

Appendix 1. Well-Being Domains, Definitions, and Sample Indicators

SASAP Domains	SASAP Dimensions	Definitions	Sample Indicators
Economy & Livelihood	Material Wealth & Security	Resources consumed, possessions, costs & affordability, cost of living, basic needs, poverty, debt, access to credit, material security, assets, and consumption	# of households below poverty line; Cost of living; Median household income; Satisfaction with ability to provide for your family
Economy & Livelihood	Economic Dimensions of Resource Access	Access to credit and capital needed to invest in gear, permits, etc. required for obtaining resource; labor needed to harvest resource; market value of resource and access rights	Entry costs; Value of fishing rights (compared to median household income); Participation costs (as % of total fisheries revenue); Are programs or services in place to support local participation?; Access to capital (% of residents who qualify for fishing loan programs)
Economy & Livelihood	Local & Informal Economies	Production of and participation in food acquisition through subsistence, personal use, recreational takes, and commercial home pack - broken out by demographic categories; total harvest levels and exchange; fish/farmers markets, local producers & consumers; gifting, sharing, bartering, trading; value, volumes and percentages of reciprocal and in-kind transactions; sharing networks	Total salmon harvest by community (personal use, subsistence, recreational, commercial homepack); Flow of different types of cash and harvests between households; # of households giving/sharing salmon (and total # of fish given/shared); # of households receiving salmon (and total # of fish received); # of personal use permits by community
Economy & Livelihood	Employment and Income	Jobs, wages, and income (overall and by sector and social and demographic variables); sector diversity within a population; unemployment and labor force participation; (see 'job satisfaction' for other employment characteristics)	Labor force participation rate; Unemployment rate; Distribution of income; % of young adults that can't find work that want work; % of population in jobless households; % of population employed in the salmon fishing industry; Resident and nonresident workforce by fishery and industry sector
Economy & Livelihood	Job Satisfaction and Quality	Job duration; employment options; living wage level; benefits; flexibility; job and work satisfaction	Satisfaction with job opportunities and upward mobility in community; Job satisfaction by fishery and industry sector; Job stress by fishery and industry sector; Job satisfaction by how many hours of work per week in natural environment; % of employed adults saying their job gives them a sense of identity
Economy & Livelihood	Subsistence and Traditional Fishing & Hunting Livelihoods	Participation in traditional hunting and fishing practices, activities, and ways of life, including harvesting, processing, storing, giving/receiving and consumption of subsistence resources; satisfaction with traditional hunting and fishing livelihood opportunities, activities and outcomes; perception and ability to respond to change & uncertainty of traditional lifeways	# of households harvesting subsistence salmon; Change in # of fish camps (and # of families per fish camp); Is Amount Reasonably Necessary for Subsistence (ANS) met?; Total subsistence harvest (lbs and # of species); % of total subsistence harvest that is salmon; Local and nonlocal subsistence harvest pressure; Satisfaction with your family's traditional hunting and fishing opportunities
Economy & Livelihood	Commercial Fishing Livelihoods	Participation in commercial fishing activities and practices, including harvesting, processing, marketing, etc. of commercial fishery resources; change in local fishery participation broken out by demographic and social variables; community employment opportunity; mixed livelihoods that include commercial fishing; financial reinvestments in local community; livelihood satisfaction	Change in # and % of locally held fishing permits; Change in age distribution of permit holders; Change in Alaska Native permit holdings; # of new entrants to fishery by age and residency; Average age of crew; # and % of local and nonlocal crew licenses; # and % of local crew who feel they are fairly paid; # of local salmon permit holders holding access rights in other fisheries; Lbs of subsistence salmon harvested by commercial fishery permit holders; Change in catching power by residency of permit holder; Permit latency rate by community
Economy & Livelihood	Recreation & Tourism	Participation in recreational fishing practices and activities, including harvesting and guiding; recreation and tourism assets and opportunities	# of visitors to community per year; Relative contribution of local tourism revenues within average annual household income; # of recreational fishing licenses sold in community; # of local and nonlocal fishing lodges, services or recreational guide outfitters; # of sport fishing days; Satisfaction with recreational opportunities in community
Economy & Livelihood	Time for Fulfilling Activities	Amount of leisure time; time spent working, commuting, volunteering, recreating, subsistence, etc.; work-life balance	Time spent harvesting and processing salmon for your family's needs this year; Time spent participating in fishery management process (e.g. understanding process, attending meetings, etc.); Were you able to spend as much time as you needed to harvest the salmon that you needed this year?; Time spent volunteering; Satisfaction with amount of time available for harvesting salmon this year; Satisfaction with amount of recreation and leisure time

Economy & Livelihood	Local & Informal Economies	Production of and participation in food acquisition through subsistence, personal use, recreational takes, and commercial home pack - broken out by demographic categories; total harvest levels and exchange; fish/farmers markets, local producers & consumers; gifting, sharing, bartering, trading; value, volumes and percentages of reciprocal and in-kind transactions; sharing networks	Total salmon harvest by community (personal use, subsistence, recreational, commercial homepack); Flow of different types of cash and harvests between households; # of households giving/sharing salmon (and total # of fish given/shared); # of households receiving salmon (and total # of fish received); # of personal use permits by community
Economy & Livelihood	Food Security	Cost of food, food and water access, includes access to traditional foods, agricultural and fisheries harvests; abundance, quality; food security and sovereignty; maintenance of sharing networks; emergency preparedness	Proportion of food to come from subsistence; Cost of food (consumer price index); # of adults who reported that household food money didn't last; Availability and substitutability of preferred foods (i.e. Trends in targeting new or different species because traditional or preferred species are unavailable); Subsistence fishery closures; % of households that report having a stable food supply through the year; % of households experiencing food insecurity
Economy & Livelihood	Industry & Commerce	Commercial and industrial fisheries production, trade and revenue; GDP, investment, general economic activity, business & industry sector characteristics, commercial resource harvests and extraction	Total fisheries revenue in community and % of revenue from salmon fisheries; Gross fishery revenues per capita; Local economic activity from salmon fishery; Vessel earnings and landings by community; Total fishery earnings and landings
Environment	Environmental Health & Quality	Quality or condition of natural environment and resources; ecosystem health, integrity, productivity; water and soil quality; invasive species, habitat degradation; restored habitats; quantity and geographic distribution of marine resources	Abundance of selected key species; Are local salmon stocks listed as 'stocks of concern' by Board of Fisheries?; Satisfaction with fish and game availability; Satisfaction with health of salmon fisheries in your region; % of residents expressing concern for future health of salmon; Trends in public or environmental health advisories related to fish harvest and consumption; Do you have concerns about local water quality or habitat health?; Do you have concerns about continuation or safety of consuming local fish and game?
Environment	Ecological Dimensions of Resource Access	Attributes of a resource that make it available and desirable to potential users, such as resource characteristics (size, maturity, abundance), condition (safe to eat), geographic distribution; environmental conditions that affect access to resources or foster resource availability (e.g. water quality, levels, etc.)	Change in range of available species (e.g. composition of commercial and subsistence harvest by community); Availability of commonly harvested species; Change in water levels or temperatures; Change in fish size, condition or quality; Change in timing and availability of salmon
Environment	Infrastructure	Human built environment; roads, ports, housing and transit; communications and technology infrastructure; community and municipal planning and development, urban sprawl	# of fishing industry infrastructure (e.g. processors, boat ramps, harbors); Satisfaction with local fishing infrastructure
Environment	Physical Dimensions of Resource Access	Physical infrastructure that affects resource access (e.g. roads, barriers, dams, harbors, ports, boat ramps, public shoreline, etc.)	% of shoreline that is publicly accessible or owned; % of residents who are satisfied with their access to public shorelines or fishing sites (e.g. setnet, dipnet, fish wheel sites); # of local fishermen with access to seafood markets/buyer for full harvest
Environment	Pollution & Waste	Anthropogenic pollution; biotoxin, marine debris; environmental well-being	Marine debris collected annually; Trends in fishery/beach closures or public or environmental health advisories related to pollutants/contaminants
Environment	Beauty & Inspiration	Aesthetic value, creativity and gratitude inspired by nature	% of residents who describe experiencing positive feelings/emotions from being in nature, such as awe, inspiration, fulfillment, appreciation, solitude, relaxation, sense of peace and reflection
Health	Emotional and Mental Health	Emotional well-being and perceived quality of life; happiness, attitude, trust, subjective well-being; mental health, depression, suicide rates, etc.	How satisfied are you with your quality of life as a whole?; Trends in social problems (e.g. abuse, addiction, violence, suicide, depression, etc.); Perceptions in community's ability to address social problems (e.g. abuse, addiction, violence, suicide, depression, etc.); Subjective well-being
Health	Physical Health	Health conditions; access to healthcare; nutrition, disease, injuries, life expectancy, birth and death rates, mortality and morbidity; healthy food and lifestyle; healthy choices; health advisories; perceptions of health	% of adults whose self-perceived health status is very good or excellent; % of adults who say they are in poor health; Life expectancy at birth (change over time and disparities among populations); % of residents who are overweight/obese; Mortality and morbidity; Satisfaction with health services; Satisfaction with your family's health; Hours of outdoor activity

Economy & Livelihood	Local & Informal Economies	Production of and participation in food acquisition through subsistence, personal use, recreational takes, and commercial home pack - broken out by demographic categories; total harvest levels and exchange; fish/farmers markets, local producers & consumers; gifting, sharing, bartering, trading; value, volumes and percentages of reciprocal and in-kind transactions; sharing networks	Total salmon harvest by community (personal use, subsistence, recreational, commercial homepack); Flow of different types of cash and harvests between households; # of households giving/sharing salmon (and total # of fish given/shared); # of households receiving salmon (and total # of fish received); # of personal use permits by community
Health	Spiritual Health	Participation in spiritual practices, ceremonies, and religion without risk of persecution or perceived persecution; maintenance of community, family, ancestral and human/non-human relationships and connectedness; transgenerational and historical traumas	% of residents who feel they are able to practice their spiritual or religious beliefs without persecution or discrimination; % of residents who have experienced multi-generational trauma due to colonialism or other historical oppressions; Qualitative assessment of practices and conditions that promote and threaten spiritual well-being
Safety	Disaster Preparedness	Cost and preparedness for large-scale environmental disasters; preparedness for oil spills, tsunamis, climate change, severe weather; density in hazard zones, communications infrastructure; number of events; life and value lost	Cost of climate impacts and weather disasters annually; Does community have a hazard mitigation plan?; Coastal hazard risk (e.g. flooding, storm, erosion)
Safety	Physical Safety	Safety at work and home; occupational risks and emergency services, building codes, injuries	# of fishery related injuries or deaths; % of people who feel safe in their communities; % of households feeling safe, moderately safe or not safe from property crime in community
Safety	Peace & Security	Presence, absence, and prevention of violence; crime, non-compliance, emergency services, sense of personal safety, acts of violence, refugees including environmental refugees	Sense of safety; Crime rate by community; # of emergency calls; Average response time for emergency services; Satisfaction with public safety
Culture, Place & Identity	Cultural Values & Practices	Culture, language, & the arts; languages spoken; cultural sites; cultural practices and values; meaning of practices; environmental ethos and values; community and cultural events	Are Indigenous language learning opportunities available in community?; Satisfaction with ability to understand, speak, write your Indigenous language; Are you able to participate in cultural activities or traditions that are important to your family or community? (How easy or difficult are these to maintain?); Satisfaction with community promotion of cultural values; Satisfaction with sharing and helping in your community
Culture, Place & Identity	Generational Connections to Place and Culture	Multi-generational connections and interactions with place, environment and natural resources; archeological and historic sites; cultural resources; acceptable historical change	Satisfaction with your ability to learn traditional skills and knowledge in your community; % of residents that participate in practices important to their connection to place; Age structure of residents that participate in practices important to their connection to place; Are there elders or Indigenous community members with knowledge of tribal traditions and places in the community?
Culture, Place & Identity	Place Attachments & Sense of Place	Meaning and identity connected to place; activities on the landscape, heritage, social and emotional connections to places and lands/waters	% of residents who express high life satisfaction or happiness and % who express living in the region as a contributor to this; % of local youth who feel that community is a good place to grow up; % of residents who feel attachment to place is threatened
Culture, Place & Identity	Religion, Spirituality & Worldviews	Sense of spirituality; belief systems; rituals and ceremonies; ways in which cosmologies, ideologies, and everyday practices shape relationships to and ways of being with and thinking about the environment, humans, ancestors, and non-human beings	Spiritual fulfillment; Is your worldview shared by decision-makers?; Qualitative assessment of ways in which people-nature relationships shape worldviews or belief systems
Culture, Place & Identity	Stewardship & Values	Active conservation and sustainability practices, includes protected areas, restoration, recycling, etc.; taking care of land and water; environmental ethos, conservation ethic, human-nature relationships	% of residents engaging in salmon stewardship activities per year; Satisfaction with impact your stewardship activities have on reducing environmental problems or threats; Are your stewardship values shared by fishery decision-makers?
Culture, Place & Identity	Identity	Sense of self or community; individual, household and symbolic sense of relationships; self-definition (individually and in relation to community); sense of connection to labor, environment and cultural practices	% of people who say they feel part of the community (by ethnicity/gender/age/etc.); % of people who say that salmon fishing practices contribute to identity

Economy & Livelihood	Local & Informal Economies	Production of and participation in food acquisition through subsistence, personal use, recreational takes, and commercial home pack - broken out by demographic categories; total harvest levels and exchange; fish/farmers markets, local producers & consumers; gifting, sharing, bartering, trading; value, volumes and percentages of reciprocal and in-kind transactions; sharing networks	Total salmon harvest by community (personal use, subsistence, recreational, commercial homepack); Flow of different types of cash and harvests between households; # of households giving/sharing salmon (and total # of fish given/shared); # of households receiving salmon (and total # of fish received); # of personal use permits by community
Social Relationships	Family and Community Connections	Family, personal relationships, joint family endeavors, community support and relationships, marriage and divorce, community spaces	% of residents who are caring for dependents (and % for whose care of others depends on access to salmon); % of adults giving unpaid care to seniors/elders; % of 16-24 year olds who think it would be difficult to find a marriage partner in community ; # of respondents with other family members living in-region; % of population who respond they can count on other community members to come to their assistance in a crisis; Social capital (total # of community groups that respondent belongs to)
Social Relationships	Social Dimensions of Resource Access	Social context, identity and networks of the resource user that enable, confer or deny rights of access, e.g. ethnicity, kinship, group membership	% of new entrants to fishery that do not come from fishing family; # of fishing permits within family; % of annual permit transfers that are gifted to family/friend vs. sold/transferred; # of young residents who anticipate being gifted a fishing permit from family/friend; # of local vessels participating in fishery ; # of residents with historical ties to fishery that no longer fish
Social Relationships	Generational Continuity	Ancestry; lineage identity, generational solidarity	# of continuous generations harvesting resource; % of children under age 16 that fish with family or friends
Social Relationships	Community Size, Composition & Diversity	Demographic characteristics including population size, density, race/ethnicity, immigration/emigration, age and gender distribution	Population change broken out by demographic variables; Median age; % of residents who have considered moving away from community in past 5 years; Net migration
Social Relationships	Non-human social relationships	Worldviews, values and belief systems governing relationships with non-human life, including plants and animals, land and water	ethnographic and/or qualitative assessment of people-nature relationships
Social Relationships	Social integrity	Social fabric and trust in people, trust in neighbors, inter-group relations, sense of community	% of people who say they feel part of the community; % of population who agree there are opportunities to contribute to their community; Trust: how much respondents trusted community members, local leaders, police, and local government
Education & Knowledge	Education & Information	Possession & transmission of knowledge, information & skills	Residents aged 16-64 with no qualifications; % of residents who agree they have access to enough information regarding decisions affecting their community; Satisfaction with opportunities to learn new skills and knowledge in your community
Education & Knowledge	Cognitive & Cultural Dimensions of Resource Access	Knowledge required to identify, locate, harvest and process resource; values and ethics about which resources to harvest and quantities	% of residents who agree that they have access to enough information to harvest and care for salmon (e.g. operate gear/vessel, handle fish, etc.)
Education & Knowledge	Local & Traditional Knowledge	Embedded systems of knowledge within place-based and cultural traditions and experience; knowledge, values, ways of thinking across systems and beliefs actively passed down through generations	Elder satisfaction with youth ability to understand and learn traditional skills and knowledge; Trends in % of elders or parents transmitting traditional knowledge to children; Satisfaction with ability of salmon managers to incorporate local and traditional knowledge into decision-making; Does community organize a salmon/culture camp for local youth and residents?
Education & Knowledge	Institutions & Infrastructure	Educational institutions and outcomes, includes public/private schools, trade schools, apprenticeships; school enrollment, graduation and drop out rates; education levels	Student enrollment #s (risk of school closure); Presence of school in community (y/n); Teaching staff diversity to student diversity; Per capita student school costs; Number of years that school was closed due to low enrollment; Satisfaction with public schools
Education & Knowledge	Research & Technology	Production of new tools and data; ability to produce/contribute new knowledge; access to technology	% of households with broadband access; Satisfaction with community engagement in salmon research design and data collection
Education & Knowledge	Technical Dimensions of Resource Access	The technical skills, equipment, etc. required to harvest resources, such as fishing gear, location devices, boats	# of USCG registered vessels by community; Do you have access to the tools/gear you need to harvest salmon?

Economy & Livelihood	Local & Informal Economies	Production of and participation in food acquisition through subsistence, personal use, recreational takes, and commercial home pack - broken out by demographic categories; total harvest levels and exchange; fish/farmers markets, local producers & consumers; gifting, sharing, bartering, trading; value, volumes and percentages of reciprocal and in-kind transactions; sharing networks	Total salmon harvest by community (personal use, subsistence, recreational, commercial homepack); Flow of different types of cash and harvests between households; # of households giving/sharing salmon (and total # of fish given/shared); # of households receiving salmon (and total # of fish received); # of personal use permits by community
Voice & Agency	Self-Determination	Independence, agency, freedom from social or governmental constraints; ability to make meaningful decisions, includes groups' ability to enact their own healing	Are traditional marine and coastal use rights recognized?; Are you able to pursue your fishing way of life in a way that you would like to?
Voice & Agency	Sovereignty	Tribal or local sovereignty; self governance (see also Resource Management)	Is there an Alaska Native right or Tribal access in fishery?; Satisfaction with local control over fish and game management; Land ownership (% of local waters/lands under state/federal/tribal jurisdiction, etc.); % of regions/communities/Tribes that have completed a strategic cooperative salmon management arrangement; Are lands and waters managed or co-managed by Indigenous or local communities?
Voice & Agency	Voice	Having a voice in decision-making	% of residents who agree they have input in resource management decisions; Trends in local participation in management meetings; Satisfaction with your influence over local politics and leadership; Satisfaction with influence you have over management of fish and game
Voice & Agency	Political Dimensions of Resource Access	Ability to raise issues before decision-makers; influence, power, local control, political representation; voice and participation in management	Do salmon managers and decision-makers live in your region?; How often are salmon management meetings held in your community?; Cost to participate in management meetings; Is your community represented on a formal advisory board/council to a regulatory body?; # of local fishing ordinances developed by Tribe; # of fishery proposals/plans developed by community (success rate?)
Management & Governance	Resource Management	Governmental management of natural resources, including governing institutions, self-governance and tribal or local sovereignty; perceptions and effectiveness of management; capacity for achieving management objectives	Satisfaction with salmon management; Diversity of salmon users included in management; Are the people who most need salmon able to get salmon?; How equitable is the distribution of access rights across user groups?; Satisfaction with family's access to fishing opportunities; Is salmon management adequately funded?
Management & Governance	Legal Dimensions of Resource Access	Laws, policies, rules (customary or de jure), permits, quota, regulation, etc. that govern access to resources	How would you rate the fairness of salmon management?; Fishery or area closures; Is access based on traditional or historical access and harvests?; Are access rights provided to those that live closest to the resource?
Management & Governance	General Governance	Principles and practices of effective governance, includes western and tribal governance; public debt, taxes, expenditures; inter-agency coordination; transparency	Confidence in institutions and leaders; Perceptions of transparency/legitimacy of governance systems; % of residents satisfied with the quality of local government and leadership
Management & Governance	Civic Participation	Community volunteering, regulatory meeting attendance, service (boards, government, committees, etc).	% of residents who have worked with other residents to solve community challenges; % of residents serving on local boards/councils/bodies; % of eligible population registered to vote (and voter turnout); % of adults who volunteer for community activities