

2022-2026  
Regional Implementation Plan



# ALASKA

## Coastal Program



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Contact:  
Michael Daigneault, Habitat Restoration and Partnerships Coordinator  
1011 E Tudor Road  
Anchorage, Alaska 99503  
(907) 786-3523

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# Executive Summary

In Alaska, the Coastal Program focuses on species conservation, habitat connectivity, and resilient ecosystems for the benefit of federal trust species. Pacific salmon, migratory birds, and pollinators are used to guide our planning decisions for on-the-ground projects within the program's defined geographic focus areas. Each of these species groups serves an ecological role that influences the productivity of the other and the ecosystem overall. For example, Pacific salmon are connected to people and all components of their watersheds. Salmon are an ecosystem driver and the ecological health of entire ecosystems, including everything from soil microbes to the plant community to apex organisms like bears, relies on healthy salmon populations. Thus, because all components of the ecosystem are connected, actions to restore or enhance habitat for one species benefits a multitude of others. During this strategic planning period, we will prioritize activities that result in multiple species/habitat benefits, while maintaining our emphasis on building partnerships to achieve mutual goals.

Fish and wildlife biologists and managers in Alaska are faced with a monumental challenge and opportunity: to preserve the natural diversity of species and habitats such that each will be sustainable for generations to come. On the whole, Alaska is composed of intact, functioning habitats that support abundant fish and wildlife



Photo: Volunteers aid in a streambank restoration project.

(Tamas Deak, USFWS)

restoring declining populations to avoid the need for Endangered Species Act listing or other expensive restoration actions.

resources; many of these habitats are protected within State or Federal conservation units. Yet, human impacts on the Alaska landscape are real and increasing, whether it's through urban development, climate change, or natural resource extraction such as transboundary mining or oil and gas development. The Coastal Program focuses on protection and restoration at this intersection of functioning habitat and human impact. The program conducts conservation actions to prevent species declines by addressing stresses and threats as soon as possible, with the aim of maintaining self-sustaining populations or

Pacific salmon, migratory birds, and pollinators offer tremendous opportunities to further the Service's mission and form robust conservation partnerships across Alaska. The Alaska Coastal Program will leverage these partnerships to address priority conservation needs to sustain resilient fish and wildlife populations.





Photo: Sara Boario,  
Alaska Regional Director  
(USFWS)

## Message from Regional Director

In Alaska, we are shared stewards of fish, wildlife, and lands that people love and have depended on for time immemorial. The Alaska Coastal Program provides regional leadership for partnership-based efforts to conserve and restore coastal habitats in Alaska, for the benefit of Pacific salmon, migratory birds, and pollinators. The conservation needs of Alaska's fish and wildlife resources are diverse, ranging from protection of intact, functioning habitats to restoration of habitats degraded by human impacts such as habitat fragmentation, invasive species, and climate change. Voluntary habitat conservation is vital to the health and sustainability of fish and wildlife resources. Our success will be measured by our ability to unite around conservation needs, work together toward common conservation goals, and share a sense of purpose. This will only be possible if we collaborate with one another and leverage the resources and talents of our dedicated partners to address our highest conservation priorities. This regional implementation plan provides the context and framework for the Service's staff, partners, and Tribes to prioritize our conservation actions over the next five years. Because of these efforts, we hope that each generation has the opportunity to live with, live from, discover, and enjoy the wildness of this awe-inspiring land.



Photo: Mat-Su Valley  
salmon.  
(Anderson, USFWS)



*Alaska is the last place on Earth to get it right the first time.*



Photo: Kodiak Refuge  
has over 100 streams that  
provide critical habitat for  
Pacific Salmon.  
(Jeff Jones, USFWS)

## About this Document

The purpose of this document is to provide strategic direction for the Alaska Coastal Program from 2022 to 2026; it guides a range of stakeholders, including Coastal staff, other United States Fish and Wildlife Service (Service) programs, external conservation partners, and regional and national leadership. This strategic plan identifies focal species, geographies, and conservation actions to focus Coastal investments, and sets actionable and quantifiable objectives to achieve during the 5-year plan period. For consistency across Service regions, this document follows a national framework while integrating the uniqueness of Alaska's conservation challenges and opportunities.

The first step in developing this regional implementation plan was to solicit input from our external partners on past program/staff performance and future expectations. We distributed an 18-question survey directly to 62 existing Coastal Program partners in order to obtain honest, transparent feedback to help us refine the best path forward for the Coastal Program for this strategic planning period. We received 31 responses that provided valuable insight on how we can improve program implementation and conservation delivery – survey results are included throughout this plan to support Coastal Program strategic focus for 2022-2026.



# REGIONAL OVERVIEW

The Alaska Region delivers an integrated voluntary conservation partnerships framework that includes the Coastal Program, Partners for Fish and Wildlife Program, National Fish Passage Program, and the National Fish Habitat Partnership. Each program has unique capabilities and together create an effective model for cooperative conservation delivery. By combining the four programs under a single Assistant Regional Director for Fisheries and Ecological Services and a single Regional Habitat Restoration and Conservation Partnerships Coordinator, we create significant programmatic and administrative efficiencies. This structure empowers the collective implementation of these programs to strategically focus on Service conservation priorities. This structure also enables the programs to be managed seamlessly and allows for cost effective conservation outcomes delivered through our Fish and Wildlife Conservation Offices (FWCOs). Also, having a single state Region is unique nationally and provides added continuity in program conservation delivery.



Photo: A Kodiak Brown Bear catches a Coho Salmon in her jaws.  
(Lisa Hupp, USFWS)



Photo: Kenai River Sockeye Salmon are a big draw for personal use, sport, and commercial fishers.

(Jess Straub, USFWS)

As a direct conservation assistance program, the Alaska Coastal Program invests funding, staff time, technical expertise, and other resources into coastal habitat conservation projects in partnership with non-governmental organizations, private landowners, local governments, state agencies, and Alaska Native organizations. While the flexibility of the Coastal Program allows for execution of a broad range of strategic conservation actions, the ability of local staff to work with willing private landowners to conserve habitat in perpetuity is a unique program attribute nationally and an important program emphasis in Alaska. By implementing proactive partner-supported habitat conservation projects, the Coastal Program safeguards important habitats for the present and future benefit of fish, wildlife, and the American public.

The Alaska Coastal Program funds on-the-ground habitat conservation projects and supports Service staff who provide technical assistance to partners and assist with project design, planning, implementation, and monitoring. We establish our substantial involvement in projects through this direct contribution

## REGIONAL OVERVIEW



Photo: Salmon strips being smoked.  
(Lisa Hupp, USFWS)

*“The Coastal Program’s support leverages other grants and funding sources, and enables us to conserve land in diverse communities and biogeographic regions throughout Southeast Alaska. Beyond simple financial support, partnership with the Coastal Program provides technical advice, assistance identifying additional resources, and regional and statewide relationship building. More than anything, SEALT enjoys working with the dedicated Coastal Program staff to implement conservation projects.”*

Margaret Custer, Executive Director  
Southeast Alaska Land Trust

to on-the-ground conservation or provision of technical assistance. Leveraging of Coastal resources with partner resources and expertise multiplies the positive impact on conservation priorities of mutual interest. The Alaska Coastal Program operates under an effective delivery model that includes geographic focus areas, voluntary conservation partnerships, technical assistance, cross-program and interagency coordination, leveraging of program resources, and continuous improvement through Strategic Habitat Conservation (Figure 1; NEAT 2006). Coastal Program staff actively work together with partners to identify opportunities, develop project goals and objectives, and prioritize, implement, and monitor projects. Based on external partner feedback, our Coastal Program biologist’s technical expertise and contributions are vital to project success. This expertise and professional background of program staff, combined with the local knowledge and community connections of our partners, results in more efficient and effective delivery of program resources, greater project success, and more positive impact for Alaska’s native fish and wildlife and the public enjoyment and use of these resources.

## Mission

The mission of the Alaska Coastal Program is to assess, prioritize, restore, and maintain aquatic, riparian, and terrestrial habitats for the benefit of Federal trust species. We strive to protect existing high-quality functioning habitat and address the highest priority habitat restoration needs.

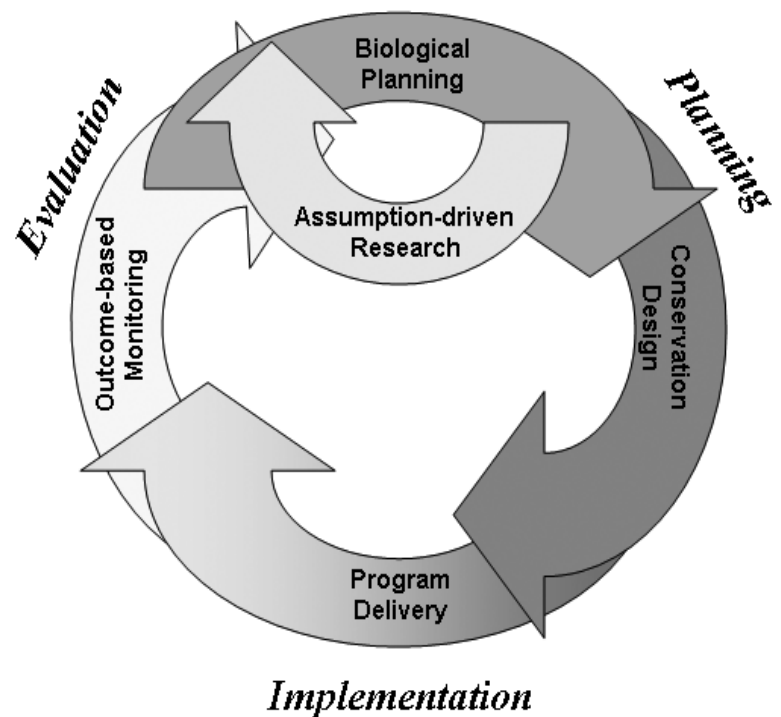


Figure 1. The four elements of Strategic Habitat Conservation.



# National Priorities

The National Wildlife Refuge System, Branch of Habitat Restoration, established a common set of priorities to advance the strategic nature of the Coastal Program and communicate a unified message about program focus and effectiveness at the national level. For this strategic planning period, the national priorities are:

1. **Species Conservation:** Implement habitat projects within priority areas that prevents decline or supports recovery of species of greatest conservation concern.
2. **Habitat Connectivity:** Integrate projects at a landscape level to improve habitat connectivity and functionality. Interconnected habitats and migration corridors are vital to fish and wildlife conservation.
3. **Resilient Ecosystems:** Advance ecosystem health and resilience to climate change related impacts benefitting communities of fish, wildlife, plants, and people. Climate change affects all parts of the ecosystem, including those in which humans depend.

For some time, these national priorities have been the impetus driving conservation decisions in the Alaska Coastal Program. While much of Alaska can be generally characterized as a landscape of intact, functioning ecosystems, supporting migratory birds, marine and terrestrial mammals, and resident, anadromous, and marine fish, the Coastal Program works at the intersection of these habitats and an expanding human footprint. Alaska is experiencing many of the same anthropogenic impacts as those observed across the Nation. By focusing our conservation efforts in these priority geographies, we maximize our impact by proactively preventing species declines that are prevalent elsewhere. As we focus on restoring and maintaining connected landscapes through habitat protection, instream habitat restoration, fish passage, and invasive species prevention and response, our goal is to maintain the natural resilience associated with functioning habitats. Further, because climate change is manifesting in the Arctic three times faster than the

global rate of change, we incorporate climate change predictions (e.g., increased river flows/flooding) into our nature-based solutions for instream and fish passage restoration.

## Program Policy

The Alaska Coastal Program operates according to Service policy 651 FW 2, Coastal Program; program authorities include the Fish and Wildlife Coordination Act (16 U.S.C. 661), the Fish and Wildlife Act of 1956 (16 U.S.C. 742a-j), and the National Wildlife Refuge System Administration Act (16 U.S.C. 668). The policy identifies program responsibilities at the Field, Regional, and National levels. Further, the policy describes objectives of the program, defines applicable habitat conservation practices and project-specific requirements, outlines an implementation model, and provides guidance on eligibility of program expenditures.



Photo: Rock sandpipers in flight over Kachemak Bay.  
(Lisa Hupp, USFWS)



## REGIONAL OVERVIEW

**586,412**

Alaska's size, in square miles



**57 million**

breeding birds annually

**47,300**

miles of coastline  
(>50% US total)

**174 global**

important bird areas

**174 million**

acres of wetlands  
(>60% US total)

*Alaska has more than 40% of the nation's surface water resources and more than 50% of the nation's total coastline. Tens of thousands of miles of streams throughout Alaska support self-sustaining anadromous and resident fish populations.*



Figure 2. Alaska Region geographic focus areas for the Coastal Program.

## Implementation Plan

The Alaska Coastal Program is successfully and effectively working to address our conservation priorities; thus, few changes are proposed for this regional implementation plan. Staff are strategically located in the Southern Alaska Fish and Wildlife Conservation Office and associated satellite offices, allowing for direct local contributions to conservation projects. The species and geographies where we currently work continue to be high priority conservation needs (Figure 2). Our on-the-ground conservation actions benefit federal trust species such as interjurisdictional fish and migratory birds. Further, our conservation actions align with specific Service responsibilities through national policy, such as the Fish and Wildlife Coordination Act, as well as Alaska-specific Service responsibilities under the Alaska National Interest Lands Conservation Act.

The Coastal Program's strategic planning process identified several geographic focus areas based on the intersection of existing quality fish and wildlife habitat, known habitat threats or observed habitat degradation, and the opportunity for conservation. Consistent with Landscape Conservation Design (LCD) approach to conservation planning, these geographic focal areas provide the landscape context for the Coastal Program. Within each focal area, we have identified strategies and conservation actions to benefit the program's focal species: Pacific salmon, migratory birds, and pollinators. The program's LCD approach complements other LCDs in effect throughout Alaska (Table 1).

Table 1. Coastal Program conservation actions complement the conservation goals of other landscape conservation designs (LCDs) in effect across Alaska.

EXISTING LCDs	LCD Focus
National Fish Habitat Action Plan	Provides a programmatic framework and conservation focus for partnerships across the country addressing fish habitat conservation and restoration needs.
Strategic Plans of Alaska-based Fish Habitat Partnerships	Using the Nature Conservancy Conservation Action Planning process as a guide, locally-based fish habitat partnerships (i.e., Matanuska-Susitna Basin, Kenai Peninsula, Southeast Alaska, Southwest Alaska) identified habitat/species threats and determined conservation strategies and goals to address habitat and focal species needs within each geography.
Chena River Watershed Resource Action Plan	Created using the Nature Conservancy Conservation Action Planning process, this LCD prioritizes habitat conservation and restoration for Chinook and Chum salmon in the Chena River watershed.
National Fish and Aquatic Conservation Program Strategic Plan	This plan identifies broad conservation goals for the Service's FAC Program across the nation – aquatic connectivity, habitat restoration, and outreach/communication goals are particularly relevant to Alaska.
Kenai Mountains to Sea Land Conservation Strategy	This strategy identifies 20 priority rivers on the Kenai Peninsula that originate within a Federal conservation unit (e.g., National Wildlife Refuge, National Forest) and flow through private lands enroute to the ocean – the strategy identifies actions to protect, restore, and steward these river corridors for fish and wildlife benefits.
The Coastal Forests and Mountains Ecoregion of SE Alaska and the Tongass National Forest	This assessment focuses on conserving biological diversity and ecological integrity in the temperate coastal rainforest ecosystem in SE Alaska – it identified priority conservation areas and developed a strategy to protect the highest value habitats.
Ecological Atlas of Southeast Alaska	The Atlas describes the regions ecosystems, species status, and human presence, and provides recommendations for holistic ecosystem conservation.
Bristol Bay Heritage Land Trust Land Conservation Strategy	The strategy recognizes Pacific salmon as a unifying force for people and ecosystem health and seeks to preserve and protect the intact, functioning fish and wildlife habitat of the greater Bristol Bay region, in particular through partnerships with Alaska Native landowners.
Conservation Fund Prioritization	The prioritization guides the acquisition and protection of lands in the Bristol Bay region based on conservation value (i.e., habitat functions for fish, birds, marine mammals; wetlands; subsistence).



Table 1. Coastal Program conservation actions complement the conservation goals of other landscape conservation designs (LCDs) in effect across Alaska.

EXISTING LCDs	LCD Focus
Alaska Bee Atlas	The purpose of the Atlas is to improve our understanding of Alaska pollinator distribution, abundance, trends, and habitat needs in order to make informed decisions on effective and high priority conservation actions to benefit pollinators.
Alaska Migratory Bird Co-Management Council	The Service, the Alaska Department of Fish and Game, and Alaska Native representatives from the subsistence regions of Alaska work collaboratively to co-manage the spring/summer migratory bird subsistence harvest. The Council respects the relationship we all share with migratory birds, sets annual harvest recommendations, monitors populations and harvest, promote research, recommend habitat protection policies, and provide education/outreach.
Conservation Framework for Yukon River Chinook Salmon	The purpose of the framework is to: ensure biodiversity of the Yukon River Chinook Salmon stock complex; provide subsistence opportunities for federally qualified subsistence fishers; work cooperatively with partners to implement priority actions; and evaluate the progress of actions, account for new information, and make appropriate adjustments.
Fisheries Resource Monitoring Program	Through the Department of Interior, Office of Subsistence Management, this program was established to help provide data for informed management of subsistence fisheries on Federal public lands in Alaska.
Alaska Sustainable Salmon Fund Framework	Through strategic use of the State's allocation of the Pacific Coast Salmon Recovery Fund, this framework focuses on the protection and restoration of Pacific salmon habitats and monitoring/management of salmon populations used for subsistence.
Alaska Wildlife Action Plan	This plan guides the State of Alaska Department of Fish and Game in proactively addressing the conservation needs of non-game wildlife with the underlying goal of preventing listings under the Endangered Species Act.
Escapement-based Fishery-specific Management Plans	The State of Alaska Board of Fisheries has established escapement-based fishery-specific management plans to manage fisheries in the best interest of the economy and people, consistent with the goal of sustained yield.

**34 million**

pounds (usable weight)  
of fish harvested for  
subsistence in rural Alaska  
in 2017



*“For over 20 years, Great Land Trust has partnered with the US Fish and Wildlife Service and leveraged funding through the Coastal Program to complete over 60 projects in Southcentral Alaska, conserving more than 56,000 acres of valuable fish, bird, and wildlife habitat. The partnership with USFWS and the resources made available under the Coastal Program have been essential to these conservation successes – for the benefit of current and future generations.”*

Ellen Kazary, Executive Director  
Great Land Trust

The Alaska Coastal Program has demonstrated many conservation successes over the years. A primary focus of Coastal Program resources is the voluntary protection of intact, functioning, ecologically significant coastal habitats. We work with numerous land trusts across the state that develop relationships with local landowners interested in putting their property into conservation status. Each land trust has access to different sources of federal and non-federal funding. While the Alaska Coastal Program is quite small compared to other Service regions, we have been able to have large impacts on the long-term conservation and resilience of Alaska’s coastal habitat. For example, during the last strategic planning period (2017-2021), the Alaska Coastal Program invested \$956K in supporting land trust partners in completing habitat protection projects; our partners matched these Service funds with \$40.2M. Collectively, we were able to protect 19,966 acres of wetlands, 9,262 acres of uplands, and 445 miles of stream/shoreline habitat.

Photo: Hanging fresh fish to  
dry at a fish camp.  
(USFWS)



**3 million**

lakes in Alaska &gt;5 acres

**>12,000**rivers (5th order & larger)  
and many more streams**26.5 million**dollars (net value)  
generated from  
sportfishing licenses  
purchased in 2021**838,000**sportfish licenses  
sold in 2021

## Watershed Approach

As described in subsequent sections of this plan, salmon are an ecosystem driver and the ecological health of Alaska ecosystems relies on healthy salmon populations. The marine-rich nutrient source of returning adult salmon improve the productivity of both freshwater and terrestrial ecosystems. Salmon are connected to all components of the landscape. Because of this connectedness, we intend to broaden our conservation focus for the strategic planning period, 2022-2026. In support of this approach, 80% of respondents from our external partner survey believed that we should expand our program focus to the entire watershed, rather than retaining the narrow focus directly on aquatic habitat.

As described below under Goal 1, Conserve Habitat, our conservation actions will be applied in stream, riparian, wetland, and upland habitat for the benefit of Pacific salmon, migratory birds, and native pollinators. To maximize the impact of our conservation actions, we will prioritize activities that result in multiple species/habitat benefits. For example, the Alaska Coastal Program has invested in protecting intact, functioning habitat for years. While this conservation action may focus on preserving important habitat for a specific target species such as Pacific salmon, the protected habitat also provides ecosystem resilience and benefits to other species. These multiple benefits are particularly true in coastal areas, where protected habitat along river corridors preserves important migratory, spawning, and rearing habitat for Pacific salmon while protection of these habitats, including the river estuary or off-channel wetlands, provides key breeding, feeding, or migratory stopover habitat for the millions of birds that travel to Alaska each summer.

Photo: Alaskan river delta.  
(Katrina Liebich, USFWS)



# Proactive Conservation

The Alaska Coastal Program defines proactive conservation as: anticipating and reducing threats to species or habitats before they become imperiled; collecting information that contributes to actionable conservation with specific, measurable, achievable, and relevant objectives; and developing conservation strategies that focus on shared values, support community-led efforts, and engage partners. In addition, proactive conservation can inform broad-scale land use decisions by highlighting areas with high conservation value and implementing strategies that minimize risk to those habitats/species. Proactive work has been shown to be both more efficient and cost-effective than traditional reactionary restoration methods, which can be costly and ineffective in achieving the desired species/population response.

Alaska's coastline is about 47,300 miles long — more than 50% of the nation's total. Alaska's diverse coastal habitats range from steep, rocky coasts and fjords to mudflats, eelgrass lagoons, and large, river valleys. Deepwater habitats include lakes, bays, sounds, and inlets. In general, Alaska has diverse,



Photo: Blue green back of a Sockeye Salmon after returning from the ocean.  
(Lisa Hupp, USFWS)

intact, functioning, and connected landscapes that support healthy aquatic and terrestrial communities. However, Alaska's fish and wildlife populations and the habitats that support them are not immune from the impacts that come from human presence on the landscape, such as overutilization and habitat fragmentation and degradation. These impacts are expected to increase as Alaska's population continues to expand. Yet, the Alaska Coastal Program is faced with the exciting opportunity to maintain current functioning habitats and productive fish and wildlife populations,

prevent future impacts, and ensure habitat and population resilience and sustainability. There is significant urgency to act now, before the number and cost of addressing impacts prohibits our ability to have a significant effect on conservation.



# Alaska Salmon – Cultural, Economic, and Ecosystem Driver

Alaska's fish, and the habitats that support them, are world-class. They sustain Alaska's culture and economy. They are an important ecological and economic resource nationally and internationally. They are worth protecting.

Five species of Pacific salmon call Alaska home: Chinook (*Oncorhynchus tshawytscha*), Coho (*O. kisutch*), Sockeye (*O. nerka*), Pink (*O. gorbuscha*), and Chum (*O. keta*). Pacific salmon are at the core of Alaska's character. Alaska is one of the last places on earth where wild salmon still thrive. Salmon are the foundation for subsistence ways of living and cultural traditions that have been around since time immemorial. Salmon also support major sport and commercial fisheries (Southwick Associates et al. 2008, DCCED 2013, Knapp et al. 2013, Sethi et al. 2014a, Sethi et al. 2014b, Loeffler and Colt 2015, Knapp 2019, McDowell 2020, ASMI 2021, Watson et al. 2021). Drawing visitors from every U.S. state and around the world, wild salmon are the lifeblood of Alaska's economy. The value of salmon for sustaining Alaska's culture and economy can never truly be measured.

In 2017, rural Alaska residents harvested an estimated 34 million pounds of wild foods for subsistence purposes (Fall et al. 2020); salmon account for 32.3% of the harvest and other finfish account for 21.4% (Fall 2018). The subsistence fisheries harvest provides about 155 lb of food per person annually in rural Alaska (Fall 2018). The estimated total subsistence harvest of salmon in 2017 was 862,930 fish, with Chum and Sockeye Salmon contributing 73.4% of the catch (Fall et al. 2020). In addition, personal use fisheries harvested 577,732 salmon in 2017, of which, 96.1% were Sockeye Salmon (Fall et al. 2020). In the 2017-18 commercial fishing season, the seafood industry directly employed about 58,700 workers (37,700 FTE) in Alaska, second only to the oil and gas industry. During this same time period, the seafood industry contributed an annual average of \$5.6 billion in economic output to the Alaska economy (ASMI 2020). Salmon accounted for 14% of the total ex-vessel volume (816 million pounds) and 37% of the total ex-vessel value (\$744 million).

Salmon are central to Alaska's sportfishing industry. In 2007, sportfishing generated \$1.4 billion in angler spending and supported about 16,000 Alaska jobs (Southwick Associates Inc. et al. 2008). Also that year, 475,534 resident and non-resident licensed anglers fished 2.5 million angler days throughout Alaska.

Alaska's landscapes, fish, and wildlife are also the heart of Alaska's tourism industry. In 2017, Alaska welcomed 2.24 million visitors. The tourism industry employed 43,300 people during the peak of the 2017 season and contributed an economic impact of \$4.5 billion to the state's economy (McDowell 2018). Specifically, the outdoor recreation industry in Alaska annually generates \$3.2 billion of economic activity (not including gear purchases) and 38,100 jobs; \$655 million of this economic activity is specifically attributed to fishing and boating (CED 2019).

Alaska's aquatic habitats which support these fishery resources are fundamental to the economic, social, cultural vitality of the State. About one quarter of Alaska's jobs (84,000) depend on the state's fish, wildlife and healthy ecosystems (Colt 2001). The protection and restoration of ecosystems can often be more valuable than any proposed human development because of the existing and future economic, social, cultural, and ecosystem services benefits provided by intact, functioning ecosystems (Thomas et al. 2016, Samonte et al. 2017, Dasgupta 2021). Jobs created through restoration activities have direct effects on the local economy and can create more jobs than other investment sectors such as fossil fuel energy

development or transportation infrastructure (Kellon and Hesselgrave 2014). Estimates vary by location and project type, but every \$1 million invested in ecosystem restoration generates between 15 and 35 jobs and \$2 to \$3.5 million of economic output (Nielsen-Pincus and Moseley 2010, Thomas et al. 2016).

Salmon are an ecosystem driver and the ecological health of Alaska ecosystems relies on healthy salmon populations. Returning adult salmon provide an essential food and marine-rich nutrient source for both freshwater and terrestrial ecosystems (Bilby et al. 1996, Cederholm et al. 1999, Nakano and Murakami 2001, Gende et al. 2002, Wipfli et al. 2003, Polis et al. 2004, Chaloner et al. 2004, Hicks et al. 2005, Wipfli and Baxter 2010). Salmon are an important food source for bears, wolves, and small mammals. Also, mammals often carry and leave salmon carcasses in riparian and upland habitats where the carcasses serve as a plant fertilizer (Ben-David et al. 1998). Postspawning, decaying salmon provide nutrients to the freshwater ecosystem, increasing overall food web productivity. Decaying salmon are also a direct food source for myriad migratory birds and fish, including juvenile salmon, thereby perpetuating the cycle.



Photo: Pink Salmon schooling in Kodiak Island stream.

(Katrina Liebich, USFWS)

Specific research efforts have focused on the importance of estimating the value of ecosystem services (e.g., biodiversity, resiliency in a changing climate, clean water, thriving local economies, or nutrient cycling) and the need to incorporate these values into land planning

decisions (NRC 2005, Duffield et al. 2007, ECONorthwest 2014, Whiting 2014, Comberti et al. 2015, Ristroph and Hussain 2015, Hjerpe and Hussain 2016, Samonte et al. 2017). Other research investigates how to account for benefits that are difficult to measure, such as quality of life and mental/physical health (CED 2019, LTA 2019). Access to recreational opportunities is a major consideration for residents of Alaska; 81% of Alaskans participate in outdoor recreation (ranked 1st in the nation) compared to the national average of 48% (CED 2019). Intact, functioning ecosystems, in particular healthy aquatic systems and fish populations, are essential for providing these ecosystem services and the quality of life desired by many.



# Migratory Birds

Alaska is vital to the life cycle of hundreds of species of migratory birds, who depend on habitats ranging from temperate rainforest in Southeast Alaska northward to the Arctic tundra. Annually, about 570 million birds come to Alaska to breed – many species breed nowhere else in the U.S. Audubon describes Alaska as “the breeding ground for the avian flyways of the world”. Birds from all North and South American flyways come to Alaska to breed (Figure 3). There are 174 global (106.6M acres), 8 continental (3.2M acres), and 31 state (9.7M acres) Important Bird Areas in Alaska – the most of any state (<https://www.audubon.org/important-bird-areas/state/alaska>). Many of these important habitats are along the coastline, along river corridors, or associated with Alaska’s vast wetland resources – all of these habitats are also extremely important to Pacific salmon.

The Service’s Migratory Bird Management Program released a Birds of Conservation Concern report in 2021. The Migratory Bird Program is responsible for identifying the species, subspecies, and populations of migratory nongame birds that, without additional conservation action, are likely to become candidates for listing under the Endangered Species Act. The goal of the report was to identify those bird taxa that represent the highest conservation priorities of the Service - birds already designated as federally threatened or endangered were not included in the assessment. The assessment of conservation need was based on several factors, including population abundance and trends, threats on breeding and nonbreeding grounds, and size of breeding and nonbreeding ranges. For the terrestrial and marine bird conservation regions exclusive to Alaska, 37 birds of conservation concern were identified, including waterbirds, shorebirds, and landbirds (Table 2). Also, 34 birds of conservation concern were identified in the bird conservation region that included coastal habitats of Southcentral and Southeast Alaska – this region also included coastal areas of British Columbia, Washington, Oregon, and northern California, broadly encompassing northern Pacific Rainforest habitats. Any additional birds of conservation concern specific to the Southcentral and Southeast Alaska coastal habitats cannot be distinguished within this broader bird conservation region, based on the presentation of data in the report.

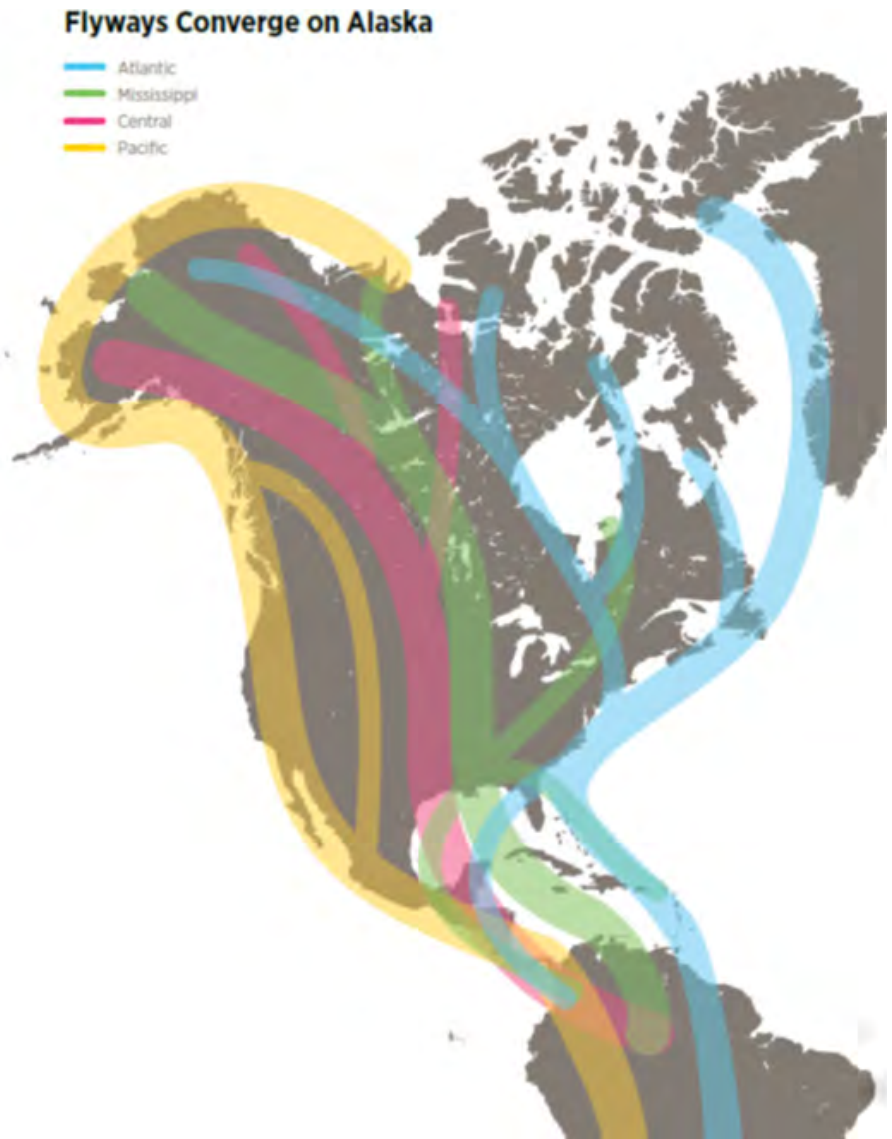


Figure 3. Migratory birds from all major North/South American flyways converge on Alaska in the summer to breed and feed in Alaska’s highly productive habitats.

## REGIONAL OVERVIEW

Table 2. 2021 Birds of Conservation Concern identified in marine and terrestrial bird conservation regions exclusively located within Alaska

SPECIES	Aleutian Bering Sea Islands	Western Alaska	Arctic Plains and Mountains	NW Interior Forest	Chukchi and Beaufort Seas	East Bering Sea	Gulf of Alaska
Black Oystercatcher							
American Golden Plover							
Bristle-thighed Curlew							
Bar-tailed Godwit							
Hudsonian Godwit							
Marbled Godwit							
Black Turnstone							
Red Knot (Pacific)							
Dunlin (Northern Alaska)							
Rock Sandpiper (Pribilof)							
Buff-breasted Sandpiper							
Pectoral Sandpiper							
Short-billed Dowitcher							
Solitary Sandpiper (Western)							
Wandering Tattler							
Lesser Yellowlegs							
Marbled Murrelet (Alaska)							
Kittlitz's Murrelet							
Ancient Murrelet							
Whiskered Auklet							
Red-legged Kittiwake							
Ivory Gull							
Ross's Gull							
Aleutian Tern							
Yellow-billed Loon							
Laysan Albatross							
Black-footed Albatross							
Murphy's Petrel							
Mottled Petrel							
Buller's Shearwater							
Pink-footed Shearwater							
Red-faced Cormorant							
Snowy Owl							
Short-eared Owl							
Olive-sided Flycatcher							
Gray-headed Chickadee (Alaska)							
McKay's Bunting							

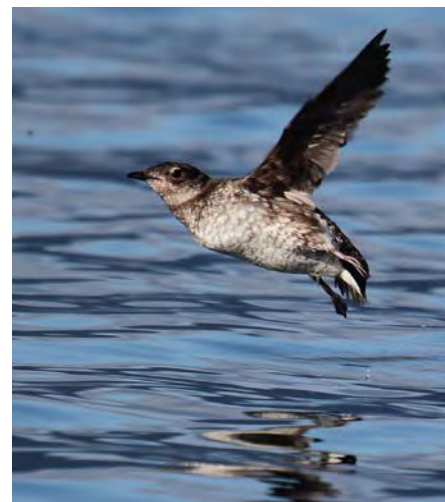


Photo: A marbled murrelet near Kodiak Island.  
(Robin Corcoran, USFWS)



Photo: A Ross's Gull.  
(Shiloh Schulte, USFWS)



Photo: A Bar-tailed Godwit.  
(Kristine Sowl, USFWS)



# Pollinators

Baseline information on distribution, relative abundance, and habitat associations are incomplete for many pollinator species in Alaska. Synthesizing existing data and prioritizing pollinator survey needs are a significant conservation need. An Alaska pollinator partnership (Alaska Pollinator Coordination Group) composed of agency, university, and non-profit organization experts, recently formed with the mission to “improve conservation and management of pollinators and their habitat in Alaska through information sharing,

collaboration, and the coordination of research and monitoring, public outreach, and education.”

One fundamental effort of this group is the Alaska Bee Atlas (Burns et al. 2021, Fulkerson et al. 2021) – surveys and specimen collection for the Atlas increased beginning in 2020, although many high priority areas and habitats remain in need of survey (Figure 3).

The need for pollinator conservation in Alaska is now, before habitats and species are lost. *Bombus occidentalis* (a bumble bee in Alaska) has already

declined across its range and was petitioned for listing under the Endangered Species Act. We need to increase our understanding of pollinator distribution, abundance, and habitat needs, and implement informed conservation actions to benefit Alaska’s pollinators. The Coastal Program is well suited to complete assessments and prioritizations required to identify and protect priority pollinator habitat.

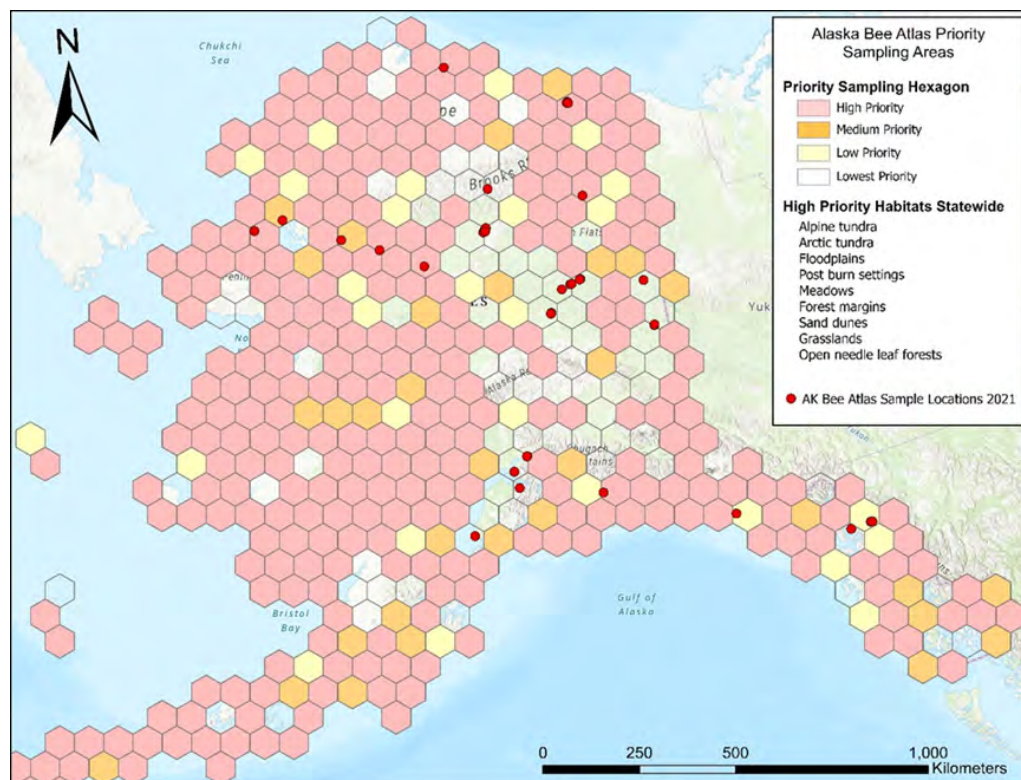


Figure 4. Alaska Bee Atlas survey and sampling locations in 2021.

## Threats/Challenges

As previously stated, Alaska can be generally characterized as a landscape of intact, functioning ecosystems. The reason Alaska still has productive wild salmon is because it still has a diversity of quality, intact freshwater habitats. But these habitats are experiencing many of the same human stressors that have resulted in the decline and extirpation of salmon in Europe, New England, and the Pacific Northwest (Montgomery 2003). Conserving this habitat biodiversity is paramount to maintaining resilient habitats and stability in fish and wildlife populations (Hilborn et al. 2003, Moore et al. 2010, Schindler et al. 2010, Colvin et al. 2018, Walsworth et al. 2020). Further, maintaining Alaska’s intact, functioning habitats is globally significant for biodiversity and climate stabilization (Vynne et al. 2021). Minimizing impacts from human-caused stressors is essential to sustaining vibrant subsistence cultures, supporting Alaska’s economy, and preventing the need for listings under the Endangered Species Act (i.e., keeping common species common) (AFS 2016).

## Urban Development/Expansion

Statewide, Alaska has a unique watershed conservation challenge. The headwaters of many of Alaska's river systems are in some type of state or federal conservation unit, such as a state critical habitat area, a national park or preserve, or a national wildlife refuge. In these areas, human activities are limited and fish, wildlife, and habitat conservation are paramount. Yet, more than three quarters of the state's population lives near the coast and over 80% of the state's economic activity occurs near the coast. The private land areas in the lower reaches of Alaska's watersheds are often developed and suffer from habitat loss, habitat fragmentation, and degraded water quality. Further, development

in Alaska's coastal areas can have a disproportionate impact on the watershed's productivity by blocking fish and wildlife movements through the river corridor or by degrading the critical freshwater-saltwater transition habitats that are important for Pacific salmon, other anadromous fish, and migratory birds.

Therefore, our

private land conservation actions are essential to maintaining the fish and wildlife benefits provided by conservation units across Alaska.

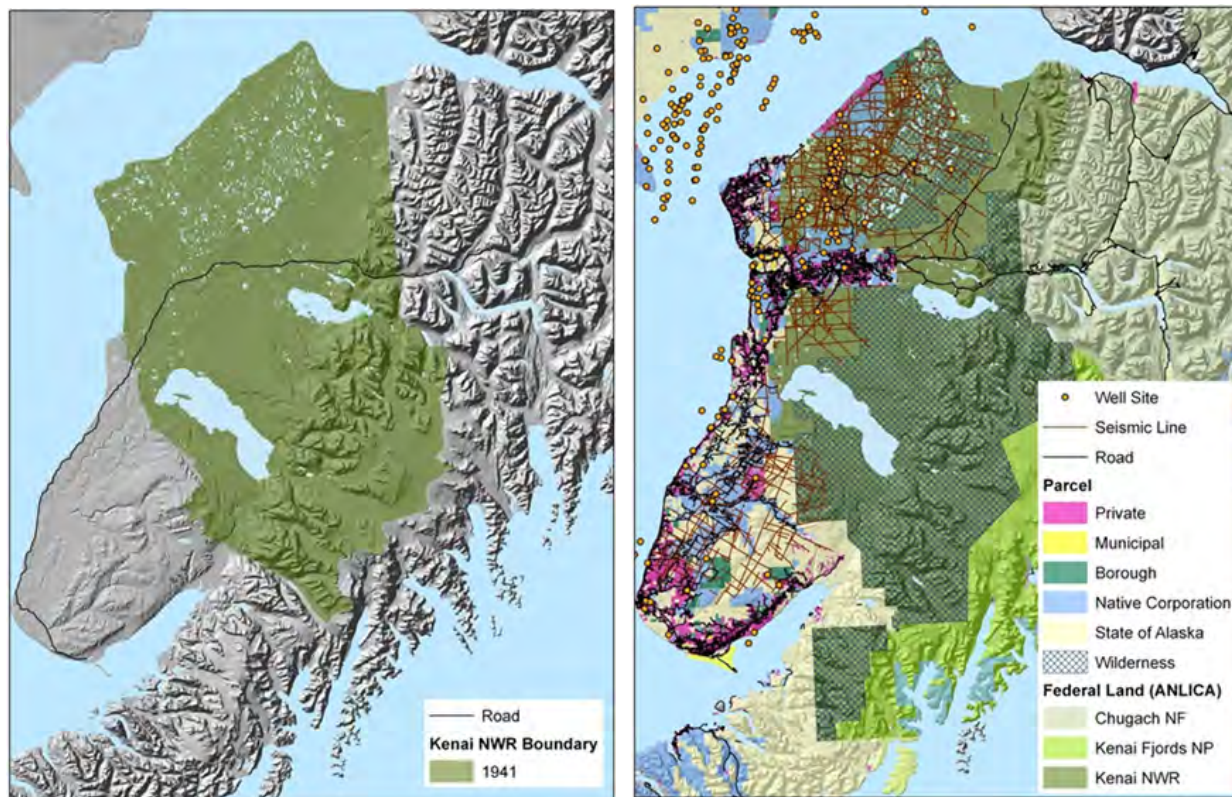


Figure 5. Human development footprint on the Kenai Peninsula in 1951 compared to 2014.

The U.S. Census Bureau projects Alaska's population will increase 38.4% between 2000 and 2030; recent year growth has been slow, but Alaska's population continues to increase. The population in 2019 was 731,545, with 80% living in five population centers: the Municipality of Anchorage, the Matanuska-Susitna Borough, the Fairbanks North Star Borough, the Kenai Peninsula Borough, and the City and Borough of Juneau. The Matanuska-Susitna Borough continues to be among the fastest growing counties in the nation, exhibiting 21.7% growth from 2010 to 2019. Urbanization, with the continued development of infrastructure and public services, is a real threat to Alaska's fish, wildlife, and habitats. For example, only a single road was completed on the Kenai Peninsula in 1951; by 2014, the Kenai Peninsula was a network of residential and industrial development concentrated along coastal areas, with over 1,000 miles of roads (Figure 5). Maintaining functioning and connected





Photo: Eversmann's  
parnassian pollinating on  
avens.  
(USFWS)

habitat in the face of urbanization is a conservation priority for Pacific salmon (Sethi et al. 2021).

Alaska's concentrated, limited road network can constrict access to fish and wildlife harvest to a limited number of areas resulting in habitat damage or loss. Small planes, boats, and off-road vehicles provide modes of access that result in their own habitat/management challenges. Outdoor users can damage streambanks, riparian habitats, and instream habitats from foot traffic, off-road vehicles use, and boat wakes. Recreational user encroachment and illegal trail networks can also damage aquatic habitats. Road building and these modes of transportation are also known vectors for invasive species, both aquatic and terrestrial.

## Resource Extraction

Natural resource extraction and use are a major part of Alaska's history and economy; these activities have had a positive effect on Alaska's economy (DCCED 2013). Oil and natural gas production, hardrock (e.g., gold, copper) mining, placer mining, coal mining, and timber harvest industries can also have measurable adverse impacts on Alaska's fish, wildlife, and habitats. Poorly located or designed natural resource development can threaten the quality and sustainability of Alaska's fish and wildlife resources. Hydropower, both traditional and hydrokinetics, is a major development interest in Alaska, with the potential for significant impacts to aquatic habitats and species.

## Invasive Species

Along with human presence comes the increased risk of the introduction and spread of invasive species. Concern over aquatic invasive species has grown in Alaska as surveys and detections have increased over time, and a changing climate may be creating a more hospitable environment for invasive species establishment. Aquatic invasive plants are impacting habitat connectivity and quality in waterways throughout Alaska. While past impacts of invasive plants like Reed canarygrass, Purple loosestrife, and Elodea have been concentrated around urbanized areas, species like these are becoming more commonly found in areas historically considered remote due to the connectedness of Alaska waterways through vectors such as floatplanes, watercraft, and fishing gear (Figure 6) (Schwoerer et al. 2019a).

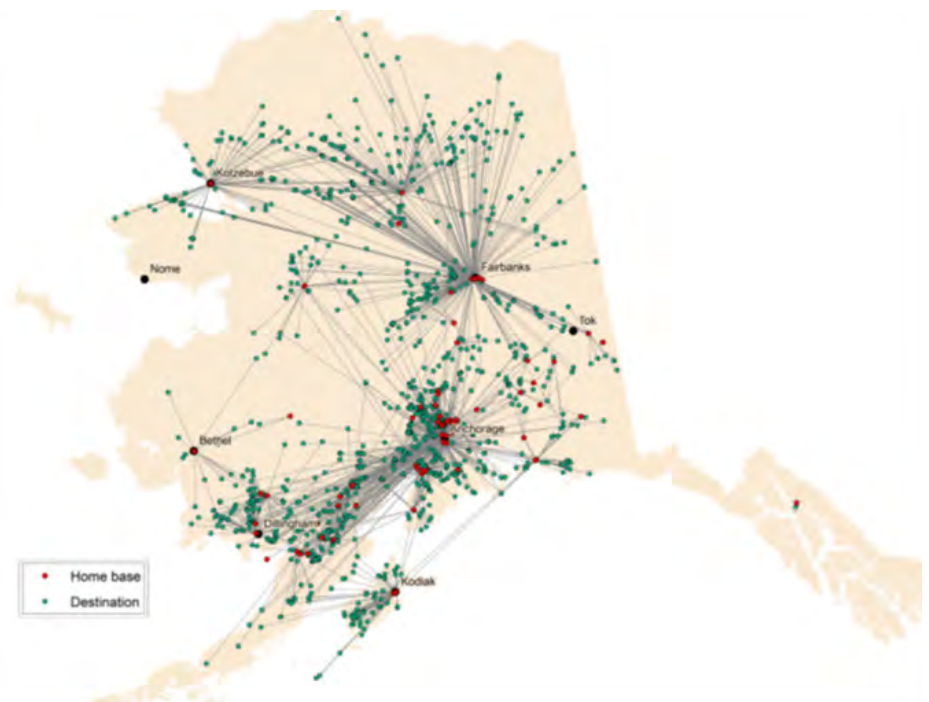


Figure 6. Home base locations and destinations of some commercial float plane operations; in Alaska float planes are a primary invasive species dispersal vector.

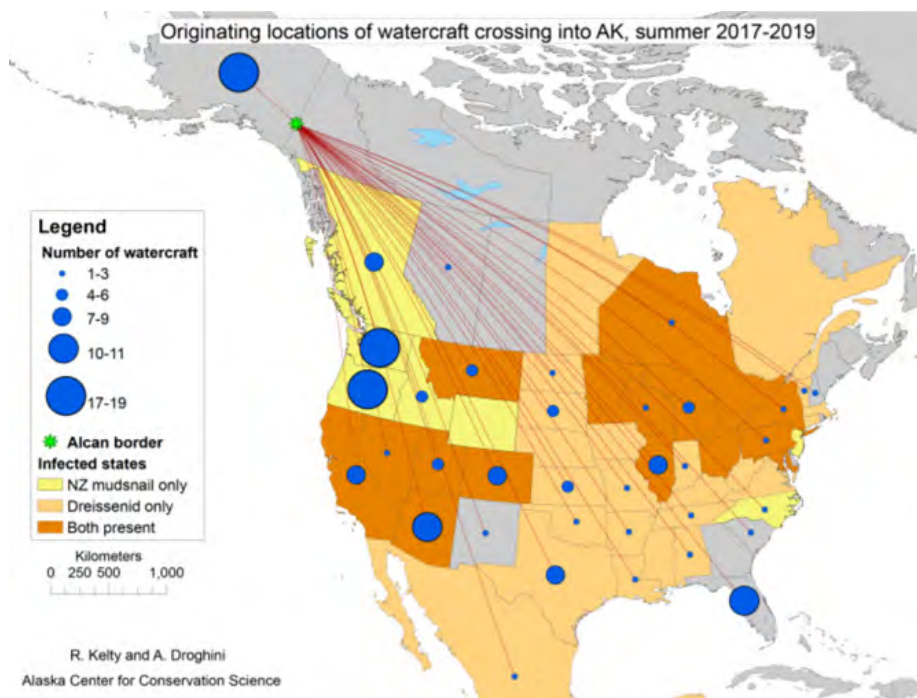


Figure 7. Number and location of origin of watercraft entering Alaska through the Alaska-Canada border during brief inspection periods in the summer, 2017-2019.

Established invasive species such as Northern Pike in Southcentral AK, have had profound effects on salmon population productivity. Other serious aquatic invasive species, such as New Zealand mudsnails and Dreissenid mussels, have been detected at the Alaska-Canada border and continue to be monitored with the goal of preventing entry (Figure 7). To put the threat of invasive species in context, recent research has evaluated the significant impact invasive species can have on Alaska's habitats, ecosystem services, and economy (Larsen et al. 2020, Schwoerer 2017, Schwoerer et al. 2019b, Schwoerer et al. 2020). Further, invasive species prevention and eradication was identified in our survey of external partners as the highest priority conservation need over the next five years.



## Climate Change

Climate change disproportionately impacts higher latitudes; climate change is manifesting in the Arctic three times faster than the global rate of change (Maddox 2021). Alaska's permafrost is melting, releasing stored carbon, which increases greenhouse gases and their effect on our climate – a negative feedback loop. Climate change adaptation was identified in our survey of external partners as one of the most important conservation needs over the next five years.



Photo: Heavy rains, flooding, and a washed out culvert in Girdwood, October 2021.  
(Dave Leval, KTUU)

Most glaciers are undergoing a rapid loss of mass and the impact on Pacific salmon can be both positive and negative (Pitman et al. 2020, Pitman and Moore 2021, Pitman et al. 2021, Schoen et al. 2017). Compared to non-glacial rivers, glacially influenced rivers typically have higher midsummer streamflows, lower water temperature, greater concentrations of nutrients

and organic carbon, and elevated sediment loads. Increased sediment can decrease microorganism, algae, and benthic macroinvertebrate production and can decrease the quality of spawning habitat. Conversely, glacial inputs can maintain connectivity across a mosaic of mainstem and off-channel habitats (vital to juvenile salmon rearing) and moderate water temperatures, which may become increasingly important as the climate warms. Receding glaciers may also increase overall watershed productivity as areas of new river and lake habitat can be colonized by Pacific salmon.

Climate models predict significant increases in freshwater temperatures throughout the state and on-going stream temperature monitoring projects are validating these water temperature predictions (Mauger 2013, Mauger et al. 2017, Shaftel et al. 2020, von Biela et al. 2020). Water quality standards indicate that water temperatures exceeding 13°C are deleterious for salmon spawning, incubation, and fry emergence

## REGIONAL OVERVIEW

while temperatures greater than 18°C negatively impact juvenile salmon rearing and adult migration. In Southcentral Alaska, summer water temperatures regularly exceed 13°C, suggesting chronic effects to spawning and incubation. Water temperatures exceed 18°C less frequently, but still occur consistently, indicating negative impacts to adult migration and juvenile rearing. In the Yukon River, heat stress was observed in migrating adult salmon, with water temperature regularly greater than 18°C. While it is useful to understand simple temperature thresholds, thermal regimes that define the magnitude, variability, frequency, duration, and timing of temperature events have more biological relevance to salmon and other aquatic organisms. Interaction between climate and local landscape features drive patterns of these thermal regimes, identifying the thermal diversity available to aquatic organisms.

Alaska experienced an extremely warm summer in 2019; observed water temperatures were consistent with climate model predictions for 2060. Pacific salmon mortality events were reported from around the state. The largest documented en route adult mortality event occurred with Chum Salmon returning to the Koyukuk River, within the Yukon River watershed (Westley 2020). Through a visual survey of 275km of river, 1,364 dead salmon were observed, most of which died prior to complete maturation and spawning. Considering survey methods, observations of dead salmon represent a small fraction of the total magnitude of mortality.



Photo: Two dead adult salmon prior to spawning, Koyukuk.  
(USFWS)

Documenting regional-scale climate drivers, coupled with the role of local landscape conditions, are the foundation for understanding potential impacts to salmon populations. Climate-driven changes are likely to reduce the productivity of certain fish populations while benefitting others (Jones et al. 2020, Lisi et al. 2015, Littell et al. 2020, Leppi et al. 2014, Murdoch et al. 2020, Shanley et al. 2015, Wobus et al. 2015). Jones et al. (2020) evaluated a number of climate variables, including stream temperature, precipitation/discharge, ice breakup, and marine conditions, on life-stage specific impacts to Chinook salmon in the Cook Inlet region. Across all populations, maximum monthly precipitation elicited the strongest and most consistent response: productivity declined with increased precipitation during fall spawning and early incubation while productivity increased with above-average precipitation during juvenile rearing. Meanwhile, increased stream temperature during

spawning and rearing had negative effects on warmer stream systems and positive effects in some colder stream systems – the highly variable salmon productivity response to stream temperature accentuates the importance of thermal habitat diversity. For Alaska, climate models predict continually increasing stream temperature, increased precipitation during August and September (spawning/early incubation), a transition to rain-dominated systems in winter months (instead of snow-dominated), and an increase in the frequency and severity of storm events. The sum total of these climate variables on salmon productivity will vary by watershed (Jones et al. 2020, Lisi et al. 2015, Leppi et al. 2014, Murdoch et al. 2020) and can be best moderated by resilient and diverse habitat conditions at the local scale.

Despite these existing threats, we have a genuine opportunity to enhance and sustain Alaska's fish and wildlife for many generations to come. Intact habitats can be protected and preserved and degraded habitats can be restored. Through strategic habitat conservation, we can influence the trajectory of Alaska's salmon and other fish and wildlife resources to provide ecological, economic, and cultural benefits for the American people for years to come.



# GOAL 1

## CONSERVE HABITAT

### THREATS

- Fish Passage Barriers
- Timber Harvest (riparian & in-stream impacts)
- Stream Corridor, Wetland, and Shoreline Development
- Aquatic Invasive Species
- Mine Development in Transboundary Rivers
- New Roads and Energy Corridors
- Climate Change

Photo: A typical Southeast Alaska scene.  
(Katrina Liebich, USFWS)



## Southeast Alaska

*Much of Southeast Alaska is federally managed land, consisting of the 17.8 million acre Tongass National Forest and Glacier Bay National Park and Preserve. The remaining 4 million acre land base is split among state, municipal, and private (including Native Corporations) ownership.*

Southeast Alaska features rainforests, fjords, a myriad of rivers and streams, estuaries, mountains, and glaciers and ranks as one of the largest, most complex, and intact estuarine and temperate rainforest systems on Earth. Riverine wetlands provide estuarine rearing habitat for juvenile salmon and other species, are major migratory bird stopover areas, and provide nesting sites for waterfowl. Land uses throughout Southeast Alaska are varied, including timber harvest, mining, community/land development, tourism, recreation, and subsistence activities. An important challenge for conservation is that some of the most productive habitats (coastal forelands and coastline) are also the most desirable lands for development, constrained by the extreme topography between the Coast Range and the Pacific Ocean. Further, the island geography results in distinct, autonomous communities whose independent infrastructure creates a large regional development footprint. Years of road building during the pioneering days of the timber industry has left a legacy of over 2,000 fish-bearing streams bisected by improperly designed or placed culverts, impacting habitat connectivity and aquatic organism passage.


**41,000**

square miles in size

**33.5 million**

salmon harvested commercially in 2019

**106 million**

dollar exvessel value of commercial salmon fishery in 2019

Table 3. Southeast Alaska Focus Area strategies, conservation actions and outcomes, and 5-year performance targets.

Focal Species	Strategy	Conservation Actions	Conservation Outcomes	Objectives (5 year targets)
Pacific salmon; migratory birds; native pollinators	Sustain ecologically significant habitat by implementing voluntary coastal habitat conservation projects	Conserve coastal habitat by working with partners	Maintaining functioning riparian, wetland, and upland habitat addresses biological needs of salmon, migratory birds, and pollinators, promotes connectivity among habitats within a watershed, increases habitat resilience during extreme weather events, supports many ecological functions (water storage, water quality), and supports 30x30 conservation goals	Conserve 300 acres of wetlands, 100 acres of upland habitat, and 2 miles of streamline/shoreline  Develop and implement at least one conservation project on Alaska Native owned lands that involves sustainable compatible land use for subsistence purposes
	Inform future conservation actions by supporting partnerships and projects that assess and prioritize habitats and improve our understanding of the most ecologically significant coastal habitats for protection, enhancement, or restoration	Conduct and support completion of geospatial analyses that fill gaps in coastal habitat information and help prioritize habitat conservation and restoration efforts	By identifying and targeting the highest priority and most ecologically significant coastal habitats, Coastal Program financial and technical support will maximize impacts on conserving healthy coastal ecosystems in Alaska	Complete 2 GIS-based prioritization frameworks for restoration and protection projects in SE AK and identify data gaps for further assessment
		Conduct on the ground assessments that inform coastal habitat conservation		Complete 2 habitat/ watershed assessments or restoration plans that help identify future Coastal, PFW, and Fish Passage projects
	Increase investment in coastal habitat conservation and restoration by leveraging Coastal Program resources and conservation actions of other federal, state, and local agencies, communities, and the private sector	Provide technical assistance to land trusts and others applying for external funding and collaborating with other Service program for coastal habitat conservation and restoration	By leveraging partnerships and resources, more on-the-ground habitat conservation in coastal areas will be achieved	Work with partners to leverage funding from 10 external funding sources, including NCWCG, NAWCA, Ecological Services Proactive Conservation Funds, NFHP, and others



## CONSERVE HABITAT

### THREATS

- Habitat Fragmentation
- Fish Passage Barriers
- Stream Corridor/ Lakeshore Development
- Riparian Impacts from Recreational Users
- Off-road Vehicles
- Aquatic Invasive Species
- Limited Land Use Planning
- Over Exploitation of Fish Runs
- Climate Change

**48,200**  
square miles in size

**65%**  
of the population lives here on less than 10% of the state landmass (2020)

**40 million**  
combined commercial salmon harvested (2019)

## Southcentral Alaska

*Southcentral Alaska has abundant fish and wildlife resources, with many federal and state designated conservation units, including the majority of the state-managed critical habitat areas, game refuges, and wildlife sanctuaries.*

For the purposes of this plan, southcentral Alaska includes the coastal areas of Cook Inlet and the central Gulf of Alaska, including Anchorage, the Matanuska-Susitna region, the Kenai Peninsula, and the Kodiak Archipelago. Southcentral Alaska exemplifies a land of extremes: coastal areas within the region are the most populated areas of Alaska, while the area also includes some of the wildest places in the Nation, such as Denali National Park. Area-wide, fish and wildlife are abundant; however, because the region's human impact is concentrated in coastal areas, habitat degradation of coastal wetlands and estuaries can have a greater negative effect on fish and wildlife resources by degrading key habitats for anadromous fish or migratory birds. Land uses across the region are varied, including community/land development, oil and gas extraction, mining, timber harvest, tourism, recreation, and subsistence activities. Given the geographic overlap with the service area for multiple land trusts, there are significant opportunities to leverage conservation outcomes within this area.

-  National Park Service
-  U.S. Forest Service
-  Bureau of Land Management
-  State Parks
-  U.S. Fish & Wildlife Service

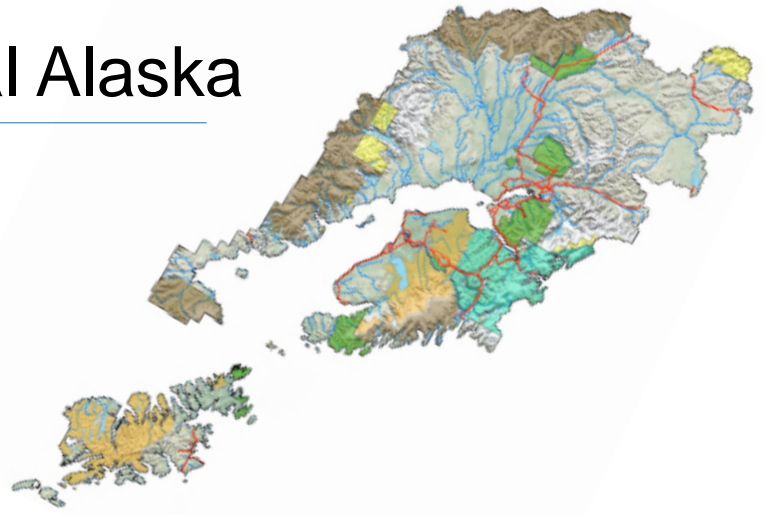


Table 4. Southcentral Alaska Focus Area strategies, conservation actions and outcomes, and 5-year performance targets.

Focal Species	Strategy	Conservation Actions	Conservation Outcomes	Objectives (5 year targets)
Pacific salmon; migratory birds; native pollinators	Sustain ecologically significant habitat by implementing voluntary coastal habitat conservation projects	Conserve coastal habitat by working with partners	Maintaining functioning riparian, wetland, and upland habitat addresses biological needs of salmon, migratory birds, and pollinators, promotes connectivity among habitats within a watershed, increases habitat resilience during extreme weather events, supports many ecological functions (water storage, water quality), and supports 30x30 conservation goals	Conserve 700 acres of wetlands, 400 acres of upland habitat, and 15 miles of streamline/shoreline  Develop and implement at least one conservation project on Alaska Native owned lands that involves sustainable compatible land use for subsistence purposes  Complete 10 protection/restoration projects in Kenai Mountains to Sea corridors
	Inform future conservation actions by supporting partnerships and projects that assess and prioritize habitats and improve our understanding of the most ecologically significant coastal habitats for protection, enhancement, or restoration	Conduct on the ground assessments that inform coastal habitat conservation	By identifying and targeting the highest priority and most ecologically significant coastal habitats, Coastal Program financial and technical support will maximize impacts on conserving healthy coastal ecosystems in Alaska	Complete 2 habitat/watershed assessments or restoration plans that help identify future Coastal, PFW, and Fish Passage projects
		Enhance capacity of land trusts to identify, prioritize, and implement voluntary habitat conservation projects		Complete 2 habitat restoration or protection prioritizations products
	Increase investment in coastal habitat conservation and restoration by leveraging Coastal Program resources and conservation actions of other federal, state, and local agencies, communities, and the private sector	Provide technical assistance to land trusts and others applying for external funding and collaborating with other Service program for coastal habitat conservation and restoration	By leveraging partnerships and resources, more on-the-ground habitat conservation in coastal areas will be achieved	Work with partners to leverage funding from 10 external funding sources, including NCWCG, NAWCA, LWCF, REPI, Ecological Services Proactive Conservation Funds, NFHP, and others



## THREATS

- Habitat Fragmentation
- Large-scale Mineral and Energy Development
- Aquatic Invasive Species
- Climate Change



Photo: Bristol Bay area.  
(Katrina Liebich, USFWS)

*The region is largely undeveloped, with vast tracts of intact habitat, some of which are in-holdings or adjacent to state and federal-managed conservation units. Private land ownership within the region is predominately Alaska Native-owned lands.*

Southwest Alaska includes hundreds of miles of diverse coastal habitat. This area includes six NWRs, three National Parks, and the largest State Park in the U.S. (Wood Tikchik State Park). The terrain includes coastal mountains, large lakes, and extensive lowland coastal wetlands. The region's intact watersheds teem with salmon, Dolly Varden, rainbow trout, and other fish species. This region supports the most productive and resilient wild sockeye salmon fishery in the world, producing over half of the entire world supply. Every year, hundreds of distinct runs of sockeye salmon run up the Naknek, Kvichak, Egegig, Ugashik, Wood, Nushagak, Igushik and Togiak rivers to spawn. Up to a 100 million salmon return annually, supporting subsistence lifestyles and multi-million dollar commercial and sport fisheries which provide thousands of jobs and support economies of over 40 Alaska Native coastal towns and villages.

63,300

square miles in size

\$326million

2019 commercial salmon  
fishery exvessel value

47million

salmon commercially  
harvested in 2019





-  National Park Service
-  Bureau of Land Management
-  State Parks
-  U.S. Fish & Wildlife Service



Table 5. Southwest Alaska Focus Area strategies, conservation actions and outcomes, and 5-year performance targets.

Focal Species	Strategy	Conservation Actions	Conservation Outcomes	Objectives (5 year targets)
Pacific salmon; migratory birds; native pollinators	Sustain ecologically significant habitat by implementing voluntary coastal habitat conservation projects	Conserve coastal habitat by working with partners	Maintaining functioning riparian, wetland, and upland habitat addresses biological needs of salmon, migratory birds, and pollinators, promotes connectivity among habitats within a watershed, increases habitat resilience during extreme weather events, supports many ecological functions (water storage, water quality), and supports 30x30 conservation goals	Conserve 4,000 acres of wetlands, 40,000 acres of upland habitat, and 40 miles of streamline/shoreline
	Inform future conservation actions by supporting partnerships and projects that assess and prioritize habitats and improve our understanding of the most ecologically significant coastal habitats for protection, enhancement, or restoration	Conduct on the ground assessments that inform coastal habitat conservation	By identifying and targeting the highest priority and most ecologically significant coastal habitats, Coastal Program financial and technical support will maximize impacts on conserving healthy coastal ecosystems in Alaska	Complete 1 habitat/watershed assessments or restoration plans that help identify future Coastal, PFW, and Fish Passage projects
		Enhance capacity of land trusts to identify, prioritize, and implement voluntary habitat conservation projects		Complete 1 habitat restoration or protection prioritizations product
	Increase investment in coastal habitat conservation and restoration by leveraging Coastal Program resources and conservation actions of other federal, state, and local agencies, communities, and the private sector	Provide technical assistance to land trusts and others applying for external funding and collaborating with other Service program for coastal habitat conservation and restoration	By leveraging partnerships and resources, more on-the-ground habitat conservation in coastal areas will be achieved	Work with partners to leverage funding from 10 external funding sources, including NCWCG, NAWCA, LWCF, Ecological Services Proactive Conservation Funds, NFHP, and others



## CONSERVE HABITAT

The Alaska Coastal Program's priority conservation measures for the next five years include the amount of wetland, uplands, and stream miles protected. The numeric targets in Table 6 were informed by habitat prioritization assessments and on-going land conservation efforts of Coastal Program partners. Because Coastal Program funds cannot be used to acquire a real interest in property, the actual accomplishments over the next five years could be higher or lower depending on several variables outside the direct control of the program including: landowner decisions, real estate markets, actual funding for land conservation, and partner capacity.



Table 6. Regional performance targets by geographic focus area.

Geographic Focus Area	5-year Performance Targets			
	Acres Wetlands	Acres Upland	Miles Riparian, Stream, Shoreline Habitat	# Technical Assistance Activities
Southeast	300	100	2	12
Southcentral	700	400	15	12
Southwest	4,000	40,000	40	11
Totals	5,000	40,500	57	35

# GOAL 2

## BROADEN & STRENGTHEN PARTNERSHIPS

Partnerships are the foundation of the Coastal Program; without them, conservation actions cannot be implemented. The Alaska Region Coastal Program is fortunate to have a group of strong conservation partners dedicated to protecting and restoring Pacific salmon, migratory bird, and pollinator habitats. Existing partners include land trusts, Fish Habitat Partnerships, the Alaska Department of Fish and Game, municipalities and boroughs, National Resource Conservation Service (NRCS), the local Soil and Water or Tribal Conservation Districts, local watershed councils, Native regional corporations, Native village corporations and councils, private land owners, local businesses, and a variety of non-profit organizations. It is our goal to broaden and strengthen those partnerships over the strategic planning period.

*“The Coastal Program is key to creating sustainable conservation partnerships and to the development of lasting land protection by land trusts. The staff has always been incredibly helpful, supportive, and knowledgeable.”*

Marie McCarty, Executive Director  
Kachemak Heritage Land Trust



Figure 8. Regional Native Corporation boundaries established by the Alaska Native Claims Settlement Act.



Given the value we place in partnerships, the first step in developing this regional implementation plan was to solicit input from our external partners on past program/staff performance and future expectations. We distributed an 18-question survey directly to 62 existing Coastal partners and received 31 responses. Respondents were representative of our Geographic Focus Areas, but were primarily from State government and non-profit organizations; our responses from local government and Tribal organizations were limited.

We specifically asked our partners two open-ended questions: “How can USFWS be a better conservation partner?” and “If there was one thing about our Program that you could change, what would that be?” The following responses provide us with areas to improve our Program and partnerships over this strategic planning period:

- Improve Communication: simpler lines of communication, consistent and well communicated priorities (one voice from all FWS staff), transparency about how funding decisions get made, and more interaction/face time with the public to improve public image
- Improve Administrative Process: Grant Solutions remains difficult, timeliness of funding/reimbursement process, stay committed financially to multi-year agreements
- Increase Diversity in Project Types: watershed/landscape approach, work beyond federal trust species, get involved with diverse habitat projects, expand geographic focus into the Arctic
- Increase Capacity: additional funding and staff capacity needed all across Alaska, but particularly in Southeast Alaska.

Through the Alaska Native Claims Settlement Act (ANCSA), twelve Alaska Native regional corporations were formed and given the opportunity to select lands within areas of traditional and historical uses (Figure 8). These corporations are private landowners of a combined 44 million acres and they understand the value of conservation. ANCSA also created over 200 village corporations, each with local area interest and authority. Over this strategic planning period, the Coastal Program will continue to proactively reach out to Alaska Native Corporations within our Geographic Focus Areas to strengthen these relationships. Further, this Coastal Program partnership focus supports the Service’s Tribal trust responsibilities established through the Alaska National Interest Lands Conservation Act and fulfills the Alaska Region’s strategic focus of strengthening relationships with Alaska Native and rural Alaska partners to safeguard fish, wildlife, and their habitats (USFWS 2017).

In recent years, there has been a much needed, growing awareness of environmental justice issues. For example, the Environmental Protection Agency has developed an Environmental Justice Screening and Mapping Tool that estimates a community’s vulnerability based on a number of environmental (e.g., proximity to contaminants, density of development) and demographic (e.g., age distribution, education level, income metrics) indicators (<https://ejscreen.epa.gov/mapper/>). Similarly, the Centers for Disease Control and Prevention has developed a social vulnerability index that measures a community’s potential negative impacts caused by external stressors such as natural disasters or anthropogenic events (e.g., contaminant spill) – community factors such as poverty, density, or mobility influence the community’s vulnerability (<https://svi.cdc.gov/map.html>). As we develop and implement Coastal Program conservation actions, we will consider environmental justice factors, proactively seeking to partner with and maximize benefits for disadvantaged communities in Alaska.

Over the strategic planning period, we will focus on sustaining and strengthening both our existing internal and external partnerships and will also work toward developing new and lasting partnerships. Internally, we will intentionally pursue collaboration opportunities with Service programs such as Refuges, Fisheries

## PARTNERSHIPS

and Aquatic Conservation, Ecological Services, Science Applications, and Migratory Bird Management. Externally, we will continue to implement established, proven approaches for sustaining partnerships such as regular and frequent communication, providing continual opportunity for feedback, and providing partners with technical support and educational opportunities (e.g., technical workshops or webinars). Further, we value the dedication and contributions of our program partners and will annually nominate partners for conservation awards.

We are committed to strengthening our partnership with the Alaska National Wildlife Refuge system. The Division of Natural Resources is coordinating a process to identify resources of concern on or adjacent to each Alaska refuge. This process is generating valuable species and habitat data that may be useful for refining species/habitat assessments and prioritizations of interest to the Coastal Program and our partners. Further, the Refuge Realty team works with Refuge Managers, land trusts, and private landowners of inholdings or land adjacent to Refuge boundaries that support Refuge resources. During the current strategic planning period, we will focus on deepening this internal partnership to achieve shared conservation goals.



The National Coastal program developed common metrics for all Regions to track to provide corporate measures of success at achieving our goals around Broadening and Strengthening Partnerships. The common metrics, and Alaska's performance targets, for these goals are included in Table 7.

Table 7. National metrics for broadening and strengthening our partnerships.

METRIC	ANNUAL PERFORMANCE TARGET
Number of Annual Partnerships	5 Partnerships
Non Program Dollars Leveraged for Projects	1:1

Photo: Measuring flows at a fish passage barrier.  
(Jess Straub, USFWS)



# GOAL 3

## IMPROVE INFORMATION SHARING & COMMUNICATION

We live in an information age. The speed of information exchange and the method of delivery are constantly changing. Effective information sharing and communication with our partners, stakeholders, decision makers, and others is a major goal of the Alaska Coastal Program. We endeavor to remain current and relevant in the dynamic world of outreach and communication. To effectively communicate, we will use a combination of traditional and cutting edge outreach tools to communicate our Coastal Program actions and successes to keep our partners and others informed. We recognize that outreach and communication must occur at multiple scales: locally, regionally, and nationally. In addition, we will continue to proactively seek input from our conservation partners and will adapt our strategies accordingly.

The Alaska Coastal program is committed to improving how we communicate with our partners and share information. Over the strategic planning period, we will purposefully maintain open communication with internal and external partners. Internally, we will proactively communicate Coastal Program successes and challenges to the Fisheries and Ecological Services Assistant Regional Director, the Regional Directorate Team, the Alaska Region Regional Director, and leadership of Refuges and other Service programs. Externally, we will maintain our current comprehensive level of coordination with other agencies (local, state, federal), National Fish Habitat Partnerships, community-based watershed organizations, Alaska Native organizations, and other stakeholders in

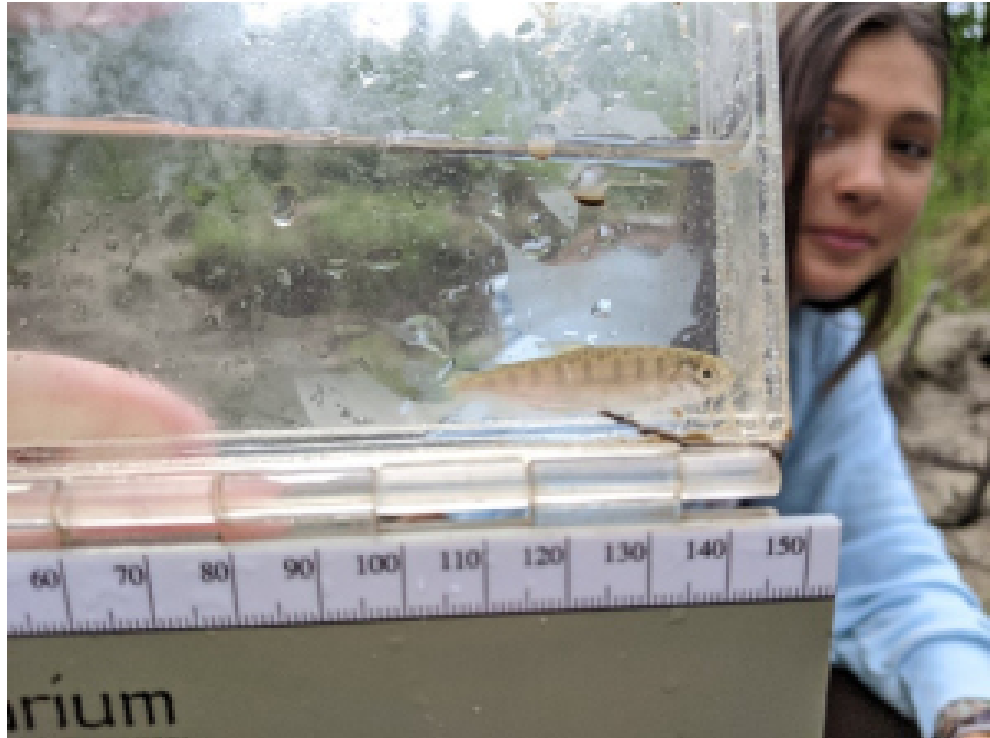


Photo: Youth educational outreach through use of Em2 stream table.  
(Megan Pike, Kenai Watershed Forum)

the implementation of Coastal Program conservation actions. To inform various audiences about the Coastal Program's actions and accomplishments, we will use a variety of outreach tools as described in the Alaska Region Outreach Strategy. These tools maximize the number and diversity of people reached, and include tactics such as social media, blogs, podcasts, websites, traditional publications, informal presentations, and formal presentations at local/regional/national conferences. Our outreach material will be tailored to the audience and desired messaging. In particular, we will support Service headquarters staff in developing national program materials to garner Agency and Congressional program support and we will produce social media material to build interest in conservation locally, regionally, nationally, and globally.

Through our survey of external partners, we posed two questions specifically targeting outreach and communication: "What themes are most effective in communicating the purpose, value, and benefits of conservation to others?", and "What is the best method for sharing stories about these themes?"

The top three themes in order of importance were: (1) economic value of healthy habitats/species, (2) ecological services provided by healthy functioning habitat, and (3) the value of fish and wildlife for human use (e.g., fishing, hunting). Somewhat to our surprise, our partners felt like to top three most effective ways to share conservation stories were: (1) holding specific education/outreach events (e.g., workshops, speaker series), (2) social media, and (3) having an in-person presence (e.g., interactive booth) at community events, industry conferences, or trade shows. We will use this feedback to structure our information sharing and communication efforts over this strategic planning period.



The National Coastal program common metric, and Alaska's performance target, for improving information sharing and communication is included in Table 8.

Table 8. National metric for improving information sharing and communication.

METRIC	5-YEAR PERFORMANCE TARGET
Number of Outreach Activities	10 Outreach Activities

Photo: Juvenile Chinook caught in summer of 2021.  
(Mitch Osborne, USFWS)



# GOAL 4

## DEVELOP OUR WORKFORCE

Alaska Region Habitat Conservation Program staff are dedicated, effective professionals that accomplish significant conservation actions with limited resources. Staff possess technical expertise and devote a high level of personal attention to projects and partners, both of which have been identified as significant strengths of our Coastal Program. Through our formal survey distributed to external partners, we learned that our partners were certain about our staff technical expertise and professionalism:

- 91% 'Possess technical knowledge and expertise of species and habitats',
- 96% 'Possess technical knowledge of project design, implementation, and permitting',
- 94% 'Are professional in how they go about their work', and
- 91% 'Are accessible and responsive'.

Further, the top five areas (in order of importance) in which our partners requested technical assistance from our staff are: (1) information about long-term habitat protection, (2) information about project-specific technical/financial resources that may be available, (3) species-specific scientific/biological project support, (4) information about habitat restoration or enhancement, and (5) support for prioritizations or strategic planning. Over this strategic plan period, our goal is to maintain and improve upon our technically capable and highly functioning workforce and we will emphasize providing technical assistance that addresses partner-identified needs.

The Alaska Region Habitat Conservation Program's organizational structure is designed to foster collaboration among staff and serves as an informal mentoring program. Staff expertise includes biology, hydrology, habitat restoration, and engineering; staff regularly consult one another to discuss project-specific and programmatic strengths and challenges. In addition



Photo: Checking minnow traps.  
(Mitch Osborne, USFWS)

to the within-program collaboration, we are committed to proactively seek perspectives and input from other Service programs, such as Fisheries, Wildlife and Sportfish Restoration, Refuges, Ecological Services, Migratory Bird Management, and Science Applications.

Alaska Region Coastal staff are committed to develop and expand their skills and abilities. Staff are encouraged to actively participate in professional societies and to seek out and attend professional technical training to hone and expand their expertise. Based on external partner feedback from our pre-planning survey, we identified three areas of professional development for our Coastal staff: creative problem solving, communication skills, and establishing/fostering partnerships. Survey respondents indicated that they disagreed or were unsure of our staff capability in these areas (12%, 9%, and 12% respectively).

To develop leadership from within the Coastal program, staff are encouraged to participate in leadership development, such as Stepping Up to Leadership, Advanced Leadership Development Program, LEAD Alaska, or other external leadership training. Alaska Region staff are also encouraged to participate in temporary details in other Service regions to learn more about the Coastal program nationally, to understand how other regions implement the Coastal Program, and to bring these lessons back to Alaska for Coastal Program improvements.

Alaska Region Coastal staff are committed to developing the next generation of natural resource professionals by connecting people with nature and educating today's youth about the natural world. Staff are encouraged to mentor young and diverse professionals by providing practical opportunities to engage in conservation efforts. In Alaska, there are a number of existing programs available to create these opportunities, including Alaska Native Science and Engineering Program, Directorate Fellows, Arctic Youth Ambassadors, Soul River, and the King Career Center.



The National Coastal program common metric, and Alaska's performance target, for developing our workforce is included in Table 9.

Table 9. National metric for developing our workforce.

METRIC	5-YEAR PERFORMANCE TARGET
Number of Employee Development Activities or Events	10 Employee Development Activities

Photo: Youth educational outreach.  
(Katrina Liebich, USFWS)



# GOAL 5

## ENSURE ACCOUNTABILITY

Accountability and transparency are tenets of functional government. In the Alaska Region Coastal Program, we are committed to wisely using our resources to have the greatest conservation impact in Alaska. We will regularly monitor Coastal Program activities and operations to ensure Alaska Region program alignment with national program objectives and requirements.

The Service uses the Habitat Information Tracking System (HabITS) to document and report all Coastal Program project accomplishments, specifically connecting each accomplishment to restoration actions and Service initiatives. In the Alaska Region, field and regional Coastal Program staff work together to enter project information and review data for accuracy. Prior to the close of the federal fiscal year (September 30), annual project accomplishments are submitted to Headquarters for review to confirm compatibility with HabITS and national Coastal Program requirements. Our Coastal program goal is 100% error-free HabITS reporting each year.

The Alaska Region Coastal Program is committed to other standard business practices to ensure the program satisfies national program requirements and delivers effective conservation actions. Operationally, staff will conduct annual FWCO management control reviews to ensure efficient operations and will track the annual Coastal budget to ensure that on-the-ground project funds are maximize and program operational funds are minimized. Further, to maximize the impact of our conservation actions and increase leveraging opportunities, we will demonstrate how Coastal Program conservation actions link with local, regional, or national strategic conservation plans or LCDs. Finally, as we conduct project compliance monitoring, Coastal Program staff will aim for 100% alignment with guidelines in the Alaska Region Habitat Restoration Program Monitoring Plan.

The National common metrics to ensure program accountability, and our performance targets, are described in Table 10.

Table 10. National metrics for ensuring accountability.

METRIC	ANNUAL PERFORMANCE TARGET
100% of Projects Have Completed Level 1 Monitoring: Implementation and Compliance Monitoring	100% compliance with Metric
Produce or publish an Annual Accomplishment Report	100% compliance with Metric

## Monitoring and Biological Outcomes

The Alaska Coastal Program is committed to national program policy directing the majority of program funds for on-the-ground conservation actions; the remainder is available for program administration. Program staff currently conduct compliance monitoring and are continuously exploring collaboration opportunities for long-term monitoring options with key partners.



Photo: Collecting eDNA samples in the field.  
(Katrina Liebich, USFWS)

Effectiveness monitoring of our conservation actions is an important component of SHC (Figure 1). Monitoring determines whether conservation actions meet intended habitat or biological objectives and informs planning and design of future conservation actions. In the field of conservation and restoration biology, there has been a growing need to demonstrate that on-the-ground conservation actions achieve the desired biological outcome for the species or habitat targeted for restoration. The need to document successful restoration efforts is heightened by the progressively decreasing money available for restoration through federal/state agencies or other funding sources.

As an example, the desire and need to monitor stream and watershed restoration actions has been a considerable focus of Pacific salmon recovery efforts throughout the Pacific Northwest and California (Roni 2005, Bennett et al. 2016). Specific to the discipline of aquatic organism passage, the U.S. Geological Survey convened a panel of national experts to provide protocols and guidelines for effectiveness monitoring of aquatic organism passage at road-stream crossings (Hoffman et al. 2012). Hoffman et al. (2012) evaluated the utility of four broad categories of methods (individual movement, occupancy models, abundance,

and molecular genetic markers) for the purpose of evaluating three components of aquatic organism passage restoration: 1) the level of passage impairment at culverts and road-stream crossing structures; 2) the ecological conditions that either rule-out or support repairing or replacing structures; and 3) the effectiveness of stream connectivity and passage restoration efforts.



A number of themes emerged from this workshop:

- The fundamental reality is that monitoring projects require discrete/significant long-term funding and partnerships among researchers and resource managers to be successful.
- Choosing the most appropriate method depends on the specific questions being asked; each method has strengths and limitations and a combination of methods is often required.
- An ideal approach includes two primary elements: impact and reference sites; before and after sampling and evaluation.
- A number of factors that can modify the response of aquatic organisms to changes in passage conditions need to be considered, including stream size, the life history and movement characteristics of the species of concern, the landscape context of the crossing site, design and condition of the crossing structure, physical-hydrological-biological characteristics of the stream at the crossing, and time since crossing conditions have changed substantially.

Consistent with the findings of Hoffman et al. (2012), Roni et al. (2008) and Bennett et al. (2016) describe the challenges of measuring population-level responses of stream habitat restoration efforts throughout the Pacific Northwest. The fundamental problem is that effectiveness monitoring is typically not conducted at the population scale – most restoration monitoring has been conducted on a reach scale over short time frames (<5 years). Further, restoration efforts are often small relative to watershed size, which limits the power to detect a response. Bennett et al. (2016) and Neville et al. (2016) identify that population responses to restoration can be measured, provided that effectiveness monitoring programs take a watershed-scale approach over long periods of time.

During the 2017-2021 strategic planning period, the Alaska Region staff from our integrated conservation partnerships programs (e.g., Coastal, PFW, and Fish Passage programs) and our Fisheries and Aquatic Conservation program collaborated on a pilot monitoring study to investigate the biological impact of our fish passage restoration work on Kodiak Island. In 2017 and 2018, we sampled the resident/juvenile fish community above and below 19 culverts trying to answer the research question: do stream reaches upstream of good culverts support more fish than reaches above bad culverts? We hypothesized that fish abundance would correlate with culvert passability. For Dolly Varden and juvenile Coho Salmon, results indicated that there was no relationship between fish abundance and culvert passability and among-site variation was very high. After statistical analysis of the data, we determined that large sample sizes (~400 sites) would be required to detect significant differences in Coho Salmon and Dolly Varden abundance. Given our program capacity and resources, the pilot monitoring project was abandoned rather than scaled up 20-fold.

In December 2019, the Alaska Region Conservation Partnerships programs and staff from the Fisheries program went through a 2-day facilitated structured decision making process (Steps 1-4 from Reynolds et al. 2016). We considered each of the primary conservation actions we conduct, developed problem statements for each, then determined the need for monitoring based on program capacity and whether or not monitoring would address specific management or policy actions identified in the problem statement. The outcome of this meeting was a commitment to evaluate a pilot project to monitor the response of habitat and fish to our streambank restoration work on the Chena River, near Fairbanks.

In 2020, we conducted a pilot study to determine the suitability of using Dual-frequency Identification Sonar to detect differences in fish use between bioengineered streambanks and hardened streambanks (riprap). While fish detection was feasible, video evaluation time was significant and large sample sizes are required to detect statistical differences in fish use between the two habitat types. To address the sample size challenge, in 2021 and beyond, we are evaluating whether side scan mobile sonar

technology is feasible for documenting different habitat types and detecting differences in fish abundance/use of these habitats. Recognizing the challenges detailed by Hoffman et al. (2012), Roni et al. (2008), and Bennett et al. (2016), we are committed to finding creative, low-cost solutions to demonstrating the biological impacts of our restoration actions.

Protecting intact, functioning habitat for the benefit of multiple species and habitat resilience is one of the primary conservation actions of the Alaska Coastal Program. The principal mechanism for land protection is through our land trust partners establishing conservation easements with willing landowners interested in conserving their lands. Each conservation easement includes a long-term stewardship commitment focused on ensuring that the terms of the conservation easement are satisfied. For Alaska, stewardship efforts focus on monitoring the condition of habitats and resources protected by the easement to safeguard the long-term function of those habitats for the benefit of targeted species and ecosystem services.

## Conclusion

This regional implementation plan provides focus for the Alaska Coastal Program for 2022-2026. Our program aligns with the National Priorities of species conservation, habitat connectivity, and resilient ecosystems for the benefit of federal trust species. We intend to address priority conservation needs of Pacific salmon, migratory birds, and pollinators within our geographic focus areas that are located at the intersection of functioning habitat and growing habitat threats. We will strive to continually improve the Alaska Coastal Program by broadening and strengthening partnerships, improving information sharing and communication, developing our workforce, and increasing accountability. Through the Alaska Coastal Program, we hope to be a positive influence in the communities where we both live and work: developing meaningful relationships, addressing habitat/species needs, protecting and providing ecosystem services, improving community resilience, maintaining the connection between people and the land, and improving the quality of life for all Alaskans.

Photo: Installation of piezometers for sediment transport research.  
(Katrina Liebich, USFWS)



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