

Theme	Description	Example references
Mixed economies	Subsistence harvest of wild resources exists in consistent balance with cash-generating activities; interactions between the two include customary trade and barter, the use of cash to purchase equipment, fuel, and supplies for subsistence and the practice of sharing and trading labor, expertise, and equipment to participate in subsistence activities. In the salmon fisheries, cash income from commercial harvest of salmon supports the financial requirements of subsistence fishing; the practices and social dynamics inherent in fishing are learned and shared initially through subsistence, and can also support commercial fishing livelihoods.	Sobelman 1985; Fall et al. 1993; Buklis 1999; Magdanz et al. 2007; Reedy-Maschner 2009; Jenkins 2015; BurnSilver et al. 2016)
User-group conflicts	Disagreement over allocation of salmon harvests between subsistence, sport, personal use, and commercial sectors; examples include Upper Cook Inlet and the Copper River.	Holen 2004; Fall and Simeone 2010; Dunker 2013; Loring et al. 2014
Inter-region conflicts	Given the highly migratory nature of salmon, the challenge of determining the stock of origin of salmon during harvests creates conflicts between fishermen that are dispersed along the migratory pathway; examples include high-seas interception, and Area M fisheries.	Reedy-Maschner 2010; Johnson and Murphy 2016
Transboundary issues	Any management or conservation concern relating to the ranges of salmon stocks that encompass U.S. and Canadian waters; examples include several mineral deposits that are slated for exploration or development in British Columbia in the headwaters of the Stikine, Taku, and Alsek Rivers, and the Pacific Salmon Treaty requiring minimum escapement of salmon into Canadian waters of the Yukon River.	Burr 2015; Chadwick et al. 2015; Conrad and Gray 2017

Abundance shifts	<p><i>Chinook salmon decline</i>: several years of very low Chinook salmon abundance, spread out over three decades, have negatively impacted all salmon user groups, particularly on the Yukon and Kuskokwim rivers, but also on the Kenai Peninsula and in Southeast Alaska; the effects and their causes have become focal points in conflicts between users and management, and in how the resultant crises have been handled over the short and long term by state and federal fishery management agencies.</p> <p><i>Emerging Arctic subsistence salmon fisheries</i>: chum, pink, and chinook salmon harvests are increasing in Arctic communities.</p>	Burr 2006; Carothers et al. 2012; Dye and Schwanke 2012; Dunker 2013; Ikuta et al. 2013; Loring and Harrison 2013; Brown et al. 2014; Burr 2015; Brown et al. 2016; Carothers et al. 2019
Sport use shifts	More remote parts of the state are growing in popularity among sport fishermen as road-accessible streams in the Mat-Su Valley, the Kenai Peninsula, and the Southeast become less desirable due to crowding, habitat degradation, and changing quality of experience; examples include rivers in the Northwest Arctic near Nome and Kotzebue, as well as tributaries of the Kuskokwim and Yukon Rivers.	Chadwick et al. 2015; Dunaway 1997
Sport-dependent regions	Tourist destinations in Southeast and Southcentral Alaska (e.g., Homer, Cooper Landing, Sitka, Juneau), wherein commercial charter fishing operations are significant contributors to the local economy, have increased in popularity over the past two decades (with the exception of the 2008 financial crisis and a handful of years after).	Chadwick et al. 2015; Paige et al. 2009; Schwarz et al. 2002
Commercial-dependent regions	Several regions of the state are economically and culturally dependent on commercial salmon fisheries, including Bristol Bay, Kodiak, Chignik, Alaska Peninsula/Aleutian Islands, Southeast, and Cook Inlet.	Apgar-Kurtz 2015; Arnold 2009; Braund 2017; Carothers 2015; Himes-Cornell & Hoelting 2015
Cultural roles	The roles that salmon fill among different user groups, geographies, ethnicities, and identities are unique, but there are certainly commonalities among them, including the belief that salmon must be treated with respect (however that may be defined).	Brown et al. 2014; Burr 2000; EPA 2014; Langdon 2006a; Napoleon 1991; Raymond-Yakoubian & Raymond-Yakoubian 2015

<p>Food &amp; livelihood security</p>	<p>Salmon, like all wild foods, play a significant role in achieving food security in places with historically high costs of living and expensive store-bought foods.</p>	<p>Braem et al. 2015; Brown et al. 2012; Brown et al. 2014; Carothers et al. 2012; Sheldon et al. 2016</p>
<p>Subsistence &amp; sharing</p>	<p>This universal feature of subsistence describes the dense, kin-based networks through which wild resources flow within and across rural communities; sharing and subsistence cannot be separated.</p>	<p>BurnSilver et al. 2016; Carothers et al. 2019; EPA 2014; Fall et al. 1993; Ikuta et al. 2016; Magdanz et al. 2002, 2007; Marchinoi et al. 2016; Moncrieff 2007</p>
<p>Salmon price impacts</p>	<p>Low ex-vessel prices for salmon, particularly the period in the late 1990s/early 2000s brought about by farmed salmon flooding global salmon markets, had lasting impacts in many commercially dependent regions and mixed economies in the state; for state limited entry permit holders, these impacts included sale of rights in times of immediate cash needs and lost ties between commercial fishing and the community.</p>	<p>Buklis 1999; Gho 2014, 2015, 2016; Himes-Cornell and Hoelting 2015; Holen 2017</p>
<p>Local and traditional knowledge</p>	<p>The practice of salmon fishing today, whether for commercial, sport, personal use, or subsistence purposes, is the product of local and traditional salmon knowledge passed down and revised through hundreds of generations; efforts to incorporate multiple ways of knowing into management of salmon systems has increased in recent decades, but resistance still remains.</p>	<p>Langdon 2006b; Moncrieff 2007; Moncrieff et al. 2009; Carothers et al. 2019; Carothers et al. 2014; Naves et al. 2015; Raymond-Yakoubian and Raymond-Yakoubian 2015; Holen 2017; NOAA Fisheries 2019</p>
<p>Loss of access due to privatization</p>	<p>Inequitable distribution of fishing rights among local and nonlocal resident groups, highly overcapitalized fishing operations, and lost access by communities local to the fishing grounds across Alaska (although certain areas have been more severely impacted than others) have resulted from the shift to rights-based fishery access.</p>	<p>Carothers and Chambers 2012; Carothers 2015; Himes-Cornell and Hoelting 2015; Donkersloot and Carothers 2016</p>

<p>Industrial development concerns</p>	<p>The friction between Alaska’s renewable and nonrenewable resource industries is evidenced by recent examples of development projects that have the potential to negatively impact salmon habitat across the state, including the Pebble Deposit in the headwaters of Bristol Bay’s major river systems, the Donlin mine in the Kuskokwim region, the Ambler Mining District in Northwest Alaska, and oil and gas off the eastern Aleutian-Bering Sea coast.</p>	<p>Reedy-Maschner and Maschner 2012; EPA 2014; Braem et al. 2015; Braund 2017</p>
<p>Governance conflicts</p>	<p>At the core of state and federal governance conflicts is how residents of rural communities adjacent to subsistence resources are considered by state and federal law; the State of Alaska constitution does not allow for preferential access to subsistence resources for one group of Alaskans over another on state lands and waters, while Title VIII of the Alaska National Interest Lands Conservation Act (ANILCA) of 1980 expressly requires that preference to rural subsistence users be given on federally managed lands and waters. There differing views of Tribal governance and co-management of fisheries in Alaska, e.g., the rise of the Intertribal Fish Commissions in Yukon and Kuskokwim.</p>	<p>Josephson 1997; Holen 2004; Brown et al. 2012</p>
<p>Consistency of subsistence harvests</p>	<p>Several studies document the remarkable consistency in subsistence harvest patterns at the community level; the 30-70 or “super households” rule in which 30 percent of the households harvest 70 percent of the resources that are used by all households in the community, and the consistency of the total amount (in edible pounds) of wild foods gathered by community have remained stable through time.</p>	<p>Magdanz et al. 2002; Brown et al. 2016; BurnSilver et al. 2016</p>

Annual round	The seasonal nature of salmon fishing and how it fits into the annual, seasonal cycle of subsistence harvests is key to contextualizing ecological, economic, and social changes related to subsistence; for example, shifting salmon run timing and its effects on timing and length of trips to fish camp in the summer are features of human adaptation that would not be evident without the necessary consideration of annual patterns in subsistence activity.	Veltre and Veltre 1983; Simeone et al. 2007; Moerlein and Carothers 2012; Ikuta et al. 2013; Braem et al. 2015
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