratives have implications for how those involved perceive and respond to the predicament that salmon—and people—face. Coley *et al*. (2021) similarly found that when considering human-nature relations and land-water systems conservation, "how one conceptualizes the world and one's place in it plays an important role in how one chooses to engage with the world" (11). Tribes are significantly involved in Washington's fisheries governance as co-stewards but have ontologies that contrast their Euro-American counterparts, creating potential for deep-rooted disconnects despite good intentions. "These fundamentally distinct ontologies, the understanding of salmon and their agencies, exclude each other and cannot be negotiated in co-management settings" (Schiefer 2021, 72). Perhaps co-stewardship is a step toward ontological recognition.

William Cronon shed light on the contradiction imbued in western conservation more than a quarter century ago:

> *"This, then, is the central paradox: wilderness embodies a dualistic vision in which the human is entirely outside the natural. If we allow ourselves to believe that nature, to be true, must also be wild, then our very presence in nature represents its fall. The place where we are is the place where nature is not… To the extent that we celebrate wilderness as the measure with which we judge civilization, we reproduce the dualism that sets humanity and nature at*

> *opposite poles. We thereby leave ourselves little hope of discovering what an ethical, sustainable, honorable human place in nature might actually look like." (Cronon 1996, 17)*

One aspect of this dualism is exemplified in the differing conceptions of victims in my research. Because of the Euro-American conception of humans as separate from nature, wilderness has been defined as a place without humans and thus with little impact on us. Cronon (1996) directly addresses American environmentalists when he calls out, "our culture's problematic relationships with the non-human world" (8).

If coalitions, scientists, ecologists, educators, policy makers and institutions continue to perpetuate this dualism of humans as separate from nature, an "ethical, sustainable, honorable," future becomes less likely every day. "The failure of policies, agencies and bureaucrats to offer acknowledgement of alternative ontologies in the way they construct and fund projects, regardless of their rhetoric, is the ontological arrogance that reveals the real exercise of power" (Muller 2012, 74). (More on ontological recognition below.) Holding onto power is undoubtedly a major part of this dualism, and seeing humans as apart from nature is justification for that power. This seems plenty of reason for the perpetuation of that problematic relationship, the dominant social paradigm (Dunlap and Van Liere 1984), and an incentive for Euro-American institutions to ignore alternative ontologies. Muller states "The domination of non-Indigenous ontological perspectives marginalize Indigenous ontologies and thus limit the resourcing of Indigenous land and sea management" (2012, 75).

On another note, I understand William Cronon's theory to be more connected to the spatial conceptions and the historical development of human-nature relations rather than a metaphysical connection between the two. This is again similar to Dunlap and Van Liere's (1984) dominant social paradigm, and Dryzek's (2013) "problem solving" type, which I consider the Skagit Watershed Council and Skagit River System Cooperative to be. So, while rethinking

our spatial conception of "wilderness" is essential to moving toward an ecocultural revolution, it is only part of a bigger disconnect that needs to be addressed. If a cultural perspective sees humans as distinctly separate from the natural world, it becomes harder to envision how one's actions might affect the other, and vice versa. Finding connection seems to be key.

An alternate perspective is exemplified by the Sauk-Suaittle's connection to salmon: "Tsuladx^{w} [salmon] is alive like all living creatures and they are our relations. Sahkuméhu have a sacred covenant with Tsuladx^{w} and the Stulək^{w} (river) and all living creatures, without which we cannot live" (*Sauk-Suiattle Indian Tribe* v. *City of Seattle* 2022, 6). Considering Medin and Bang's (2014b) findings that Euro-American and Menominee perspectives differed regarding moral values and respect toward nature, I believe this disconnect leads to differing perceptions of who and what is victimized. Although Euro-Americans often felt a "caretaker relation with the natural world," (Medin and Bang 2014b, 118) caretakers do not typically suffer when their patients do, making it possible to victimize those they are taking care of without any connection to themselves. On the other hand, from the Menominee and Sauk-Suiattle perspective of being a part of nature, if nature suffers, so too do people. This aligns with my findings of the NWIFC victimizing both humans and nature as the Skagit sees fewer and fewer salmon and days tribes fish.

A main point Medin and Bang (2014b) make in Who's Asking is that "science reflects who does it" (75). Gender, culture and language are all contributing factors to individual approaches and understandings of inquiry (Medin and Bang 2014b). Subsequently, science is typically used to guide policy, and if scientific conclusions have underlying predispositions, it seems logical that the same factors can inadvertently influence the creation of policy. The idea of such influences also sheds light on the differences I found between the SRSC and NWIFC's

views on victims. While the SRSC works on behalf of the Swinomish Indian Tribal Community and Sauk-Suiattle Indian Tribe, the villain scores for their documents align them with more of a Euro-American perspective. All the documents I reviewed were attributed to coalitions, not specific authors, and I have no insight to tribal affiliation for any of the organization's authors or employees, so while I assert my results can reflect the institutions' positionality, there are other potential factors at play. I believe my evidence exemplifies how ontological perspectives are one of the many positions that can be reflected in science and policy.

In structuring their human-nature relationship equation, McBeth *et al.* (2005) state, "If the victim of a narrative is a human concern (e.g., economic or human health), it is logical to conclude that the narrative frame of the human–nature relationship is anthropocentric" (421). While this might seem logical from a Euro-American ontology, my research shows that human victimization can actually be the result of an innately intertwined conception of humans and nature—a different ontology. This is a good reminder to acknowledge our own ontologies and epistemologies within research and recognize that there are many different paradigms people approach these issues from.

Similarly, throughout my coding process, I could not help but notice that McBeth *et al.*'s (2005) use of Narrative Policy Framework separated humans from nature, perpetuating a typical Euro-American ontology of the human-nature relationship. While my own research also falls into this conundrum, I think it would be beneficial to revisit the construction of these equations and the linear results they produce to try and unbound them from a singular ontological and epistemological framework. This seems like an intriguing and collaborative way to extend the abilities of Narrative Policy Framework. However, they too embrace Kanazawa's (2018) form of post-positivism that believes in deducing an objective truth. Alternative research epistemologies

involving inductive and more interpretive approaches could be interesting avenues for future study of dissonances within the Skagit River watershed.

I am also curious as to how the NPF contends with power. In the same vein of "history is written by the winner," narratives are indeed controlled by those in power. There have been numerous conversations with my committee about recognizing the dominance of colonialism, and how foundational it is to the society in which we live, and the Skagit exists. I have also tried to acknowledge that throughout this paper, but it is so interwoven that it's difficult to call out every corner where it subsists. In this sense, there seems to be a scale of narratives. Imperialism is on such a large scale in this space that it is inescapable—the physical, cultural, and ecological narratives of the Skagit are nested in within the larger discourse of colonialism and capitalism. Shanahan, Jones, McBeth, and Radaelli have been extremely helpful in guiding my NPF exploration, and I'd be intrigued to hear how they see power dynamics within the NPF as it exists, and if there are any potential modifications that could better account for power discrepancies within narratives. As stated in the Narrative Policy Framework chapter of *Theories of the Policy Process*, "how a story is rendered is as important to policy success and political longevity as are which actions are undertaken" (Shanahan *et al*. 2017). Part of that rendering is the varying scales of the narratives involved, and the influence of power held by actors.

On a similar note, recognizing discourses by using Clement's (2010) politicized IAD was crucial to my research. But I am also not sure if this goes far enough to recognize power disparities within exogenous variables and action situations. Brisbois *et al*.'s augmentation of the IAD framework revealed "significant hidden power dynamics related to inaction and non-decisions," and "Collaboration was unable to produce progressive outcomes because of i) the restriction of the collaborative agenda by powerful actors; ii) selective enforcement of rules; and;

iii) a broader neoliberal context that inherently favored increasing resource extraction" (2019, 1). All these findings seem incredibly relevant to the Skagit fishery and co-stewardship initiatives, warranting further exploration.

And finally, what might Medin and Bang say to Cronon? Perhaps, "Whose nature?" If we are going to take a deep look inward at the relationship between humans and nature, it would be unjust to do so from the exclusive, racist, and culturally vain perspective that the current predicament originated from. Cronon acknowledges the colonialist history of wilderness and the cultural erasure that such a narrative attempts to forget:

> *"The removal of Indians to create an 'uninhabited wilderness'—uninhabited as never before in the human history of the place—reminds us just how invented, just how constructed, the American wilderness really is…It is entirely a creation of the culture that holds it dear, a product of the very history it seeks to deny" (Cronon 1996, 15).*

So, when organizations like the SWC, SRSC and NWIFC conduct restoration initiatives, advocate for policy changes, and envision a future for salmon, what conception of nature and wilderness do they begin with? The coalitions' situation within Dryzek's (2013) typology gave some insight into this. Initiatives that prioritize "ecosystem functionality" and "watershed-scale" will surely be different than those that have a "sacred covenant" with species at stake.

These mindsets do not need to be mutually exclusive, though. For restoration sites in California's Sacramento-San Joaquin Delta, Zedler and Stevens (2018) suggest Traditional Ecological Knowledge (TEK) and Western Ecological Knowledge (WEK) can be complementary to formulate an approach that fosters reciprocity, centralizes adaptive management and place-based strategies, encourages a sense of place, and respects cultural values. The concept of "ecocultural revitalization" (Sarna-Wojcicki *et al.* 2019, 243) expands socio-scale conceptions from watersheds to include "firesheds" and "foodsheds" in Karuk Aboriginal Territory of California's Klamath River Basin. "An ecocultural scalar approach

remains attentive to complex habitat mosaics that support multiple cultural resources while addressing needs related to decolonization, sovereignty, and self-determination, cultural stewardship practices, and culturally appropriate education and training" (Sarna-Wojcicki *et al*. 20l9, 260).

Likewise, the concept of "Two-Eyed Seeing," which originated in teaching practices but has since become recognized in Indigenous research uses both Indigenous and Western knowledge, without combining them, to enable "learning across systems" (Moorman *et al.* 2021). "This allows learners to keep cultural values in place while building constructs from another knowledge system for a richer understanding" (Moorman *et al.* 2021, 204). Incorporating Two-Eyed Seeing into fisheries management provides an innovative approach that has the potential to address power relations, honor different perspectives, and strengthen knowledge (Reid *et al.* 2020). For future research, Harrison and Loring (2020) present an intriguing approach to diagnosing complex conservation conflicts though a transdisciplinary framework that I think could provide more insight to the Skagit fishery. They specifically address cognitive and ontological framing, and the influence of relationships within their breakdown of conflicts (Harrison and Loring 2020).

This brings me to the notion of ontological recognition that I mentioned earlier in this paper. There is no shortage of opportunities to recognize, learn, teach and respect ontologies and epistemologies beyond our own. While such paradigms are innately held and sometimes even difficult to fully express and articulate, there is much room for improvement. Muller notes "there is a close relationship between ontological recognition and subsequent resource contribution" (2012, 76). They encourage "participants to reconsider and rethink approaches to meaningful collaboration in which the non-transferable, tacit and unquantified knowledges are recognized

and adequately resourced to create a language of equals between Indigenous and non-Indigenous sciences" (Muller 2012, 76). Based on two case studies, Ludwig noted Indigenous and Western scientific

> *"knowledge integration was of crucial relevance for developing adequate conservation measures that also contributed to protecting species that are important for local communities. Instead of contrasting an overly optimistic model of seamless knowledge integration with an overly pessimistic picture of incommensurable worldviews, we need a more nuanced account that leaves room for both integration and integration failures." (2016)*

Muller "highlights the issues of invisibility of power of dominant cultures and the implications of those power relationships in resource and environmental management" (Muller 2012, 76). In striving to challenge the ubiquity of Western science in natural resource management, Muller aims "to inspire a transformation of institutions in resource management relationships based on recognition and respect of difference" (2012, 76).

My inquiry and results led me to the question of "Who's nature?" to provoke readers to reflect on their own conception of human-nature relationships. I have shown that various perceptions of these relations influence and are influenced by our actions, surroundings, and paradigms. I believe we must first recognize and evaluate the social constructions that influence our own thinking before we can genuinely listen to, understand, and learn from others. If we continue to ignore these fundamental ontological differences, collaborative approaches are likely to fail, and the challenges wild salmon—and people—face will likely worsen.

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Appendix A: Coding Terms

Victimization terms:	*Villainization terms:*	*Scale terms:*
Collapse / collapsing	Access / inaccessible	**Political:**
Constrain / constraining	Barrier	Causeway
Decline / declining	Colonial	Channel (human-made)
Deficit	Constrain / constrained	County (Skagit, Whatcom…)
Disappear / disappearing	Destroy	Pacific Northwest
Fragmented	Disrupt / disrupted	Parcel
Harm / harmful / harming	Harm / harmful	Property
Impaired	Impact / impacted	Puget Sound
Interrupt / interrupting	Impede	Washington state
Isolated	Inhibit	WRIA #
Lack / lacking	Threat / threaten / threatened	**Ecological:**
Lethal		Alluvial fan
Limit / limiting		Backwater
Loss / lost		Basin / sub-basin
Pressure / pressuring		Bay
Problem		Beach
Recover / recovering		Delta / tidal delta
Reduce / reduction		Ecosystem (specific reference)
Restrict / restricted		Estuary
Risk		Floodplain
Stress		Headwaters
Threat / threaten		Intertidal
		Island
		Lagoon
		Lake
		Mainstem
		Mouth
		Neritic
		Pelagic
		Pool
		Reach / reach scale
		Riparian
		River channel / Side channel
		River system
		Salish Sea
		Shore / shoreline / nearshore
		Slough

	Watershed
	Wetlands

Appendix B: Coding Results

Skagit Watershed Council 1

2017 Skagit Watershed Council Protection Strategy Update

Page #	*Eco. Scales*	*Pol. Scales*	*Nature Victim*	*Human Victim*	*Human Villain*	*Non-human Villain*
2	4	3	1	0	0	0
3	7	1	0	0	0	0
4	7	6	0	0	0	0
5	3	10	2	0	0	0
6	3	12	2	0	0	0
7	3	1	2	0	0	0
8	6	2	1	0	0	0
9	29	0	0	0	2	1
10	5	5	1	0	0	0
11	0	12	1	0	1	0
12	3	7	5	0	0	0
13	4	11	0	0	0	0
14	2	8	0	0	0	0
Total:	76	78	15	0	3	1

Scales: $\frac{76-78}{154} = -0.013$

Villains: $\frac{1-3}{4} = -0.5$

Victims: $\frac{15-0}{15} = 1$

Skagit Watershed Council 2

2022 Skagit Watershed Council Strategic Approach

Page #	*Eco. Scales*	*Pol. Scales*	*Nature Victim*	*Human Victim*	*Human Villain*	*Non-human Villain*
1	7	0	0	0	2	0
2	21	0	2	0	1	0
3	19	1	3	0	1	0
4	7	0	4	0	2	0
5	10	0	3	0	0	0
6	24	1	9	0	0	0
7	29	2	4	0	3	0
8	25	3	6	0	0	0
9	24	5	1	0	0	0
10	21	0	0	0	1	0
11	19	0	9	0	0	0
12	6	1	3	0	1	0
13	6	0	1	0	0	0
14	2	0	7	0	0	0
15	39	5	6	0	3	0
16	1	0	0	0	0	0
17	1	0	0	0	0	0
Total:	261	18	58	0	14	0

Scales: $\frac{262-18}{279}=0.87$

Villains: $\frac{0-14}{14}=-1$

Victims: $\frac{58-0}{58}=1$

Skagit Watershed Council 3

2017 Skagit Watershed Council Large Woody Debris Assessment

Page #	*Eco. Scales*	*Pol. Scales*	*Nature Victim*	*Human Victim*	*Human Villain*	*Non-human Villain*
1	12	0	9	0	1	0
2	3	0	4	0	0	0
3	22	5	2	0	1	0
4	8	3	9	0	1	0
5	10	4	4	0	0	4
6	18	4	0	0	0	1
7	19	4	2	0	0	2
8	24	2	9	0	4	0
9	7	7	0	0	0	0
10	25	1	3	0	0	0
11	13	1	3	0	2	0
12	3	4	0	0	0	0
13	3	0	1	0	0	0
14	8	0	0	0	0	0
15	13	0	0	0	0	0
16	21	0	1	0	0	0
17	1	0	0	0	0	0
18	5	1	0	0	0	0
19	2	0	0	0	0	0
20	17	1	0	0	0	0
21	18	0	0	0	0	0
22	13	0	0	0	0	0
23	16	0	0	0	0	0
24	7	0	0	0	0	0
25	7	0	0	0	0	0
26	1	0	0	0	0	0
Total:	296	37	47	0	9	7

Scales: $\frac{296-37}{333} = 0.77$

Villains: $\frac{7-9}{16} = -0.125$

Victims: $\frac{47-0}{47} = 1$

Skagit Watershed Council 4

2020 Monitoring & Adaptive Management Report Executive Summary

Page #	***Eco. Scales***	***Pol. Scales***	***Nature Victim***	***Human Victim***	***Human Villain***	***Non-human Villain***
1	14	0	0	0	0	0
2	19	2	6	0	0	2
3	26	2	1	0	1	0
4	29	0	1	0	1	1
5	23	2	1	0	1	0
Total:	111	6	9	0	3	3

Scales: $\frac{111-6}{117} = 0.89$

Villains: $\frac{3-3}{6} = 0$

Victims: $\frac{9-0}{9} = 1$

Skagit River System Cooperative 1

2018 Skagit River Basin Habitat Status & Trends for Freshwater Rearing Targets

Page #	*Eco. Scales*	*Pol. Scales*	*Nature Victim*	*Human Victim*	*Human Villain*	*Non-human Villain*
1	13	1	1	0	0	0
2	10	0	0	0	0	0
3	28	0	0	0	0	0
4	11	1	0	0	0	0
5	13	0	3	0	0	4
6	34	0	0	0	0	0
7	12	0	0	0	0	0
8	8	4	0	0	0	0
9	8	0	1	0	0	0
10	11	0	0	0	0	0
11	13	0	1	0	0	0
12	21	0	0	0	0	0
13	29	0	0	0	0	0
14	34	0	0	0	0	0
15	13	1	4	0	0	4
16	11	0	0	0	0	0
17	4	0	0	0	0	0
18	9	0	0	0	0	0
19	27	0	4	0	2	0
20	7	2	1	0	0	0
21	1	0	0	0	0	0
22	0	0	0	0	0	0
23	3	0	1	0	2	2
24	12	1	1	0	0	0
25	11	0	1	0	0	0
26	7	5	0	0	0	0
27	1	0	0	0	0	0
Total:	351	15	18	0	4	10

Scales: $\frac{351 - 15}{366} = 0.92$

Villains: $\frac{10 - 4}{14} = 0.43$

Victims: $\frac{18-0}{18}=1$

Skagit River System Cooperative 2

Forested Tributary Stream Temperature Monitoring in the Skagit Watershed: 2008-2018 Results and Interpretation

Page #	***Eco. Scales***	***Pol. Scales***	***Nature Victim***	***Human Victim***	***Human Villain***	***Non-human Villain***
v (Abstract)	3	1	0	0	1	1
1	1	0	8	0	0	1
2	4	0	0	0	0	0
3	12	0	6	0	0	0
4	8	5	0	0	0	0
5	11	1	0	0	0	0
6	19	3	0	0	0	0
7	0	0	0	0	0	0
8	2	0	0	0	0	0
9	3	3	0	0	0	0
10	1	0	0	0	0	0
11	1	2	0	0	0	0
12	0	0	0	0	0	0
13	1	0	0	0	0	0
14	1	0	0	0	0	0
15	0	0	0	0	0	0
16	1	0	0	0	0	0
17	1	0	0	0	0	0
18	1	0	0	0	0	0
19	1	0	0	0	0	0
20	2	1	0	0	0	0
21	6	11	0	0	0	0
22	0	0	0	0	0	0
23	0	0	0	0	0	0
24	0	1	0	0	0	0
25	1	1	0	0	0	0
26	3	0	0	0	0	0
27	18	1	0	0	0	0
28	7	0	0	0	0	0
Total:	108	30	14	0	1	2

Scales: $\frac{108 - 30}{138} = 0.57$

Villains: $\frac{2-1}{3} = 0.33$

Victims: $\frac{14-0}{14} = 1$

Skagit River System Cooperative 3

Skagit Basin Barrier Culvert Analysis: Public and Private Stream Crossings

Page #	***Eco. Scales***	***Pol. Scales***	***Nature Victim***	***Human Victim***	***Human Villain***	***Non-human Villain***
1	5	2	2	0	2	0
2	4	1	0	0	0	0
3	9	10	0	0	0	0
4	3	0	0	0	0	0
5	5	5	0	0	0	0
6	0	0	0	0	0	0
7	10	0	2	0	0	0
8	2	2	0	0	1	0
9	20	0	0	0	1	0
10	4	0	0	0	0	0
11	2	8	0	0	0	0
12	2	0	0	0	0	0
13	8	0	0	0	0	0
14	1	0	0	0	0	0
15	1	7	0	0	0	0
16	0	0	0	0	0	0
17	2	0	1	0	0	0
18	0	0	0	0	0	0
19	0	0	0	0	0	0
20	1	0	0	0	0	0
21	6	0	0	0	0	0
22	9	2	0	0	0	0
Total:	94	37	5	0	4	0

Scales: $\frac{94-37}{131}=0.44$

Villains: $\frac{0-4}{4}=-1$

Victims: $\frac{5-0}{5}=1$

Page #	*Eco. Scales*	*Pol. Scales*	*Nature Victim*	*Human Victim*	*Human Villain*	*Non-human Villain*
5	13	2	3	0	0	0
6	18	2	1	0	0	0
7	3	2	0	0	0	1
8	2	0	0	0	0	0
9	2	2	0	0	0	0
10	11	2	0	0	0	0
11	2	1	0	0	0	0
12	18	0	1	0	0	0
13	13	6	0	0	0	0
14	9	0	2	0	1	0
15	6	2	0	0	0	0
16	6	0	0	0	0	0
17	2	0	0	0	0	0
18	2	0	0	0	0	0
19	4	0	0	0	0	0
20	19	0	5	0	1	4
21	10	8	0	0	0	0
22	17	8	0	0	0	0
23	0	0	0	0	0	0
Total:	157	35	12	0	2	5

Scales: $\frac{157-35}{192}=0.64$

Villains: $\frac{5-2}{7}=0.34$

Victims: $\frac{12-0}{12}=1$

Northwest Indian Fisheries Commission 1

Tribal Natural Resources Management: Annual Report from the Treaty Tribes in Western Washington 2022

Page #	***Eco. Scales***	***Pol. Scales***	***Nature Victim***	***Human Victim***	***Human Villain***	***Non-human Villain***
4	4	5	2	0	0	0
5	2	0	1	0	3	0
6	2	2	6	0	0	1
7	1	8	0	1	0	0
8	5	7	1	0	0	0
9	6	4	3	0	0	0
10	3	3	6	0	2	0
11	2	11	2	0	0	0
12	4	10	1	0	1	0
13	4	4	3	0	2	1
14	3	2	0	0	0	0
15	1	5	0	0	0	0
Total:	37	61	25	1	8	2

Scales: $\frac{37-61}{98} = -0.24$

Villains: $\frac{2-8}{10} = -0.6$

Victims: $\frac{25-1}{26} = 0.92$

Northwest Indian Fisheries Commission 2

2020 State of our Watershed Report - Skagit River Watershed: Sauk-Suiattle Indian Tribe

Page #	***Eco. Scales***	***Pol. Scales***	***Nature Victim***	***Human Victim***	***Human Villain***	***Non-human Villain***
254	4	2	1	0	0	0
255	14	12	3	0	1	0
256	32	4	5	0	1	1
257	35	3	2	0	1	2
258	10	2	5	0	3	0
259	15	1	2	0	0	0
260	23	0	3	0	1	1
261	8	0	0	0	0	0
262	10	6	1	0	0	0
263	11	0	0	0	0	0
264	1	7	1	1	3	0
265	12	2	1	0	1	1
266	6	2	2	0	0	0
Total:	181	41	26	1	11	5

Scales: $\frac{181-41}{222} = 0.63$

Villains: $\frac{5-11}{16} = -0.38$

Victims: $\frac{26-1}{27} = 0.93$

Northwest Indian Fisheries Commission 3

2020 State of our Watershed Report - Skagit River Watershed: Swinomish Indian Tribal Community

Page #	*Eco. Scales*	*Pol. Scales*	*Nature Victim*	*Human Victim*	*Human Villain*	*Non-human Villain*
335	12	3	1	0	0	0
336	14	12	3	0	1	0
337	29	3	3	0	2	0
338	8	0	1	0	0	0
339	21	0	0	0	0	0
340	19	0	2	0	0	0
341	16	2	1	0	0	0
342	14	1	2	0	0	0
343	10	0	0	0	0	0
344	10	1	2	0	0	0
345	4	3	4	1	1	1
346	8	2	0	0	0	0
347	8	0	0	0	0	0
348	6	0	2	0	0	1
Total:	179	27	21	1	4	4

Scales: $\frac{179-27}{206} = 0.74$

Villains: $\frac{4-4}{8} = 0$

Victims: $\frac{21-1}{22} = 0.91$

Northwest Indian Fisheries Commission 4

2020 State of our Watershed Report - Skagit River Watershed: Upper Skagit Indian Tribe

Page #	*Eco. Scales*	*Pol. Scales*	*Nature Victim*	*Human Victim*	*Human Villain*	*Non-human Villain*
368	1	0	1	2	1	0
369	14	12	3	0	1	0
370	22	3	6	4	3	0
371	17	0	4	1	1	0
372	18	1	6	1	2	1
373	9	1	3	1	1	0
374	1	0	6	2	0	2
375	13	0	0	2	1	0
376	12	0	0	0	0	0
377	15	2	2	0	1	1
378	11	1	1	0	0	0
379	9	7	0	0	0	0
380	4	2	7	0	2	0
381	8	2	3	0	0	0
382	31	0	4	0	3	0
383	26	0	2	0	3	2
384	7	1	5	0	4	0
385	12	2	2	0	2	0
Total:	230	34	55	13	25	6

Scales: $\frac{230-34}{264}=0.74$

Villains: $\frac{6-25}{31}=-0.61$

Victims: $\frac{55-13}{68}=0.62$