

The Sociocultural Significance of Pacific Salmon for Tribes and First Nations

Special Report to the Pacific
Salmon Commission

June 8, 2021

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Suggested citation: Earth Economics. *The Sociocultural Significance of Pacific Salmon to Tribes and First Nations*. 2021.

Acknowledgements:

Pacific Salmon Commission Tribal Caucus and First Nations Caucus
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Pacific Salmon Commission Administrators
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This project was funded by the Pacific Salmon Commission Southern Endowment Fund under the title *Assessing the socioeconomics of food, social, and ceremonial salmon harvest* and the grant ID SF-2020-I-16.

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Earth Economics acknowledges that we operate on the lands of the Coast Salish peoples, specifically the ancestral homelands of the Puyallup Tribe of Indians, and the 1854 Medicine Creek Treaty.

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Executive Summary

Pacific salmon are a **cultural and ecological keystone species**, irreplaceable and core to the identities and ways of life of Indigenous communities throughout the Pacific Northwest. This report shares insights on the sociocultural significance of Pacific salmon, learned from engagement with the Tribal and First Nations Caucuses to the Pacific Salmon Commission.

This project modified a **sociocultural framework** from previous studies to guide the qualitative analysis of interviews with study participants, alongside meeting notes and survey responses. Centered around the well-being of Indigenous communities and salmon, the framework includes five intersecting domains: **social, health, livelihoods, management, and knowledge and practices**. Analysis using this framework sheds light on the following areas.

Salmon is a Social Fabric: Salmon are integral to family structures, community cohesion, gatherings and ceremonies, and practices of giving, trading, and sharing—all central to cultural identity. The breadth and depth of discussion around weddings, funerals, potlaches, birthdays, graduations, Treaty Day, Aboriginal Day, births, longhouse festivities, naming events, gifting celebrations, blessing the fleet, and other social gatherings highlight the ways Indigenous families and Nations gather to cherish salmon. These events also help to communicate the importance of salmon to non-Indigenous and other Native communities. When salmon are scarce, Nations work hard to obtain salmon for ceremonial and subsistence needs in their communities and also the communities of neighboring Nations. The exchange of salmon within and between communities strengthens the social fabric and cultural ties among Indigenous Nations.

Losses of Salmon Impact Cultural Wealth: Many salmon runs have declined significantly, perhaps irreversibly, and some salmon populations face extinction. Discussions of salmon losses overlap each framework domain. *Every* participant in this study shared stories of the impacts of salmon decline, including topics of food, habitat, and ecology, going fishing, access to fishing areas, physical health, dams, and non-Indigenous governance. The loss of salmon is a cultural crisis: without salmon, ceremonies, food security, traditions, learning, economies, and health all suffer. Indigenous communities feel a responsibility to stewardship that will ensure salmon are available for future generations.

Healthy Salmon Means Healthy Communities: The central role of salmon also means that Indigenous communities need salmon for their mental and physical health. Losses in Tribal and First Nations salmon fisheries leave communities without fresh, dried, canned, or frozen salmon, increasing their dependence on commercially processed foods. Discussions around food and livelihoods frequently stressed the need for salmon not only for food and economic security, but also for sustaining human and ecosystem health and teaching traditions and cultural practices. Conversations about salmon as food often overlapped with those about community well-being, centering around fishing, physical health, food security, gatherings and ceremonies, wealth, and cultural continuity through sharing traditions and traditional knowledge.

Prioritizing Indigenous Management Aids in Conservation: Cultural needs, knowledge systems, traditions, and practices are central to Indigenous management approaches, yet these are rarely acknowledged, much less incorporated into agency management decisions. Displacement of Indigenous Nations from salmon and habitat management evokes feelings of sadness, frustration, and anger. This is especially true for Canadian First Nations; despite legal precedents and government commitments and policies, recreational and commercial sectors are often given priority over Indigenous fisheries, further eroding trust. Moreover, Tribes and First Nations encounter prejudice, discrimination, and a lack of respect from management agencies and other fishing sectors. Effective conservation of salmon will require co-management and increased collaboration between harvest sectors.

Everything is Connected: Salmon are the lifeblood of Tribes and First Nations. Just as salmon are vital to ecosystem health and larger food webs, they are also essential to every aspect of Indigenous livelihood and culture. Participants discussed salmon in relation to traditional knowledge, traditional values, tools and clothing, stories and legends, spiritual connection, food preparation, language, identity, heritage, fishing activities, dance, art, and song. These important practices relate to the interconnectedness of Indigenous world views and stewardship practices, including caring for salmon populations, social gatherings, health, and more. Salmon are considered more than fish to be caught, eaten, or sold; they are family members who must be treated with respect to ensure they will continue to provide to people and ecosystems. These values instill a responsibility for salmon: “if you take care of salmon, they will take care of you.” The inability to fish salmon within traditional Indigenous territories breaks this cycle.

Recommendations: When discussing the future of salmon and providing feedback on this study, participants shared recommendations based on their experiences working in fisheries and fishery management. These include:

- *Shifting priority from salmon harvests to rebuilding salmon populations* to ensure that Indigenous communities can meet their food, social, and ceremonial salmon needs now and in the future. Meeting these standards will safeguard multiple benefits extending beyond Indigenous communities.
- *Restoring salmon ecosystems following holistic principles* that draw on both Indigenous and Western science. Funding and supporting Indigenous fisheries and fisheries science programs are essential to this effort.
- *Respecting and incorporating Indigenous sociocultural values in decision-making*, alongside Indigenous science and technology in salmon management. Consulting Indigenous Nations and Councils will enhance opportunities for cross-sector collaboration and Indigenous participation and representation.
- *Recognizing and supporting Tribes and First Nations as co-managers* through reconciliation and fulfillment of both Indigenous sovereignty rights and trust responsibilities.

Introduction

“Our principles and proposed solutions have followed the same principles of stewardship we have always followed and have placed our spiritual connection with Mother Earth at the top of our priority list, where it belongs. This is where the priority belongs for everyone, Indian or not, because we are all born with the responsibility to take care of our planet and the life that exists here. We are all dependent on the health of our ecosystem, whoever we are and whatever we do.”

Billy Frank, Jr.¹

Salmon are at the heart of the culture and well-being of hundreds of Indigenous communities in the Pacific Northwest region of North America. Yet, declining Pacific salmon populations jeopardize the well-being of these Indigenous communities. At the same time, there is a lack of awareness about the scope, nature, and value of the Tribes’ and First Nations’ identities and practices that tie to Pacific salmon. Comprehensive understanding and appreciation of these multifaceted cultural relationships are critical for the social and ecological health of the entire region. This report lays a foundation to bridge those gaps, combining insights from one-on-one interviews, focus groups, community meetings, and publications on the sociocultural significance of salmon to Indigenous Peoples from Tribes and First Nations throughout the region.

The Pacific Salmon Commission (PSC), which is responsible for the implementation of the Pacific Salmon Treaty (PST) between the United States (U.S.) and Canada, is tasked with preventing overfishing and ensuring the equitable sharing of benefits from salmon originating from each country’s waters. To manage commercial, recreational, and subsistence fisheries in both countries, the PSC conducts research and convenes periodic meetings between national, provincial/state, First Nations, and U.S. Tribal delegates. The PSC contracted with Earth Economics to conduct this study on the food, social, and ceremonial (FSC) importance of Pacific salmon to Tribes and First Nations throughout the PST region. The project has been coordinated by the PSC Tribal and First Nations Caucuses.

The objective of this report is to convey Tribal and First Nations perspectives regarding the sociocultural significance of Pacific salmon. The goals of the project are to:

1. Provide a foundation to the PSC to understand relationships between Pacific salmon and Indigenous societies.
2. Raise awareness among Indigenous and non-Indigenous communities about the significance of Pacific salmon harvests and the importance of Pacific salmon conservation.
3. Provide information to support future funding and decision-making through the Pacific Salmon Treaty between the U.S. and Canada.

¹ Grossman and Parker, “Asserting Native Resilience: Pacific Rim Indigenous Nations Face the Climate Crisis.”

The geographic scope of this study, shown in Figure 1, includes all five Panels of the PSC, each with specific responsibilities and support from technical committees and enhancement committees. There are more than 334 Tribes and First Nations in the Pacific Salmon Treaty Region, as shown in Figure 2.² Panel regions include:

The Yukon Panel is responsible for Yukon River salmon and ensuring that sufficient salmon are able to pass from the U.S. into Canada to spawn in their natal streams.³

The Northern Panel is responsible for salmon originating in rivers with mouths that enter the Pacific Ocean between Cape Suckling in Alaska (AK) and Cape Caution in northern British Columbia (BC).

The Transboundary Panel is responsible for salmon originating in the Alsek, Stikine, and Taku river systems, which flow to the sea in southwest Alaska.

The Southern Panel is responsible for salmon originating in rivers with mouths south of Cape Caution, BC, including stocks originating from streams in southern BC, as well as Washington (WA), Oregon (OR), and Idaho (ID), except for Fraser River Sockeye and Pink salmon stocks.

The Fraser Panel has special responsibility for in-season regulation of Fraser River-origin Sockeye and Pink salmon fisheries in southern BC and northern Puget Sound.

This project has been advised by U.S. Commissioner and Alternate U.S. Commissioner Ron Allen and McCoy Oatman; Canadian Commissioner and Alternate Canadian Commissioner Murray Ned and Chief Russ Jones; and Gord Sterritt. Commissioners are appointed by the U.S. Government and Fisheries and Oceans Canada to administer the Pacific Salmon Treaty, based on the advice of regional fisheries experts, Indigenous Peoples, and governmental agencies. Ron Allen and Gord Sterritt served as liaisons to the Tribal and First Nations Caucuses, respectively, for this project. The project advisors selected an expert from the U.S. and an expert from Canada to review this report.

This report shares information gathered through engagement with the Tribal and First Nations Caucuses from 2019 to 2021. The project has been guided by regular meetings with project advisors, feedback from joint Tribal and First Nations Caucus sessions at PSC meetings, input from project participants, and other salmon-related reports and initiatives focused on Tribes and First Nations. The project included two phases: the first phase of work (2019-2020) identified and tested a research framework, while the second (2020-2021) focused on research, primary data collection, and reporting. In Phase I, tasks focused on modification of a framework developed by the Puget Sound Institute (University of Washington—Tacoma) and the Quinault Indian Nation,⁴ based on feedback from project participants. During Phase II, that modified framework was applied for interview analysis, providing a broad context for the sociocultural values and practices associated with salmon.⁵

The report proceeds as follows: background, project approach, results, discussion, and conclusion and recommendations. The **background** section of the report contains an overview of the Indigenous sociocultural value of salmon, the impacts that have led to the present status of Pacific salmon across the region, and the governance of fisheries management, related to Tribes and First Nations in the United States and Canada. The **project approach** section explains the development of the framework and methods for this study, providing detail on the first phase of work, which was aimed at piloting the most appropriate approach. The **results** section shares information on the participants of the study, the analytical framework, and the results of

² Indigenous Nations, First Nations, Tribal Nations, Tribes, Aboriginal, and Indian are terms that appear in this report. These terms are used across the Pacific salmon region in different contexts, but in reference to the First Peoples of these lands. Each sovereign entity decides how to self-identify and use these terms. The report uses the term Tribes when referring to U.S. entities, First Nations when referring to Canadian entities, and Indigenous Nations when referring to Indigenous entities in both the U.S. and Canada.

³ Unlike other regional Panels established under the Pacific Salmon Treaty, the Yukon River Panel follows its own internal by-laws and procedures, independently from the Pacific Salmon Commission.

⁴ Biedenweg, Amberson, and James, "Measuring Socio-Cultural Values Associated with Salmon in the Quinault Indian Nation."

⁵ The study did not gather or share sensitive cultural information or in-depth information about traditional knowledge.

analyses of the interviews and focus groups. The **discussion** elaborates on themes described in the results, including loss, exclusion, and management. The report **concludes** with a summary of the analyses, including results-based **recommendations**.

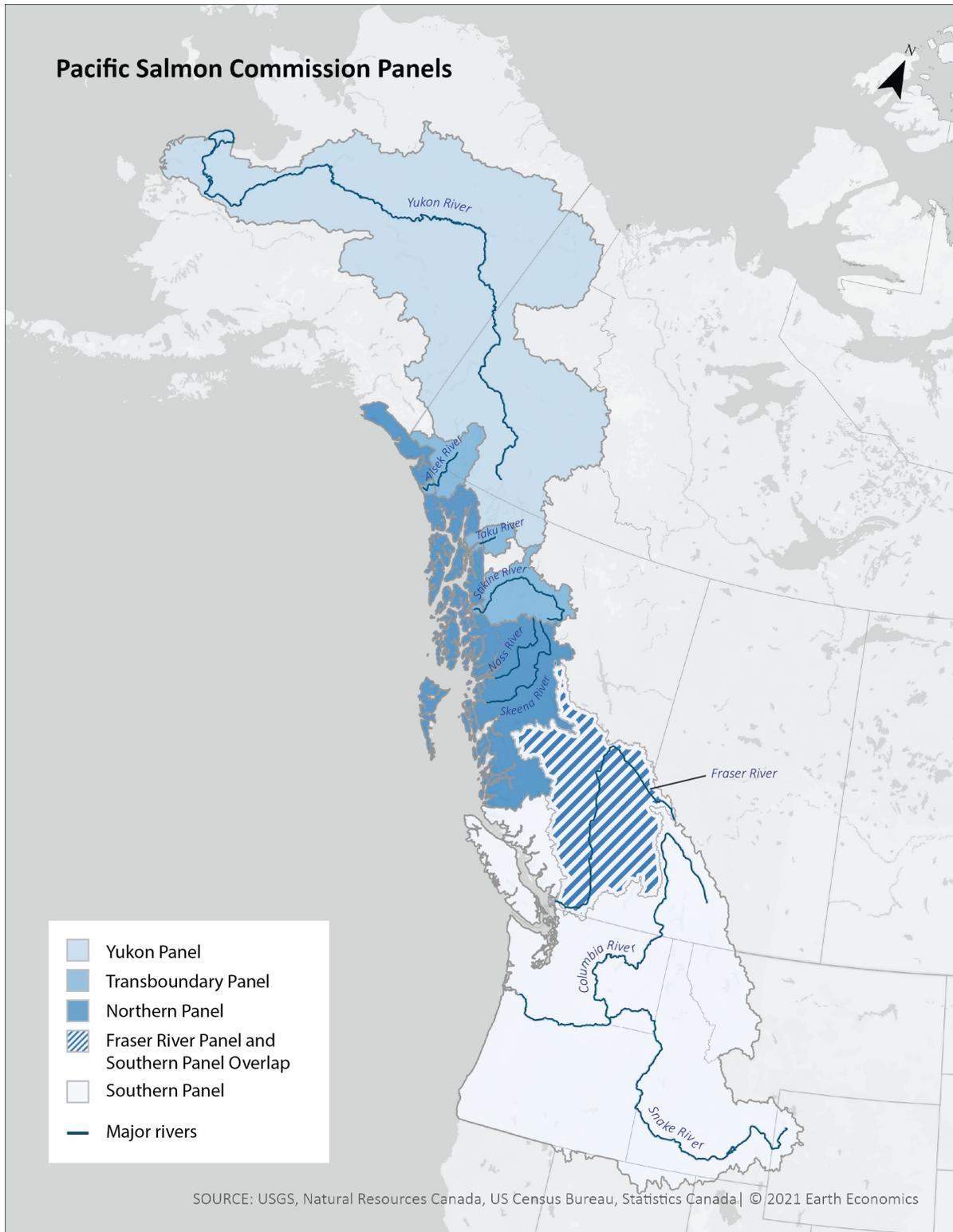


Figure 1. The Pacific Salmon Treaty region as shown by the five PSC Panels.

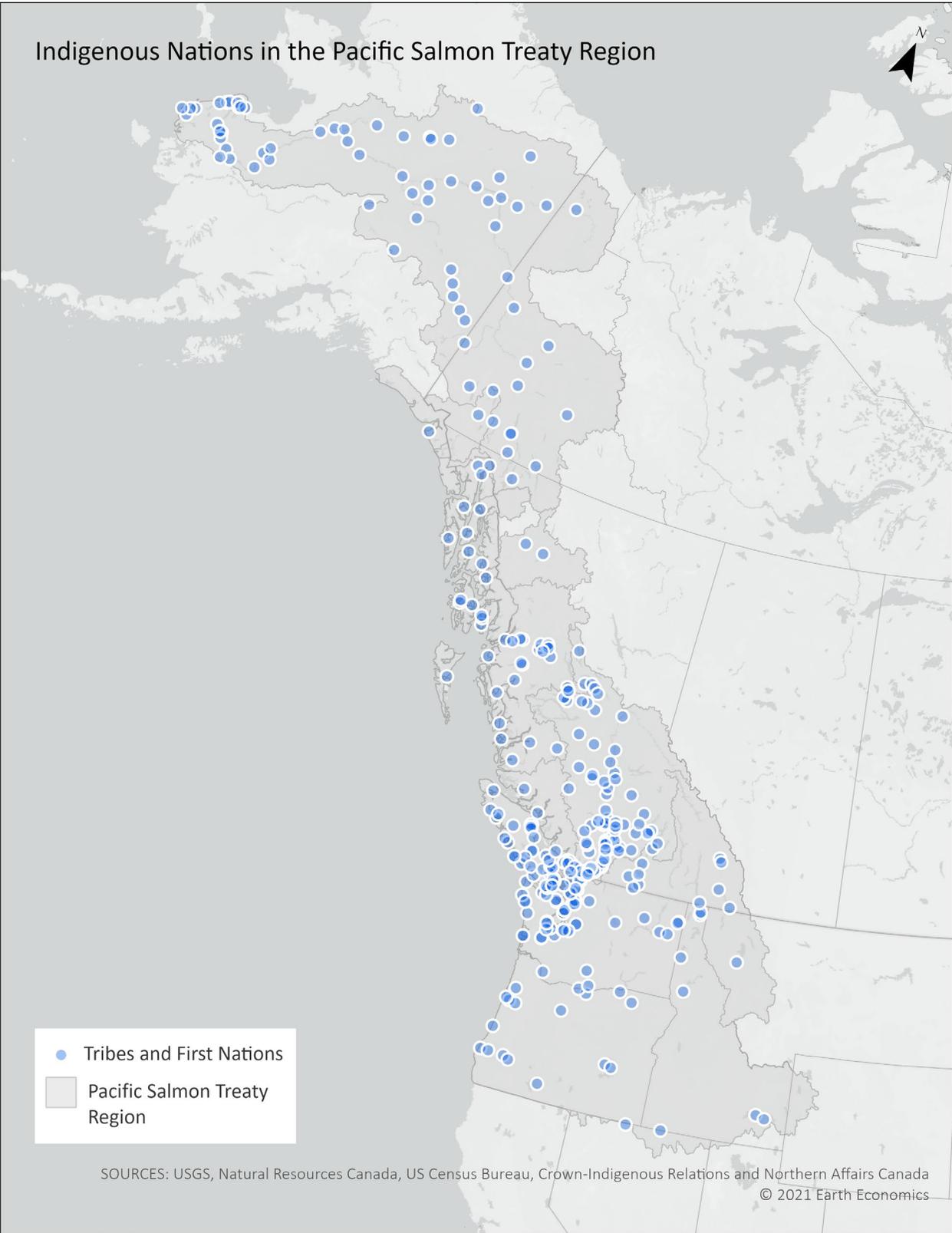


Figure 2. General locations of Indigenous Nations in the Pacific Salmon Treaty Region.

Background

“Salmon is the first one when, before our people were created here, the salmon is the one that is the first one that stood up to take care of our people. Providing the food, the help. And he would come back yearly if we took care of him... It means if we take care of them, they will take care of us. All of the animals have a role in this world, in our belief. Rocks and water was the first one, the last one, but he’s the first one that said that he would take care of the people, providing them with drink to quench the thirst. To provide the cooking and the bathing and be involved with the rock to do the steam for the sweat lodge and, so they’re all connected. The wood, the rocks, all of the animals. They said what they do because if one’s out of balance it throws it all out of balance. And they all have their rules that, in maintaining good, clean world that our people lived in.”

Wilbur Slockish, Klickitat Chief

Salmon have been an ecological and cultural keystone species for Indigenous Nations in the Pacific salmon region since time immemorial. Significant disruptions to traditional ecological and cultural cycles over the past two centuries have led to the current state of concern for the continued well-being of salmon and the Indigenous Nations who rely upon them. In response, Indigenous Nations are exercising their sovereign rights to manage salmon for a more sustainable future. This section provides a broad overview of these contexts.

Ecological and Cultural Keystone Species

Pacific salmon species under the genus *Oncorhynchus* include Chinook, Chum, Coho, Sockeye, Pink, and Steelhead. Pacific salmon are anadromous, moving between fresh and salt water; the range of each varies throughout the cold-water rivers and streams connected to the northern Pacific Ocean. Their lifecycles begin and end in gravel beds of inland spawning streams. The newly hatched fry feed on aquatic insects, then juvenile smolts travel downstream to brackish estuaries and nearshore areas before heading to the ocean. Adult salmon will feed and grow in the ocean for a period of 18 months to 8 years (depending on the species) before returning to their natal streams to spawn. The return of millions of adult salmon to their spawning grounds is one of the world’s greatest species migrations—and integral to the culture, sustenance, and wealth of Indigenous Peoples. After laying and fertilizing their eggs, their lifecycle is completed; their decomposing bodies supply essential nutrients to riparian, aquatic, and forest ecosystems, supporting the next generation of salmon. The salmon lifecycle is central to the Pacific salmon region’s web of life and the lifeblood of Indigenous Nations throughout the region.

The health and survival of salmon and Indigenous communities are interdependent.⁶ Salmon are *ecological and cultural keystone species*, integral to the health of ecosystems and the well-being and identity of Indigenous Nations.⁷ Keystone species are critical to food webs, binding ecosystems together like an arch keystone in architecture. In addition to their pivotal role in ecosystem function, salmon are also central to broader social-ecological systems. Human-salmon relationships have shaped Indigenous cultures over thousands of years, just as the diverse histories, cultures, and management systems of Indigenous cultures in

⁶ Colombi, “Salmon and the Adaptive Capacity of Nimiipuu (Nez Perce) Culture to Cope with Change.”

⁷ Garibaldi and Turner, “Cultural Keystone Species”; Noble et al., “Culturally Significant Fisheries.”

the region have affected salmon.⁸ Salmon-based ecosystems weave together the spiritual, mental, social, cultural, physical, and economic health of Indigenous communities and their self-governance.⁹

Indigenous communities in the Pacific salmon region identify as Salmon Nations and Peoples.¹⁰ Diverse Indigenous cultures flourish alongside abundant salmon populations, building on respect, reciprocity, and interconnectedness to sustain environmental health and the well-being of human-salmon communities.¹¹ This interdependency is echoed in Gloria Alfred's teachings: "Everything is connected and for sure as the world turns, our culture will surely diminish if the salmon diminishes."¹² Respectful relationships with salmon and salmon ecosystems are passed to future generations through traditions, practices, and Indigenous science, to ensure that community health and wealth are sustained in perpetuity. These belief systems and practices reinforce an appreciation for salmon as more than a resource; Indigenous Peoples see salmon as family and relations gifted by the Creator.

Indigenous Peoples continue to be spiritually nourished and physically sustained through responsible relationships with fish and other First Foods, including water, roots, berries, and game, as well as salmon, eulachon, herring, groundfish, and shellfish. Indigenous cultures honor their First Foods through ceremonies, sharing stories passed down from elders, and caring for them through cultural management practices.¹³ Indigenous communities often have specific names for salmon and other First Foods that reflect availability and use over time and space. Their languages carry Indigenous knowledge and world views, sharing a way to communicate and experience the world.

First Salmon Ceremony

Across the Pacific Northwest, Indigenous Communities honor salmon, ancestors, and the land through ceremonies and social gatherings. The First Salmon Ceremony honors the return of salmon when the first fish of the season is caught. In many areas, the salmon is prepared for a community feast, and the bones are returned to the river on a bed of western red cedar boughs to carry prayers so the salmon's spirit can bring messages that the people have shown proper appreciation and respect. First salmon ceremonies occur throughout the region according to the knowledge and cultural practices of each community.

Throughout the region, cultural significance varies for each First Food and salmon species, resulting in a diversity of management practices and traditions. For example, the Blueback salmon (Sockeye) are special to the Quinault Indian Nation; the Northwest Treaty Tribes film *Can the Blueback Survive?* delves into the significance of the Blueback through the voices of Indigenous experts and leaders.¹⁴ Nuu-chah-nulth Nations on the western coast of Vancouver Island produced *We are Salt Water People: Our Foods, Our People, Our Ways* to convey the connections shared by coastal First Nations with the seafood that sustains them.¹⁵ Similarly, the Southeast Alaska Indigenous Transboundary Commission production, *When the Salmon Spoke*, shares stories about the connection of salmon from Indigenous leaders from coastal Tlingit and Haida communities and inland Tahltan communities of Alaska and British Columbia.¹⁶ From the watersheds of

⁸ Ellis et al., "People Have Shaped Most of Terrestrial Nature for at Least 12,000 Years."

⁹ Biedenweg, Amberson, and James, "Measuring Socio-Cultural Values Associated with Salmon in the Quinault Indian Nation"; Amberson et al., "The Heartbeat of Our People"; Donatuto, Campbell, and Gregory, "Developing Responsive Indicators of Indigenous Community Health."

¹⁰ Colombi, "Salmon Nation."

¹¹ Curran, Kung, and Slett, "Ġviłás and Snəwayəł."

¹² Alfred, "The Development and Evaluation of 'Salmon – The Lifeline to Our Culture' Curriculum Project."

¹³ Trospen, "Northwest Coast Indigenous Institutions That Supported Resilience and Sustainability."

¹⁴ Northwest Treaty Tribes, "Can the Blueback Survive?"

¹⁵ Shape Shyphter Productions, 2011.

¹⁶ Conarro, "When the Salmon Spoke."

California to the Yukon, media collaborations with Indigenous communities and leaders have shown both the shared and distinct salmon-associated cultural systems of Indigenous communities.

Indigenous fisheries management brings diverse perspectives of deeply connected knowledge to salmon management across the region's watersheds. The seasonal availability and harvest of salmon species are central to multi-generational community knowledge encompassing terms such as Indigenous science, Traditional Ecological Knowledge (TEK), or Indigenous Fishers' Knowledge (IFK).¹⁷ Indigenous knowledge systems are based on deep-rooted, local relationships with land and animals and include traditional resource management, social institutions, and Indigenous world views.¹⁸ These knowledge systems incorporate environmental cues, such as the phenology of flowering and fruiting plants, and the fat content, preservation methods, and availability of both plant and animal foods. These environmental cues inform harvest patterns based on individual runs of salmon returning to rivers fished by Indigenous communities.

While some Indigenous fisheries are marine-based, most salmon harvests occur in rivers when salmon have matured and are returning to spawn. Depending on environmental conditions, traditions, and management systems, Indigenous communities employ a wide variety of harvest methods, from community-operated traps and weirs to individual approaches using dipnets and spears.¹⁹ Indigenous fishing methods are based on respect and reciprocity, upheld through customs, songs, stories, and cultural practices. In this way, fishing methods recognize the necessity of protecting water quality and the environment, while only taking what is needed and avoiding waste. Communities manage fishing through social norms and structures, with specific individuals or households entrusted with managing certain harvest aspects, including harvest levels and access to fishing locations.²⁰ Through such systems, Indigenous communities and salmon have survived and thrived, despite challenges such as landslides, volcanic activity, and even ice ages.²¹

A traditional hierarchy of salmon use dictated that when salmon were scarce, harvests focused on sustaining the community, sharing food, or relocating to access more abundant runs of salmon. When abundance was great, tribes would often share with neighboring tribes or engage in trade and barter. Potlatch culture, the reciprocal practice of sharing wealth through community feasts, nurtured social and economic cohesion by sharing resources.²² Extensive trade routes throughout the region facilitated the exchange of regional specialties, including dried and smoked Chinook, Pink, Chum, Coho, Sockeye, and Steelhead. As Dr. Teresa Ryan explains, "The Pacific Northwest Coast Aboriginal economy consisted of extensive wealth due to ownership and stewardship of territorial areas, proficient use of natural resources, and extensive distribution of resource products, including commercial sale."²³

Salmon continue to be essential to the spiritual, mental, social, cultural, physical, and economic health of Indigenous communities and their governance systems.²⁴ For many Indigenous communities, health—a state of well-being, reflecting an ability to thrive and prosper—reflects the interconnections of social, cultural, spiritual, environmental, and psychological elements across past, present, and future generations.²⁵ For these communities, health is perceived at the community level; individual health is affected when the larger (human and non-human) community is unhealthy. The Swinomish Indian Tribal Community offers the following health

¹⁷ Walsey and Brewer, "Managed out of Existence."

¹⁸ Berkes, Colding, and Folke, "Rediscovery of Traditional Ecological Knowledge as Adaptive Management"; Snively and Corsiglia, "Discovering Indigenous Science."

¹⁹ Stewart, "Indian Fishing."

²⁰ Trospen, "Northwest Coast Indigenous Institutions That Supported Resilience and Sustainability."

²¹ Colombi, "Salmon and the Adaptive Capacity of Nimiipuu (Nez Perce) Culture to Cope with Change"; Ryan, "Territorial Jurisdiction."

²² Newell, "Renewing 'That Which Was Almost Lost or Forgotten.'"

²³ Ryan, "Territorial Jurisdiction."

²⁴ Biedenweg, Amberson, and James, "Measuring Socio-Cultural Values Associated with Salmon in the Quinalt Indian Nation"; Amberson et al., "The Heartbeat of Our People"; Donatuto, Campbell, and Gregory, "Developing Responsive Indicators of Indigenous Community Health."

²⁵ Donatuto, Campbell, and Gregory, "Developing Responsive Indicators of Indigenous Community Health"; Johnsen, "Salmon, Science, and Reciprocity on the Northwest Coast"; Colombi, "Salmon and the Adaptive Capacity of Nimiipuu (Nez Perce) Culture to Cope with Change."

indicators as a replicable and culturally sensitive approach to evaluating the health and well-being of Indigenous communities:²⁶

Community connection—communal gatherings around harvests, preparations, and storage.

Natural resources security—equitable sharing of healthy resources.

Cultural use—the ability to respectfully perform traditions.

Education—the sharing of beliefs, knowledge, and values between generations.

Self-determination—the agency of communities over their own healing and development.

Well-being—the ability to pass along healthy ecosystems and cultural systems to the next seven generations.

Disruptions to Traditional Ecological and Cultural Cycles

For millennia, Indigenous peoples have shaped more than three-quarters of the planet’s terrestrial ecosystems.²⁷ In the Pacific Northwest, Salmon Nations used, managed, and transformed ecosystems to sustain ecological and social benefits. Contemporary biodiversity losses in the Pacific salmon region are rooted in the appropriation, colonization, and unsustainable use of lands and waters that Salmon Nations had sustainably managed for generations. European contact, settlement, and industrialization disrupted and displaced Indigenous communities and their management systems with little concern or understanding about the ecological and cultural ramifications. From the 19th century onward, systems of colonialism have attempted to break northwest Indigenous cultural cycles and ways of life, seen in the violent histories of removal of communities from their traditional lands, assimilation programs with residential and boarding schools, and the policing of Indigenous fishing. Meanwhile, restrictions to Indigenous cultures and management practices have led to declines in salmon abundance and productivity; contemporary harvests are a fraction of pre-contact levels for many Tribes and First Nations.

Salmon are adapted to diverse, complex, and interconnected habitats. While some salmon runs have increased, Pacific salmon runs have generally declined, following the rapid transformation of terrestrial and aquatic habitats. Many salmon runs are currently listed as “threatened” or “endangered.” Figure 3 provides a snapshot of the status of Coho and Chinook in the Southern and Fraser Panels; the full extent of these listings across the Pacific Salmon Treaty (PST) region is difficult to map due to data limitations.

²⁶ Donatuto et al., “Indigenous Community Health and Climate Change.”

²⁷ Ellis et al., “People Have Shaped Most of Terrestrial Nature for at Least 12,000 Years.”

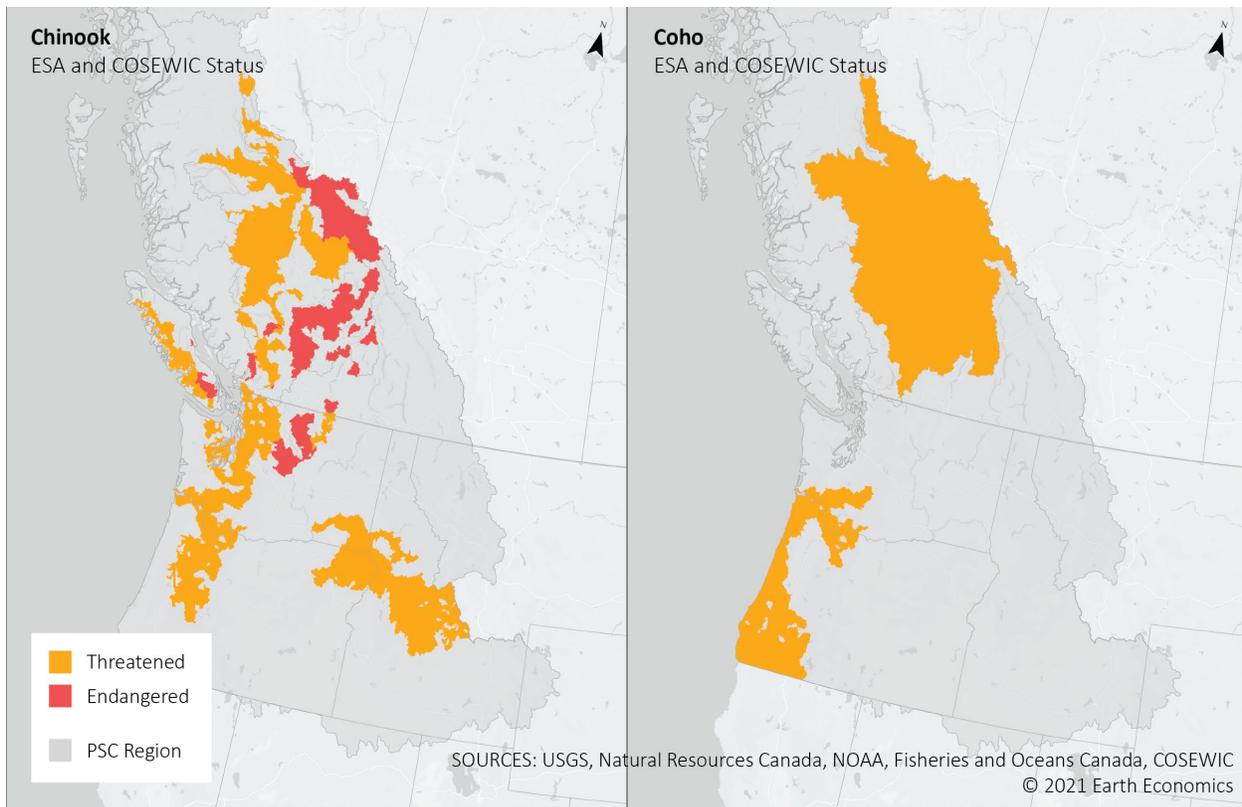


Figure 3. The status of Coho and Chinook in the Southern and Fraser Panel areas, with available data.

Prior to European contact, Indigenous communities in the Pacific salmon region harvested tens of millions of pounds of salmon. This abundance was described in the following way: “Salmon blanketed the river upon their return from the sea. There were so many fish, the Nisqually could cross the river on their backs.”²⁸ In Southern Oregon and Northern California, many salmon runs are listed as threatened or endangered. Tribes in California used to see 5.5 million salmon return annually; since the 1950s, an average of 500,000 fish return each year.²⁹ The lost ability to harvest salmon and other First Foods has led to health impacts related to diet and physical activity for Indigenous communities.³⁰ Declining salmon returns and an inability to fish—or even access salmon habitat—are compounding traumas for Indigenous Peoples.³¹

Salmon losses are driven by the destruction and impairment of riverine and estuary habitat from development and infrastructure projects, such as roads, dams, and other barriers that block access to spawning grounds.³² In addition, urban runoff, farming, logging, mining, ranching, and other large-scale human impacts have diminished water quality and ecological functions, further shrinking salmon returns.³³ Across the PST region,

²⁸ Heffernan, “Where the Salmon Run,” 13–14; Atlas et al., “Ancient Fish Weir Technology for Modern Stewardship.”

²⁹ Columbia Basin Partnership Task Force, “A Vision for Salmon and Steelhead.”

³⁰ Marushka, “Fish Consumption and Nutritional Health Among First Nations in Canada”; Nesbitt and Moore, “Species and Population Diversity in Pacific Salmon Fisheries Underpin Indigenous Food Security”; Blanchet et al., “Traditional Food, Health, and Diet Quality in Siylx Okanagan Adults in British Columbia, Canada.”

³¹ Voinot-Baron, “A Bitter Taste of Fish.”

³² Bauman and Kardouni, “Elwha River Restoration: Tribal Voices Matter in the Restoration of Natural Resources. Reclamation Matters,” 23–29; Slaney et al., “Status of Anadromous Salmon and Trout in British Columbia and Yukon”; Mapes, “Salmon People”; Frame, “Seattle’s Skagit River Dams Hurt Salmon, Orcas and Native American Culture, Agencies Say”; Miller et al., “Salmon Spawning Migration.”

³³ Tian et al., “A Ubiquitous Tire Rubber–Derived Chemical Induces Acute Mortality in Coho Salmon”; Mantua, Tohver, and Hamlet, “Climate Change Impacts on Streamflow Extremes and Summertime Stream Temperature and Their Possible Consequences for Freshwater Salmon Habitat in Washington State.”

there are more than 37,000 culverts and 350 major dams that fully or partially block salmon passage; Figure 4 highlights many of these migratory barriers and obstacles.

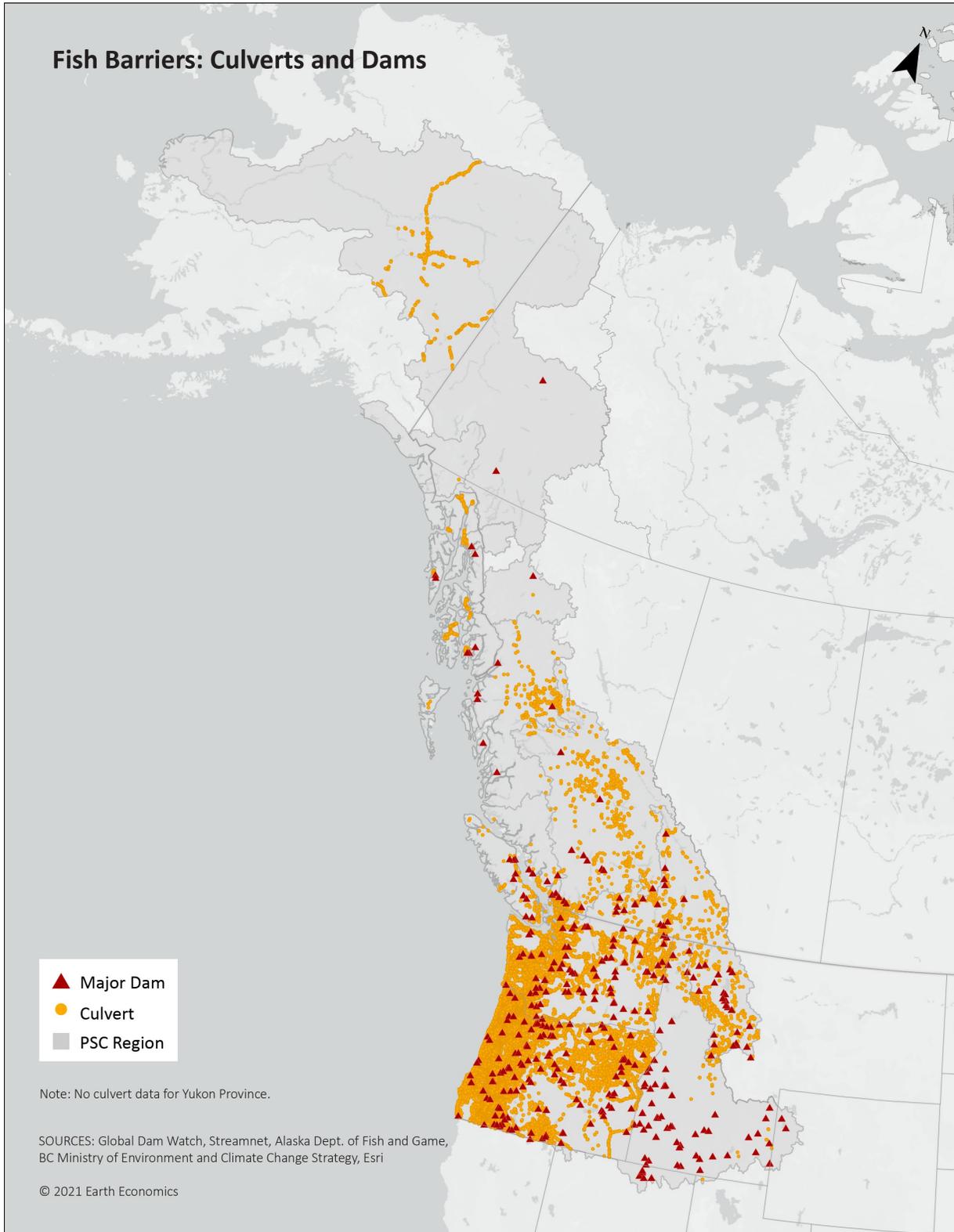


Figure 4. Barriers to fish passage, focusing on major dams and culverts.

The Nez Perce Tribe, the Confederated Tribes of the Umatilla Indian Reservation, the Confederated Tribes of the Warm Springs Reservation of Oregon, and the Confederated Tribes and Bands of the Yakama Nation have been impacted by more than 60 dams built along the Columbia River Basin since the late 1800s. At each dam, salmon runs have diminished by 15 percent or more.³⁴ Reservoirs cover more than 33,000 acres of Native land once used to fish, hunt game, and gather roots and berries.³⁵ While hatcheries have helped to offset losses, many Columbia River Basin Tribes see only a fraction of historic salmon returns; Chinook, Steelhead, Coho, and Sockeye salmon runs and harvests have been estimated to equal 1 percent of pre-colonial levels.³⁶ Without salmon, the Nez Perce (Nimiipuu) believe their culture will die out.³⁷ Across the region, many Indigenous communities are unable to harvest any salmon at all, due to collapsing run sizes or limited access to fishing grounds.³⁸

Development in riparian areas (i.e., riverine flood plains) impairs salmon habitat dynamics by altering stream flows, removing shade-providing vegetation, and increasing river temperatures.³⁹ Salmon face increased pressure from invasive species, predators, diseases, and parasites alongside pollutants and toxins from roads, mines, farming, ranching, logging, urban runoff, and pesticide application.⁴⁰ Trends in global development and increasing resource consumption are changing ocean currents and hydrological and wildfire dynamics, and these trends directly contribute to sea-level rise, ocean acidification, and a warming atmosphere, affecting all stages of salmon lifecycles.⁴¹ These disruptions have impaired salmon health, reduced fish sizes, and limited genetic diversity.⁴² Unfortunately, the sensitivity of specific species to such changes has not been well documented, due in part to species-level differences in sensitivity to disruption, as well as site-specific variation in the disruptions themselves.⁴³

The Fraser River, the source of over 50 percent of Canada's wild salmon, reveals how multiple stressors can push salmon populations past critical thresholds.⁴⁴ More than 90 First Nations in the Fraser River watershed have relied on salmon for generations.⁴⁵ However, salmon practices among Indigenous communities radically changed with the arrival of European settlers and industrialized production. Since the 1990s, salmon fisheries have been frequently closed due to overfishing, habitat degradation, climate change, and other stressors.⁴⁶ The 2019 Big Bar landslide underscored the vulnerability of many Fraser River salmon populations—two-thirds of the river's salmon are now at increased risk of extinction because of reduced spawning access.⁴⁷

³⁴ Columbia Basin Partnership Task Force, "A Vision for Salmon and Steelhead."

³⁵ Flores et al., "The Value of Natural Capital in the Columbia River Basin: A Comprehensive Analysis."

³⁶ Polissar et al., "Heritage Fish Consumption Rates of the Nez Perce Tribe."

³⁷ Colombi, "Salmon and the Adaptive Capacity of Nimiipuu (Nez Perce) Culture to Cope with Change," 75.

³⁸ Greenfield and Greenfield, "We Are the Same as the Salmon"; Cox, "Drastic and Scary."

³⁹ Nehlsen, Williams, and Lichatowich, "Pacific Salmon at the Crossroads."

⁴⁰ Scholz et al., "Recurrent Die-Offs of Adult Coho Salmon Returning to Spawn in Puget Sound Lowland Urban Streams"; Fresh, "The Role of Competition and Predation in the Decline of Pacific Salmon and Steelhead"; Krkošek et al., "Declining Wild Salmon Populations in Relation to Parasites from Farm Salmon"; Tian et al., "A Ubiquitous Tire Rubber-Derived Chemical Induces Acute Mortality in Coho Salmon"; Chambers, Moran, and Trasky, "Bristol Bay's Wild Salmon Ecosystems and the Pebble Mine: Key Considerations for a Large-Scale Mine Proposal."

⁴¹ Montag et al., "Climate Change and Yakama Nation Tribal Well-Being"; Sellheim, Zeug, and Merz, "Informed Water Management Alternatives for an Over-Allocated River"; Glick et al., "National Wildlife Federation Report"; Mathis et al., "Ocean Acidification Risk Assessment for Alaska's Fishery Sector."

⁴² Price et al., "Portfolio Simplification Arising from a Century of Change in Salmon Population Diversity and Artificial Production"; Oke et al., "Recent Declines in Salmon Body Size Impact Ecosystems and Fisheries."

⁴³ Crozier et al., "Climate Vulnerability Assessment for Pacific Salmon and Steelhead in the California Current Large Marine Ecosystem."

⁴⁴ Northcote and Atagi, "Pacific Salmon Abundance Trends in the Fraser River Watershed Compared with Other British Columbia Systems"; Scott, Dixon, and MacDuffee, "Toward a Vision for Salmon Habitat in the Lower Fraser River."

⁴⁵ Scott, Dixon, and MacDuffee, "Toward a Vision for Salmon Habitat in the Lower Fraser River."

⁴⁶ Nesbitt and Moore, "Species and Population Diversity in Pacific Salmon Fisheries Underpin Indigenous Food Security"; McDaniels et al., "Vulnerability of Fraser River Sockeye Salmon to Climate Change."

⁴⁷ Feinberg, "Time for Indigenous-Led Salmon Strategy on the Lower Fraser, Says Alliance"; Cruickshank, "Showdown over Salmon."

Beginning in the 19th century, colonial governments exerted control over the region's resources by appropriating the traditional lands and waters of Indigenous Nations. To supply expanding markets, industrial fisheries overharvested salmon without regard for impacts to salmon runs or salmon ecology,⁴⁸ while discriminatory policies outlawed Indigenous fisheries management to favor industrial operations. Regulations to mitigate the resulting impacts on salmon populations have limited fishing rights and made fishing more expensive, limiting the ability of younger generations to participate.⁴⁹ Prejudice towards Indigenous fishers continues today, particularly around fishing practices.⁵⁰

The overlapping and competing institutions effecting policies on fisheries access and management present additional challenges to Indigenous management. A maze of local, state/provincial, and federal regulations (across both the U.S. and Canada) have been enacted to protect water supplies, limit pollution, and constrain development to mitigate impacts on declining salmon populations. Navigating these regulatory systems requires significant administrative engagement, but these systems rarely account for—or even acknowledge—Indigenous cultural standards and practices.

Indigenous Rights and Salmon Management

Indigenous Nations throughout the Pacific Northwest have fought to retain their salmon fishing rights. As sovereign nations, many have established their own internal organizational structures to manage fisheries, protect habitats, and develop and enforce related regulations. Inter-tribal organizations work to facilitate regional collaboration and support the fishing rights of individual Indigenous Nations. Inter-tribal organizations dealing with fishing rights in the U.S. include: the Northwest Indian Fisheries Commission (NWIFC); the Columbia River Inter-Tribal Fish Commission (CRITFC); the Upper Columbia United Tribes (UCUT); the Klamath River Inter-Tribal Fish and Water Commission (KRITFWC); the Kuskokwim River Inter-Tribal Fish Commission (KRITFC); and the Yukon River Inter-Tribal Fish Commission (YRITFC). In Canada, these Indigenous councils include the First Nations Fisheries Council (FNFC) of British Columbia; the Lower Fraser Fisheries Alliance (LFFA); the Upper Fraser Fisheries Conservation Alliance (UFFCA); the Fraser Salmon Management Council; Uu-a-thluk; the A-Tlegay Fisheries Society; and the Skeena Fisheries Commission.

Each of these organizations brings unique indigenous knowledge to fisheries management.⁵¹ Many of the associated Indigenous Nations have salmon protection and recovery plans for salmon restoration. The Columbia River Fish Management Plan by CRITFC, for example, details a tribal structure for sharing salmon.⁵² The *2020 State of Our Watersheds* report by the Treaty Tribes in Western Washington compares historic and current conditions through reports from NWIFC member Tribes to determine factors that are disrupting salmon restoration in the Puget Sound region.⁵³ Collaborative efforts between Indigenous councils, fisheries sectors, and government agencies play a vital role in contemporary fisheries management.

As sovereign nations, Tribes and First Nations across the U.S. and Canada held Aboriginal title and rights to their ancestral homelands prior to colonization. Today, many Indigenous Nations are exercising their sovereignty to manage salmon with their own internal fisheries management structures, protecting habitats and enforcing regulations. Indigenous fisheries managers engage in resource planning and research, stock

⁴⁸ Morishima and Henry, "The History and Status of Pacific Northwest Chinook and Coho Salmon Ocean Fisheries and Prospects for Sustainability."

⁴⁹ Steel et al., "Understanding Barriers, Access, and Management of Marine Mixed-Stock Fisheries in an Era Reconciliation: Indigenous-Led Salmon Monitoring in British Columbia."

⁵⁰ Frame, "Blaming Tribal Fishing Practices for Decline in Salmon Is 'Misinformation,' Washington Officials Say."

⁵¹ Colombi, "Salmon and the Adaptive Capacity of Nimiipuu (Nez Perce) Culture to Cope with Change"; Penney, Lumley, and DeCoteau, "Wy-Kan-Ush-Mi Wa-Kish-Wit."

⁵² Columbia River Inter-Tribal Fish Commission (CRITFC), "The Columbia River Fish Management Plan."

⁵³ Treaty Tribes in Western Washington, "2020 State of Our Watersheds: A Report by the Treaty Tribes in Western Washington."

assessment, fisheries monitoring, enforcement and compliance, habitat enhancement, and training and education.

U.S. Tribes

Treaties have played a significant role in U.S. relationships with Indigenous Nations. In the 18th and 19th centuries, the federal government recognized the sovereign title of Indigenous Nations to their ancestral homelands and signed treaties to limit legal challenges to the westward expansion of European settlement. These nation-to-nation agreements reserved certain rights and lands for Indigenous Nations, guaranteeing federal services in exchange for title to a majority of their ancestral lands.⁵⁴ In the Pacific Northwest, many Indigenous Nations reserved rights through treaties, including the “right to fishing at usual and accustomed areas.” In Western Washington, 20 Indigenous Nations hold treaty-reserved fishing rights,⁵⁵ part of five associated treaties⁵⁶ commonly referred to as the “Stevens Treaties.”⁵⁷ In the Columbia River Basin, four Indigenous Nations⁵⁸ hold treaty-reserved fishing rights under three treaties.⁵⁹

The Boldt Decision (*United States v. Washington*, 384 F. Supp. 312 [W.D. Wash. 1974], aff'd, 520 F.2d 676 [9th Cir. 1975]) affirmed the rights for harvestable surplus fish to be shared by “all-citizens and the treaty-tribes.”⁶⁰ Prior to the case, Washington State had enacted laws to criminalize Indigenous methods such as traps, weirs, and fish wheels, in favor of industrial gillnets, seines, trollers, and recreational anglers.⁶¹ The Boldt Decision restored tribal rights to 50 percent of harvestable fish and empowered them to participate in fisheries management; tribal fishing revenues increased from \$6.67 million dollars in 1970 to \$50.6 million dollars in the 1980s.⁶²

Billy Frank, Jr., and the Boldt Decision

This groundbreaking decision capped the culmination of The Fishing Wars era, when tribal fishermen exercised their treaty fishing rights in the face of discrimination and state-sanctioned violence. One of the most prominent figures in this effort was Nisqually Tribal Leader Billy Frank, Jr.

“Many people have contributed to Washington’s history, but few have made as profound an impact in the face of adversity as Billy. Throughout his life, Billy brought people together to find common solutions to protect salmon and other natural resources for the benefit of all Washingtonians. He fought for justice through nonviolent and collective action. His story reminds us that pursuing a more just society creates a better society for everyone.”

From Lekanoff and Frank, “Honor Life’s Work of Billy Frank Jr. with Statue in U.S. Capitol.”

To mitigate wild salmon losses, Phase II of the Boldt Decision established tribal rights to a share of hatchery fish. Phase II also established that the state of Washington did not have the right to damage habitats but had

⁵⁴ Harjo, “Nation to Nation: Treaties Between the United States and American Indian Nations.”

⁵⁵ Includes: the 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 Nations.

⁵⁶ Includes: Medicine Creek Treaty (1854), Treaty of Point Elliott (1855), Quinault Treaty (1855), Treaty of Neah Bay (1855), and Point No Point Treaty (1855).

⁵⁷ Richards, “The Stevens Treaties of 1854-1855.”

⁵⁸ Includes: the Yakama, Warm Springs, Umatilla, and Nez Perce Nations.

⁵⁹ Includes: Treaty of Walla Walla (1855), Yakama Treaty (1855), and Nez Perce Treaty (1855).

⁶⁰ Burns, “As Long as the Rivers Run”; Susewind and Loomis, “The Struggle to Share a Shrinking Resource — Northwest Salmon.”

⁶¹ Morishima and Henry, “The History and Status of Pacific Northwest Chinook and Coho Salmon Ocean Fisheries and Prospects for Sustainability.”

⁶² Parker, Rucker, and Nickerson, “The Legacy of *United States v. Washington*: Economic Effects of the Boldt and Rafeedie Decisions.”

an obligation to augment wild fish with hatcheries. Indigenous fisheries managers—such as those of the Lummi Nation—were thus empowered to coordinate with federal and state managers to establish hatchery programs to conserve and sustain culturally important Nooksack River Chinook.

After the Boldt and Belloni Decisions (with the Belloni Decision referring to *United States v. Oregon*, a decision similar to Boldt, affecting the Columbia River Basin) affirmed Tribal co-management of fish, fishing, and habitats, Western Washington Tribes and Columbia River Tribes developed their own scientific fisheries management programs. Tribal staff have been instrumental in the development of models for fisheries management planning. Tribal governments manage salmon and protect habitats, enacting and enforcing their own laws and regulations within their territories and holding neighboring jurisdictions accountable for their impacts. The U.S. Supreme Court ruling on the “Culvert Case” (*Washington v. United States, et al.*, 2017) further required Washington State to remove or replace culverts that blocked adult and juvenile salmon migrations to and from upstream spawning habitats.

Today, Tribal Nations engage in salmon co-management efforts with the federal government through the National Marine Fisheries Service (NMFS), the U.S. Fish and Wildlife Service (US FWS), and the U.S. Army Corps of Engineers (USACE) on topics such as aquatic habitat, environmental impact assessments, endangered species protections, and marine fisheries management.⁶³ Regional Tribal managers engage with federal and state agencies through the Pacific Fishery Management Council (PFMC) regarding marine fisheries. Tribal co-managers also engage with state fisheries management agencies. County and municipal land-use policies add to the complex, and often competing, interests that Tribes must now navigate.

Canadian First Nations

Historically, Canada recognized the existence and continuity of Aboriginal self-governance, but limited treaty-making authority to the British monarchy.⁶⁴ First Nations’ Aboriginal title and rights were marginalized until the second half of the 20th century, when the Supreme Court of Canada (SCC) ruled that Aboriginal title to land existed prior to colonization.⁶⁵ Constitutional protections of Aboriginal rights, including fishing rights, were formalized following this ruling,⁶⁶ though Canada continued to infringe on Indigenous fishing rights.⁶⁷ The landmark SCC ruling in *Regina v. Sparrow* (1990) established criteria for assessing aboriginal rights, known as the “Sparrow Test.”⁶⁸ The Sparrow Decision confirmed aboriginal fishing rights for food, social, and ceremonial (FSC) purposes.⁶⁹

Following the Sparrow Decision, several cases affirmed Aboriginal fishing rights,⁷⁰ including the right to protect fish habitat.⁷¹ These cases affirmed Canada’s duty to consult and negotiate to accommodate Aboriginal rights, while recognizing Aboriginal priority over recreational and commercial sectors in fisheries management.⁷²

⁶³ Includes: The Fish and Wildlife Coordination Act (1934); The National Environmental Policy Act (1969); The Endangered Species Act (1973); The Magnuson-Stevens Fishery Conservation and Management Act (MSA) [1976; Sustainable Fisheries Act 1996; and MSA Reauthorization Act 2007].

⁶⁴ The Royal Proclamation of 1763; BC Treaty Commission, “BC Treaty Commission.”

⁶⁵ The Indian Act (1876); *Calder v. British Columbia* (1973).

⁶⁶ The Canadian Constitution Act of 1982, section 35.

⁶⁷ First Nation Panel on Fisheries, “Our Place at the Table.”

⁶⁸ Salomons and Hanson, “Sparrow Case.”

⁶⁹ First Nation Panel on Fisheries, “Our Place at the Table.”

⁷⁰ *R. v. Gladstone* (1996); *R. v. Van der Peet* (1996); and *R. v. NTC Smokehouse* (1996); *Ahousaht et al. v. Canada* (2009, 2018, 2021); *Tsilhqot’in Nation v. British Columbia* (2014); First Nation Panel on Fisheries, “Our Place at the Table.”

⁷¹ McDaniels et al., “Vulnerability of Fraser River Sockeye Salmon to Climate Change.”

⁷² Mandell Pinder, LLP, “*Ahousaht Indian Band and Nation v. Canada* (Attorney General) 2018 BCSC 633 – Case Summary.”

Ronald (Bud) Sparrow and the Sparrow Case

In May 1984, Ronald (Bud) Sparrow, a citizen of the Musqueam First Nation, was arrested for using a fishing net longer than Fisheries and Oceans Canada (DFO) food-fishing license permitted under the Fisheries Act. Sparrow fought the charge for 6 years, arguing for his right to fish as an Indigenous person. The SCC ruled that Musqueam's Aboriginal right to fish had not been extinguished prior to the 1982 Constitution Act and that, as such, Mr. Sparrow had an "existing" right to fish at the time of his arrest. The court decided that, according to section 35 of the 1982 Constitution Act, "existing Aboriginal and Treaty rights are hereby recognized and affirmed." The Sparrow Decision upheld that the Canadian government has a fiduciary duty to First Nations. Mr. Sparrow passed on in September of 2020.

"Bud left our people at Musqueam and Indigenous peoples across Canada with a tremendous legal legacy. We will always be grateful for his quiet determination in fighting for our rights," said Chief Wayne Sparrow.

-From Wilson, "Statement on the Passing of Ronald 'Bud' Sparrow."

Indigenous-led fisheries management can be found in places where land claims have been settled. In the Nass River valley, the Nisga'a Nation leads fisheries management under the Nisga'a Treaty (2000). Most often, DFO regulates fisheries management through licenses and quotas on fishing access and harvests.⁷³ In 1992, the Aboriginal Fisheries Strategy was developed after the Sparrow Decision to formalize fisheries management agreements and fund Indigenous fisheries organizations.⁷⁴ Once conservation goals have been met, DFO's current Salmon Allocation Policy prioritizes First Nations' Aboriginal rights to harvest food, social, and ceremonial fisheries over recreational and commercial fisheries. In 2019, Canada committed to updating the 1999 Salmon Allocation Policy to recognize modern-day treaties, reconciliation agreements with First Nations, and advancements in Indigenous fishing rights since 1999.

Formal recognition of Indigenous Nations' fisheries management rights and sociocultural values varies across the U.S. and Canada. There are substantial differences in the abilities of Tribes and First Nations to harvest salmon for ceremonial, subsistence, social, recreational, and economic purposes. In Canada, the extent of Indigenous fishing rights is grounded in recent, complex litigation, and DFO remains the ultimate fisheries authority. In the U.S., Pacific salmon fisheries are commonly co-managed with Tribes, and federal trust responsibilities to protect Tribal and individual Indian rights are more well-defined.

While Indigenous Nations have similar cultural relationships with salmon, institutional structures vary throughout the Pacific Northwest, further complicating inter-jurisdictional fisheries management efforts. For example, the Alaska Native Claims Settlement Act (ANCSA, 1971) settled Aboriginal title and rights to facilitate colonial settlement and natural resource extraction, transferring land titles and certain rights to 13 Alaska Native Regional Corporations and more than 200 local village corporations.⁷⁵ In British Columbia, of the 198 First Nations, only eight have modern treaties, and 18 have historic treaties.⁷⁶ In the Yukon Territory, 11 of the 14 First Nations have self-governance treaty agreements.⁷⁷

⁷³ First Nation Panel on Fisheries, "Our Place at the Table."

⁷⁴ Fisheries and Oceans Canada (DFO), "Aboriginal Fisheries Strategy."

⁷⁵ Hirschfield, "The Alaska Native Claims Settlement Act."

⁷⁶ First Nation Panel on Fisheries, "Our Place at the Table"; BC Treaty Commission, "BC Treaty Commission."

⁷⁷ Gignac, "Curing the 'Colonial Hangover.'"

International Challenges

Indigenous fisheries managers in the Pacific Northwest must also navigate complex international agreements. Historically, agreements between the U.S. and Canada focused on dam building, water management, navigation, commerce, and fisheries within shared inland waters.⁷⁸ Gradually, both countries moved to regulate salmon fisheries, ultimately leading to the creation of the PST.

Since 1985, the PST has focused on shared fisheries management to ensure that each country receives benefits derived from the salmon originating within their borders. This necessarily includes marine overfishing and upholding treaties and Aboriginal rights. Though the PST initially focused on maximizing and allocating harvests, later revisions prioritized conservation, establishing restoration and enhancement funds while shifting to abundance-based allocation. Annual variation in salmon returns adds to the challenges of reaching annual fisheries agreements.⁷⁹ Within PST processes, DFO holds sole fisheries decision-making power for Canada, while in the U.S., Tribes share decision-making powers.

The U.S. and Canada are responsible for allocating salmon harvests across Tribal and Aboriginal, commercial, and recreational sectors. Because marine commercial and recreational salmon fisheries are more difficult to manage than coastal and inland fisheries, Indigenous fisheries are limited in their inability to control harvests by these sectors, despite the resulting impacts on spawning runs. Commercial and recreational sectors also tend to exert disproportionate decision-making influence, despite the market and non-market economic benefits provided by Indigenous fisheries. Respecting and honoring Indigenous knowledge in fisheries management can improve outcomes by upholding ecological integrity and sociocultural sustainability.⁸⁰

Indigenous Nations across the Pacific salmon region are providing pathways for action. They have addressed salmon losses by drawing on their deep-rooted sociocultural histories of respectful coexistence in adapting to changes in local ecosystems and climates.⁸¹ As the Nez Perce Tribe describes, “neither resilience nor sustainability necessarily provides adaptive capacity, while culture does.”⁸² The Jamestown S’Klallam Tribe’s place-based climate action approach centers on culturally important species such as salmon, shellfish, and western red cedars.⁸³ The Syilx Nation’s *siw kw (Water) Declaration*, the 2018 FNFC Water Responsibility Planning Methodology,⁸⁴ and the ʔEsdilagh Sturgeon River Law⁸⁵ all codify the rights of water and non-human species. The RELAW program supports Indigenous Nation efforts to codify the rights of nature.⁸⁶

Both the U.S. and Canada’s relationships with Indigenous Nations continue to evolve, sometimes influenced by international standards and trends. The 2007 United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) established a universal framework of standards for the survival, dignity, and well-being of Indigenous

⁷⁸ Boundary Waters Treaty (1909); Columbia River Treaty (1961); Skagit River Treaty (1984); The International Pacific Salmon Fisheries Commission (1937).

⁷⁹ Miller, “Pacific Salmon Fisheries.”

⁸⁰ Walsey and Brewer, “Managed out of Existence”; Thomas, “Integrating Ecosystem Services With Eco-Cultural Concepts Throughout the Puyallup Tribal Homelands”; Atlas et al., “Indigenous Systems of Management for Culturally and Ecologically Resilient Pacific Salmon (*Oncorhynchus*) Fisheries”; Atlas et al., “Ancient Fish Weir Technology for Modern Stewardship”; Steel, “Colonial Displacement of Traditional Fisheries Management”; Steel et al., “Understanding Barriers, Access, and Management of Marine Mixed-Stock Fisheries in an Era of Reconciliation: Indigenous-Led Salmon Monitoring in British Columbia”; Snively and Corsiglia, “Discovering Indigenous Science.”

⁸¹ Reid et al., “Indigenous Climate Change Adaptation Planning Using a Values-Focused Approach.”

⁸² Colombi, “Salmon and the Adaptive Capacity of Nimiipuu (Nez Perce) Culture to Cope with Change.”

⁸³ Petersen et al., “Climate Change and the Jamestown S’Klallam Tribe”; Chief et al., “Guidelines for Considering Traditional Knowledges in Climate Change Initiatives”; Sharp, Cladoosby, and Williams, “A Tribal White Paper on Climate Change Adaptation and Mitigation from the Intertribal Climate Change Working Group.”

⁸⁴ First Nations Fisheries Council of British Columbia (FNFC), “Protecting Water Our Way: First Nations Freshwater Governance in British Columbia.”

⁸⁵ Tʔilhqot’in Nation, ʔElhdaqox Dechen Ts’edilhtan: “ʔEsdilagh Sturgeon River Law.”

⁸⁶ West Coast Environmental Law, “RELAW: Revitalizing Indigenous Law for Land, Air and Water.”

Peoples.⁸⁷ In 2019, British Columbia passed legislation adopting the UNDRIP framework to support reconciliation processes and bring existing provincial laws into conformance with this standard.⁸⁸ Canada proposed similar federal legislation at the end of 2020. Despite improved salmon management engagement by the U.S. and Canada, many Indigenous Nations continue to struggle as salmon levels fail to meet agreed-upon harvest levels.

Project Approach

“Anadromous fish have cultural significance to the Tribe, including subsistence value, ceremonial and spiritual value, medicinal value, economic or commercial value, and intrinsic value... For most of the year, and every year, from the time you’re born to the time you die, for your grandparents’ and grandchildren’s generations, for essentially thousands of years, you and everyone you know eats fish. Thinking of it in this way, you can see how fish and the water would be no more separate from the individual or the culture than the air we breathe. Salmon provided for all of our needs.”

Joseph (Joe) Oatman, Nez Perce Tribe, Nez Perce Deputy Department Manager/Harvest Division Director, PSC Southern Panel Chair and Coho Work Group

During Phase I of the project (2019-2020)—*Framework for Assessing the Socioeconomics of Food, Social, and Ceremonial Salmon Harvests*—the project team developed a pilot framework and process for assessing the scope for, qualitative value of, and traditional Indigenous practices used in food, social, and ceremonial fisheries throughout the region covered by the Pacific Salmon Treaty. This work entailed developing questions intended to capture a broad understanding of the Indigenous sociocultural values associated with salmon. These questions and methods were reviewed by the project advisory board and piloted during in-person events. Three modes of participation were tested: individual surveys, interviews, and workshops (held during Tribal and First Nations Caucuses). Following Phase I, the project team identified and tested an approach to collecting reflections on Indigenous sociocultural values and practices centered on salmon, based on a review of the relevant literature and feedback from members of the Tribal and First Nations Caucuses. The final set of questions is available in the Appendix. In Phase II (2020-2021)—*Assessing the socioeconomics of food, social, and ceremonial harvest*—the team implemented this approach, gathering information through one-on-one interviews. The challenges presented by the pandemic (in the context of a limited timeline and budget) necessarily limited the scope of this study to persons associated with the PSC Tribal and First Nations Caucuses, which include both Indigenous and non-Indigenous members.

This project emerged from a desire for an expanded understanding of the social and cultural value of salmon, given the historical dominance of monetary considerations in fisheries management decisions. Limiting perceptions of value to market economics marginalizes the expression and inclusion of Indigenous understandings and needs. Before European settlement, Indigenous communities in the region maintained extensive trade-based economies through sustainable stewardship of the land, fish, wildlife, and plants. Colonialism, economic expansion, religion, racism, hubris, bias, and European systems of property ownership and governance played roles in dispossessing Indigenous communities of their lands, wealth, and ways of

⁸⁷ Echo-Hawk, "In the Light of Justice: The Rise of Human Rights in Native America and the UN Declaration on the Rights of Indigenous Peoples."

⁸⁸ Province of British Columbia Ministry of Indigenous Relations and Reconciliation, "B.C. Declaration on the Rights of Indigenous Peoples Act."

life.⁸⁹ Present-day economic systems and salmon management institutions continue to limit—and conflict with—Indigenous value systems.⁹⁰

Research on the relevant scholarly literature and regulatory systems found that non-monetary sociocultural values relating to salmon are not clearly considered or conveyed in salmon research, management plans, and policy. Across 207 journal articles, books, and reports on Pacific salmon and Tribes and First Nations, sociocultural values featured as a key focus in just 27 percent of publications; 47 percent did not discuss such factors at all. Western (non-Indigenous) sciences have generally disregarded Indigenous knowledge, technologies, and policies that might mitigate harm to both salmon and related sociocultural values.⁹¹

Earth Economics specializes in applying ecological economics to estimate the value of benefits provided by nature to society. This approach often entails quantifying and monetizing ecosystem goods and services, which are often overlooked (i.e., treated as having zero value) in decision-making. Cultural ecosystem services are unique in that they include non-material benefits based on relationships between humans and nature.⁹² While some cultural services may be quantifiable, this approach requires careful consideration of both the study site and service in question, including in-depth engagement with Indigenous communities. The central focus of this study is to produce a qualitative description of Indigenous sociocultural values centered on salmon.

Framework Development

This study has been organized around a framework adapted from the 2014 model developed by Kelly Biedenweg, Sophia Amberson, and Justine James in *Measuring Socio-Cultural Values Associated with Salmon in the Quinault Indian Nation*. That framework categorized sociocultural values related to salmon into six broad categories as a “values matrix.” The project team began with a matrix consisting of six overlapping focal areas: Governance by Indigenous Peoples; Cultural Traditions and Practices; Health; Livelihoods; Psychological; and Social. Through feedback sessions and pilot work, the project adapted that framework to consider intervening concerns raised alongside sociocultural values. Initially, these factors were categorized into historical, ecological, regulatory, scientific, and demographic considerations.

Respecting Multiple Ways of Knowing and Being in the World

The framework applied in this study serves as a strategic way of communicating Indigenous sociocultural values centered on salmon to a broader audience. This framework is an abstraction of complex and diverse relationships between salmon and Indigenous Peoples in the Pacific Northwest. The authors respect that there are many ways of knowing and being in the world that fall beyond the scope of this study.

The framework shifted over the course of the project to better fit the complex contemporary context of the Pacific salmon region, based on participant and advisor feedback, as well as other studies on Indigenous

⁸⁹ Ryan, “Territorial Jurisdiction.”

⁹⁰ Maclean and Bana Yarralji Bubu Inc., “Crossing Cultural Boundaries: Integrating Indigenous Water Knowledge into Water Governance through Co-Research in the Queensland Wet”; Gibbs, “‘A Beautiful Soaking Rain’: Environmental Value and Water beyond Eurocentrism”; Jackson, “Compartmentalising Culture: The Articulation and Consideration of Indigenous Values in Water Resource Management”; Yates, Harris, and Wilson, “Multiple Ontologies of Water.”

⁹¹ Murray et al., “Incorporation of Traditional and Local Ecological Knowledge and Values in Fisheries Management.”

⁹² Chan, Satterfield, and Goldstein, “Rethinking Ecosystem Services to Better Address and Navigate Cultural Values.”

cultural values relating to natural resource management.⁹³ The final framework used in the analysis is shared in the next chapter.

Information Gathering

This report shares insights and analysis findings from both research phases, focusing on in-person interviews and focus groups. This report also considers notes from interviews, meetings with experts, and three group discussions at PSC meetings. For added context, the project team remotely attended public meetings from relevant organizations and reviewed pertinent news articles, scholarly reports, and peer-reviewed articles on salmon and Tribes and/or First Nations. Throughout the project, the project team relied on participation from members of the joint Tribal and First Nations Caucuses. Participation in all aspects of the project was voluntary.

The initial project plan was to distribute a survey to citizens of Tribes and First Nations (with permission) at Indigenous events and meetings associated with salmon fisheries. The pandemic forced⁹⁴ the project team to shift to remote interviews with members of the Tribal and First Nations Caucuses and other professionals associated with their networks. Future work on this important topic should consider expanding this initial research to a broader study of Tribes and First Nations throughout the Pacific Northwest.

COVID-19 Impacts

The second year of this project overlapped with the COVID-19 pandemic, which has disproportionately impacted Indigenous communities, many of whom have lost loved ones and elders. Controlling the spread of the disease has limited public gatherings; even Indigenous fisheries have been strained. Tribes and First Nations in the Pacific Northwest have applied their historical experiences with epidemic diseases to become leading examples of how to manage pandemics in close-knit communities.

Overall, the team directly engaged 137 persons from the U.S. and Canada who are citizens of 60 Tribes and First Nations, most of whom work for Tribes, First Nations, or organizations representing multiple Indigenous Nations. Persons associated with the Tribal and First Nations Caucuses, of whom 85 are associated with PSC Panels or technical committees, volunteered to take part in this study. From 2019 to 2021, between 51 and 68 persons consistently attended workshop sessions facilitated by Earth Economics at PSC joint Caucus meetings. Such participation and engagement via interviews, focus groups, and feedback during meetings inform this report. Broad geographic and social engagement of Tribes and First Nations is critical to understand the diverse values held by Indigenous Peoples. More information on project participants is provided in the Results section.

Research Ethics

Project team members conducted semi-structured interviews during PSC meetings with Tribal and First Nations Caucus members. Remote interviews were initiated via email invitations. The project contact list is

⁹³ Donatuto et al., “Indigenous Community Health and Climate Change”; Chan, Satterfield, and Goldstein, “Rethinking Ecosystem Services to Better Address and Navigate Cultural Values”; Collins et al., “An Integrated Conceptual Framework for Long-Term Social-Ecological Research”; Thomas, “Integrating Ecosystem Services With Eco-Cultural Concepts Throughout the Puyallup Tribal Homelands.”

⁹⁴ *Confederated Umatilla Journal*, “Challenging Times on the Water: COVID-19 Hurting Salmon Market, Creating Risky Conditions for Tribal Fisheries”; Mapes, “As a Coronavirus Pandemic Sweeps the World, American Indian Communities Turn to One Another, Teachings”; Lakhani, “Native American Tribe Takes Trailblazing Steps to Fight Covid-19 Outbreak.”

based on voluntary information provided at PSC meetings and participant referrals. This list is stored on a secure server, available only to project team members.

Interviews were guided by simple and broad questions centered around the framework. Most interviews lasted 30 minutes, though some were more than an hour. Every interview was prefaced with an explanation of the research goals and procedures and a request for explicit consent to participate. A copy of the interview script and questions is provided in the Appendix. The project team transcribed each interview and associated notes for each participant to review via email. Where participants made amendments, the team used those revised versions for analysis. All quotations appearing in this report have been reviewed by participants, who have given permission for their re-use. While Earth Economics hosts project information on secure servers for the purposes of this project and report, it does not own the data or information shared by project participants.

Surveys were deployed in-person (on paper) and online (via SurveyMonkey). All survey respondents consented to participate in the survey, but most chose to remain anonymous and did not provide identifying information.

Qualitative Analysis

Project analysis focused on the qualitative coding of written transcriptions of interviews and focus groups. Narrative coding is a common technique in qualitative analysis, used to identify patterns, themes, and relationships within narratives, which are organized by relevant themes. In this study, categories emerged from participant transcripts and the project framework (established and tested in Phase I). This report refers to the information gathered as *texts* because analysis was based on transcriptions and written notes from interviews, focus groups, and other meetings. Additionally, narrative coding is sometimes referred to as *tagging*, following the relevant software terminology for associating text segments with relevant concepts. Qualitative analysis followed the steps outlined below and in Figure 5.

First, participant transcripts were loaded into the text analysis software MAXQDA and grouped by PSC Panel, country, and inland or coastal location. Next, analysts created parent code categories based on the initial framework domains; each parent code was then further divided into sub-codes to support greater specificity. Formal definitions and associated terminology were assigned to each parent code and sub-code to establish consistent parameters for each concept. During the coding process, topics mentioned in the texts were assessed to determine whether they had been fully captured within the existing framework. Through this grounded (inductive) approach, analysts can incorporate unexpected concepts communicated by participants into the analysis. Analysts met periodically to discuss the coding process and whether the framework or definitions should be adjusted, including adding or modifying codes to more accurately capture participant responses. Any changes to coding parameters were then reapplied to previously coded transcripts for consistency. Finally, all coded transcripts were reviewed by a separate analyst to ensure inter-coder consistency.

In summary, while the analysis was guided by the research framework, narrative coding was reflective, iterative, and centered on participant responses. The process relied on three rounds of analysis:

1. Texts were analyzed from a grounded perspective to identify concepts communicated by participants, even where these varied from the initial framework. Narrative segments (words, phrases, sentences, paragraphs) associated with each concept were tagged within the MAXQDA software.
2. Novel concepts (and nuances) were reviewed and integrated into the overall coding scheme and then applied to all texts, including those that had been coded under the previous version of the framework.
3. All coded texts were reviewed by a different analyst to ensure consistency across analysts.

Once all texts had been coded, analysts used MAXQDA to identify and examine common themes. While many themes were discovered through direct observation and the coding process, tools such as MAXQDA help to identify trends systematically, provided narrative tagging parameters are clearly and properly established. Specifically, MAXQDA identifies codes associated with each interview question, the frequency of each code across narrative segments, the intersection of codes (e.g., where two or more concepts are discussed together), and sentiment (e.g., where respondents used a positive or negative “tone” when discussing a given subject). Figure 5, below, illustrates this process.

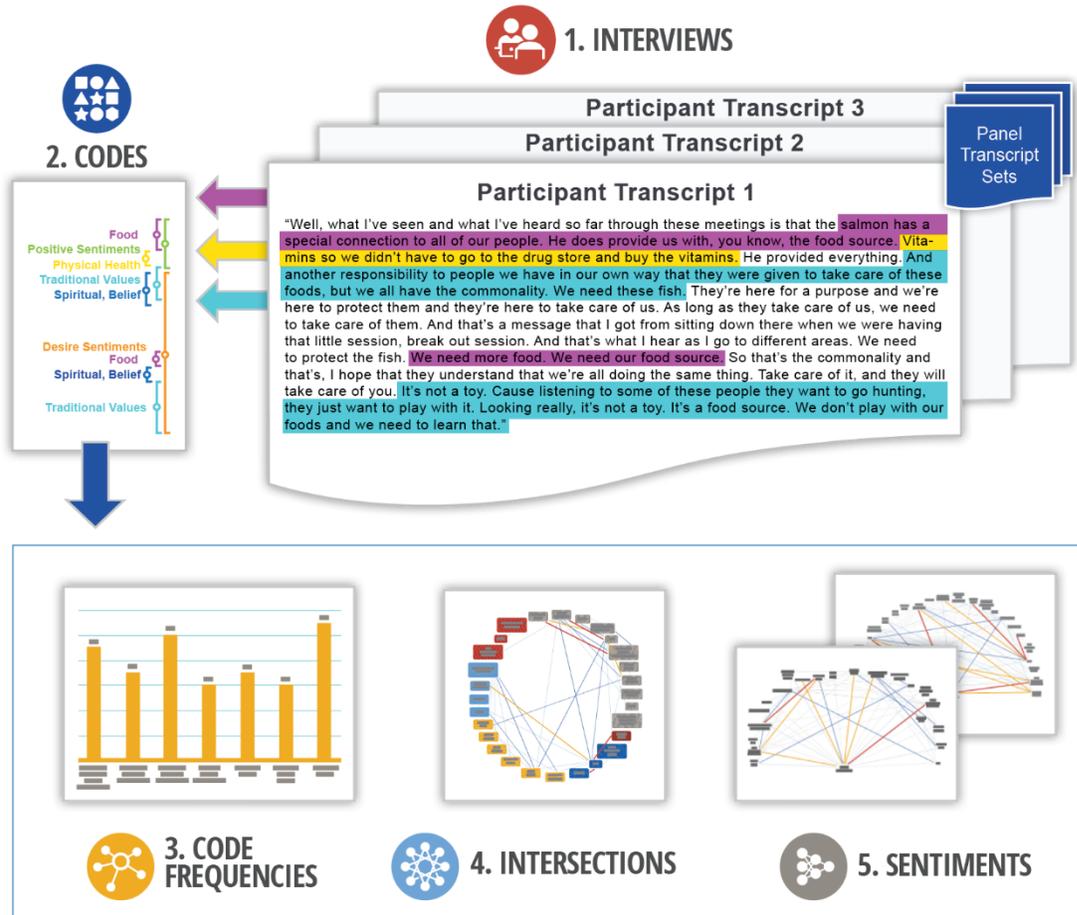


Figure 5. Summary of the project’s analysis process.

Project Limitations

This project is an exploratory and descriptive study based on engagement with members of the Tribal and First Nations Caucuses to the Pacific Salmon Commission. Given the scope, geography, and purpose of this study, this report does not claim to present an in-depth discussion of sociocultural values; please refer to other, more localized studies conducted by (or in partnership with) Tribes and First Nations for a deeper examination of these values. This limited scope was reflected in participant feedback indicating that interview questions were too broad and general. Further, this project did not include an Indigenous person in conducting the interviews, which is a best practice for research involving traditional knowledge.

Results and insights from this project are not statistically representative of the participants engaged in this work, the institutions that employ them, or the Tribes and First Nations of which they are citizens, as the

sample size is small and not uniformly distributed throughout the study area. Additionally, while Tribes and First Nations nominate representatives for the PSC, those representatives do not speak for their specific Tribe or First Nation. This report provides a reflection of general trends and sociocultural values broadly across the Pacific salmon region based on an analysis of insights shared by those working closely with Indigenous salmon fisheries.

Results

“We don't want to put a dollar value on fish. It means more to us than that. One of the sayings that First Nations have—both in Canada and in the United States—is that when the last tree is gone, when the last fish is gone, only then will people find out that you can't eat money. That's something that we have in common with the folks that we work with in the United States is that we have the same kind of belief system because we are family. Because before Canada and the United States existed, we existed, and we had those feelings about fish.”

Grand Chief Ken Malloway, Stó:lō Nation

Project Participation

During Phase I, the project team recognized that while there are many commonalities in sociocultural values for Indigenous People in the Pacific salmon region, appreciating the breadth and depth of these values requires considering diverse perspectives. Since the project scope encompasses a large geographic area, the project team was only able to engage Tribal and First Nations Caucus members from four of the five PSC Panels. In total, responses were gathered from 35 interviews, 2 focus groups, 2 workshop sessions, and 82 surveys, as well as notes from 20 other meetings. In addition, the project team monitored salmon-related news, reports, and peer-reviewed articles to provide further context. The results presented below focus on the analysis of transcriptions from interviews and focus groups.

The following data visualizations show participant demographics, based on information shared in surveys, at PSC meetings, and during interviews. Given the scope and timeframe of this project, engagement may not represent the range of experiences across the PSC region. Participation was voluntary, and group meetings were small. Notably, there were relatively few female participants and early-career participants, and relatively fewer participants from both the U.S. and Northern British Columbia. There were no participants from Alaska Native Corporations or the Yukon Panel.

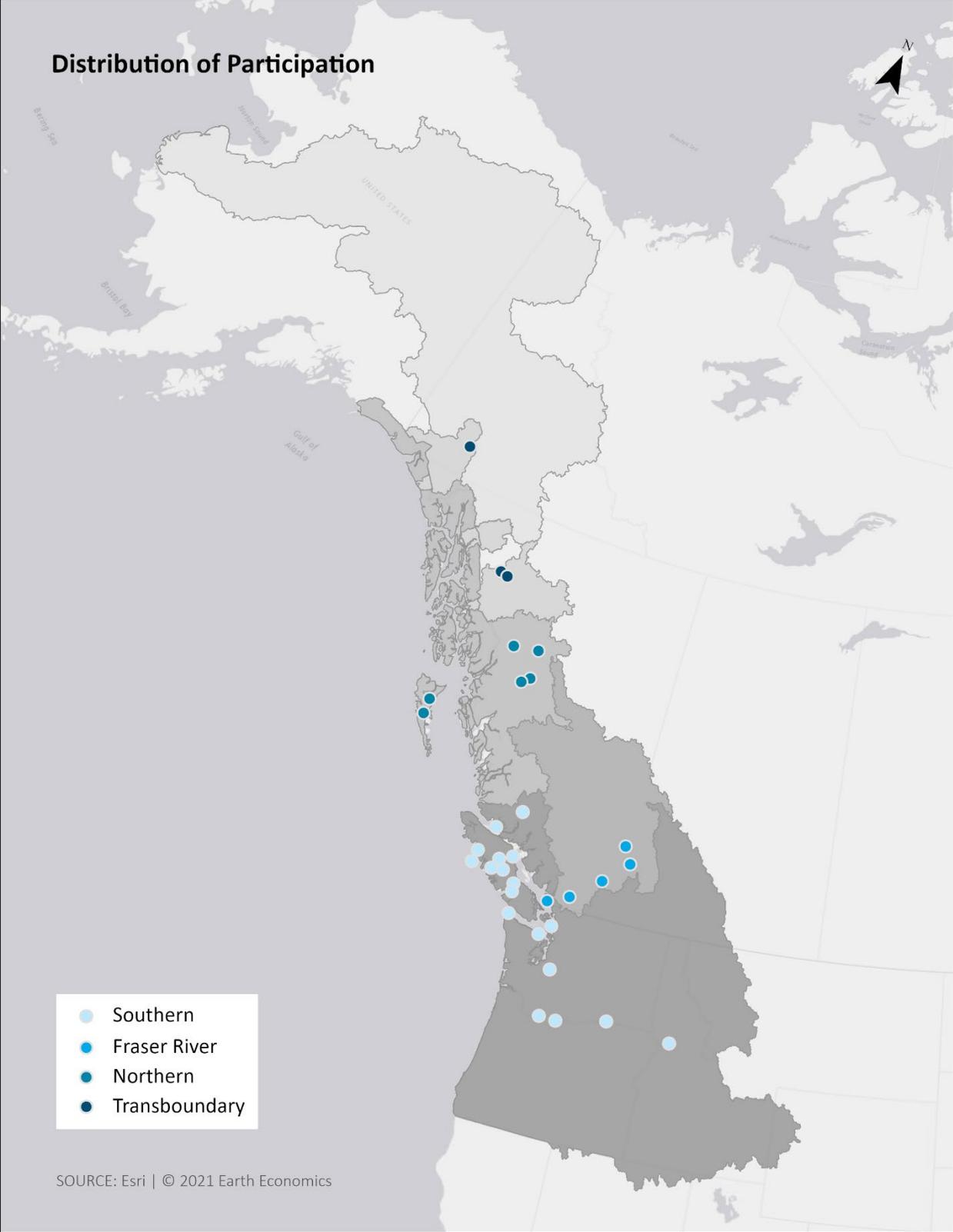


Figure 6. Map of participants by PSC Panel.

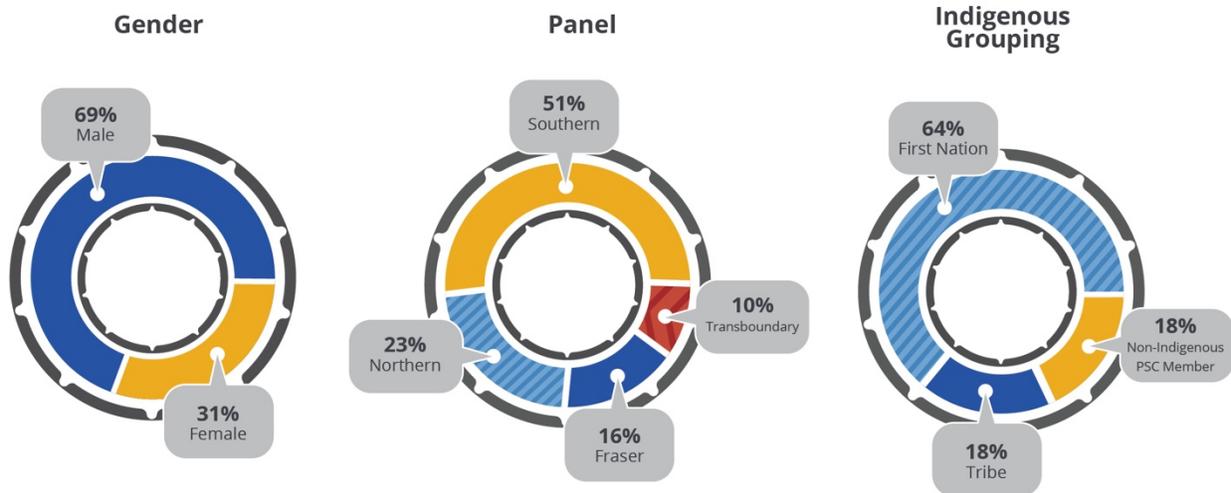


Figure 7. Participant demographics

Sociocultural Framework

Identifying Cultural Themes

As described in the Project Approach section, this project was guided by a framework focused on the sociocultural value of salmon to Tribes and First Nations. By its very nature, this framework is limiting—it separates interconnected facets of nature and culture into distinct categories. As a result, this framework cannot capture all relevant values or their expression in everyday life. However, the framework does facilitate narrative analysis and communication of those findings to a broader audience.

The sociocultural framework’s five main domains are:

- Social**—Salmon’s involvement in social structures.
- Health**—The role of salmon in promoting human health.
- Livelihood**—Salmon’s influence on how people obtain life necessities.
- Indigenous Management**—Current and traditional forms of salmon management and Indigenous participation in non-Indigenous governance systems.
- Knowledge and Practices**—Cultural norms involving salmon.

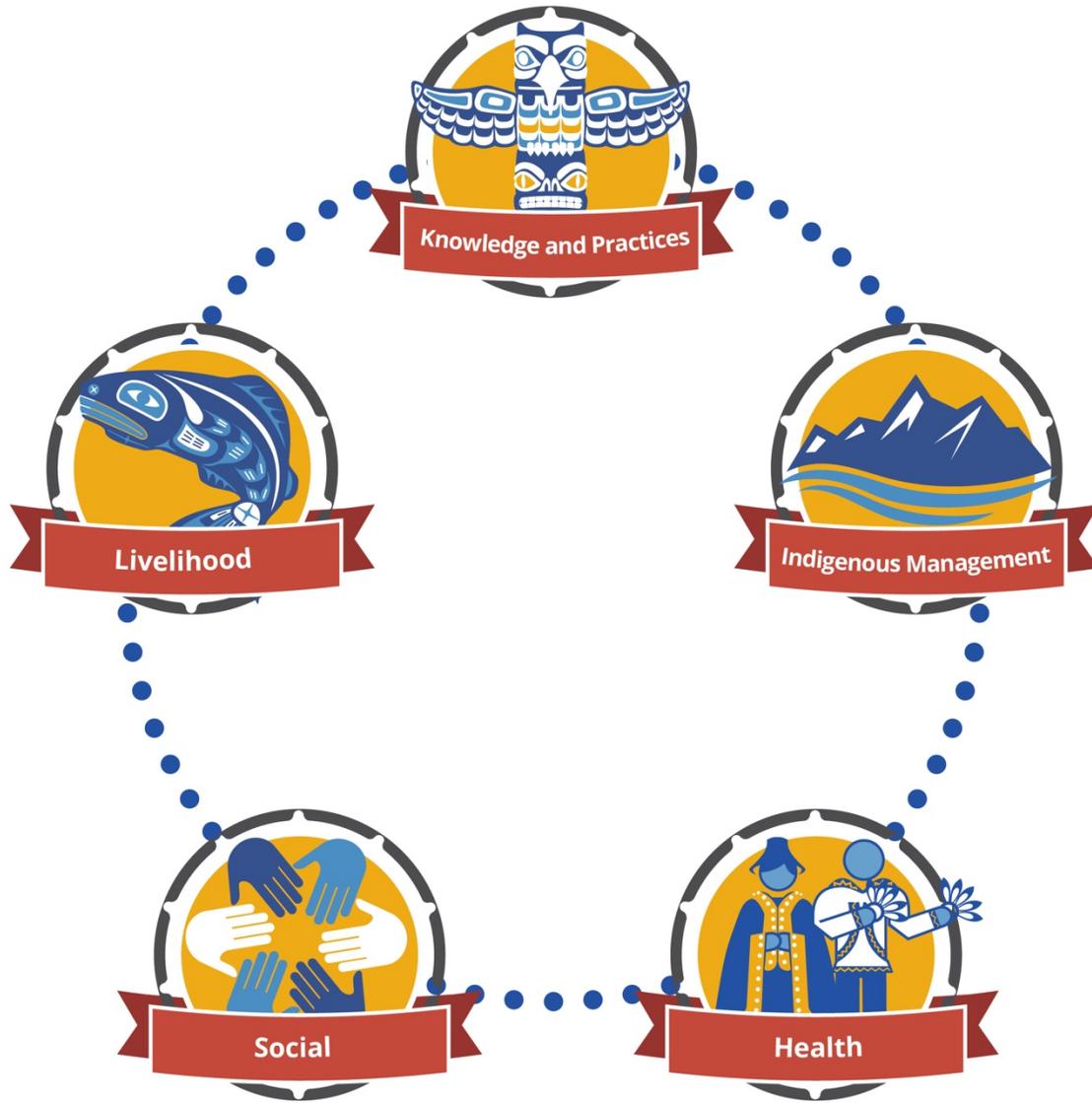


Figure 8. The sociocultural framework

Tables 1 through 5 further describe the framework, listing relevant transcription quotes for each domain.

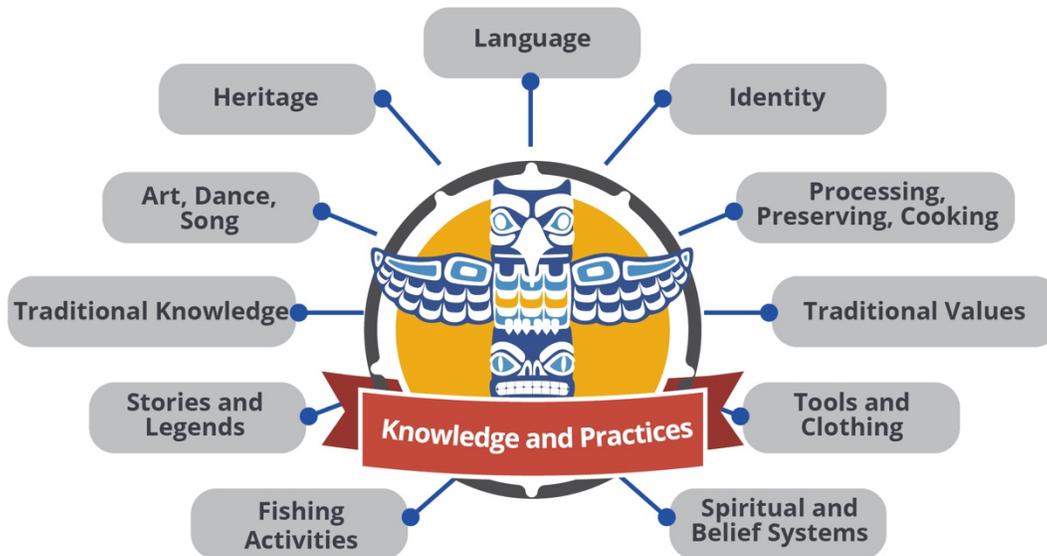


Table 1. Codes, definitions, and examples under the Knowledge and Practices domain

Code	Description	Example Quote
Traditional Values	Principles, judgements, or standards of behavior grounded in community history.	"... like many different cultures, including within our communities where I'm from, the belief is to always respect the salmon. People understood that this was the food source for the winter, and they needed lots of it, so they treated those animals with respect. And that if they didn't show that respect, they would lose that food source."
Traditional Knowledge	Knowledge of the ecosystem and its processes that informs Indigenous Peoples' activities.	"The stories and the names—they have a lot of understanding of the systems within them. The names were never arbitrary or after people. It was always: the name of this river is informative to what kind of fish go through and when they go through."
Tools and Clothing	Physical objects used in activities surrounding salmon.	"Most of the systems, historically, we used spears, dip nets, gaffs."
Stories and Legends	Stories and oral traditions relating to salmon—the role of storytelling.	"All of the totem poles tell stories and basically pass on information to future generations."
Spiritual and Belief Systems	Spiritual connections to salmon and understandings about the world.	"We use the whole fish. We try to use the whole fish because that is what the Creator wanted us to do when he offered himself to us to take care of us two-legged animals that he created."

Code	Description	Example Quote
Processing, Preserving, Cooking	Methods of cooking, processing, and preserving fish for immediate or future consumption.	“We had huge [cache pits] throughout our Traditional Territory, particularly at sites that boasted larger runs and provided access for harvesting. Some Tahltan families occupied areas that provided these harvest opportunities, while others made the long trek over land to the confluence of Stikine and Tahltan Rivers to participate in the annual fishery. All of the archeological work that's been done, they have uncovered hundreds of those cache pits that stored dried salmon for food security through the harsh winter months.”
Language	Indigenous language and salmon.	“Salmon is our language. So much of the language is only used at the river and is about fishing. So, we lose our language if we lose salmon.”
Identity	Salmon in relation to how a culture, person, or group define themselves.	“That’s who we are. We’re Salmon People.”
Heritage	Salmon's role in the long-term history of communities.	“...we came across a weir that we didn't see before in the past years, and it was those little shifts in the sedimentation due to time that [it] was covered up and then re-exposed itself ... It is such a long history and connection of the community where I come from.”
Fishing Activities	Methods, activities, or procedures relating to non-commercial salmon fishing.	“[My grandfather and father] used to take me fishing with them every summer. This was my first experience with fishing, and I’ve been a fisherman ever since.”
Art, Dance, Song	Arts (paintings, carvings, music, etc.) that include salmon.	“In all of the art images, there’s often salmon within the ovoids. So, every image you look at, you can find a salmon.”

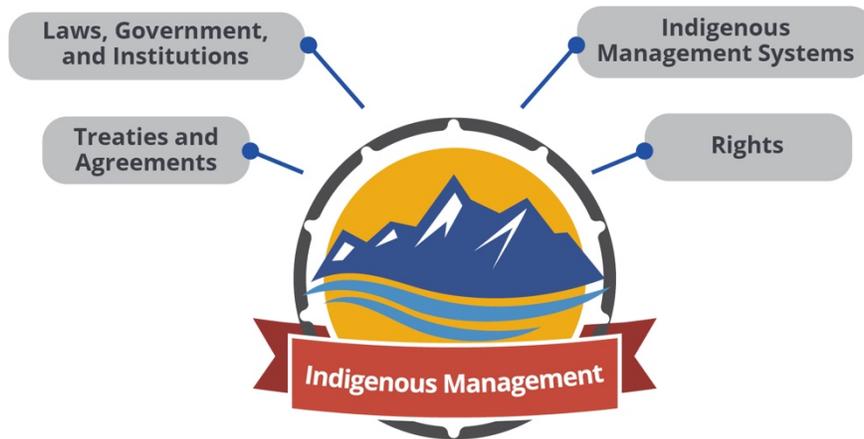


Table 2. Codes, definitions, and examples under the Indigenous Management domain

Code	Description	Example Quote
Rights	Rights reserved by Indigenous Peoples.	“Natives have first right to salmon.”
Indigenous Management Systems	Traditional, historic, or modern methods and practices related to managing harvests and salmon populations.	“Traditionally, we had a fishing Chief (Kukpi7) who was trained from a very young age to take care of the harvesting and sharing of salmon amongst our people. The fish Chief, they were responsible to ensure that we did not overharvest in certain streams. Their role was to provide fish protein for everyone and at the same time making sure enough fish returned to feed the future.”
Indigenous Laws, Government, and Institutions	Indigenous governance institutions, including committees and other decision-making groups or processes.	“[Salmon] should be co-managed with shared decision-making with the [DFO] and between Indigenous People of North America, both in the States and in Canada.”
Treaties and Agreements	Treaties, legislation, and litigation relating to the preservation of Indigenous Rights.	“In the U.S., treaties and a history of litigation provide a legal foundation for tribal rights to share harvestable fish and responsibilities for conservation.”

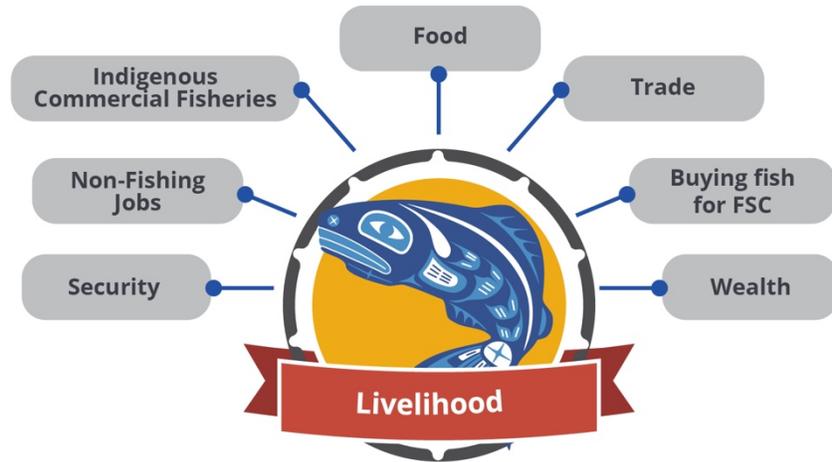


Table 3. Codes, definitions, and examples under the Livelihood domain

Code	Description	Example Quote
Food	Consumption of salmon by households or communities as a food source.	“My kids were raised on salmon. They love salmon. All I have to do is send out a text that we are cooking salmon tonight, and they come flying over, no questions asked.”
Trade	Non-market trading of salmon for goods or services.	“Tribes in this area have access to salmon. Even still, you go to different events like a Native basketball tournament... and people are exchanging or trading dried fish or smoked fish. It still is an important trade item.”
Indigenous Commercial Fisheries	Employment and income directly tied to salmon.	“My uncles and my grandfather were all commercial harvesters.”
Non-Fishing Jobs	Employment and income indirectly tied to salmon.	“There is the economy of harvesting, but there is also the economy of all of the other things associated with fisheries these days, activities that First Nations used to do in a different context but now are doing in a modern context: activities like managing, and processing, and transporting, and monitoring fisheries. There is clear economic benefit in these activities, as well.”
Buying Fish for FSC	Obtaining fish for food, social, or ceremonial purposes with money instead of via traditional means.	“In the past, we’ve had to buy fish to fly into our community to show the kids, so they don’t lose some of those skills. That [is] what’s sad.”
Security	Salmon’s influence on financial or food security.	“Salmon affects our economic well-being by helping us fill the freezer so we don't need to go and buy our food.”
Wealth	Non-monetary concepts of wealth.	“In my culture, [giving] was a sign of wealth... It wasn't how much you accumulated and hoarded for yourself. It was how much you were able to not only feed yourself and your immediate family, but how much could you give away.”

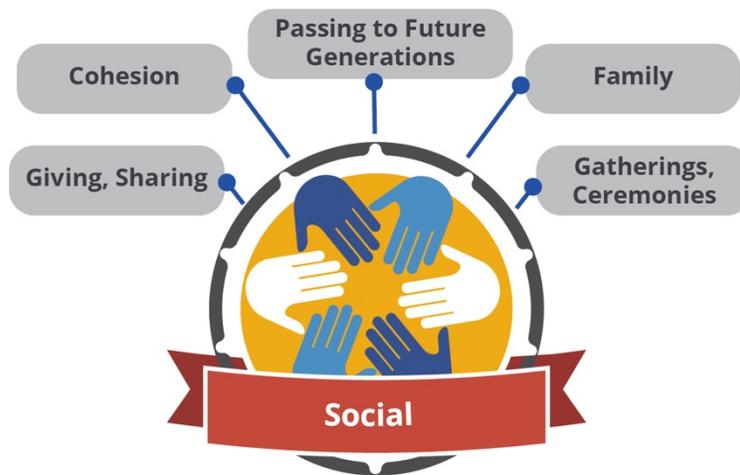


Table 4. Codes, definitions, and examples under the Social domain

Code	Description	Example Quote
Family	The role of salmon in families.	“It brings back childhood memories for me of massive family and community gatherings when the fish came in. Everyone had a job; everyone had a part to do.”
Cohesion	Bringing communities together to strengthen relationships among community members.	“When we do gather, having salmon is of great value to that relationship. It does add to the camaraderie and reflection of our historical, cultural identity in life.”
Gatherings, Ceremonies	Salmon’s role in community events and social gatherings.	“Salmon are used for all celebrations: birthdays, weddings, funerals.”
Giving, Sharing	Giving salmon to others without compensation or trade.	“A lot of times when one tribe or another will run out of ceremony fish and they have a death, then another tribe will give them fish so they can have that for their table.”
Passing to Future Generations	Communicating the importance of salmon to youth and future generations.	“And the future of the tribe, we just, you know, we want our First Foods to never go away... I just hope that the tribe's futures are generations and generations to come.”

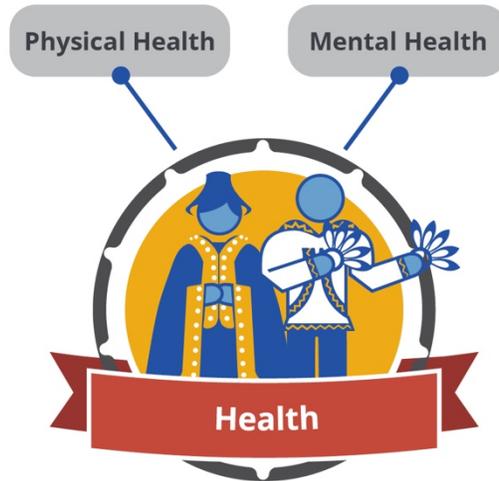


Table 5. Codes, definitions, and examples under the Health domain

Code	Description	Example Quote
Physical Health	The role of salmon in promoting physical health.	“Maybe it’s because we’re not going out fishing as we did, we’re not as physical as we used to be. To walk a fishing trail up here, you’re walking up and down the side of a hill. You need to be physically capable of doing that, plus carrying 10 to 20 fish on your back.”
Mental Health	The role of salmon in promoting mental health.	“We need that type of grounding, whether you get to go to fish camp for a week or whether you get to come down and fish for a month. I think everybody goes home in a better frame of mind, and you are rested and you have had these interactions and you can share your stories from the year that you might not have otherwise had chances to speak to people about. For many Tahltan families, fish camp is an annual reunion and opportunity to pass on the traditions to our younger generation, share stories, share food, gather berries and medicinal plants, and rejuvenate our spirit.”

Following Phase I, the initial framework was modified to better reflect the expression of sociocultural values by Indigenous People. Guided by participant responses, analysts introduced additional categories that represent factors that influence the ability of Indigenous Peoples to fully express and experience their cultures. These intervening factors are associated with non-Indigenous governance systems, habitat change, and economic development. They include:

Collaboration	Ecology/Habitat	Economic Value
Conservation, Restoration, Protection	Non-Indigenous Commercial Fisheries	Exclusion from Decision-Making
Non-Indigenous Governance	Recreation	Hatcheries
Colonial History	Other Industry (Non-Fisheries)	Natural Disasters
Access	Climate Change	Salmon Populations
Human Population Change	Dams	Research and Science
		Loss

Analysis Findings

Question Coverage

During interviews, some participants spent more time responding to certain questions than others. About half of all participants were able to read the questions beforehand to reflect on their responses, while others first encountered the questions during the interview. Most participants addressed each question sequentially, but others skipped across topics frequently, tying some topics to others. Across all interviews, participants emphasized how all the questions are interrelated.

Interview questions are presented in the appendix. These interview and focus group questions covered the following topics:

- 1) How salmon relate to:
 - a. **Knowledge, Traditions, and Practices**, including beliefs and values.
 - b. **Livelihoods**, such as food security, subsistence, jobs, income, and trade.
 - c. **Community**, including family and community gatherings and sense of community.
 - d. **Health**, pertaining to mental and physical health for the participant and/or their community.
- 2) **Managing and Caring for Salmon**. How the participant and/or their community cares for, looks after, and manages salmon.
- 3) **Sentiments**. How the participant feels about the topics raised.
- 4) **Future of Salmon**. What the participant thinks the future of salmon for Tribes and First Nations will look like and what it should look like.
- 5) Whether the participant has any additional comments and thoughts to share.
- 6) Any additional feedback the participant has for the project.

Code Coverage

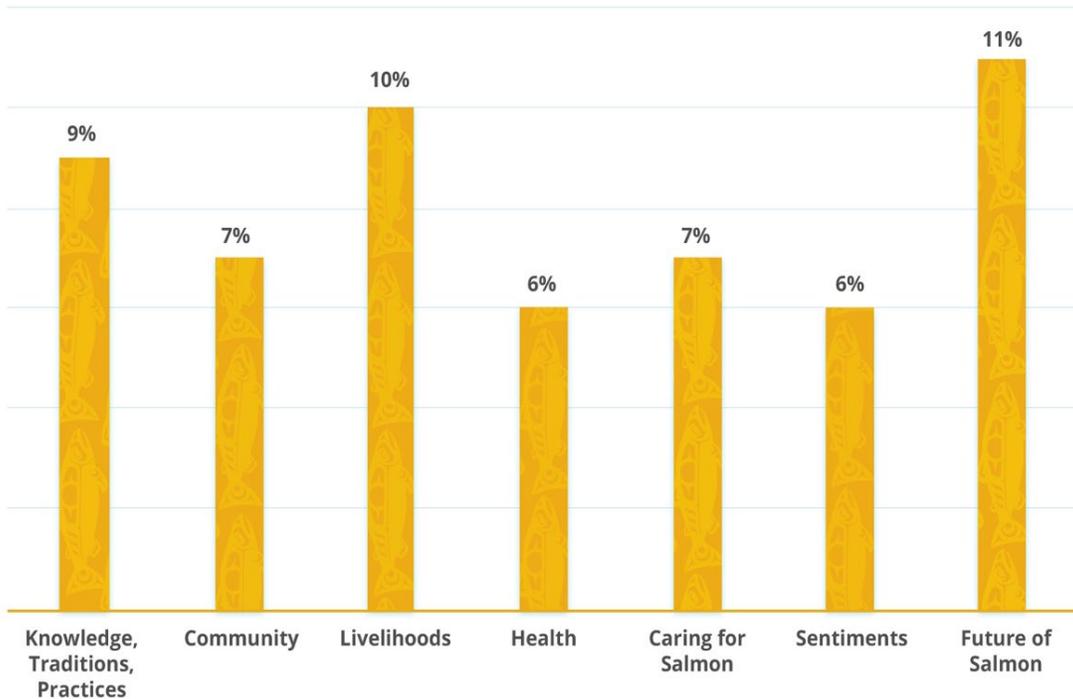


Figure 9. Percentages of texts (i.e., interview transcripts) dedicated to each question.

Question coverage refers to the amount of time each participant spent responding to each question, as shown in Figure 9. Participants spoke longer when responding to the *Future of Salmon* question, followed by *Livelihoods*, then by *Knowledge, Traditions, and Practices*. *Community* and *Caring for Salmon* were discussed equally, as were *Health* and *Sentiments*. The project team noticed that the question on *Sentiments* elicited emotionally powerful responses, owing to the cultural significance of salmon and social-economic impacts driven by availability. All participants expressed strong personal and professional connections to salmon rooted to their personal values and interests.

While the length of discussion for a particular topic does not indicate its relative importance, question coverage can reveal topics that were easier—or more difficult—to discuss with the project team. Again, it is important to recognize that none of the persons conducting interviews were Indigenous, and they had minimal interaction with participants or their networks.

Code Frequency

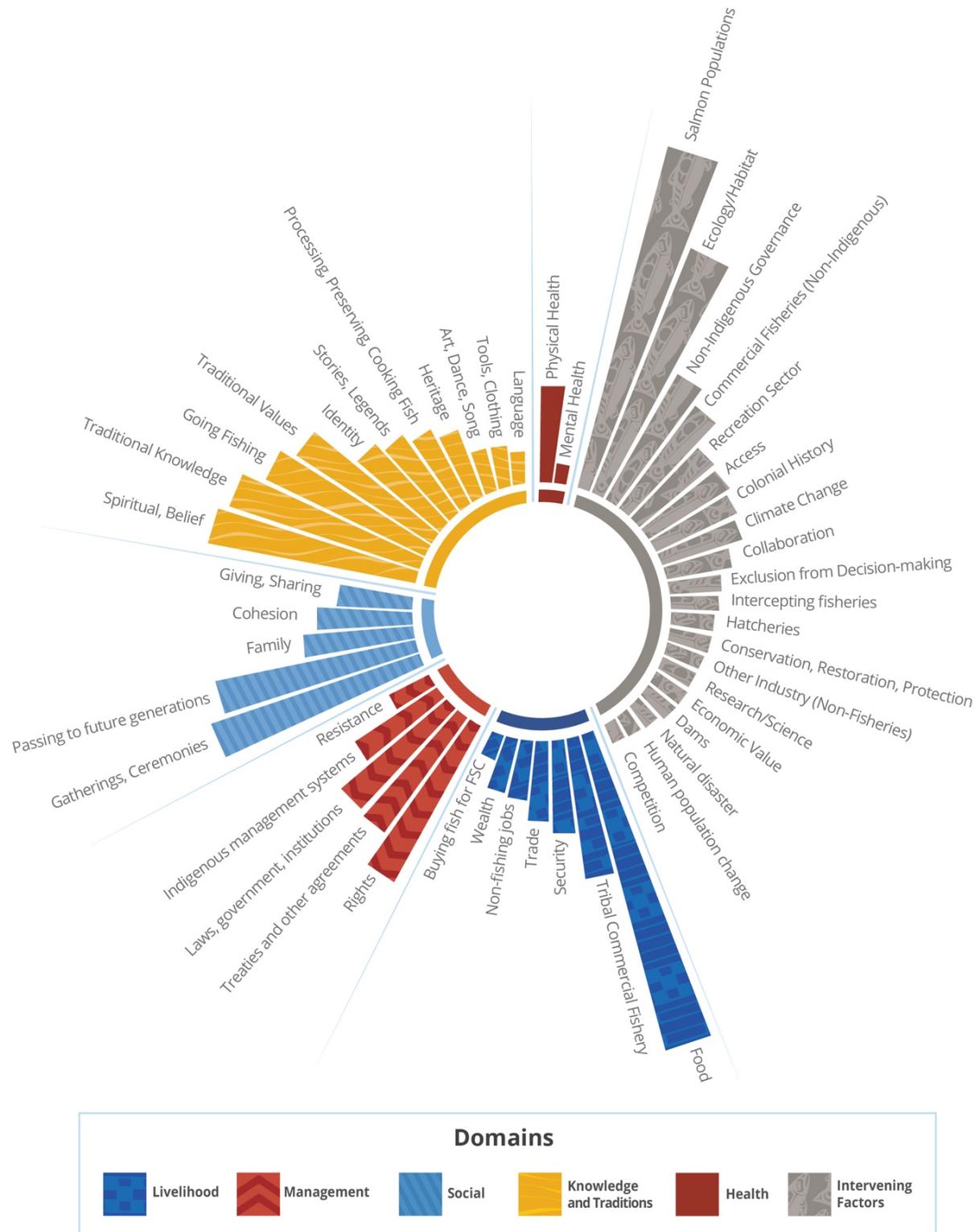


Figure 10. Frequency of codes for all responses

Analysis of the categories under the framework domains reveals those concepts that were discussed more frequently. As with question coverage, code frequency does not indicate importance, but only the number of times each concept was mentioned by participants. Figure 10 summarizes code frequencies within the texts.

The *Salmon Populations* code occurred most frequently. Throughout the interviews, all participants expressed that salmon populations are in decline. Those losses have implications for Indigenous sociocultural systems, particularly the ability to practice and pass on cultural values. Without salmon, Indigenous People lose a significant and culturally important food source and livelihood, but also a cultural identity and way of living that has been passed on for generations. Looking at intersections of codes reveals that *Salmon Populations* intersected most frequently with the *Loss* code.

Food (Livelihood) was the second most frequently mentioned code. Food is associated with sharing food at gatherings and ceremonies, a healthy source of protein, and a source of food for the winter.

The third most frequently coded concept was *Ecology and Habitat*. This code concerns multiple interrelated aspects of the salmon lifecycle, including:

- salmon's role in returning nutrients back to the lands and waters where they spawn;
- salmon's role as a keystone species;
- the need for habitat restoration; and
- negative influences on salmon habitat, including water quality and quantity, invasive species, disease, and genetic variance.

The *Gatherings, Ceremonies* code (Social) was the fourth most frequently discussed—this code refers to the concept that salmon is a staple of all gatherings and ceremonies. As one participant described, "... we have traditional ceremonial fishermen go out, and they go out at the beginning of the year, and we catch enough fish for all our ceremonies for the year." Most participants (78 percent) discussed the role of salmon for their community ceremonies and gatherings, and most mentioned First Salmon or First Fish ceremonies. Participants also mentioned a need for salmon during weddings, funerals, potlaches, births and birthdays, graduations, Treaty Day, Aboriginal Day, longhouse festivities, naming events, gifting celebrations, and blessing the fleet. Participants explained that everyone at these gatherings receives a piece of fish, preferably a species of salmon important to the community. In addition to these events and ceremonies, family and communal gatherings also occur around salmon harvests, as well as community-centered education and research events. In some areas, families reunite at fish camps to harvest and process salmon together. Other communities have created specific programs to bring people together to appreciate salmon.

Spiritual and Belief Systems was the fifth most frequent code. *Belief* sub-codes included *Religious Practices and Belief, Spirituality*, and value systems directly associated with salmon. Participants explained the significance of salmon in creation stories and other stories about their people passed down through generations. Through these narratives, participants shared that "salmon are people and relatives." These beliefs and practices instill responsibility and care around the core message that everything is connected: "if you take care of salmon, they will take care you." These values are passed down from elders and family members, through social gatherings and ceremonies, and by sharing stories in the community through dance, art, song, and other expressions. The following quote illustrates the importance of salmon ceremonies:

"In our history, we have First Salmon ceremonies. And what we would do is send our best fisher to go out and catch the first spring salmon of the year, the Chinook Salmon. Or they call them King Salmon in the states. They would catch the first salmon in Yale, which is in the Fraser canyon. There is a white rock. There is a small bay there. And in the early, early time of the year, like, February or March, you could see the salmon swimming over that rock when they are going through the river. And

our fisherman would go there and spear it—catch it by a spear—and then he would take it and they would have a big ceremony and we would share it with our people. And we still do that. We don't catch the salmon the same way. We catch it in a gill net, but we still have the First Salmon ceremony.”

Phrase Frequency

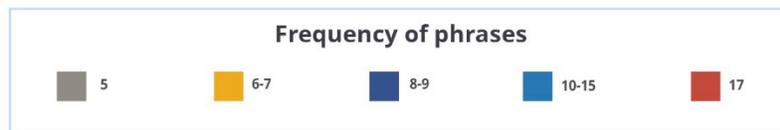


Figure 11. Common two- to five-word phrases from interview texts

In addition to considering code frequency, analysts identified the number of times each phrase was spoken by each participant. Figure 11 shows common two- to five-word phrases recorded in interviews. Phrase size in this visualization is based on frequency, with larger fonts corresponding to phrases that appeared more often. “Climate change” was the most common two-word phrase, mentioned 17 times across all interviews, followed by “commercial fishing” (referring both to Indigenous and non-Indigenous commercial fisheries), which was brought up 15 times. “Traditional knowledge” was the third most common two-word phrase, repeated 13 times. As expected, many of these phrases align with the interview questions. While some phrase frequencies

reflect multiple mentions from one participant, most were echoed across interviews. For example, the phrase “everything is connected” was repeated by multiple participants in both interviews and meetings.

Code Intersections

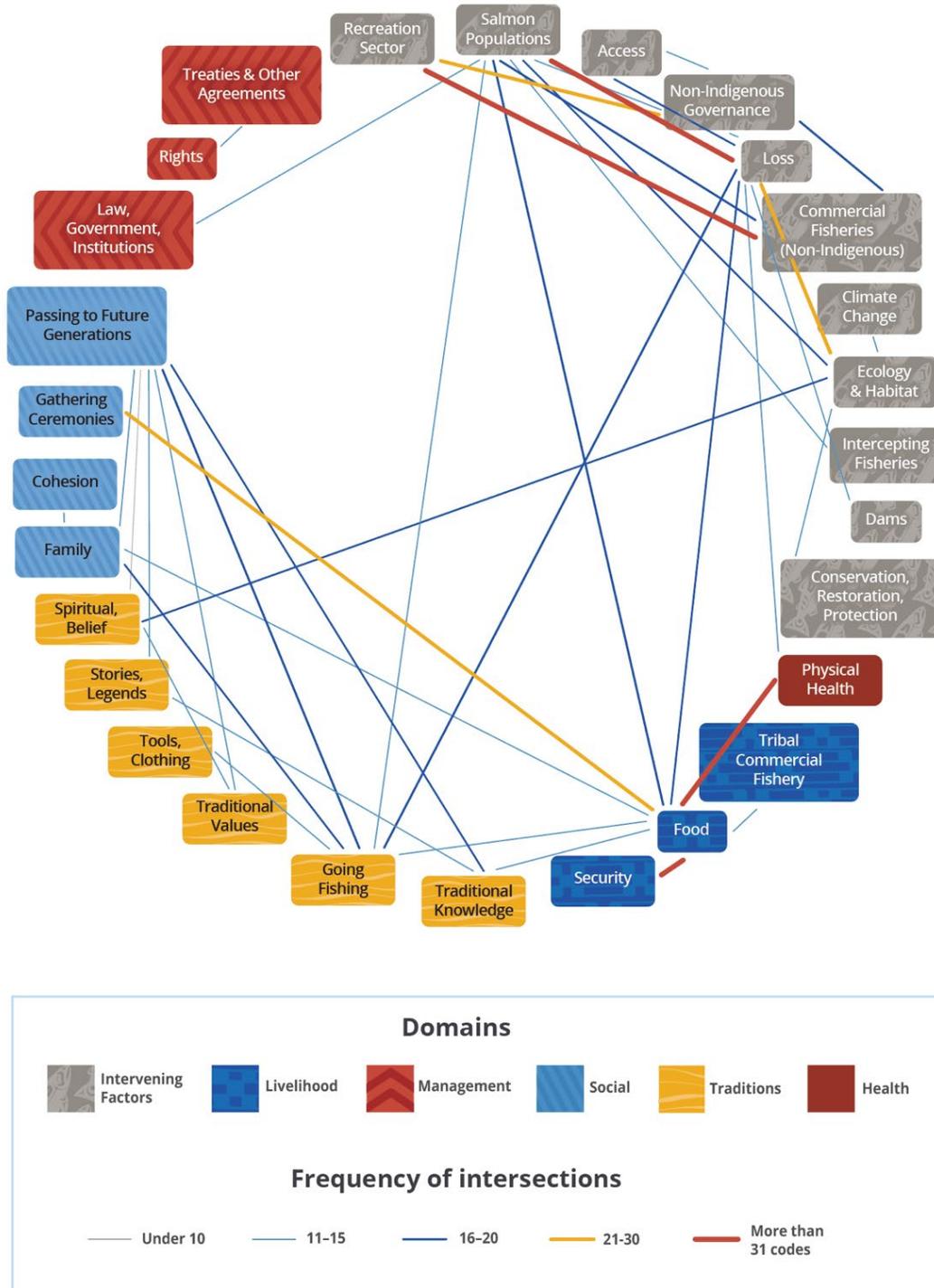


Figure 12. Code intersections colored by domain. Thickness and color of lines represent more intersections. Codes with fewer than 10 intersections were excluded from this figure.

While code and phrase frequencies identify concepts that were discussed most often, codes often overlapped within text segments, highlighting connections across topics. No sentences or paragraphs were associated with only one code. As affirmed throughout the project in interviews, meetings, and discussions, “everything is connected.”

The *Loss* code had the most intersections of any code, connecting to codes across all domains. *Loss* most frequently co-occurred with *Salmon Populations*. All respondents relayed stories about how salmon populations have declined and how the loss of salmon negatively impacts the ability to follow cultural practices. *Loss* also intersected frequently with *Food, Habitat and Ecology, Going Fishing, Access, Physical Health, Dams, and Non-Indigenous Governance*. For example, in discussing loss, ecology, climate change, and the future of salmon, one participant explained, “Just my relatively short life I've lived so far, I have seen stocks greatly declining.”

The *Food* code intersected with *Going Fishing; Physical Health; Security; Gatherings, Ceremonies; and Wealth*. The latter was an important concept throughout the project—though most participants did not use the term to refer to monetary wealth or gains. Rather, their concept of wealth centered on having salmon to barter, give, and share. Several participants explained that in contrast to the Western focus on monetary gain, wealth is what a person is able to give away. One participant said, “I rely on salmon. If I didn't have salmon, I would be a lot poorer than I am right now.” Participants also often discussed their abilities to store salmon for their family, give salmon to their community, or share salmon with elders in other communities. The following quote is an example of the intersections and relationships among *Food, Fishing, Health, and Passing to Future Generations*:

“The younger generations aren't learning how to fish as much anymore for a number of reasons. Some were never taught because they lost the knowledge holders in their community, others are losing the desire because it is becoming harder and harder, and some are not going out and getting fish because the salmon simply aren't there anymore. Instead, they are replacing salmon with easier, more obtainable food sources that maybe aren't as healthy...”

Going Fishing intersected with *Passing to Future Generations; Family; Gatherings, Ceremonies, and Traditional Knowledge*. While fishing practices varied across participants, the ability to go fishing was broadly cherished, and participants reported that it is often done with family and other community members. Participants discussed the connection between the abilities to go fishing and to pass on knowledge, language, and traditions about “when, where, and how to fish” to future generations. As one participant explained, “My language is passed down at the river.” Many participants shared memories of how they learned to fish and from whom, often comparing experiences of their youth with what they see today. Several participants discussed the honor of fishing for First Fish for First Salmon ceremonies. As many participants emphasized, fishing practices are associated with many other practices essential to the identity and health of people, families, and communities, in relation to their environment. One participant said:

“When I was growing up, I am probably the last generation that actually used a burden basket: a cedar root basket to carry our fish up from the river up into the house. Salmon, we processed it in many ways. I remember seeing salt crocks downstairs. I mentioned the wind-dried fish that I've seen in the shed. Of course, we also just cooked it fresh. In the past we had to either salt or dry it because we didn't have freezer capacity that we have today. Or we would have canned our fish, too, in the past. Of course, nowadays there's freezer capacity, so people freeze their fish too.”

The code for *Passing to Future Generations* intersected with *Family; Knowledge, Traditions, and Practices; Stories and Legends*, and *Art, Dance, and Song*. One participant recalled learning from their grandfather, but also reflected that those lessons were tied to historical displacement: “It makes me think about learning about our territory. We are all displaced from [our territory] ... residential schools spread us out, and my first opportunities to go into our actual territory brought a lot of insight and learning.”

Other common code intersections include:

- *Ecology and Habitat* → *Climate Change, Conservation, and Spiritual and Belief Systems*.
- *Gatherings and Ceremonies* → *Knowledge, Traditions, and Practices; Spiritual and Belief Systems; and Stories and Legends*.
- *Indigenous Laws, Governments, and Institutions* → *Knowledge, Traditions, and Practices; Traditional Values; Indigenous Management Systems; Salmon Populations; Collaboration; Non-Indigenous Governance; and Other Industry*.

Sentiments

Many words are associated with positive or negative emotions, and identifying such sentiments in narratives can add nuance to texts that may be missed by other coding approaches, revealing polarities in the feelings associated with certain concepts and statements.

Positive sentiments included emotions like happiness, pride, respect, appreciation, awe, hope, and similarly uplifting feelings. Positive sentiments were associated more frequently with *Going Fishing, Food, Cohesion, Family, Gatherings and Ceremonies*, and *Spiritual and Belief Systems*. Negative sentiments included emotions like sadness, fear, anger, worry, frustration, and other unpleasant feelings. Negative sentiments appeared more frequently with *Salmon Populations, Non-Indigenous Governance, Ecology and Habitat, Food, Climate Change, and Access*. Sentiments of desire surrounded wishes, needs, hopes, and dreams, and occurred frequently with *Salmon Populations; Indigenous Laws, Government, and Institutions; Ecology and Habitat; Passing to Future Generations; Non-Indigenous Governance; and Collaboration*.

The following sections show which framework codes most-frequently intersected with positive, negative, or desire sentiments. Thickness and line colors indicate the frequency with which codes intersected with these sentiments. The more times a coded text segment included words and phrases associated with a given sentiment, the heavier the line segment appears in the figures below.

Positive Sentiments

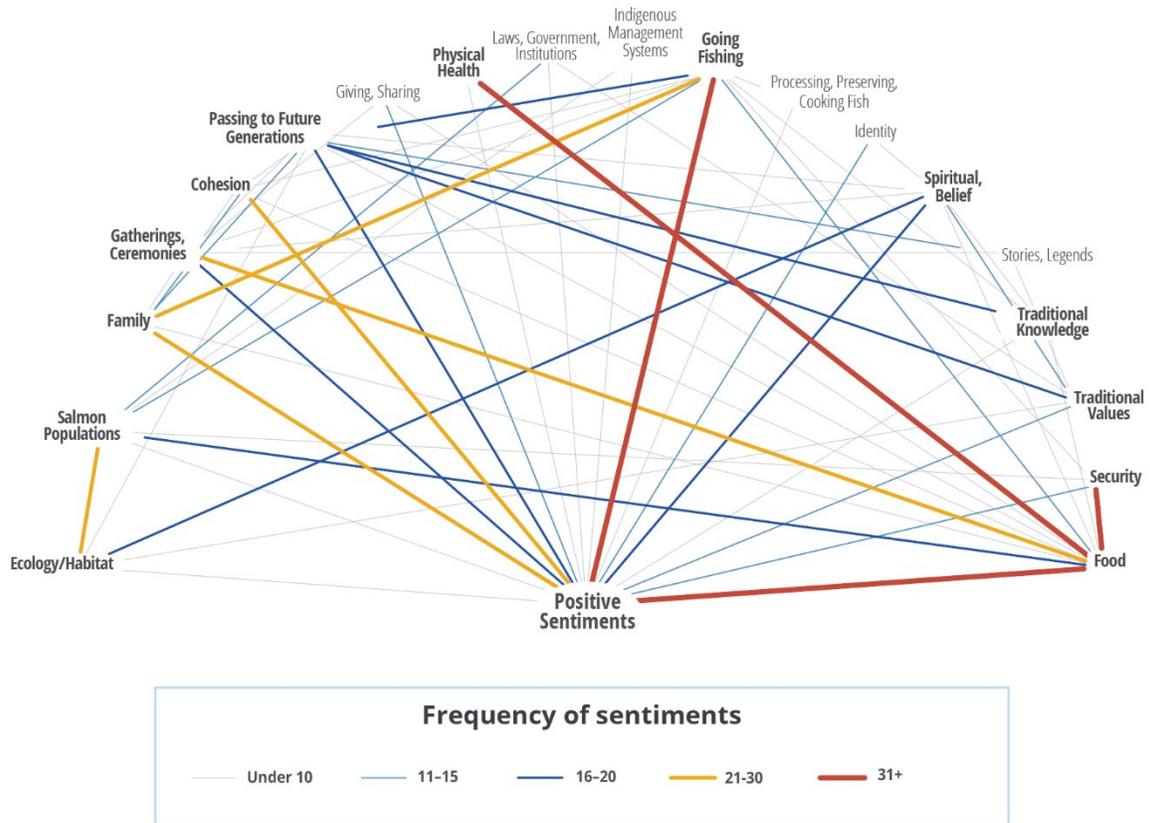


Figure 13. Positive sentiment code relations

Positive sentiments were most often associated with *Going Fishing*. Being able to fish for salmon is fulfilling, as described by this participant:

“We haven’t had a Chum fishery for a long time, and we had an opening and I run into one of the fishermen in the store that evening. I said, ‘Oh, yes, you are out Chum fishing.’ He said, ‘Oh, yeah,’ he says, ‘Oh, I feel so good. Look at my hands, they are just beat up, but they feel good. They feel good.’ And I’ll never forget that. That fisherman is no longer with us, but I’ll never forget him. He was just so happy.”

Participants expressed feelings of pride with stories about *Giving, Sharing* salmon:

“Salmon is our food of preference for weddings, funerals, celebrations, and social gatherings. There is pride felt in serving/sharing our locally harvested salmon resources with one another and with visitors. To be in a position to share your salmon was, and still is, a sign of wealth.”

Almost all participants shared fond memories about fishing with *Family*, or reuniting with family members to process salmon at fishing camps (*Processing, Preserving, Cooking*):

“It was actually a really, really fond memory of my childhood. You would get up at four in the morning. I remember sitting down with my grandpa having oatmeal—or we call it mush. Having mush, toast, tea. We would just be getting ready. Wipe the sleep away—we

are little kids—'Oh, it's early!' And then we would get to the river right before sunrise. And all our relatives from our community would come, and then we would get ready. We would chase the fish into the pool and then we would take the boats and then set out a giant set. And then everyone who was able-bodied, except elders and kids, would have to go out and help pull the nets. We would pull the nets and catch thousands of Sockeye altogether. So that was a huge [event]; every week, every Sunday we would go do that."

The fishing season was commonly associated with feelings of excitement: "People knew that it was the start of sort of the harvest season and preparation for the winter months. People were excited. Lots going on. This still continues to be that way to this date." In some communities, fishing season means those who had moved away from traditional territories return home. In others, community programs share salmon with those who cannot go fishing, or who live away from First Nation or Tribal lands. Talking about their Tribal fishing fleet, one participant expressed the joy of starting the season: "...when we open the first fishery of the season, that always makes me feel good. Everybody is happy. They are talking to each other. They are ready to go. This is a happy moment to see them go." Such positive sentiments associated with fishing, preparing, and eating salmon are also tied to positive mental health outcomes:

"... what was really striking to me is how, in the fishing camps, you can take people off the streets in Whitehorse and other cities and put them into an environment where they are healthy, they are active, they are productive. And they know what they're doing. They're confident in how they're processing fish and some of that connection. And that foundation, that relationship with food from the land, is essential to their sense of well-being, but also their wealth. And ultimately, their health. As a First Nation person living on the land with that connection with the land, using the food with that sense of pride. They're very resilient."

Physical Health and well-being are directly tied to connection with traditional lands and salmon watersheds. Given the scale of habitat change and losses, positive sentiments were more strongly tied to memories for some participants. One recalled:

"I used to fish Sockeye up in San Juan Islands. And like I said, there used to be 150 to 180 whales. And there wasn't much of a fleet up there fishing at that time, back in the '70s, and it was open 7 days a week back then. And we would fish until we couldn't stay awake anymore. I would look forward to seeing those whales every night because they would help scare fish into my net. And, I would help feed them, too. And it is the coolest thing to have a whale come up to your boat and look at you and know at once that you would give them a salmon. I mean, there is no experience like that in the world that I know of: to have something that big with that many teeth in it come up and actually beg for salmon. I loved it, and I used to catch a lot of salmon back then."

Positive sentiments associated with *Going Fishing* were also closely associated with *Food*. Participants expressed a love of being able to eat salmon with family and community: "And we all know that salmon is the best thing to eat, and our kids were raised on salmon. Our family, like all Tsawwassen First Nation, loves their salmon." Memories of eating salmon connected people to a sense of home and personal identity, especially for those who no longer live in their traditional territories:

"It's very important to my whole living. It's something that I grew up on. I don't get as much nowadays, but growing up, that was our main food. My whole family's main food. It's what we lived on. We're right on the West Coast. Oh, it's so beautiful there. Oh, it's just gorgeous."

Participants emphasized traditions for preparing salmon for meals as a way to bring *Family* and community together:

“...the one thing we have cherished most is an open-pit fire to cook our fish. And it is really about the process because everybody gathers and they come to a certain site, and it might be a home, a village gathering, a location, but the fire is the first thing that people will see. They will see the fish filleted and clamped between two modern-day mesh steel racks, and we just lean them against the fire. And usually it is an hour and a half to cook that fish slow, and you get a nice smoky flavor behind it.”

Indigenous Management Systems are associated with pride, purpose, and hope. Most participants worked for Indigenous fisheries management organizations; both Native and non-Indigenous participants described this work as fulfilling.

“Feeling of a cause that drives your energies and your enthusiasm, your love for who you are and what you are all about. So, it has different shades of emotion that are relative to how effective you are, how successful you are. But it's also how—and how deeply it is rooted in your spirit, which motivates you to never give up, never be discouraged. We can be disappointed on: we didn't achieve this, and we didn't achieve that, or we had a setback over this or that, but we are never discouraged. So, that means we are always very focused. And so, the emotions of purpose and drive and enthusiasm for what we do, and that it is a good thing, and that it provides that kind of deep appreciation for when you have to get up and do your job relative to fishery management issues and management responsibilities or fighting for what's right for salmon, or shellfish, or treaty rights, and cultural practices.”

Those working in Indigenous fisheries management (most respondents) indicated they perceive their work as a responsibility to not only Tribal and First Nations communities, but also salmon and other residents of the Pacific Northwest.

Overall, analysis of the positive sentiments associated with the framework concepts shows that salmon is central to Indigenous well-being, identity, and purpose. While participants worried about the future of salmon, many mentioned they are still hopeful:

“So, I'm an optimist in that salmon is always going to be a part of who we are. It is always going to be a part of our culture. It is always going to be a part of our economy. It is always going to be there to help us move our sense of purpose and life forward.”

Negative Sentiments

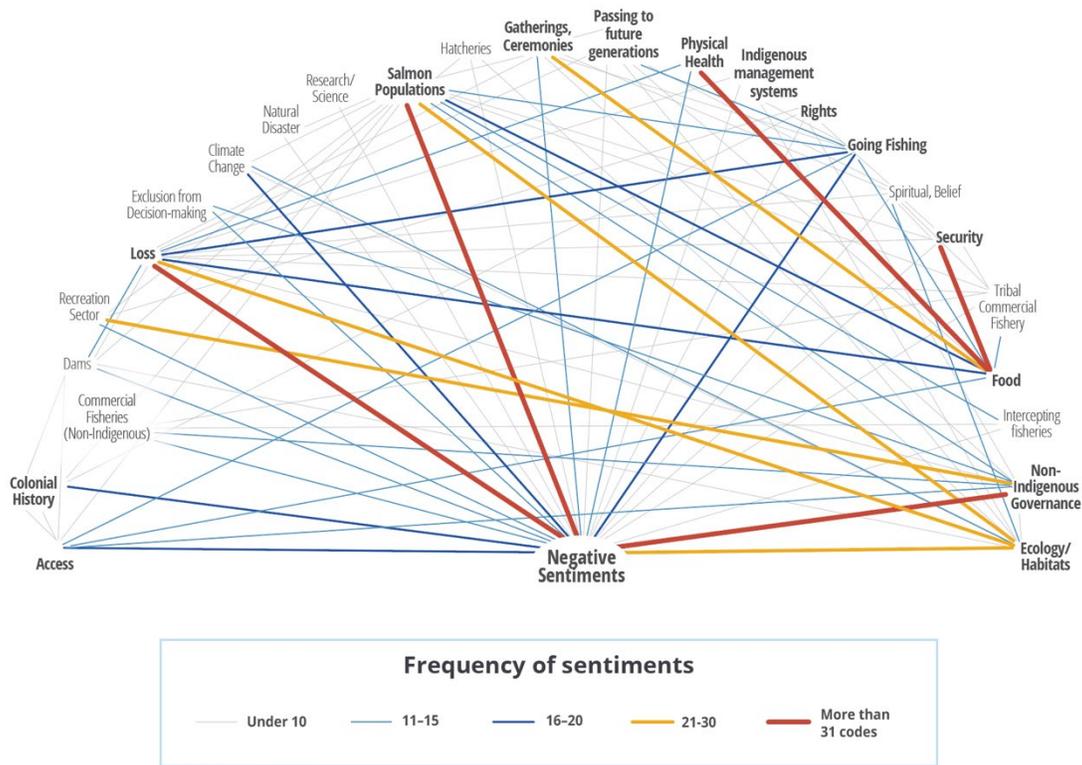


Figure 14. Negative sentiment code relations

The code for *Salmon Populations* intersected with negative sentiments more frequently than other codes. Across the region, participants reported that the decline in salmon availability and the depleted returns were clearly observable and deeply felt. Such scarcity means that communities lack salmon for ceremonial practices that they have followed for generations:

“Unfortunately, again, because of the lack of salmon, a lot of times our First Fish ceremony is on Sockeye and not on the Chinook, which is actually the First Fish that come up, is that early-time Chinook that I spoke about earlier. Some of our ceremonies are actually having to be put off due to conditions and issues outside of our control. Lack of salmon means that we can't hold our ceremonies in the timing that we want to hold our ceremonies. Sometimes we have to postpone our ceremonies because of the lack of fish or lack of access and opportunity.”

Participants emphasized that a loss of salmon and other First Foods has impacted them both psychologically and physically, pointing to growing disease burdens for their families and communities. They described feelings of loss associated with their livelihoods and a diminished sense of security, stemming from their inability to trade, sell, or feed their families salmon.

“People are aware of the depletion of salmon stocks; they are not returning the way they did historically and pre-historically. People are not meeting their food security needs and getting their sustenance or subsistence requirements met, and really getting worried about that and trying to figure out ways to preserve that for the future. A lot of people rely on salmon to offset the costs of going to the store and whatnot, and it is a real concern in the last couple of years.”

Overall, participants expressed sadness, worry, fear, and anger that salmon are disappearing. They noted they are also upset that not enough is being done to prevent further salmon losses. As one reported:

"I was at a meeting recently when two of the women got up—and there was probably a hundred people there that represent people on Fraser watershed and the coast fisheries, like Kwakwaka'wakw people and Coast Salish people and Nuu-chah-nulth people. We all met in Kamloops. And two women literally started crying because they just opened their last jar of fish. They are done. They had no dry fish. They weren't allowed to dry fish. They were done. They had their last fish. They were literally crying there. And that's what I see when, you know, we go to these meetings. I see all the people that go without because of Big Bar [landslide]; people are going without. And because the fish are not coming back, there are people going without."

Salmon were described as family and associated with all aspects of Indigenous social and cultural systems, so salmon losses are deeply emotional for Indigenous People. Several participants referred to it as genocide, saying that without salmon, there will be no Salmon People: "Natives are going to disappear if we don't have our salmon and our Salish Sea and everything we get provided from our sea."

Negative sentiments associated with discussions of *Salmon Populations* also intersected with *Food*. This intersection reflects losses to food fisheries and being unable to find enough fish to eat.

"... when I sit with groups, with my brothers and sisters from the south, the other First Nations come to the table and express their frustrations and their sadness over the loss of their ability to harvest fish, it really hurts my soul to hear that people are not even getting access to their basic food fish requirements. In more recent years, we have been struggling with poor Chinook returns and have had to adjust our food fishing practices for the sake of conservation, but we had never been in a situation where we can't go out and harvest food fish."

Sentiments such as these are not just tied to participants' homes and communities; they extend throughout the region, especially to other Indigenous Peoples and communities experiencing such losses.

Negative feelings about salmon loss also intersected with *Access*. Participants explained that reduced access to salmon was associated with a history of dispossession that imposed exclusionary management processes and foreign economic and institutional structures, along with declining salmon populations. Many expressed that there are "fewer places to access" salmon because "... now, some of those spots are kind of not valid because fish aren't running there in the numbers that we need to actually have a fishing village in those sites anymore." Issues of limited access were discussed more often by First Nations participants.

Codes associated with *Non-Indigenous Governance* were commonly connected with negative sentiments. First Nations participants specifically mentioned conflict between Indigenous needs and systems and the Canadian government. For instance:

"There are 13 Chinook salmon groups that we deal with. Twelve of them are in jeopardy, and one of them is doing well. That's the one that we were allowed to fish on in August, the one stock that's doing well. We were allowed to fish that stock. We weren't allowed to fish Sockeye at all. We weren't allowed, and if we caught any, we had to throw them back. The government made us throw dead fish back in the river, which is abhorrent to me. It is a sin, as far as I'm concerned. But if I didn't throw them back, they would have charged me for it. They could have taken my gear. They could have taken my boat. So, I had to throw

dead fish back in the water. And it is just something that's part of their rules. They make up the rules, and the government has the final say."

Participants also discussed disrespect and competition coming from recreational and (non-Indigenous) commercial sectors. Respondents expressed discontent that recreational and commercial sectors are prioritized over Indigenous needs. Several participants described fundamentally different priorities across sectors: "When we are meeting with the commercial fishermen, they see dollar signs swimming up the river. We see our strength, and our culture, and our health swimming up the river. It's an entirely different value."

Distrust was also common to conversations about salmon governance, with many saying that federal governments are failing to uphold agreements or follow through on commitments. Most respondents said Indigenous Peoples and their leaders have been excluded from decision-making processes. Participants emphasized that non-Indigenous governments and private entities fail to understand or respect Indigenous needs, taking the benefits gained by disenfranchising and displacing Indigenous Peoples for granted. As one participant explained:

"I'm terrified. Terrified of what we're not leaving for the future here. And I get terrified, and I get into meetings with DFO, and I get mad, and I get vocal, and I get ornery and whatever. Because to me, [DFO], those guys, it's just a job. It's not part of their culture. It's not important to them. It's just a job to them and once they get their time, they get a nice cushy pension. Us First Nations, we don't do that. It's not just a job for us, and no, we don't get a pension when we're done working here. A lot of us don't. Lots of Chiefs and Councils, they don't walk away with a big pension like [non-Indigenous government] politicians, our [Members of Parliament], our [Members of the Legislative Assembly] do. They [the politicians] put in time, and they get a big cushy pension—where's that money coming from? All that money comes from the resources that are pulled from our land, and British Columbia is still unceded, unpurchased territory, so this is all stolen resources that are coming from here."

Negative sentiments associated with ecology and habitat surrounded habitat loss and degradation, especially concerning invasive species, water quality, and pollution. One participant from Puget Sound reflected:

"And it is not going to get any better. Our Salish Sea is getting more polluted. There is 8 percent of plastic that's been analyzed in water already, and it is just a matter of time before that gets into our human sources."

Ecology and habitat concerns are tied to climate change and associated disruptions to local and regional ecosystems. Participants identified many issues stemming from climate change, including warming waters, sea level rise, acidification, glacier and ice loss, and drought and flood. Shifting salmon seasons were also repeatedly mentioned:

"And that whole ceremony for us is generally about the first salmon that return in the springtime after winter, which is typically the Chinook. They used to return as early as February and March, and now, due to climate change and perhaps overfishing, mismanagement, and other things, these Chinook are not very present and not very many of them during that early period now. So, as a result of changing climate and seasons, we are fishing Chinook much later in the year, and our First Salmon ceremonies are not being conducted until May or June now, as opposed to February and March."

Desire Sentiments

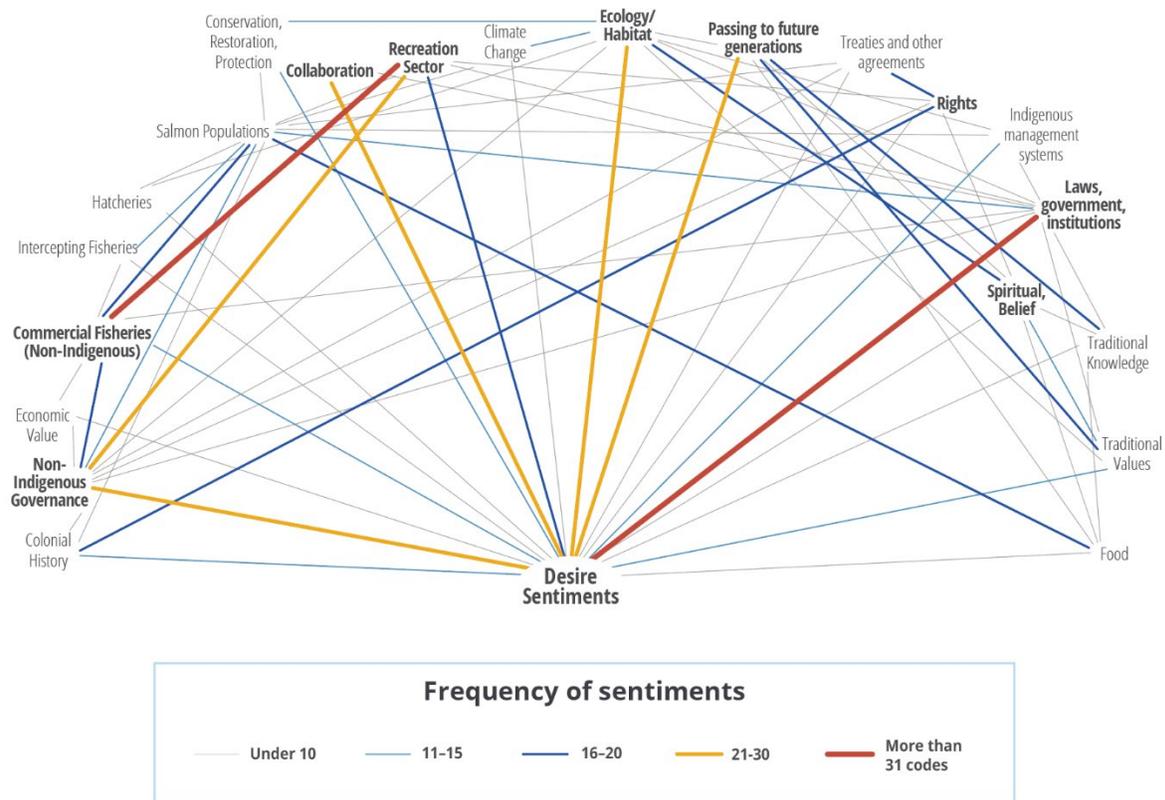


Figure 15. Desire sentiment code relations

Sentiments of desire often corresponded with negative sentiments, as participants discussed what outcomes they would prefer. The codes that most often intersected with sentiments of desire are listed below.

Salmon Populations. Participants preferred a restoration of salmon populations to heritage (pre-contact) levels. They also wanted to know why certain salmon species or stocks have been declining and the best means of addressing those causes. Participants at all stages of the project expressed a shared responsibility to ensure that salmon will be available for future generations. For example, one participant shared, “I fear that without Indigenous People’s full involvement in management, jurisdiction, and law-making processes, salmon won’t survive for the next seven generations.” Sentiments of desire often intersected with calls to restore and secure salmon availability for future generations, as in this participant’s comments: “[A]s Indigenous Peoples, we need to take matters into our own hands and protect and recover these fish, and look after them like they looked after generations of people for thousands of years as a food source.”

Indigenous Laws, Government, and Institutions. In order to protect salmon and ensure their survival, participants argued that Indigenous Peoples must be included in decision-making and that Indigenous-led salmon management needs greater support, especially since Tribal and First Nation efforts to assess, restore, and manage salmon stocks often mean limiting Indigenous harvests. First Nation participants noted that they want more meaningful representation in decision-making, such as co-management by Washington State Tribes. One remarked, “We aspire to have it. We are working to get it. There is a whole bunch of stuff on the table with regards to reconciliation and co-management, but we are definitely not there yet, and we should have a greater voice at the table.”

Ecology and Habitat. All participants emphasized the importance of restoring salmon habitat and improving water quality. Participants also discussed the need for more funding to protect and restore salmon habitat throughout the region: “I think we really need to look at recovery and protection of the stocks, restoration of the habitat where it is required, and doing everything we can to protect and recover the stocks that have depleted and declined over the years. It is time to turn the cycle around.”

Passing to Future Generations. For many Tribes and First Nations, the next seven generations are a priority, representing a desire to sustain traditions. Participants expressed a sense of responsibility to ensure salmon and other First Foods are available for future generations. Many said they worried that less fishing and fewer salmon at the table would mean their children would rarely see or taste salmon: “That’s one thing I try to do is make sure that my family and all my nephews get that first, at least one, taste of some salmon.” Memories of salmon elicited a strong desire for younger generations to have similar experiences and learn about their cultures. Participants indicated they were both hopeful and worried about the likelihood that their youth will appreciate salmon and assume the responsibility to care for salmon. Several participants mentioned educational programs to teach the youth about salmon and their cultural significance.

Non-Indigenous Governance. Most participants expressed hope that this study will be able to communicate Indigenous values to non-Indigenous Peoples. They described a need to convey that salmon have much more than monetary value, particularly to Indigenous cultures and concepts of wealth: “I think, ideally, in the future, the almighty dollar would not take precedence over conservation.” They also expressed hope that such studies could help Indigenous People gain recognition and standing in decision-making processes. First Nations participants often mentioned desires for greater transparency and access, changes to salmon management priorities, and the adoption of co-management processes that include Indigenous people: “[I]t should be the Canadian government’s responsibility to protect First Nations and put forward our rights, not make us fight for our rights.”

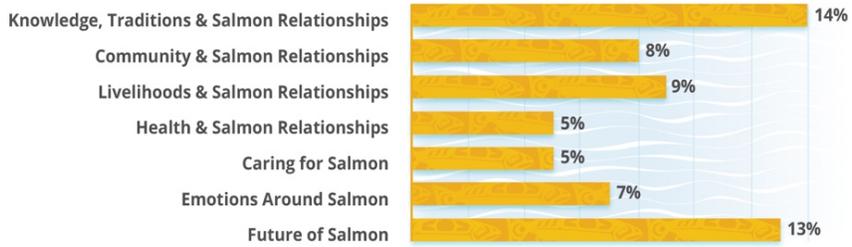
Collaboration. Many participants emphasized a need to work together toward saving salmon to prevent people from “fighting over the last fish.” Several had engaged other fishing sectors and government agencies in efforts to restore salmon populations. They noted that Indigenous People from both the U.S. and Canada have been working together on such issues. As many explained, “Everyone must share the responsibility for salmon.”

Comparisons Between Panels

Comparing participant responses from multiple Panels can draw attention to both similarities and differences. It is possible to categorize respondents by age, gender, and profession, as well as whether they live or work upstream or downstream, in the U.S. and Canada, or on or off of a reservation. Given the relatively small number of participants, this report focuses on which Panel each participant serves or, for those who were not PSC members, the Panel region where they live or work. Panels vary in jurisdiction, legal rights, environmental quality, colonial impacts, treaties, and more. Comparing responses by Panel offers insight into the unique challenges faced by participants within each Panel. It is important to recognize that some Panels had fewer participants. Though code frequencies for some topics may not be as pronounced for some Panels, this variance does not necessarily signify that those topics are less-relevant—only that fewer participants for that Panel meant fewer transcripts to be coded.

The graphs below summarize question coverage by Panel.

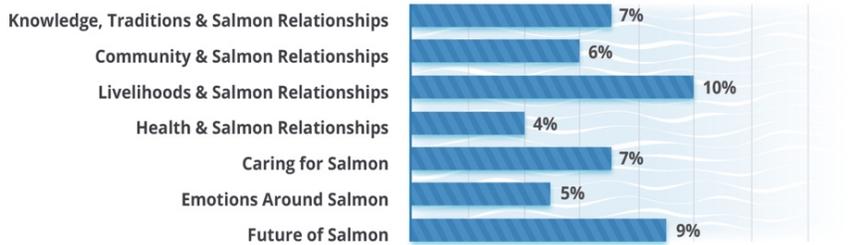
Panel: Fraser



Panel: Northern



Panel: Southern



Panel: Transboundary

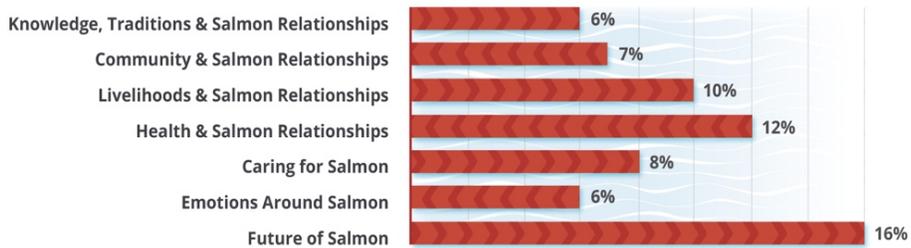


Figure 16. Comparison of question coverage by Panel

Future of Salmon

Participants from all Panels spent the most time discussing the *Future of Salmon*. The most frequent issues mentioned during these text segments were rebuilding and protecting existing salmon stocks. While a handful of participants noted that salmon availability is better in some areas than others, most said they had observed declining salmon runs and expressed that salmon need to be protected and recovered in the future. Sentiments about this possibility were varied—some participants expressed hope that recovery could be achieved, while others were more pessimistic. For example, a participant on the Fraser Panel said they felt “jaded” by the current “free-for-all” management system, and that First Nations will need to find a way to replace salmon protein from rivers. The participant continued that they will likely “be pushed towards closed containment aquaculture” in coming decades. Yet, another participant drew upon her cultural teachings to find hope and direction in protecting and conserving salmon to rebuild stocks for future generations. As shown in the summaries below, responses to the *Future of Salmon* question varied by Panel.

Northern Panel participants emphasized:

- A need for Indigenous People to take a larger role in management to recover fish populations. The code *Non-Indigenous Governance* often occurred in these discussions, as participants reflected on exclusion from management processes.
- A need for collaboration across sectors and borders to recover salmon populations. Because salmon move across political boundaries, international collaboration is especially critical for recovery.
- Concern for the effects of climate change on salmon and salmon habitat.

Southern Panel participants emphasized:

- The importance First Nations having priority over other fishing sectors.
- Concerns about fisheries that intercept salmon as they are returning to spawn.
- A need to work together across sectors and borders, with both Indigenous and non-Indigenous groups.
- A lesser-mentioned desire for Indigenous People to assume a larger role in salmon management, compared with comments from other Panels. This may be due to the co-management roles of some U.S. Tribes, who wield greater authority in this area.

Fraser Panel participants emphasized:

- The importance of Indigenous People having a larger role in management of salmon.
- Frustration with the Canadian government, especially focused on the failure to recognize or implement Indigenous rights. First Nations participants wanted their rights to be fully implemented.
- Concerns about enhancing wild salmon runs with hatchery fish. Several participants expressed frustration with hatchery programs and focused on genetic issues associated with farmed fish.

Transboundary Panel participants emphasized:

- The need to prioritize salmon conservation over harvest levels in decision-making.
- The importance of Indigenous People having a larger role in management of salmon.
- Concerns about fisheries that intercept salmon as they are returning to spawn, especially from Alaska.
- Impacts to salmon populations from climate change and other environmental factors.

Livelihoods

Participants across all Panels also mentioned *Livelihoods* and the need for salmon as a traditional source of nutritious food. Conversations around livelihoods also discussed food security related to the ability to fish and store salmon, and that where salmon are available, Indigenous Peoples spend less money at stores because they have a healthy food source for winter. Salmon availability supports local economies and community social systems, as people can trade and barter salmon. Respondents from all Panels also discussed the historic importance of salmon to both Indigenous and non-Indigenous food security, trade, and the ability to survive winter. Several participants from different Panels mentioned how Indigenous fishing and preserving methods saved early European explorers and settlers in the region from starvation. Finally, participants from all Panels mentioned the importance of fisheries management jobs. Many Tribes and First Nations have their own fisheries departments, which assess fisheries stocks, plan restoration activities, and calculate Indigenous harvest levels.

Despite these similarities, responses to the *Livelihoods* question also varied by Panel.

Northern Panel participants emphasized:

- The importance of salmon for food security, stressing that salmon availability allows people to feed their families and stay healthy in times of high unemployment.
- The role of commercial fishing in First Nations.
- The importance of sharing and giving salmon in communities.

Southern Panel participants emphasized:

- A view of livelihood as more than money and economic value, since wealth comes from having enough salmon to share with others.
- The role of commercial fisheries jobs. For some, commercial fisheries jobs are no longer available, but these jobs are still economically important for others.
- The importance of FSC salmon at gatherings.
- The loss of First Foods and the resulting decline in human health in Indigenous communities.

Fraser Panel participants emphasized:

- The impacts and shortcomings of the Sparrow Decision, including its implications for First Nations FSC fishing, how commercial and recreational sectors are still prioritized, and how interpretation and a lack of implementation mean “we [First Nations] are not able to fulfill our duty, right, to our people... And, you know, most of the time, we are just going without.”
- FSC uses and needs related to the Sparrow Decision, including the importance of livelihood to social needs. Several participants mentioned how First Nations are trying to “make the government do the right thing” by allowing fishing for FSC needs.
- The economic and income impacts of commercial fishing jobs. One First Nations participant talked about how signing a treaty meant they ceded a large part of their FSC allocation for the right to commercially fish.
- That without FSC fisheries, First Nations and Indigenous Peoples are losing their identity.

Transboundary Panel participants emphasized:

- The importance of sharing and giving away fish, especially in terms of social cohesion, wealth, and passing on knowledge to future generations.

Health

Participants from the Transboundary Panel talked more about salmon in relation to *Health*, compared to others. Across all Panels, participants emphasized the need for healthy and abundant salmon to support both Indigenous health and ecosystem health. As one participant expressed, “If the salmon isn't healthy, neither are we.” Participants linked the declining availability and access to traditional foods (including salmon) with greater health problems in their communities. Individual, community, and ecological health were all characterized as interconnected. As such, across Panels, participants emphasized the role of salmon in ecological health by describing nutrient cycling, food webs, and how other animals (e.g., bears and whales) need salmon to maintain their health, as well.

Northern Panel participants emphasized:

- The role of salmon in the mental health of Indigenous Peoples, specifically tied to gatherings during salmon season.

Southern Panel participants emphasized:

- The impacts of dams and culverts to salmon habitat and ecosystem health.

Fraser Panel participants emphasized:

- That traditional knowledge and practices were passed down to protect salmon habitat.
- The need to do more to protect salmon habitat today.

Transboundary Panel participants emphasized:

- Signals in nature that reveal when salmon are returning or whether the salmon are healthy, which have been passed down in their communities.
- The importance of gathering to fish to mental health within Indigenous communities.

Knowledge, Traditions, and Practices

There were many similarities between Panels in response to the *Knowledge, Traditions, and Practices* question. Participants from every Panel discussed their respect for salmon and the need to respect salmon as fellow beings. Such respect was discussed as a moral duty, embedded in traditional values, knowledge, and management practices. Participants also discussed ceremonies through which communities honor salmon, such as First Fish ceremonies. Several participants shared that their communities have specific stories about the consequences of disrespecting salmon, especially in instances when young children made fun of salmon. The *Knowledge, Traditions, and Practices* question also elicited responses on the importance of coming together to fish and preserve salmon and pass on knowledge, such as the ecological signs for when to start and stop fishing certain species. While many participants said they have been able to enjoy fishing for these reasons, they noted they are concerned that fishing is no longer as common as before because there are not enough salmon.

Northern Panel participants emphasized:

- The importance of fish weirs as a traditional method for sustainably managing and catching salmon.

- The role of Traditional Chiefs who manage fisheries in deciding when to start or end harvests.
- The potential for traditional knowledge to inform Western salmon policy, particularly for wild salmon.
- The traditional methods of processing salmon, such as smoking.

Southern Panel participants emphasized:

- That everything is connected—salmon health, stories, management practices, and spiritual understandings.
- The ways in which salmon is more than a fish: it is a cultural foundation and an identity.

Fraser Panel participants emphasized:

- The role of the Fishing Chief in salmon management.
- The traditional processing of salmon, such as smoking and canning.
- The importance of educating children about both salmon and Indigenous culture, as well as the need to begin passing on such knowledge at an early age.

Transboundary Panel participants discussed:

- The importance of educating children about salmon and Indigenous culture.
- The role of oral teachings in passing on information about Indigenous history and traditional practices.
- A lesser emphasis on *Knowledge, Traditions, and Practices* than participants from other Panels.

Managing and Caring for Salmon

Participants from all Panels emphasized the need to care for and respect salmon when responding to the question about *Managing and Caring for Salmon*. Panel members also discussed the roles of Indigenous fisheries departments and traditional knowledge in relation to Western salmon management science.

Northern Panel participants emphasized:

- Ways in which First Nations steward themselves to support each other and prevent disrespect to salmon.
- The reality that some concerns (e.g., those of commercial and recreational fisheries) are prioritized over First Nation access to salmon.
- How the traditional, hereditary governance in one First Nation brings stability and responsibility.

Southern Panel participants emphasized:

- Fishery closures to ensure future salmon returns and the need to address conflicts within Indigenous communities surrounding such closures. Several participants mentioned how closures affect elders who rely on seasonal salmon fishing.
- The role of stock assessments, salmon counts, hatcheries, and other salmon management programs conducted by Indigenous fisheries departments.
- The historical role of Salmon Chiefs, who were responsible for managing fisheries and deciding when to start or end harvests.
- The significance of gifting and sharing salmon within their communities.

Fraser Panel participants discussed:

- The role of Salmon Chiefs.
- A desire for co-management arrangements for First Nations, similar to those involving U.S. Tribes.
- A lesser focus on *Indigenous Management Systems*, compared to other Panel groups.

Transboundary Panel participants emphasized:

- The importance of educating children about salmon from a young age. One participant mentioned how school programs spark interest in salmon, inspiring future salmon fisheries managers.
- A desire for co-management arrangements.

Discussion: Everything Is Connected

“It’s all interconnected. Almost all cultures seem to have a word or phrase for this. For Nuu-chah-nulth, the words are *hishuk’ish tsawalk*, meaning everything is connected, everything is one. It is definitely a principal that is first and foremost in dialogue, discussion, and documents. Not giving lip service to it, but real meaning, that this is so fundamental to our existence. That protecting and caring for all—air, water, animals—that are in First Nations’ territories, all interconnected.”

Dr. Don Hall, PSC Canadian First Nations Caucus

While interviews highlight the diversity of values and practices across the Pacific salmon region; stories shared by participants also revealed several broad similarities in the core sociocultural values associated with salmon. This section presents themes and trends revealing the vital and multifaceted relationship between Pacific salmon and Indigenous Peoples. The following discussion focuses on linkages between salmon losses, sociocultural values, and salmon management.

Keep the Cycle Going

As discussed previously, loss is often mentioned because a lack of salmon presents a cultural crisis. This is because for Indigenous peoples of the Pacific Northwest, fish are more than a source of food or livelihood—they are fundamental to the sociocultural systems of these communities.⁹⁵ Without salmon, Indigenous People lose the opportunity to pass on their values, practices, and knowledge to future generations:

“I hear it from elders: the future of the salmon, you know, the 30 million we have seen come up the river, the year-around fishing of salmon that we used to have. That would be the ultimate future for the Tribes. But right now, I think it is to improve the watersheds. The Tribes are working hard to help these fish throughout Indian Country.... And the future of the Tribe, we just, you know, we want our First Foods to never go away, to break

⁹⁵ Cisneros-Montemayor and Ota, “For Indigenous Communities, Fish Mean Much More than Food.”

that circle, and that's why our Tribe, especially, you know- started the First Foods- one of the First Foods projects. I just hope that the Tribes' futures are generations and generations to come. That would be it."

Desires related to salmon losses centered on the need to rebuild salmon stocks for future generations. The sense of loss was often grounded in childhood memories or stories about times when salmon were abundant. As the background section of this report highlights, heritage (pre-colonial) salmon runs and salmon consumption by Tribes and First Nations were far larger in the past.

The loss of salmon was considered the product of historical displacement, mismanagement, and environmental change, and a source of stress, sadness, anger, fear, and frustration. Participants discussed how many communities are "struggling with salmon needs" and have been unable "to put salmon on the table" in recent years. Concerns over declining stocks were associated with fears that reduced genetic diversity will impair salmon resilience against future environmental changes and salmon recovery generally:

"Every year, in the old days, I looked forward to every year with anticipation and optimism, and I was probably too optimistic sometimes. But now I look at the fishery with dread and going, 'Oh, my God, I hope we get some fishing in.'"

Together, stories shared by participants expressed the trauma of loss—loss of salmon, traditional lands, traditional management systems, wealth, and cultural systems from generations of assimilation, violence, and control. The following quote from a participant expresses the crisis of these losses:

"I don't know how to describe this one best, other than to say that we are in a major salmon crisis right now... We are losing our cultural identity to the salmon and who we are as people of the river, the Stó:lō. And so, each year that passes by, each day that passes by, each minute that passes by and we don't have an opportunity to conduct and practice the fishery, we are losing our cultural identity and eventually will, the way things are going on. And existing, subsisting, and the things that go along with that are incredibly important, so I would say we find ourselves in a salmon crisis this year and have been for decades now."

Analysis of conversations about loss highlighted multiple sociocultural impacts across topics as diverse as wealth and livelihoods, management systems, health, traditions and practices, and family and community social systems. This range of impacts underscores the deep interconnections between these sociocultural domains.

Facing ongoing losses of salmon and smaller returns, participants expressed that U.S. Tribes are concerned about the future of salmon and meeting treaty rights, with a participant noting:

"A future for salmon in the Snake River Basin should be better than what we have today regarding chronically low and depressed salmon runs. The Tribes, through their treaties with the United States, have "guaranteed" livelihoods: the ability to have a meaningful fishing-based economy to fully meet the needs of the Nez Perce. The United States, and its citizens, gained millions of acres of lands in exchange for an agreement that the Tribes would always be able to fish to meet their needs. The salmon resource reserved by the Tribal treaties provided for an abundance of harvest from river systems that were biologically functional and fully productive. To bring the Nez Perce and other tribal peoples and their treaty harvest back to "whole" and to levels that once again fully support Nez Perce culture, fisheries, and economy, it will require sufficient and stable salmon and

Steelhead runs, adequate access to our fishing places to catch fish, and markets within Idaho to participate in.”

As one participant expressed, Tribes are “working hard” and “fighting” to ensure healthy salmon returns. Tribes are engaging government agencies, municipalities, private landholders, commercial and recreational fisheries, and other entities to prevent habitat loss, restore degraded habitat, remove barriers to fish migration, and establish hatchery programs. Meanwhile, First Nations are pursuing lawsuits to realize their rights and establish co-management systems similar to the U.S. Treaty Tribe model.

Despite concerns and fears over the future of salmon, most participants remain optimistic or hopeful, as revealed by both positive and desire sentiments. This hope is referenced through sociocultural values broadly—their identity as Salmon People—and specific gains or initiatives that help to express those values:

“And for the 7 years in elementary school, I have had that child in that classroom learning about fish every year, and hands on with the raising of them until they are big enough, and we let them go. This event is like a social gathering of sorts and it attracts a lot of community attention. We rear these salmon eggs from September through May/June, and we bring them all out as fry to release into the Tahltan River. Teachers and students from the three local schools are bused to the release site. Many Elders, parents, and community members join us in the celebration and releasing of the Sockeye fry. What started out as a small gathering of Fisheries Department staff, teachers, and students, has grown into a group of up to 150 people that come down to let go of 600 Sockeye fry from the classroom project. After the salmon fry are all released, we gather for a hot dog roast, refreshments, outdoor games/hikes, and visit amongst ourselves.”

Shared Decision-Making

Across all interviews, group discussions, and meetings, the expressions “fighting over the last fish” and “shared decision-making” were repeated again and again. These phrases highlight relationships between salmon returns and salmon management, and the beneficiaries of both. Participants repeatedly emphasized the reality that Indigenous communities are unable to meet their salmon needs at any level, as well as their belief that Tribal and First Nation inclusion in decision-making processes will help them meet their needs. Participants explained that entities such as DFO and the PSC fail to fully address their concerns. Themes often discussed related to decision-making included:

- The priority of Indigenous treaty- and rights-based fisheries for food, culture, and economic needs (relative to recreational and commercial sectors).
- The drivers of salmon losses (e.g., climate change, water quality, in-stream barriers).
- Communication with Tribes and First Nations and Indigenous inclusion in decision-making and management.

As salmon populations decline, participants said they expect the federal governments to impose stricter regulations: “The government is continuously taking away the ability to have their right as a community, cultural practice, right, because of the declines of the stocks.” In Canada, conservation is supposed to be the highest priority for government salmon managers, followed by FSC access for First Nations. Despite this directive, participants from both sides of the U.S.-Canada border expressed that, in practice, commercial and recreational fisheries are prioritized over Indigenous needs. The interception and harvest of returning salmon

by commercial and recreational fisheries significantly impacts returns to traditional fishing grounds. Not only is there an imbalance in interests, but the Canadian government has no incentive to include First Nations in fisheries management decision-making, especially when decision-making remains focused on the monetary value of salmon harvests.⁹⁶ As one participant explained, “I don't see why there should be any guarantees for any of those other [commercial and recreation] sectors when our First Nations people aren't getting their food needs met.”

Participants from Canada emphasized the exclusion and lack of representation in decision-making structures, particularly concerning DFO. Comments such as “We don't have shared decision-making” ... “DFO doesn't listen to our concerns” ... “They make up the rules and the government has the final say” ... “No one listened to our Nation's pleas not to clear-cut the riverbanks” and “[DFO] is not supportive of further engagement with First Nations” often appeared in conversations about salmon management and the future of salmon. These quotes illustrate the many ways decision-making infringes upon Indigenous rights and cultural needs. Both the PSC and DFO tend to engage with First Nations at an aggregate level, meaning that individual communities (particularly those lacking administrative resources) have limited opportunities to engage in salmon management processes. In contrast to expectations for U.S. Tribes, PSC representatives from First Nations are expected to represent Canada's interests over their community needs. Across all panels, participants argued that Indigenous consultation and representation in decision-making is an important first step.

Despite differences in decision-making power, meetings between the Tribal and First Nations Caucuses reaffirm shared sentiments and values. For example, a participant from a U.S. Tribe stated:

“...to hear the First Nations people when we were in those groups up in Canada last year, to hear those stories, you know, the one lady, her stories were like mine. And the other man's stories: mine were like his. We are trying to take care of our people and we are running out of fish. To hear them talk, and you could see in their eyes and in their voices the same thing that we are feeling.”

Along these lines, participants also recognized shared constraints rooted in the histories of colonial settlement. As one participant explained, the establishment of both Canada and the U.S. displaced Indigenous communities from salmon management:

“For over 150 years, we have been displaced from the responsibility of being stewards of our own land, managing our own resources, and really looking after our own salmon and other resources. The government made us dependent through residential schools, through the Indian Act and division of our communities. We had 24 Nations that was comprised of one nation, the Stó:lō Nation, and the government decided to divide us because it was much easier to locate us in places that had limited to no resources and lands or areas that were not suitable for growing or lands that were - or water that were not located near to our salmon resources.”

Tribes and First Nations see and feel the effects of displacement every salmon season. Participants emphasized the need to act on Indigenous rights and fulfill reparations with a full understanding of the sociocultural significance of salmon. Western understanding of the importance of salmon to Indigenous peoples is limited; as Dr. Teresa Ryan explains: “Neither terms ‘communal’ nor ‘subsistence’ adequately represents Aboriginal conceptions of industrious use of fishing technology, available resource use, and the acquisition and distribution of surplus products.”⁹⁷

⁹⁶ First Nation Panel on Fisheries, “Our Place at the Table.”

⁹⁷ Ryan, “Territorial Jurisdiction,” 354.

Moving Forward, Together

Between 2019 and 2021, Tribes and First Nations throughout the PST region recorded smaller salmon returns; in the Puget Sound, the fish that returned were smaller and carried fewer eggs. As a result, many Nations were unable to meet community needs and thus, they reduced ceremonial harvests. Lorraine Loomis, Chair of the NWIFC, stresses the importance of working together: “We need additional state and federal agencies, local governments, environmental groups, agriculture, industry and others to join us. That’s because fishery managers can’t make more fish. Only good habitat, hatcheries and working together can do that.”⁹⁸

Looking ahead, most participants emphasized cooperation and collaboration as the next steps to ensure salmon are available for future generations. To avoid “fighting over the last fish,” participants expressed the need to “move forward together” through participation, collaboration, shared management, and reparations. One participant said they find hope by watching salmon jump up the Columbia River: “And most of all, when I see him jump and he goes up, I get the message there that all of the federal agencies need to work together, know what each other is doing.”

To work together on salmon conservation, participants discussed the importance of addressing the drivers of salmon losses in tandem with habitat restoration and Indigenous management. Jeffrey Thomas, Director for the Puyallup Tribe of Indians Timber, Fish, and Wildlife Program, has been working to communicate an Indigenous perspective of environmental management to ensure the cultural well-being of future generations. He says:

“I am trying to look ahead in my work, and I just want to have better protection of streams. I want to have greater restoration of old-growth forest conditions, and I want to have Native people feel that they are acquainted with all of the aspects of their ancestral homelands, so that they can then assert themselves and their stewardship ideas as best possible.”

Participants echoed what Jeffrey Thomas describes as the *Eco-Centric Subsistence Model*: cultural systems balance the needs of people, their economies, and environmental resources because Indigenous People have never understood themselves as separate from ecosystems.⁹⁹ Participants also described the ways in which current management practices fail to acknowledge Indigenous resource management perspectives, including their understandings of the underlying sociocultural values shaping relationships between individuals, families, communities, and ecosystems. As other studies and participants emphasized, including Indigenous ecological knowledge in fisheries management can help to improve fisheries science while building consensus for co-management.

The PSC administers the PST between the U.S. and Canada to prevent overfishing and to “receive benefits equivalent to the production of salmon originating in its waters.”¹⁰⁰ While endowment funds and similar programs reference habitat and restoration, the Treaty focuses on harvest-sharing agreements.¹⁰¹ Historically, salmon management regimes that focused on harvest have failed to prevent losses and have created uncertainty.¹⁰² Current investments in conservation are inadequate to recover salmon habitats, requiring decision-making to incorporate “Priority Threat Management” to prioritize strategies with Indigenous Peoples.¹⁰³ As recent research on salmon management emphasizes, “Approaches to harvest and governance

⁹⁸ Northwest Treaty Tribes, “An Update on the Salmon Season Setting Process.”

⁹⁹ Thomas, “Integrating Ecosystem Services with Eco-Cultural Concepts Throughout the Puyallup Tribal Homelands.”

¹⁰⁰ Article III: Principles of the PST, clause 1. (b).

¹⁰¹ Horner, “Habitat Preservation and Restoration under the Pacific Salmon Treaty.”

¹⁰² Bottom et al., “Reconnecting Social and Ecological Resilience in Salmon Ecosystems.”

¹⁰³ Walsh et al., “Prioritizing Conservation Actions for Pacific Salmon in Canada.”

that are grounded in Indigenous knowledge can promote selective fisheries, local leadership of monitoring and management, and more equitable fishing opportunity for Indigenous and non-Indigenous communities alike.”¹⁰⁴ In addition to incorporating Indigenous knowledge, monitoring programs like the Indigenous Guardians ensure informed consent to the impacts of development on Traditional Territories.¹⁰⁵

Tribal and First Nation inter-tribal fishery organizations, such as FNFC, CRITFC, UCUT, and NWIFC, have been instrumental in convening competing sectors on salmon recovery. These efforts, together with the salmon conservation, habitat protection, and restoration work of individual Indigenous Nations, demonstrate the strength of cross-sector approaches to salmon restoration.¹⁰⁶ For example, the Columbia Basin Partnership Task Force (convened by NOAA) brings together “environmental, fishing, agricultural, utility, and river-user groups; local recovery groups; the states of Idaho, Montana, Washington, and Oregon; and federally recognized tribes” around a shared vision for the Basin’s future.¹⁰⁷ The Partnership sets clear qualitative and quantitative goals to capture social, cultural, economic, and ecological values and achieve desired outcomes. Similarly, the Billy Frank Jr. Salmon Coalition convenes cross-sector leadership for salmon recovery around a series of goals for habitat restoration, hatcheries, and treaty obligations.¹⁰⁸ In Canada, Raincoast Conservation Foundation’s *Towards A Vision For Salmon Habitat in the Lower Fraser River*¹⁰⁹ reviews current initiatives and sets a clear vision for the future of sustainable salmon management. The authors offer recommendations for achieving that vision, including increasing collaboration on habitat restoration, prioritizing salmon habitat in land-use planning, and supporting reconciliation through a watershed approach with Indigenous Peoples.¹¹⁰

Conclusion and Recommendations

“Well, we look in the future, and we have salmon that will feed not only our bodies, but our culture. And so, our youth are proud that not only they know how to harvest it, to process it, they can share it with their kids. Ultimately, it is for our children.”

Lawrence Joe, Champagne and Aishihik First Nations

This report highlights shared sociocultural values linked to salmon throughout the Pacific Salmon Treaty region, centered on social systems, health, livelihoods, management, and knowledge and practices. As described in the **results** section, all project participants emphasized that the health of Pacific salmon is tightly interwoven with the well-being of Indigenous Nations and Peoples. Salmon are considered more than a food,

¹⁰⁴ Atlas et al., “Indigenous Systems of Management for Culturally and Ecologically Resilient Pacific Salmon (*Oncorhynchus*) Fisheries.”

¹⁰⁵ Reed et al., “Indigenous Guardians as an Emerging Approach to Indigenous Environmental Governance.”

¹⁰⁶ Thomas, “Integrating Ecosystem Services With Eco-Cultural Concepts Throughout the Puyallup Tribal Homelands”; Johnsen, “Salmon, Science, and Reciprocity on the Northwest Coast”; Steel, “Colonial Displacement of Traditional Fisheries Management”; Reid et al., “Indigenous Climate Change Adaptation Planning Using a Values-Focused Approach”; Carothers, “Equity and Access to Fishing Rights”; Jones, “We Looked after All the Salmon Streams’: Traditional Heiltsuk Cultural Stewardship of Salmon and Salmon Streams, a Preliminary Assessment”; Atlas et al., “Ancient Fish Weir Technology for Modern Stewardship.”

¹⁰⁷ Columbia Basin Partnership Task Force, “A Vision for Salmon and Steelhead,” 1-2.

¹⁰⁸ Billy Frank Jr. Salmon Coalition, “Billy Frank Jr. Salmon Coalition”; Loomis, “Loomis” Susewind and Loomis, “The Struggle to Share a Shrinking Resource — Northwest Salmon.”

¹⁰⁹ Scott, Dixon, and MacDuffee, “Toward a Vision for Salmon Habitat in the Lower Fraser River.”

¹¹⁰ Holt, Rutherford, and Peterman, “International Cooperation among Nation-States of the North Pacific Ocean on the Problem of Competition among Salmon for a Common Pool of Prey Resources”; *Wicazo Sa Review*, “Interdisciplinarity, Native Resilience, and How the Riddles Can Teach Wildlife Law in an Era of Rapid Climate Change”; Penney, Lumley, and DeCoteau, “Wy-Kan-Ush-Mi Wa-Kish-Wit”; Colombi, “Salmon and the Adaptive Capacity of Nimiipuu (Nez Perce) Culture to Cope with Change”; Feinberg, “Time for Indigenous-Led Salmon Strategy on the Lower Fraser, Says Alliance”; Wood, “Want to Save B.C. Salmon?”; Jacob, McDaniels, and Hinch, “Indigenous Culture and Adaptation to Climate Change.”

resource, or economy by Tribes and First Nations; salmon are understood as the sacred lifeblood of Indigenous communities and central to Indigenous identities. As other studies show, Indigenous well-being is tied to the ability to express sociocultural values in relation to self-determination, community connection, and ecosystem health, for both current and future generations.¹¹¹ As all participants emphasized, cultural cycles are sustained by sharing a love and respect for salmon with family, community, and members of other communities, through practices of fishing, preparation, management, ceremonies, and gatherings.

This study also reports the impacts to Indigenous communities who are unable to harvest salmon for food, social, and ceremonial needs. Across the region, participants reported being unable to meet their basic food fish requirements due to poor returns. Participants described these losses as a crisis on multiple levels, rooted in exclusionary policies and practices that both impair salmon habitat and displace Indigenous communities from their ways of life and relationships with salmon cycles. Litigation (e.g., the Boldt Decision and the Sparrow Decision) has provided critical opportunities to honor Indigenous Nations' sovereignty and uphold Salmon Peoples' sociocultural values. However, Indigenous Peoples continue to face barriers in their ability to fish and manage salmon, due in part to complex management systems across the broad range of salmon habitats and lifecycles.

Numerous barriers limiting Indigenous fisheries management were identified by participants. Racism and prejudice around fishing activities—particularly in the recreational sector—present deep-rooted barriers to equitable, collaborative management relationships. A lack of respect and understanding of Indigenous values and perspectives around salmon was flagged as a key limitation to finding mutual ground in support of healthy salmon runs. Participants indicated that this disconnect is often expressed through exclusionary decision-making processes that favor commercial and recreational sectors at the expense of Indigenous rights and interests. As the **discussion** section describes, participants frequently emphasized the need for greater collaboration, and there are many examples of initiatives that enhance participation across sectors around salmon restoration and management.

Project participants emphasized that conservation management, the rebuilding of salmon stocks, and salmon habitat restoration need to be developed and implemented in partnership with Tribes and First Nations. Across the region, participants expressed a need to address the causes of poor salmon returns. As a cultural and ecological keystone species, salmon are central to broader ecosystem processes, supporting the well-being of all Pacific Northwest residents. Participants repeatedly described a personal responsibility to support salmon health and habitat to ensure abundant returns for future generations. The following goals and targets were common to these conversations about protecting, conserving, and restoring salmon:

- Prioritize the restoration of salmon runs over harvest to ensure that Indigenous communities are able to meet food, social, and ceremonial salmon needs, both now and in the future.
- Restore salmon ecosystems by combining Indigenous knowledge with modern fisheries management approaches. Provide additional funding and support for Indigenous fisheries and fisheries science programs.
- Include Indigenous participants in salmon co-management. Greater representation and participation by Indigenous communities can help expand opportunities for cross-sector collaboration.
- Fully recognize and support Tribal and First Nation sovereignty in decision-making.

As participants explained, restoring salmon runs, supporting Indigenous co-management, and respecting Indigenous sociocultural systems can generate multiple benefits for everyone in the Pacific salmon region.

¹¹¹ Biedenweg, Amberson, and James, "Measuring Socio-Cultural Values Associated with Salmon in the Quinault Indian Nation"; Amberson et al., "The Heartbeat of Our People"; Donatuto, Campbell, and Gregory, "Developing Responsive Indicators of Indigenous Community Health."

Appendix

Interview Script

Thank you for taking the time to participate in this study.

Your participation here informs a larger study we are conducting for the Pacific Salmon Commission about the social and cultural value of salmon for Tribes and First Nations.

The goal of the study is to understand the cultural importance of salmon. This study will culminate in a report and other materials, to be published in early 2021.

Your participation and responses shared in this interview will remain anonymous – your name will not be included anywhere in our final report unless you specify otherwise. We will summarize key themes and may include direct quotes from this interview in final reports. To include a quote in shareable materials, we ask for permission first and make sure quotes do not contain any identifying information.

With your consent, we would like to record and transcribe this interview to strengthen our analysis. Do you mind if we record this interview? We will share the transcript of this interview back with you and give you an opportunity to review and make sure we have accurately captured everything you've shared before publication.

We have prepared seven questions, but this is meant to be an open conversation. Please take a moment to review these questions before we begin. Your participation is completely voluntary; you may choose to end the interview at any time, and you may choose not to answer any question.

Do you have any questions?

Before we begin, please briefly introduce yourself.

1. Please tell us about how salmon relates to any of the following topics for you and/or your community:
 - a. Beliefs, stories, traditional knowledge, and practices
 - b. Family and community gatherings, sense of community
 - c. Livelihoods, such as food security, subsistence, jobs, income, trade
 - d. Human and ecosystem health
2. How do you and/or your community look after, care for, and manage salmon?
3. What feelings come up when you think about salmon in relation to what we have discussed?
4. Please share your thoughts on the future of salmon for Tribes and First Nations:
 - a. What should the future of salmon look like?
 - b. What do you think the future of salmon will look like?
5. What else would you like to add?
6. What feedback do you have for this study?
7. [Optional] What is your favorite salmon story?

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