National Park Service
U.S. Department of the Interior

Ocean and Coastal Resources Program
Interior Regions 8, 9, 10, 11, 12

Arctic-Pacific Ocean Stewardship Strategy

Best viewing suggestion
For best viewing experience in Adobe Acrobat, select View/Page Display and select Two Page View or Two Page Scrolling and Show Cover Page in Two Page View.

Cover: Ofu and Olosega Islands, National Park of American Samoa.
NPS

National Park Service
U.S. Department of the Interior

Ocean and Coastal Resources Program
Interior Regions 8, 9, 10, 11, 12

Arctic-Pacific Ocean Stewardship Strategy

Ocean and Coastal Resources Program
Natural Resource Stewardship and Science
1201 Oakridge Drive, Suite 250
Fort Collins, CO 80525

July 2021

This effort would not have been possible without the exceptional support of the steering committee:

Sarah Allen, Retired NPS
Eva DiDonato, Water Resources Division, Ocean and Coastal Resources Branch Chief
Grant Hilderbrand, Region 11 (Alaska), Natural Resources Team Lead
Denise Louie, Region 8, 9, 10, 12 (Pacific West), Natural Resources & Science Lead
Paul Siri, Retired, Bodega Marine Lab
James Weigand, Region 8, Bureau of Land Management, California State Ecologist

We acknowledge the significant contributions of the following key team members: Scott McCreary, Ph.D. (CONCUR, Inc.) for support in the design and facilitation of a series of five online meetings; Jasmin Muñoz (CONCUR, Inc.) for support in synthesis and document review; and Christine Lipsky (NPS) for notetaking and general support.

This Strategy was developed with input from over 200 individuals representing NPS parks, regions, and the Washington Service Office in the divisions of Management, Facilities, Interpretation and Education, Visitor and Resource Protection, Cultural Resources, Natural Resources, Inventory and Monitoring, and Water Resources; as well as academia, non-profits, Indigenous entities, and sister agencies including the National Oceanic and Atmospheric Administration, U.S. Fish and Wildlife Service, Bureau of Ocean Energy Management, Bureau of Land Management, and the U.S. Geological Survey.

Suggested citation:

Jones, Tahzay, Irina C. Irvine, Nicole LaRoche, and Nina Chambers. 2021. Arctic-Pacific Ocean Stewardship Strategy. Ocean and Coastal Resources Program, Water Resources Division, Natural Resource Stewardship and Science, National Park Service. Fort Collins, CO.

Contents

Land Acknowledgement

Arctic and Pacific Ocean parks incorporate lands of Indigenous Peoples and adjacent waters that have sustained people for millennia. Care and maintenance of these lands and waters have been provided by Indigenous stewards both past and present. This Strategy provides multiple avenues to strengthen Indigenous partnerships and inclusion in the stewardship of these places for generations to come.

Seabird eggs gathered from the shore of the Chukchi Sea.
NPS/MAIJA LUKIN

List of Acronyms

ANILCA - Alaska National Interest Lands Conservation Act

BLM - Bureau of Land Management

BOEM - Bureau of Ocean Energy Management

COAST - Coastal and Ocean Advisory and Support Team

COASST - Coastal Observation and Seabird Survey Team

CSUMB - California State University, Monterey Bay

DOD - Department of Defense

DOI - Department of the Interior

I&M - Inventory and Monitoring

MPA - Marine Protected Area

NERD - Nearshore Ecosystem Response to Deglaciation

NGO - non-governmental organization

NOAA - National Oceanic and Atmospheric Administration

NPS - National Park Service

NRSS - Natural Resource Stewardship and Science Directorate

NSF - National Science Foundation

PIPES - Pacific Internship Programs for Exploring Science

PISCO - Partnership for Interdisciplinary Studies of Coastal Oceans

SFIP - Strategic Facilities Investment Plan

UCSC - The University of California, Santa Cruz

UCSD - The University of California, San Diego

UNESCO - United Nations Educational, Scientific and Cultural Organization

USFS - United States Forest Service

USFWS - United States Fish and Wildlife Service

USGS - United States Geological Survey

Purpose

The purpose of this Strategy is to consider the effects of rapidly changing environmental conditions on coastal parks and coordinate a holistic approach to protect resources through partnerships, science, education, and management.

A humpback whale breaches in Kenai Fjords National Park.
NPS/KATIE THORESEN

Executive Summary

Arctic and Pacific Ocean national parks contain some of the nation's most outstanding ocean and coastal environments and resources. However, human-caused changes are profoundly impacting ocean and coastal ecosystems. These stressors and drivers of ecosystem change make managing parks to be unimpaired for future generations increasingly complex. Effective conservation requires strategies that anticipate and clarify issues confronting ocean parks.

The 2021 National Park Service Arctic-Pacific Ocean Stewardship Strategy (Strategy) will strengthen and reinforce links between science, management, policy, education, and economics that underpin partnerships at the local, state, federal, and international levels. Consistent with previous plans and guidance, this Strategy identifies four major goals:

Goal 1: Identify, develop, and strengthen partnerships that enhance resource science, conservation, and education.

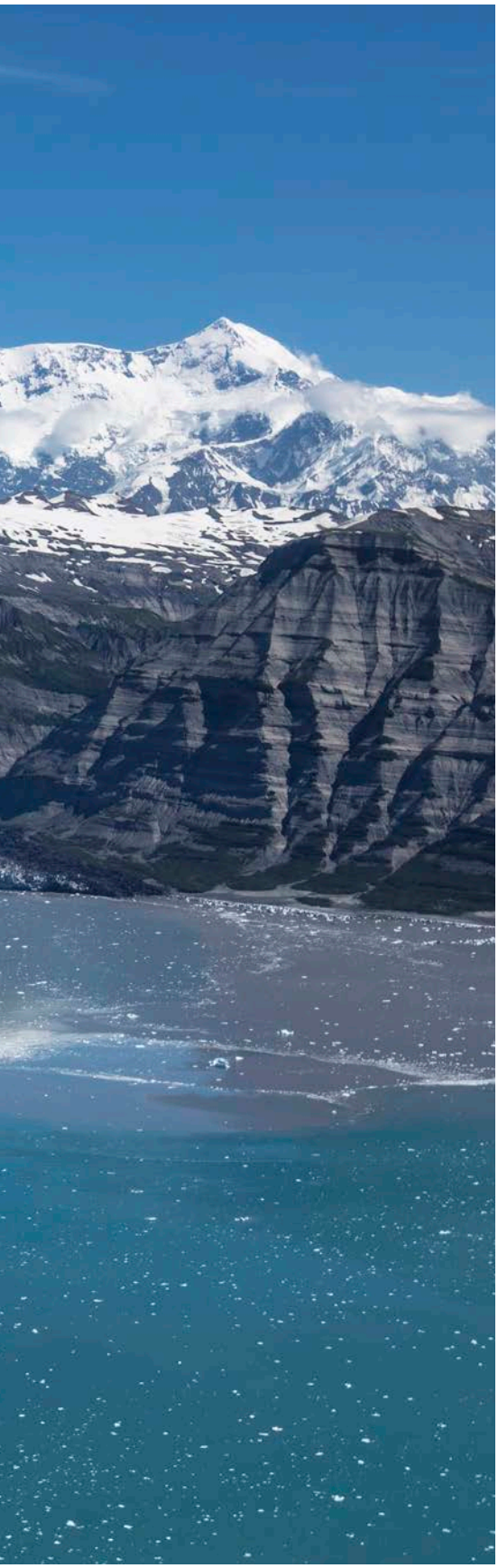
Goal 2: Understand and quantify ocean and coastal resources and their associated stressors and drivers.

Goal 3: Engage individuals and communities in ocean park stewardship through outreach, interpretation, and education.

Goal 4: Enhance effective ecosystem-based ocean and coastal operations and management.

This Strategy takes a dual approach with static mid- to long-term goals, objectives, and actions accompanied by an evolving database of short- to mid-term projects directly implementable at the park, region, and national levels to accomplish stated goals. Annual priorities will be established to further strategic goals. As projects are completed, deferred, or cancelled, the database will be updated, enabling managers to quickly assess progress. Annual reports for each park and region will document progress and maintain focus on implementation. The Strategy should be reevaluated in approximately twenty years to maintain relevance.

Icy Bay, Wrangell-St Elias National Park and Preserve.
NPS/JACOB FRANK



Introduction

The 39 Arctic and Pacific Ocean national parks in Interior Regions 8, 9, 10, 11, and 12 (Alaska, American Samoa, California, Guam, Hawai'i, Oregon, Commonwealth of the Northern Mariana Islands, and Washington) contain some of the most outstanding ocean and coastal environments in the nation. They include important natural, cultural, archaeological, and paleontological resources and ecosystem services, many of which are specifically identified in enabling legislations.

The parks lie within four oceanic realms containing six provinces and twelve marine ecoregions (Appendix A). These realms are of international significance as they are shared with Russia, Canada, Mexico, Mariana Islands, and Samoa. The ecoregions include tropical, subtropical, temperate, sub-arctic, and Arctic coastal systems where native biological diversity is strongly linked to the variability of oceanographic and topographic features.

These parks also preserve a rich cultural fabric at places like:

Pu'uhonua O Hōnaunau and ***Kaloko-Honokōhau*** national historical parks interpret native Hawaiian customs and traditions of the past and present.

San Francisco Maritime National Historical Park offers sights, sounds, and stories of Pacific Coast maritime history.

Rosie the Riveter/World War II Home Front National Historical Park commemorates the stories of our nation's home front response during World War II, including lesser-known perspectives of African American workers and Japanese American incarceration.

Sitka National Historical Park, co-managed with the Sitka Tlingit Tribe, tells the story of Southeast Alaska Indigenous Peoples, signature totemic art forms, the 1804 Battle of Sitka, and Russian exploration and colonization.

Bering Land Bridge National Preserve conserves the paleontological and archaeological record of human and animal migration between Asia and North America. The park is also important for Indigenous Peoples where customary and traditional practices (including subsistence hunting)

California sea lion with urchin shell.
NPS/B. SEYMOUR

Ocean Realms

Arctic oceanic realm, Chukchi Sea ecoregion: Cape Krusenstern National Monument has 70 miles of coastline and a series of lagoons created by the Chukchi Sea and Kotzebue Sound that support habitat for marine mammals, shorebirds, and fishes.

Temperate Northern Pacific oceanic realm, Warm Temperate Northeast Pacific province, Southern California Bight ecoregion: The shoreline topography and currents in Channel Islands National Park facilitate the mixing of cool, nutrient-rich waters from the north with warmer waters from the south. This creates a biologic transition zone that brims with life, including one of the fastest-growing organisms in the world—the giant kelp.

Eastern Indo-Pacific oceanic realm, Central Polynesia province, Samoa Islands ecoregion: National Park of American Samoa consists of three verdant tropical islands on a volcanic archipelago that support outstanding coral reefs and tropical rainforests.

Central Indo-Pacific oceanic realm, Tropical Northwestern Pacific province, Mariana Islands ecoregion: War in the Pacific National Historical Park, rich in biodiversity, hosts over 3,500 marine species, including over 200 species of coral.

persist. This preserve also supports some of the last reindeer herding operations in the country.

In addition to promoting scientific inquiry to advance human understanding of marine ecosystem functions, these places provide context to natural and cultural diversity and countless recreational and educational opportunities.

The NPS Alaska and Pacific West Regions are distinguished by having five designated United Nations Education Scientific and Cultural Organization (UNESCO) Biosphere Regions. Given their status as a component of a world network of learning places for sustainable development, biosphere regions and networks (formerly known as reserves) are sites for testing interdisciplinary approaches to understanding and managing social and ecological change. The biosphere regions and networks associated with national park units are:

- Glacier Bay – Admiralty Islands Biosphere Reserve (Glacier Bay National Park and Preserve)
- Golden Gate Biosphere Network (Golden Gate National Recreation Area, Muir Woods National Monument, and Point Reyes National Seashore)
- Olympic Biosphere Reserve and National Park (Olympic National Park)
- Channel Islands Biosphere Reserve (Channel Islands National Park)
- Hawaiian Islands Biosphere Reserve (Haleakalā and Hawai‘i Volcanoes national parks)

A plume of steam where lava enters the ocean at Hawai‘i Volcanoes National Park.
NPS/J. WEI

Double-hulled canoe passing in front of Hale o Keawe temple during the annual cultural festival at Pu'uhonua o Hōnaunau National Historical Park.
NPS

Challenges Facing Ocean Parks

Approximately 48 percent of the U.S. population resides along the coast. Human population growth and consumption are high-impact stressors that, combined with physical drivers such as increasing habitat fragmentation or sedimentation, are dramatically impacting the function and integrity of ocean and coastal ecosystems. Effective long-term management requires strategic planning that identifies, anticipates, and articulates the challenges confronting ocean parks and corresponding collaborative actions. Although individual park issues are often viewed in isolation, by fostering a landscape approach that strives for habitat connectivity through a mosaic of marine and terrestrial protected areas and partnerships, large-scale conservation efforts become more feasible. Changing the perception that coastal issues are confined to coastal parks is also integral to enduring ocean and coastal resource stewardship.

The NPS mission is to provide recreational opportunities while maintaining natural, healthy, functional ecosystems and preserving key natural and cultural resources. To accomplish this, it is important that parks incorporate an awareness of, and respectfulness to the social and cultural context of place. This includes recognizing that the Indigenous caretakers of these lands see no difference between natural and cultural resources; they are one in the same.

Contemporary questions arise with no easy answers, such as: What do "natural," "healthy," and "functional ecosystem" mean in relation to a changing climate? What intervention and mitigation strategies are appropriate?

Studies and blue-ribbon panels over the past two decades focused on assessing the state of the nation's oceans and coastal areas. Key references include:

- the Pew Oceans Commission Report: America's Living Oceans – Charting a Course for Sea Change (2003),
- U.S. Commission on Ocean Policy: An Ocean Blueprint for the 21st Century (2004),
- Revisiting Leopold: Resource Stewardship in the National Parks (2014),

- Alaskan Inuit Food Security Conceptual Framework: How to Assess the Arctic From An Inuit Perspective (2016), and
- the International Panel on Climate Change: Special Report on the Ocean and Cryosphere in a Changing Climate (2019).

These reports consistently identify common challenges facing oceanic and coastal systems including climate and non-climate stressors.

Arctic coastal erosion exposes ice-rich permafrost.
NPS

Human-caused climate change is profoundly impacting ocean and coastal ecosystems in increasingly apparent ways (Caffrey and Beavers 2008, 2013; Gonzalez et al. 2018, IPCC 2019, NPS 2021). Climate impacts include warming ocean temperatures, melting sea ice, rising sea-levels, and increasing storm activity and intensity. As noted by the Pew Oceans Commission (2003):

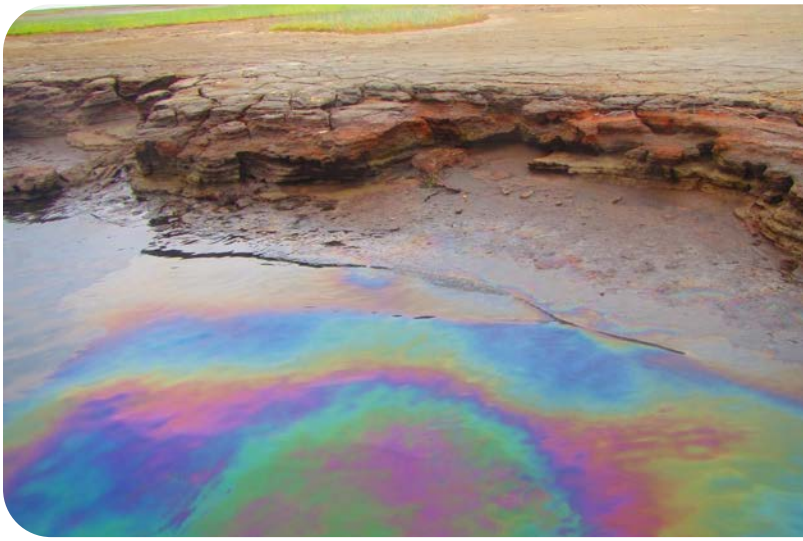
> *Sea-level rise will gradually inundate highly productive coastal wetlands, estuaries, and mangrove forests. Coral reefs that harbor exceptional biodiversity will likely experience increased bleaching due to higher water temperatures. Changes in ocean and atmospheric circulation attributable to climate change could adversely affect coastal upwelling and productivity and have significant local, regional, and global implications on the distribution and abundance of living marine resources.*

As noted by Revisiting Leopold (2014):

> *The National Park System should become the core element of a national (and with international collaboration, continental and oceanic) network of lands and waters proposed above. Where terrestrial and aquatic protected areas share borders, such as Point Reyes National Seashore and the Gulf of the Farallones Marine Sanctuary, or Olympic National Park and the Olympic Coast National Marine Sanctuary, unique opportunities exist to embrace this holistic vision across ecologically connected boundaries. This network should be managed for resiliency and connectivity, guided by scientific research, and responsible for life cycle stewardship, thereby fulfilling a conservation imperative of protecting the distinctive role and future of the National Park System within the broader American landscape and consciousness.*

By extension, climate change impacts will also affect cultural resources and park infrastructure along the coastline. More extreme weather events can exacerbate threats from oil spills and pollutant releases. Larger and more intense storms will likely cause more shipping accidents, such as what occurred in 2015 when a container swept off its ship washed ashore on Baker Beach at Golden Gate National Recreation Area.

Non-climate impacts include ocean acidification, unsustainable resource extraction, coastal infrastructure development, nutrient runoff, water-borne pollution and pathogens, noise and light pollution, and the introduction and spread of invasive species. In addition, locally documented changes are of concern to park managers, such as coastal erosion, coral die-off, and harmful algal blooms. These changes are being observed in many localities across multiple ecoregions. Unanticipated novel critical changes to modern economies can also increase coastal hazards and risks.



Oil spill on a mud flat in a salt marsh in Bering Land Bridge National Preserve. Increasing ship traffic and storm intensity increases the risk of oil spills.
NPS

Support for this Strategy

The 2021 National Park Service ***Arctic-Pacific Ocean Stewardship Strategy*** (Strategy) reinforces links between science, management, policy, and the economics that underpin partnerships at the local, state, federal, and international levels. There is strong support for the objectives laid out in this strategy from numerous related guidance. Some of these include:

- The 2001 National Park System Advisory Board Report, ***Rethinking the National Parks for the 21st Century***, raises concerns about "dramatic declines in the health of marine ecosystems" and calls for focusing more attention on stewardship and protection of ocean resources in the National Park System. "The Service should pay special attention to the protection of aquatic and marine systems. It should be an active partner in a national and international dialogue to develop a strategy for marine resource protection and restoration."
- In response to the ***U.S. Ocean Action Plan*** issued by the President in 2004, the NPS enhanced the focus on park marine resources. The National Park Service ***Ocean Park Stewardship Action Plan*** (NPS Action Plan) published in December 2006 commits to science-based management and conservation of marine resources, both natural and cultural. The NPS Action Plan calls for increased understanding of human interactions with marine ecosystems, restoration of impacted resources, and greater park investments in marine resource management.

Coral bleaching, seen in this staghorn coral, will likely increase with warming seawater.
NPS

- In 2008, the NPS Pacific West and Alaska Regions jointly completed the first comprehensive strategic plan titled, ***Pacific Ocean Parks Strategic Plan: Conserving Our Coastal, Island, and Marine Resources***. In the intervening time, both significant accomplishments have been achieved and ecological and socioeconomic conditions have changed (Appendix B). NPS top priorities are strengthening the capacity to explore and protect marine resources, fostering partnerships with ocean- and coastal-oriented agencies and organizations, and engaging the public in ocean park stewardship.

- ***Revisiting Leopold: Resource Stewardship in the National Parks*** calls for the NPS to become a core element of a network of lands and waters where terrestrial and aquatic protected areas share borders, and are managed for resiliency and connectivity, guided by scientific research, and responsible for life cycle stewardship.
- The 2016 ***Natural Resource Stewardship and Science Framework*** also provides a foundation for science-based natural resource stewardship with its four principles: (1) holding the line, (2) managing amid continuous change, (3) leveraging for conservation at scale, and (4) enhancing stewardship and science access and engagement (Appendix C).

Diving in a kelp forest in Channel Islands National Park.
NPS

Stewardship Strategy Components

This 2021 Strategy recognizes the connectivity between terrestrial and marine systems (e.g., ridge to reef, *mauka* to *makaʻi*, mountain to sea) and sets targets for ocean and coastal management for the coming decades that: (1) facilitate partnerships to address complex management challenges presented by global climate trends; (2) encourage scientific inquiry and inclusion of Indigenous Knowledge to increase understanding of coastal change drivers and implications; (3) engage people through outreach, education and interpretive learning experiences; and (4) generate seamless management across all NPS programs (natural and cultural resources, operations and protection, interpretation and education, concessions, facilities, planning, and partnerships).

This Strategy revises the 2008 Pacific Ocean Parks Strategic Plan to reflect today's circumstances while remaining consistent with the 2006 Ocean Park Stewardship Action Plan, as well as anticipating future needs. Each goal has specific objectives and actions with mid- to long-term timeframes with projects housed in a database that is dynamic and nimble to reflect changing priorities and new understandings.

Goal 1: Identify, develop, and strengthen partnerships that enhance resource science, conservation, and education.

Goal 2: Understand and quantify ocean and coastal resources and their associated stressors and drivers.

Goal 3: Engage individuals and communities in ocean park stewardship through outreach, interpretation, and education.

Goal 4: Enhance effective ecosystem-based ocean and coastal operations and management.

Accompanying this Strategy is a database of short- and mid-term projects that may be undertaken to accomplish each goal, objective, and action (see Appendix D for database documentation). Parks and their respective regional ocean and coastal resources programs will regularly add new projects as appropriate. The database will be updated as the projects are completed, deferred, or cancelled.

GOAL 1

Identify, develop, and strengthen partnerships that enhance resource science, conservation, and education.

National parks often share borders with international, federal, state, Indigenous communities, local, or private lands, creating partnership opportunities for a larger conservation mosaic. Coordination and collaboration with these neighbors can enhance the effectiveness of shared ocean stewardship. Science-based partnerships are also critical to share and advance science, increase conservation, and expand outreach.

Examples of successful partnerships include:

- **NPS/Multiple State and Federal Agencies**: Katmai National Park and Preserve, McNeil State Game Sanctuary, Becharof National Wildlife Refuge, Alaska Maritime National Wildlife Refuge, Kodiak National Wildlife Refuge
- **NPS/Multiple Agencies/Tribal**: Redwood National Park, California Department of Parks and Recreation, and the Yurok Tribe
- **NPS/DOD/Private**: Channel Islands National Park, U.S. Navy, and The Nature Conservancy - Santa Cruz Island
- **NPS/Federal Agencies/Local Agencies/Academia**: National Park of American Samoa, National Marine Sanctuary of American Samoa, American Samoa Marine and Wildlife Resources, American Samoa Community College
- **NPS/USFS**: Wrangell St. Elias National Park and Preserve and Tongass National Forest
- **NPS/Non-Profit**: Kenai Fjords National Park and Alaska Sea Life Center
- **NPS/University**: War in the Pacific National Historical Park and University of Guam
- **NPS/International:** Alaska Regional Office and the Arctic Council Circumpolar Biodiversity Monitoring Program.

Objective 1.A: Identify multi-park and multi-regional ocean and coastal resource management issues, geographic boundaries, and possible partnerships.

Action 1.A.1: Identify and prioritize coastal park issues among multiple parks that should rise to the level of regional or national attention.

Action 1.A.2: Identify and address issues that extend beyond park jurisdictional boundaries.

Action 1.A.3: Connect parks, governmental agencies, Indigenous partners, and NGOs with common issues and work together to leverage funding as appropriate.

Objective 1.B: Connect parks and other marine protected areas to conserve species diversity and ecosystem processes over large areas within the U.S. and internationally.

Action 1.B.1: Identify and facilitate opportunities to develop and maintain partnerships.

Action 1.B.2: Increase engagement and collaboration with Indigenous Peoples and communities.

Action 1.B.3: Invite representatives from other federal agencies to collaborate with NPS.

Action 1.B.4: Enhance engagement with working groups involved in ocean and coastal stewardship.

Action 1.B.5: Promote dialog and planning among coastal park specialists and NPS regional/national staff to clarify and document priorities.

Action 1.B.6: Explore options for greater inclusion of conservation agencies and non-governmental organizations (NGOs) to provide input to scoping processes.

Golden Gate National Recreation Area.
NPS

Action 1.B.7: Support cooperation of NPS Visitor and Resource Protection Division personnel and law enforcement authorities in adjacent management agencies.

Action 1.B.8: Include and support cross-regional/park subject matter expert partnerships and exchanges.

Action 1.B.9: Co-locate staff with other agencies where possible.

Action 1.B.10: Facilitate partnership opportunities with neighboring nations and regional organizations (e.g., Secretariat of the Pacific Regional Environmental Program, Apia, Samoa).

Historic vessels tied to Hyde Street Pier at San Francisco Maritime National Historical Park.
NPS

Objective 1.C: Increase overall capacity through support networks of personnel, equipment, and information sharing within the U.S. and internationally.

Action 1.C.1: Develop cross-regional coordination on ocean and coastal stewardship issues and efforts.

Action 1.C.2: Build NPS sister park relationships and personnel exchanges throughout the Pacific and Arctic Ocean regions to enhance marine resource science, conservation, technology transfer, and education to and from other protected areas.

Action 1.C.3: Maximize the capacity of the regions and ocean parks to engage in joint stewardship activities.

Action 1.C.4: Support training of personnel to enhance expertise in natural, cultural, facilities, and law enforcement efforts outlined in this Strategy.

Action 1.C.5: Engage and participate in regional monitoring networks.

Action 1.C.6: Facilitate learning partnerships and internships for students, recruiting within the local community where possible.

Action 1.C.7: Strengthen connectivity of coastal parks and research institutions (e.g., Cooperative Ecosystem Studies Units) within and among regions to promote more opportunities for collaborative science in marine protected areas.

Action 1.C.8: Develop Indigenous-focused partnerships that support local needs and resource conservation (e.g., Huna Tribal House, Glacier Bay National Park and Preserve).

Action 1.C.9: Encourage and support community participation in NPS science and conservation programs.

Action 1.C.10: Foster regional associations that support this Strategy (e.g., Integrated Ocean Observing System, West Coast Governors Association, West Coast Ocean Alliance, etc.).

Action 1.C.11: Continue collaborations with other nations to promote protection, conservation, and information exchange.

Objective 1.D: Identify, establish, and maintain relationships with other agencies, industry leaders, academics, management experts, and Indigenous Peoples to enhance links between science, Indigenous Knowledge, management, and policy.

Action 1.D.1: Document and share case studies where relationships brought about stewardship results and generated lessons learned.

Action 1.D.2: Cultivate and maintain relationships with universities and other entities to promote research in national parks.

Action 1.D.3: Set priorities, initiate, expand, and support marine science centers' work in coastal parks with university and NGO research institutions.

Action 1.D.4: Expand opportunities for research partnerships through grants from the NPS Research Learning Centers that are affiliated with coastal parks.

Arrival of the canoes. Huna Tribal House dedication, Glacier Bay National Park and Preserve.
NPS

Action 1.D.5: Generate a communications platform to advise scientists of opportunities and funding for research in parks.

Action 1.D.6: Design training and work opportunities for students and recent graduates (e.g., through the Cooperative Ecosystem Studies Units and other NPS networking affiliations).

Action 1.D.7: Explore and discuss opportunities to partner with Indigenous communities and organizations to build relationships and mutual trust (e.g., establishing stewardship programs, co-production of knowledge/data, and integrating Indigenous Knowledge and perspective into management, as permitted by Indigenous partners).

Action 1.D.8: Explore and discuss mutually beneficial co-management agreements with Indigenous communities when appropriate to enhance resource stewardship.

Action 1.D.9: Promote inclusive interdisciplinary teams on ocean and coastal resource management actions.

A diver holds up a California spiny lobster, Channel Islands National Park.
NPS

Objective 1.E: In collaboration with partners, develop revenue streams to support projects.

Action 1.E.1: Identify and access new fundraising opportunities to support conservation projects.

Action 1.E.2: Develop staff capacity to secure diverse fiscal resources.

Objective 1.F: Partner as appropriate to recognize and effectively manage long-lived or keystone fish and invertebrate predators as wildlife.

Action 1.F.1: Work with partners to redefine protections for keystone fish and invertebrate species similarly to other marine and terrestrial wildlife (mammals).

Understand and quantify ocean and coastal resources and their associated stressors and drivers.

GOAL 2

Striving to understand and evaluate current ecosystem conditions is difficult because ecosystem drivers and stressors are causing conditions to change at an unprecedented pace. These drivers are impacting numerous park resources and processes such as: facilities, submerged habitats, paleontological resources, historic and archeological resources, and resources of ethnographic and traditional cultural importance. For example, rising sea level is increasing erosion rates and forcing community relocations in Alaska while damaging cultural resources in Hawaiian national parks. However, most parks have limited foundational information, particularly for oceanography and submerged lands. In some areas, basic inventories and maps of cultural, paleontological, biological, and other resources are not available or are not readily accessible. Successful resource protection will require addressing data gaps and availability; embracing new technology and approaches; working with Indigenous Peoples to understand traditional and cultural values; and increasing NPS capacity. The following objectives identify ways to accomplish this scientific understanding goal.

Examples of ecosystem drivers influencing change:

- increasing seawater temperature
- change in ocean chemistry
- increasing storm frequency and intensity
- sea-level change
- timing and quantity of freshwater inputs
- nutrient inputs
- marine debris
- fishing pressure
- habitat loss
- invasive species
- wildlife disturbance
- shoreline armoring
- anthropogenic noise
- artificial light

Marine debris.
NPS

Monitoring water chemistry in Arctic lagoons, Bering Land Bridge National Preserve.
NPS

Objective 2.A: Inventory, map, assess, and monitor ocean and coastal resources.

Action 2.A.1: Map the coastal topography, bathymetry, and habitats of parks.

Action 2.A.2: Map and describe physical processes within and adjacent to parks.

Action 2.A.3: Map and describe ocean chemical processes.

Action 2.A.4: Monitor physical, chemical, or biological processes that act as system stressors or drivers.

Action 2.A.5: Assess the highest priority management needs at both ecosystem and individual species scales.

Action 2.A.6: Engage with Indigenous communities to identify important resources to inventory, map, and monitor.

Action 2.A.7: Identify and map culturally important places and place names.

Action 2.A.8: Map, assess, and monitor terrestrial and submerged cultural resources.

Action 2.A.9: Map and assess visitation impacts to coastal resources.

Objective 2.B: Monitor coastal infrastructure and cultural resources to anticipate management actions needed in the face of climate change.

Action 2.B.1: Conduct vulnerability assessments.

Action 2.B.2: Assess and monitor coastal cultural and facility assets.

Objective 2.C: Engage the NPS Inventory and Monitoring (I&M) program to assess and interpret ocean and coastal processes and resources.

Action 2.C.1: Mine and analyze I&M datasets for relevant information that can address specific resource questions.

Action 2.C.2: Support, maintain, and augment existing I&M operations to continue collecting or enhance the collection of additional information.

Action 2.C.3: Create a framework for scientists to devise long-term research goals to provide science support for adaptive management and policy.

Action 2.C.4: Collaborate closely with I&M regarding the interpretation of data and implications for management.

Objective 2.D: Understand and quantify drivers and stressors to ocean and coastal resources.

Action 2.D.1: Conduct socioeconomic, visitor use, and other social science studies related to potential stressors.

Action 2.D.2: Identify and engage knowledge holders in understanding resource stressors and drivers.

Action 2.D.3: Include local community, traditional, and Indigenous Knowledge in scientific assessments of ocean and coastal resources.

Action 2.D.4: Work with partners to identify new stressors, augment studies of existing stressors and impacts, and reduce stressor impacts on park resources.

Action 2.D.5: Work with partners to identify system drivers and how they may be used advantageously for efficient restoration of resiliency and ecosystem management to accommodate climate change.

Klamath River Overlook, Redwood National and State Park. NPS

Action 2.D.6: Develop risk assessments based on changing drivers and stressors to park resources.

Action 2.D.7: Use predictive models to develop adaptive responses to changes in ocean and coastal systems.

Action 2.D.8: Revisit and refine models (conceptual, analytical, etc.) to incorporate new learning (paradigms, research, methodologies, and Indigenous ways of knowing).

Action 2.D.9: Mine, analyze, and synthesize existing internal and external datasets for relevant information that can address specific resource questions.

Action 2.D.10: Identify, describe, and quantify ecosystem services provided by healthy ocean and coastal systems.

Action 2.D.11: Work closely with Visitor and Resource Protection rangers to support resource protection efforts.

Action 2.D.12: Develop better understanding of wilderness areas and how to protect wilderness values.

Rangers on patrol in Point Reyes National Seashore.
NPS

Objective 2.E: Identify and understand emerging issues for park resources where stressors and drivers may be impairing ecosystem function.

Action 2.E.1: Develop or adopt vulnerability and risk assessments, and predictive models that consider stressors under future scenarios.

Action 2.E.2: Map and monitor human-caused disruptors to natural system functioning.

Action 2.E.3: Implement early detection and rapid response to invasive species and species of unknown invasive character.

Objective 2.F: Encourage and support research and exploration.

Action 2.F.1: Prioritize research and develop strategies to secure project and research funding.

Action 2.F.2: Cultivate professional relationships with experts in building biological security, rapid response, ecosystem resilience, and human well-being in ocean and coastal ecosystems.

Action 2.F.3: Provide training opportunities for NPS scientists to learn and deploy new technologies to conduct state-of-the-art NPS science operations.

Action 2.F.4: Invest in new and emerging technologies to address changing environmental and management conditions.

Objective 2.G: Engage with community scientists.

Action 2.G.1: Develop opportunities to foster greater interest and engagement with diverse youth in science and resources management.

Action 2.G.2: Work with community science programs to encourage local support in scientific endeavors and literacy.

Action 2.G.3: Work with local schools to inspire and train young scientists.

Youth counting seabirds on St. George Island in the Bering Sea. SEABIRD YOUTH NETWORK/ ANN HARDING

GOAL 3

Engage individuals and communities in ocean park stewardship through outreach, interpretation, and education.

Coastal parks are a major draw for people from all over the world, across the nation, and neighboring communities. They present unique opportunities to inspire ocean stewardship and understanding among this broad audience through creative outreach venues and methods. Addressing these opportunities will take a range of coordinated communication efforts to effectively promote ocean and coastal stewardship. Adept communication and scientific literacy training for park managers is important to enhance knowledge and awareness of critical marine resource issues. In addition, outreach efforts must enhance knowledge and awareness of critical marine resource issues for all audiences. The following objectives identify ways to accomplish this engagement goal.

A ranger helps kids earn their Junior Ranger badges.
NPS

Objective 3.A: Foster a mutual exchange of information through public engagement to enhance ocean and coastal stewardship and science.

Action 3.A.1: Establish procedures to ensure that scientific activities and findings are communicated to field interpreters and visitor resource protection rangers in a timely and usable fashion.

Action 3.A.2: Share the stories of the dedicated people and their work on ocean, coastal, and maritime resources.

Action 3.A.3: Enhance awareness and understanding of ocean stewardship and science issues through the development of interpretive materials and recreational opportunities.

Action 3.A.4: Explore approaches to engage visitors, teachers, and students through experiential learning.

Action 3.A.5: Establish participatory opportunities to engage communities in science and stewardship.

Action 3.A.6: Develop engaging and exciting community learning projects.

Action 3.A.7: Inspire audiences through a series of media productions about NPS ocean and coastal conservation management.

Action 3.A.8: Use social science research-based strategies for communicating with the public about climate change and ocean stewardship.

Action 3.A.9: Engage commercial operators and concessionaires in programs on coastal resources and stewardship in parks.

Action 3.A.10: Use easily accessible, jargon-free language to communicate internally and externally.

Action 3.A.11: Inspire everyone to change consumptive daily habits and contribute to innovative thinking to protect ocean resources.

Wave breaking at Kaloko fishpond, Kaloko-Honokōhau National Historical Park.
NPS

Objective 3.B: Engage superintendents and park management about emerging issues that could impact the status and function of ocean and coastal resources and the visitor experience.

Action 3.B.1: Identify emerging issues that may require management actions.

Action 3.B.2: Establish effective internal communication processes to inform park management teams about emerging resource concepts and issues of concern.

Action 3.B.3: Facilitate the flow of information between researchers and park management staff in an accessible and timely manner.

Action 3.B.4: Increase awareness of the broad array of stressors impacting marine and coastal resources and the extreme distance at which these stressors can operate.

Action 3.B.5: Enhance ocean stewardship in park planning processes by identifying key issues and knowledge gaps, synthesizing key literature, and compiling all relevant actions and regulations.

Cook Inlet Citizens Advisory Council and researcher from University of Alaska Fairbanks working on BOEM-NPS intertidal research project, Katmai National Park.
NPS/JIM PFEIFFENBERGER

Objective 3.C: Bring together park personnel, state and federal agencies, local communities, Indigenous Peoples, and other partners to discuss and explore emerging issues that could impact the status and function of ocean and coastal resources and the visitor experience.

Action 3.C.1: Convene periodically scheduled meetings focused on information exchange on emerging issues.

Action 3.C.2: Convene periodic cross-regional ocean and coastal science symposia modeled after the biennial California Islands Symposium.

Action 3.C.3: Share broadly the status and trends of ocean and coastal resources to foster discussions of climate change impacts, societal implications, and short- and long-term consequences.

Action 3.C.4: Create opportunities for sharing stories and hospitality with Indigenous Peoples associated with parks.

Objective 3.D: Collaborate with partners on consistent messaging and outreach materials.

Action 3.D.1: Evaluate existing science communication tools and plans to recommend standardized communication approaches or templates for use in parks.

Action 3.D.2: Create and implement an ocean communication strategy to better convey topics of ocean stewardship and the science that informs management.

Action 3.D.3: Use strategic framing and explanatory metaphors to help connect the public to ocean stewardship campaigns (e.g., the ocean is the heart of the climate, Earth is Blue, One Ocean, etc.).

Action 3.D.4: Develop an NPS ocean stewardship identity to increase messaging efficacy.

Action 3.D.5: Develop strategic communication plans for messaging and disseminating information.

Action 3.D.6: Identify and use effective internal and external partnerships to promote messaging and reach diverse and underserved audiences.

Action 3.D.7: Ensure that education curricula meet state standards for easier adoption and implementation in classrooms.

Action 3.D.8: Promote positive social norms of respectful wildlife viewing through education and outreach.

Action 3.D.9: Ensure science communication strategies for the public are incorporated into park operations.

Action 3.D.10: Integrate environmental justice considerations into interpretation and education programs.

Action 3.D.11: Develop outreach programs and materials to clearly articulate the linkages between coastal and non-coastal populations and communities.

Action 3.D.12: Encourage and take advantage of new platforms and technological developments to enhance outreach and messaging efforts.

Kids learn about coral reefs by experiencing them in the Reef Rangers program.
NPS

Objective 3.E: Increase scientific literacy through engagement and outreach efforts.

Action 3.E.1: Adopt and participate in ocean literacy programs.

Action 3.E.2: Engage audiences in the production and interpretation of data through community science programs.

Action 3.E.3: Design outreach products that sharpen critical thinking skills and educate people about how science is conducted.

Action 3.E.4: Create outreach products from the scientists' point of view that describe how science is conducted and what is learned.

GOAL 4

Enhance effective ecosystem-based ocean and coastal operations and management.

Everyone has a role to play in effective ocean resource stewardship. Ocean and coastal park stewardship requires holistic, science-based decision making for resource protection, facilities operations, education and outreach programs, and park planning. Decisions must consider the park's role in the mosaic of protected areas for large-scale conservation with a commitment to long-term actions. Furthermore, the longevity and durability of projects hinge on considering the synergistic impacts of all environmental changes. The following objectives identify ways divisions can work together toward stewardship goals.

Paleontological and cultural resources at Birnik National Natural Landmark.
NPS/JEFF RASIC

Objective 4.A: Identify and clarify challenges and opportunities for partnerships in resource management (e.g., jurisdiction, authority, political concerns, access, planning).

Action 4.A.1: Clarify ocean park boundaries, jurisdictions, traditional and common uses, treaty rights and fiduciary responsibilities, and legal authorities among all relevant partners.

Action 4.A.2: Establish and conduct working groups to identify challenges and potential solutions for management and partnership opportunities.

Action 4.A.3: Identify legislative needs for joint authorities on neighboring waters.

Objective 4.B: Increase professional capacity and diversity in the workforce.

Action 4.B.1: Provide sufficient staffing to accomplish the work of the Strategy.

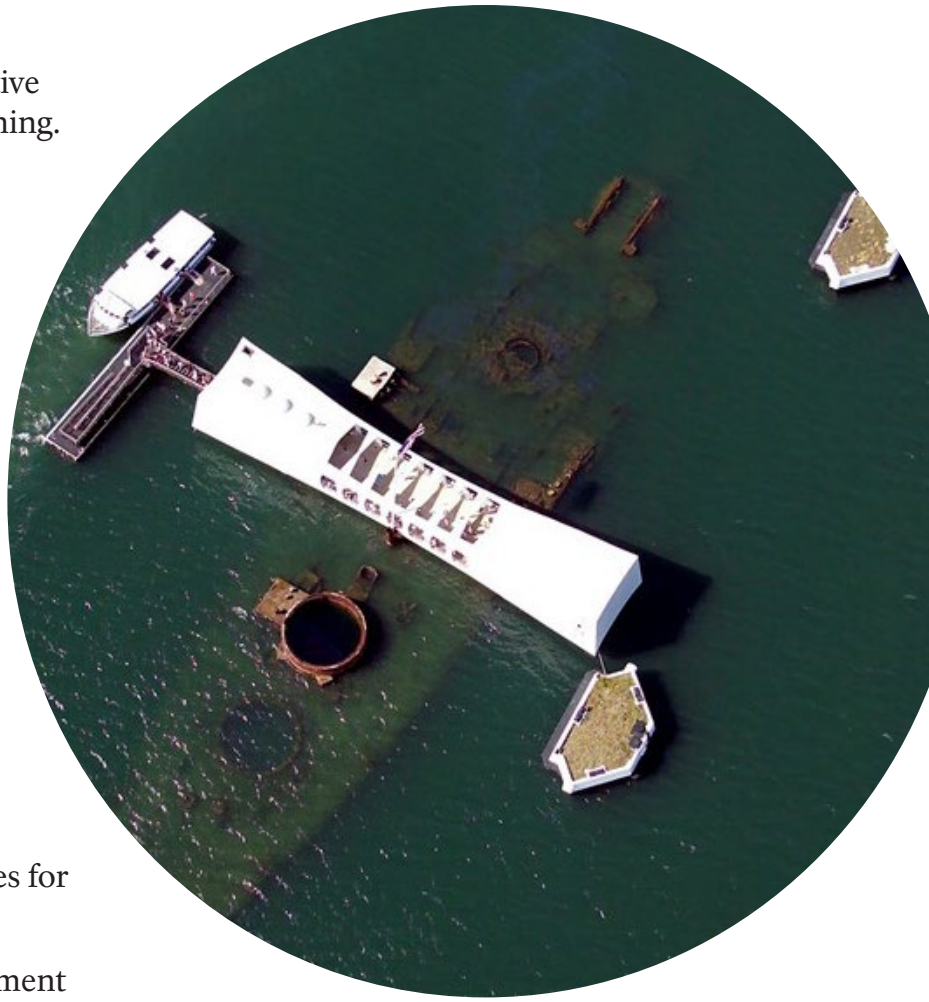
Action 4.B.2 Actively recruit and retain members of underserved and underrepresented communities.

Action 4.B.3: Focus attention on providing opportunities for professional development and training so that NPS remains a leader in ocean and coastal stewardship.

Action 4.B.4: Develop opportunities for cross-training staff within and among parks, as well as across agencies and nations.

Action 4.B.5: Provide effective communication tools and materials for park leaders to advance awareness and importance of ocean and coastal resource stewardship and protection.

Action 4.B.6: Engage key administrative personnel in ocean and coastal planning.



The USS Arizona Memorial.
NPS

Objective 4.C: Identify, develop, and implement innovative management, intervention, and mitigation strategies to address environmental changes.

Action 4.C.1: Consider the park's role in the mosaic of conservation areas when making management decisions.

Action 4.C.2: Incorporate climate change and natural hazards in planning actions.

Action 4.C.3: Identify and prioritize stressors, drivers, and emerging issues for action.

Action 4.C.4: Establish and/or implement rapid response networks and actions for significant biological and physical events.

Action 4.C.5: Engage with agencies in ocean and coastal areas to incorporate resource protection language into programmatic documents.

Action 4.C.6: Restore ecosystem services that have been impaired or lost.

Objective 4.D: Ensure that park-specific knowledge of resource stewardship and associated challenges are synthesized and regularly updated for use by planning teams.

Action 4.D.1: Connect natural and cultural resource staff with facility managers to address climate change and natural hazard risks.

Action 4.D.2: Verify appropriate temporal and spatial scales are being considered in planning actions.

Action 4.D.3: Assess the socioeconomic impact of actions to be more effective and just.

Objective 4.E: Employ a suite of planning tools to address climate change and natural hazards.

Action 4.E.1: Conduct vulnerability assessments and scenario planning to prepare management for future desired resource conditions.

Action 4.E.2: Incorporate guidance from the NPS Climate Change Response Program in planning efforts.

Action 4.E.3: Conduct adaptive management, risk assessment, and climate adaptation efforts.

Action 4.E.4: Participate in park interdisciplinary teams to incorporate climate change science.

Increasingly intense storms threaten NPS buildings and other infrastructure at Kalaupapa National Historical Park.
NPS

Objective 4.F: Enact sustainable operations at parks.

Action 4.F.1: Incorporate sustainability into planning and management.

Action 4.F.2: Facilitate sustainability in management by preserving institutional knowledge.

Action 4.F.3: Assess ecological carrying capacity with respect to visitation.

Action 4.F.4: Identify and promote low-impact recreational opportunities.

Action 4.F.5: Engage Visitor and Resource Protection rangers with planning and operations for resource protection.

Action 4.F.6: Engage media experts to plan and implement campaigns that promote resource protection and stewardship by all park visitors.

Action 4.F.7: Provide early input on coastal infrastructure projects to ensure wise planning, design, and project siting that is scientifically informed in the face of climate change.

Point Reyes Lighthouse, Point Reyes National Seashore.
NPS/ANELA RAMOS KOPSHEVER

Objective 4.G: Enhance preparation for catastrophic events at all stages of planning, response and recovery.

Action 4.G.1: Develop a prepared workforce to represent NPS and support Incident Command during catastrophic events.

Action 4.G.2: Integrate NPS Natural Disaster Planning, Response, and Recovery workgroup into ocean and coastal planning.

Action 4.G.3: Incorporate natural and cultural disaster response plans into planning efforts.

Action 4.G.4: Participate in Regional Response Teams and planning efforts.

Action 4.G.5: Support NPS cultural resources response teams (e.g., time, training, funding, etc.).

Objective 4.H: Identify sources and acquire funding for planning and management needs.

Action 4.H.1: Collaboratively identify funding sources and write proposals.

Action 4.H.2: Make funding opportunities available for those projects that are directly tied to the projects database (Appendix D).

People rely on some natural resources, such as salmon, as a cultural resource.
NPS/MAIJA LUKIN

Objective 4.I: Further efforts to recruit and retain talent from underrepresented and underserved communities.

Action 4.I.1: Augment capacity through partnerships to reach diverse and underserved communities (e.g., when job or intern opportunities arise, take extra steps in outreach and recruitment to diverse candidate pools).

Action 4.I.2: Expand diversity, equity, and inclusion in parks by working with partners.

Objective 4.J: Recognize that natural resources are cultural resources to Indigenous Peoples.

Action 4.J.1: Partner with Indigenous communities, tribal partners, native groups, and organizations to better understand and integrate Indigenous Knowledge where possible, preservation of key ethnographic resources and ecosystems into park planning.

Action 4.J.2: Increase efficiency for traditional access and uses of resources in parks.

Action 4.J.3: Support traditional activities in parks to foster cultural awareness.

Objective 4.K: Increase efficiencies and facilitate partnering efforts (e.g., through new Interagency Agreements).

Action 4.K.1: Identify policies that support ocean and coastal stewardship efforts.

Action 4.K.2: Share partnership documentation to develop more efficient collaboration (e.g., memoranda of agreement, letter of intent, charter).

Action 4.K.3: Identify opportunities to streamline (expand or consolidate) partnership efforts when single entities provide services to multiple NPS units.

Action 4.K.4: Identify and integrate unifiable elements of existing NPS strategic plans to amplify efforts (i.e.,

Strategic Facilities Investment Plan (SFIP), Asset Management Plan, and maintenance plans).

Objective 4.L: Ensure this Strategy is a living document and a guide to action.

Action 4.L.1: Provide progress reports to park superintendents, regional directorates, and national program leads.

Action 4.L.2: Develop mechanisms for identifying when changes need to be made to the Strategy.

Action 4.L.3: Convene workgroups to provide regular review and updates to the project database.

Action 4.L.4: Develop and maintain a cross-regional priority list for ocean and coastal resource stewardship.

Action 4.L.5: Identify underperforming areas of the Strategy to encourage greater effort and/or funding.

The Sitka community gathered to raise a replica of the Yaadaas Crest Pole at a centennial celebration of the 1906 arrival of the Brady totem pole collection.
NPS

Split rock at Rialto Beach in Olympic National Park.
NPS

Strategy Implementation

This Strategy takes a dual approach with static mid- to long-term goals, objectives, and actions accompanied by an evolving database of short- to mid-term directly implementable park-, region-, and national-level projects to accomplish stated goals. The Strategy should be reevaluated in approximately twenty years to maintain relevance.

Key to success is recognizing that not every goal, objective, or action can be implemented in any given year by a single entity. Annual focal priorities and projects will be established to further the Strategy's goals. As the projects are completed, deferred, or cancelled, the database will be updated. These projects are compiled in the Projects Database (documentation in Appendix D) and will serve as a living document on the NPS Water Resources Division Oceans and Coastal Branch COAST internal website.

This system enables managers to quickly identify actions and projects their parks can directly support in furthering ocean and coastal stewardship. The system also provides a framework for reporting progress in implementing the Strategy. Providing annual reports to each park and region will document progress and maintain focus on implementation. Likewise, identifying areas of underperformance will focus attention on prioritizing funding or other means of support as appropriate.

Annual accomplishment reporting will provide valuable documentation of programmatic efficiencies and lessons learned, while enhancing planning, coordination, prioritization, and efficacy of future conservation efforts.

APPROVED FOR REGIONS 8|9|10|12:

_____
Regional Director

Date _____

FOR REGION 11:

_____
Regional Director

Date _____

Attachments

Appendix A – Park Information
Appendix B – Accomplishment Highlights, 2008 - 2020
Appendix C – References and Useful Links
Appendix D – Projects Database Documentation

Kalaupapa National Historical Park.
NPS

Appendix A. Park Information

Alcatraz Island (ALCA)

https://www.nps.gov/alca/index.htm

Marine Ecoregion
Northern California

Traditional Territory
Muwekma, Ohlone, and Ramaytush

Enabling Legislation
Enabling legislation for Alcatraz Island is found within Golden Gate National Recreation Area legislation.

Aleutian Islands World War II National Historic Area (ALEU)

https://www.nps.gov/aleu/index.htm

Marine Ecoregion
Gulf of Alaska and Eastern Bering Sea

Traditional Territory
Unangam Tanangin (Unangax̂ /Aleut)

Enabling Legislation
Enabling legislation for the historical area states the purpose:

> *is to designate and preserve the Aleutian World War II National Historic Area within lands owned by the Ounalaska Corporation on the island of Amaknak, Alaska and to provide for the interpretation, for the educational and inspirational benefit of present and future generations, of the unique and significant circumstances involving the history of the Aleut people, and the role of the Aleut people and the Aleutian Islands in the defense of the United States in World War II.*

Note: Traditional territory was determined using Native-Land.ca, a website run by the nonprofit organization Native Land Digital.

Ala Kahakai National Historic Trail (ALKA)

https://www.nps.gov/alka/index.htm

Marine Ecoregion
Hawai‘i

Traditional Territory
Kanaka ‘Ōiwi

Enabling Legislation
Enabling legislation states that the trail is to:

> *encourage communities and owners of land along the trail, native Hawaiians, and volunteer trail groups to participate in the planning, development, and maintenance of the trail; and (ii) consult with affected Federal, State, and local agencies, native Hawaiian groups, and landowners in the administration of the trail.*

American Memorial Park (AMME)

https://www.nps.gov/amme/index.htm

Marine Ecoregion
Mariana Islands

Traditional Territory
Chamorro/CHamoru

Enabling Legislation
Enabling legislation states the park was enacted for *the purpose of honoring the dead in the World War II Mariana Islands campaign*. The legislation goes on to state that:

> *the Secretary shall provide for interpretative activities at the park, for which he is authorized to seek assistance of appropriate historians to interpret the historical aspects of the park.*

Aniakchak National Monument and Preserve (ANIA)

https://www.nps.gov/ania/index.htm

Marine Ecoregion
Gulf of Alaska

Traditional Territory
Alutiiq (Sugpiaq)

Enabling Legislation
Enabling legislation, established by ANILCA, states the monument and preserve shall be managed:

> *to maintain the caldera and its associated volcanic features and landscape, including the Aniakchak River and other lakes and streams, in their natural state; to study, interpret, and assure continuation of the natural process of biological succession; to protect habitat for, and populations of, fish and wildlife, including, but not limited to, brown/ grizzly bears, moose, caribou, sea lions, seals, and other marine mammals, geese, swans, and other waterfowl and in a manner consistent with the foregoing, to interpret geological and biological processes for visitors. Subsistence uses by local residents shall be permitted in the monument.*

Bering Land Bridge National Preserve (BELA)

https://www.nps.gov/bela/index.htm

Marine Ecoregion
Chukchi Sea

Traditional Territory
Inupiat

Enabling Legislation
Enabling legislation states the Preserve shall be managed:

> *to protect and interpret examples of arctic plant communities, volcanic lava flows, ash explosions, coastal formations and other geologic processes; to protect habitat for internationally significant populations of migratory birds; to provide for archeological and paleontological study, in cooperation with Native Alaskans, of the process of plant and animal migration, including man, between North America and the Asian Continent, to protect habitat for, and populations of, fish and wildlife including, but not limited to, marine mammals, brown/grizzly bears, moose and wolves; subject to such reasonable regulations as the Secretary may prescribe, to continue reindeer grazing use, including necessary facilities and equipment, within the areas which on January 1, 1976, were subject to reindeer grazing permits, in accordance with sound range management practices; to protect the viability of subsistence resources; and in a manner consistent with the foregoing, to provide for outdoor recreation and environmental education activities including public access for recreational purposes to the Serpentine Hot Springs area.*

Cabrillo National Monument (CABR)

https://www.nps.gov/cabr/index.htm

Marine Ecoregion
Southern California Bight

Traditional Territory
Kumeyaay

Enabling Legislation
Enabling legislation was established in 1928 for a half acre monument, and revised in 1947 to include a larger area:

> *whereas the present area of the monument is no adeguate for the proper care and management of the historical landmarks and historical objects situated therin*. These lands are listed as *essential to the proper care and management of the Cabrillo National Monument and it is in the public interest to redefine the boundaries of, and to add those surrounding lands*.

Furthermore in 1974, the lands were expanded as:

> *the additional land is essential to the proper care and management of the historical landmarks and historical objects in the area, and it is in the public interst to redifine the boundaries*.

Cape Krusenstern National Monument (CAKR)

https://www.nps.gov/cakr/index.htm

Marine Ecoregion
Chukchi Sea

Traditional Territory
Iñupiat

Enabling Legislation
Enabling legislation states the monument and preserve shall be managed:

> *to protect and interpret a series of archeological sites depicting every known cultural period in arctic Alaska; to provide for scientific study of the process of human population of the area from the Asian Continent, in cooperation with Native Alaskans, to preserve and interpret evidence of prehistoric and historic Native cultures, to protect habitat for seals and other marine mammals; to protect habitat for and populations of, birds, and other wildlife, and fish resources; and to protect the viability of subsistence resources. Subsistence uses by local residents shall be permitted in the monument*.

Channel Islands National Park (CHIS)

https://www.nps.gov/chis/index.htm

Marine Ecoregion
Southern California Bight

Traditional Territory
'Anyapax, Chumash, Kizh, Limuw, Michumash, Payómkawichum (Luiseño), Tongva, Tuqan, and Wi'ma

Enabling Legislation
Enabling legislation states the purpose:

> *in order to protect the nationally significant natural, scenic, wildlife, marine, ecological, archaeological, cultural, and scientific values of the Channel Islands in the State of California, including, but not limited to, the following: the brown pelican nesting area; the undisturbed tide pools providing species diversity unique to the eastern Pacific coast; the pinnipeds which breed and pup almost exclusively on the Channel islands, including the only breeding colony for northern fur seals south of Alaska; and the archaeological evidence of substantial populations of Native Americans.*

Ebey's Landing National Historical Reserve (EBLA)

https://www.nps.gov/ebla/index.htm

Marine Ecoregion
Oregon, Washington, Vancouver Coast and Shelf

Traditional Territory
Coast Salish, Skagit, Stillaguamish, Suquamish, and Tulalip

Enabling Legislation
Enabling legislation states that the purpose was to:

> *preserve and protect a rural community which provides an unbroken historical record from nineteenth century expIoration and settlement in Puget Sound to the present time.*

To acieve the purpose, plans are to identify:

> *areas or sones within the reserve which would most appropriately be doveoted to; public use and development; historical and natural preservation.*

Fort Point National Historic Site (FOPO)

https://www.nps.gov/fopo/index.htm

Marine Ecoregion
Northern California

Traditional Territory
Muwekma, Ohlone, and Ramaytush

Enabling Legislation
Fort Point National Historic Site falls under the Golden Gate National Recreational Area enabling legislation. Additional legislation states:

> *the Secretary utilize such statutory authority available for the conservation and management of wildlife and natural resources as he deems appropriate to carry out the purposes.*

Glacier Bay National Park and Preserve (GLBA)

https://www.nps.gov/glba/index.htm

Marine Ecoregion
Gulf of Alaska and North American Pacific Fjordland

Traditional Territory
Dënéndeh, Lingít Aaní (Tlingit), and Michif Piyii (Métis)

Enabling Legislation
Enabling legislation states the monument and preserve shall be managed because there are:

> *a number of tidewater glaciers of the first rank in a magnificent setting of lofty peaks, and more accessible to ordinary travel than other similar regions of Alaska; the region is said by the Ecological Society of America to contain a great variety of forest covering consisting of mature areas, bodies of youthful trees that have become established since the retreat of the ice, which should be preserved in absolutely natural condition, and great stretches now bare that will become forested in the course of the next century; this area presents a unique opportunity for the scientific study of glacial behavior and of resulting movements and development of flora and fauna and of certain valuable relics of ancient interglacial forests; the area is also of historic interest having been visited by explorers and scientists since the early voyages of Vancouver in 1794, who have left valuable records of such visits and explorations.*

Additional enlargement added more enabling legislation *the highest peak in this part of Alaska, and the Grand Plateau Glacier, both significant to students of glaciology*. In addition:

> *The Alsek River corridor provides the only pass through the coastal mountain range for 120 miles. This is the route by which large mammals first entered this isolated area and is used by a significant percentage of the Alaska bald eagle population en route to the Klukwan area*

where they winter. The addition also protects two botanically significant areas. In the hills flanking Grand Plateau Glacier live the oldest plant communities in southeast Alaska which survive because the area escaped both glaciation and inundation. Also important to the study of ecological succession are the mature aquatic vegetative communities of the pre-neoglacial lakes in the Deception Hills area. The land withdrawn and reserved by this Proclamation for the protection of the geological, biological, and other phenomena enumerated above supports now, as it has in the past, a unique subsistence culture of the local residents. The continued existence of this culture, which depends on subsistence hunting, and its availability for study, enhances the historic and scientific value of the natural objects protected herein because of the ongoing interaction of the subsistence culture with those objects. Accordingly, the opportunity for local residents to engage in subsistence hunting is a value to be protected and will continue under the administration of the area added to the Glacier Bay National Monument.

ANILCA expansion legislation states the addition of the preserve shall be managed:

to protect a segment of the Alsek River, fish and wildlife habitats and migration routes and a portion of the Fairweather Range including the northwest slope of Mount Fairweather.

Golden Gate National Recreation Area (GOGA)

https://www.nps.gov/goga/index.htm

Marine Ecoregion

Northern California

Traditional Territory

Graton Rancheria, Me-Wuk (Coast Miwok), Muwekma, Ohlone, and Ramaytush

Enabling Legislation

Enabling legislation for Golden Gate National Recreation Area is:

to preserve for public use and enjoyment certain areas of Marin and San Francisco Counties, California, possessing outstanding natural, historic, scenic, and recreational values, and in order to provide for the maintenance of needed recreational open space necessary to urban environment and planning. ... [NPS] *shall preserve the recreation area, as far as possible, in its natural setting, and protect it from development and uses which would destroy the scenic beauty and natural character of the area.*

Haleakalā National Park (HALE)

https://www.nps.gov/hale/index.htm

Marine Ecoregion
Hawai‘i

Traditional Territory
Kanaka ‘Ōiwi

Enabling Legislation
Enabling legislation for Haleakalā National park is extended from Hawai‘i [Volcanoes] National Park.

Hawai’i Volcanoes National Park (HAVO)

https://www.nps.gov/havo/index.htm

Marine Ecoregion
Hawai‘i

Traditional Territory
Kanaka ‘Ōiwi

Enabling Legislation
Enabling legislation states the land:

> *shall be perpetually dedicated and set apart as a public park or pleasure ground for the benefit and enjoyment of the people of the United States.*

Additional legislation added to state:

> *the protection of the animals and birds in the park from capture or destruction, and to prevent their being frightened or driven from the park; and shall make rules and regulations governing the taking of fish from the streams or lakes in the park.*

Honouliuli National Historic Site (HONO)

https://www.nps.gov/hono/index.htm

Marine Ecoregion
Hawai‘i

Traditional Territory
Kanaka ‘Ōiwi

Enabling Legislation
Enabling legislation states the historic site:

> *serves as a powerful reminder of the need to protect civil liberties in times of conflict, and the effects of martial law on civil society. Honouliuli is nationally significant for its central role during World War II as an internment site for a population that included American citizens, resident immigrants, other civilians, enemy soldiers, and labor conscripts co-located by the U.S. military for internment or detention.*

Kaloko-Honokōhau National Historical Park (KAHO)

https://www.nps.gov/kaho/index.htm

Marine Ecoregion
Hawai‘i

Traditional Territory
Kanaka ‘Ōiwi

Enabling Legislation
Enabling legislation states the park was established:

> *in order to provide a center for the preservation, interpretation, and perpetuation of traditional native Hawaiian activities and culture, and to demonstrate historic land use patterns, as well as to provide a needed resource for the education, enjoyment, and appreciation of such traditional native Hawaiian activities and culture by local residents and visitors.*

Kalaupapa National Historical Park (KALA)

https://www.nps.gov/kala/index.htm

Marine Ecoregion
Hawai‘i

Traditional Territory
Kanaka ‘Ōiwi

Enabling Legislation
Enabling legislation states the park was enacted to:

> *provide for the preservation of the unique nationally and internationally significant cultural, historic, educational, and scenic resources of the Kalaupapa settlement.*

The purpose of the park is to:

> *to preserve and interpret the Kalaupapa settlement for the education and inspiration of present and future generations; to research, preserve, and maintain important historic structures, traditional Hawaiian sites, cultural values, and natural features; and to provide that the preservation and interpretation of the settlement be managed and performed by patients and Native Hawaiians to the extent practical, and that training opportunities be provided such persons in management and interpretation of the settlement's cultural, historical, educational, and scenic resources.*

Katmai National Park and Preserve (KATM)

https://www.nps.gov/katm/index.htm

Marine Ecoregion
Gulf of Alaska

Traditional Territory
Alutiiq (Sugpiaq)

Enabling Legislation
Enabling legislation states the Katmai National Monument (now Park) was established so that:

> *This wonderland may become of popular scenic, as well as scientific, interest for generations to come, inasmuch as all its phenomena exist upon a scale of great magnitude, arousing emotions of wonder at the inspiring spectacles, thus affording inspiration to patriotism and to the study of nature.*

Presidential Proclamation 1950 expanded the monument and the enabling legislation so that:

> *the public interest would be promoted by adding to the Katmai National Monument, Alaska, certain adjoining lands for the purpose of including within said monument additional lands on*

which there are located features of historical and scientific interest and for the protection of the brown bear, moose, and other wild animals.

Further addition of land expanded the monument because:

certain public land islands situated near the Katmai National Monument in Alaska are required for the proper care, management, and protection of the objects of scientific interest located on lands within said monument.

Recognizing the value of Naknek lake to the ecosystems of Katmai Monument Presidential Proclamation 3890 further expanded the monument and purposes with:

the inclusion of all such lake and shores is necessary for the protection of the ecological and other scientific values of this [Naknek] *lake and the existing monument.*

Finally renamed a national park Katmai was expanded with the addition of a preserve through ANILCA with the specific purpose:

to protect habitats for, and populations of, fish and wildlife including, but not limited to, high concentrations of brown/grizzly bears and their denning areas; to maintain unimpaired the water habitat for significant salmon populations; and to protect scenic, geological, cultural and recreational features.

Kenai Fjords National Park (KEFJ)

https://www.nps.gov/kefj/index.htm

Marine Ecoregion

Gulf of Alaska

Traditional Territory

Alutiiq (Sugpiaq), Dena'ina Ełnena, and Dënéndeh

Enabling Legislation

Enabling legislation states the monument and preserve shall be managed:

to maintain unimpaired the scenic and environmental integrity of the Harding Icefield, its outflowing glaciers, and coastal fjords and islands in their natural state; and to protect seals, sea lions, other marine mammals, and marine and other birds and to maintain their hauling and breeding areas in their natural state, free of human activity which is disruptive to their natural processes. In a manner consistent with the foregoing, the Secretary is authorized to develop access to the Harding Icefield and to allow use of mechanized equipment on the icefield for recreation.

Klondike Goldrush National Historical Park (KLGO)

https://www.nps.gov/klgo/index.htm

Marine Ecoregion
North American Pacific Fjordland

Traditional Territory
Dënéndeh, Lingít Aaní (Tlingit), and Michif Piyii (Métis)

Enabling Legislation
Enabling legislation states the historical park was created:

> *in order to preserve in public ownership for the benefit and inspiration of the people of the United States, historic structures and trails associated with the Klondike Gold Rush of 1898.*

Lake Clark National Park and Preserve (LACL)

https://www.nps.gov/lacl/index.htm

Marine Ecoregion
Gulf of Alaska

Traditional Territory
Dena'ina Ełnena and Dënéndeh

Enabling Legislation
Enabling legislation states the monument and preserve shall be managed:

> *to protect the watershed necessary for perpetuation of the red salmon fishery in Bristol Bay; to maintain unimpaired the scenic beauty and quality of portions of the Alaska Range and the Aleutian Range, including active volcanoes, glaciers, wild rivers, lakes, waterfalls, and alpine meadows in their natural state; and to protect habitat for and populations of fish and wildlife including but not limited to caribou, Dall sheep, brown/grizzly bears, bald eagles, and peregrine falcons.*

Lewis and Clark National Historical Park (LEWI)

https://www.nps.gov/lewi/index.htm

Marine Ecoregion
Oregon, Washington, Vancouver Coast and Shelf

Traditional Territory
Chinook, Clatsop, Confederated Tribes of Grand Ronde, and Lower Chinook

Enabling Legislation
Enabling legislation states the historical park was created:

> *to preserve for the benefit of the people of the United States the historic, cultural, scenic, and natural resources associated with the arrival of the Lewis and Clark Expedition in the lower Columbia River area, and for the purpose of commemorating the culmination and the winter encampment of the Lewis and Clark Expedition in the winter of 1805-1806 following its successful crossing of the North American Continent.*

National Park of American Samoa (NPSA)

https://www.nps.gov/npsa/index.htm

Marine Ecoregion
Samoa Islands

Traditional Territory
Samoa (tagata Sāmoa)

Enabling Legislation
Enabling legislation states the purpose of the park is:

> *to preserve and protect the tropical forest and archaeological and cultural resources of American Samoa, and of associated reefs, to maintain the habitat of flying foxes, preserve the ecological balance of the Samoan tropical forest, and, consistent with the preservation of these resources, to provide for the enjoyment of the unique resources of the Samoan tropical forest by visitors from around the world.*

Noatak National Preserve (NOAT)

https://www.nps.gov/noat/index.htm

Marine Ecoregion
Chukchi Sea

Traditional Territory
Iñupiat

Enabling Legislation
Enabling legislation states the monument and preserve shall be managed:

> *to maintain the environmental integrity of the Noatak River and adjacent uplands within the preserve in such a manner as to assure the continuation of geological and biological processes unimpaired by adverse human activity; to protect habitat for, and populations of, fish and wildlife, including but not limited to caribou, grizzly bears, Dall sheep, moose, wolves, and for waterfowl, raptors, and other species of birds; to protect archeological resources; and in a manner consistent with the foregoing, to provide opportunities for scientific research.*

Olympic National Park (OLYM)

https://www.nps.gov/olym/index.htm

Marine Ecoregion
Oregon, Washington, Vancouver Coast and Shelf

Traditional Territory
ChalAt'i'lo t'sikAti (Chalat'), Cosat Salish, Makah, Queets, Quileute, Quinault, S'Klallam, and Twana/Skokomish

Enabling Legislation
Enabling legislation states the purpose of the park is:

> *to preserve for the benefit, use, and enjoyment of the people, a large wilderness park containing the finest sample of primeval forest of Stika spruce, western hemlock, Douglas fir, and western red cedar in the entire Unived States; to provide suitable winter range and permanent protecrtion for the herds of native Roosevelt elk and other wildlife indigenous to the area; to conserve and render available to the people, for recreational use, the outstanding mountainous counrty, containing numerous glaciers and perpetual snow fields, and a protion of the surrounding verdandt forests together with a narrow strop along the beautiful Washington coast.*

Pearl Harbor National Memorial (PERL)

https://www.nps.gov/perl/index.htm

Marine Ecoregion
Hawai‘i

Traditional Territory
Kanaka ‘Ōiwi

Enabling Legislation
Enabling legislation states the memorial was created:

> *to promote understanding of related resources, encourage continuing research, present interpretive opportunities and programs for visitors to better understand and honor the sacrifices borne by the Greatest Generation, and tell the story from Pearl Harbor to Peace.*

Point Reyes National Seashore (PORE)

https://www.nps.gov/pore/index.htm

Marine Ecoregion
Northern California

Traditional Territory
Graton Rancheria, Me-Wuk (Coast Milwok)

Enabling Legislation
Enabling legislation states the Point Reyes National Seashore is:

> *in order to save and preserve, for purposes of public recreation, benefit, and inspiration, a portion of the diminishing seahore of the United States that remains undeveloped.*

Presidio of San Francisco (PRSF)

https://www.nps.gov/prsf/index.htm

Marine Ecoregion
Northern California

Traditional Territory
Muwekma, Ohlone, and Ramaytush

Enabling Legislation
Enabling legislation from the Presidio Trust Act states:

> *the Presidio, located amidst the incomparable scenic splendor of the Golden Gate, is one of America's great natural and historic sites; the Presidio is the oldest continuously operated military post in the Nation dating from 1776, and was designated a National Historic Landmark in 1962; preservation of the cultural and historic integrity of the Presidio for public use recognizes its significant role in the history of the United States; the Presidio, in its entirety, is a part of the Golden Gate National Recreation Area, in accordance with Public Law 92-589; as part of the Golden Gate National Recreation Area, the Presidio's significant natural, historic, scenic, cultural, and recreational resources must be managed in a manner which is consistent with sound principles of land use planning and management, and which protects the Presidio from development and uses which would destroy the scenic beauty and historic and natural character of the area and cultural and recreational resources.*

Pu'uhonua o Hōnaunau National Historical Park (PUHO)

https://www.nps.gov/puhe/index.htm

Marine Ecoregion
Hawai'i

Traditional Territory
Kanaka 'Ōiwi

Enabling Legislation
Enabling legislation states the lands within the park shall be *for the benefit and inspiration of the people*.

Pu'ukoholā Heiau National Historic Site (PUHE)

https://www.nps.gov/puho/index.htm

Marine Ecoregion
Hawai'i

Traditional Territory
Kanaka 'Ōiwi

Enabling Legislation
Enabling legislation states this historic site was enacted:

> *in order to restore and preserve in public ownership the historically significant temple associated with Kamehameha the Great, who founded the historic Kingdom of Hawaii, and the property of John Young who fought for Kamehameha the Great during the period of his ascendancy to power.*

Redwood National and State Park (REDW)

https://www.nps.gov/redw/index.htm

Marine Ecoregion
Northern California

Traditional Territory
Tolowa Dee-ni' and Yurok

Enabling Legislation
Enabling legislation states the park was enacted:

> *to preserve significant examples of the primeval coastal redwood Establishment. Redwood (Sequoia sempervirens) forests and the streams and seashores with which they are associated for purposes of public inspiration, enjoyment, and scientific study.*

Rosie the Riveter WWII Home Front National Historical Park (RORI)

https://www.nps.gov/rori/index.htm

Marine Ecoregion
Northern California

Traditional Territory
Chochenyo, Muwekma, and Ohlone

Enabling Legislation
Enabling legislation states the historical park was created:

> *to preserve for the benefit and inspiration of the people of the United States as a national historical park certain sites, structures, and areas located in Richmond, California, that are associated with the industrial, governmental, and citizen efforts that led to victory in World War II.*

San Francisco Maritime National Historical Park (SAFR)

https://www.nps.gov/safr/index.htm

Marine Ecoregion
Northern California

Traditional Territory
Muwekma, Ohlone, and Ramaytush

Enabling Legislation
Enabling legislation states the historical park the purpose is:

> *to preserve and intrepret the history and achievements of seafaring Americans and of the Nation's maritime heritage, especially on the Pacific coast.*

San Juan Island National Historical Park (SAJH)

https://www.nps.gov/sajh/index.htm

Marine Ecoregion
Oregon, Washington, Vancouver Coast and Shelf

Traditional Territory
Á,LEN̲ENEC̓ ŁTE (W̲SÁNEĆ), Coast Samish, Lekwungen/Songhees, Lhaq'temish (Lummi), Samish, S'Klallam, and Tulalip

Enabling Legislation
Enabling legislation states the historical park purpose is for:

> *interpreting and preserving the sites of the American and English camps on the island, and of commemorating the historic events that occurred from 1853 to 1871 on the island in connection with the final settlement of the Oregon Territory boundary dispute, including the so-called Pig War of 1859.*

Santa Monica Mountains National Recreation Area (SAMO)

https://www.nps.gov/samo/index.htm

Marine Ecoregion
Southern California Bight

Traditional Territory
Chumash, Fernandeño Tataviam, Kizh, Micqanaqa'n, and Tongva

Enabling Legislation
Enabling legislation states the recreation area was created as:

> *there are significant scenic, recreational, educational, scientific, natural, archeological, and public health benefits provided by the Santa Monica Mountains and adjacent coastline area; there is a national interest in protecting and preserving these benefits for the residents of and visitors to the area; and the State of California and its local units of government have authority to prevent or minimize adverse uses of the Santa Monica Mountains and adjacent coastline area and can, to a great extent, protect the health, safety, and general welfare by the use of such authority.*

Sitka National Historical Park (SITK)

https://www.nps.gov/sitk/index.htm

Marine Ecoregion

North American Pacific Fjordland

Traditional Territory

Dënéndeh and Lingít Aaní (Tlingit)

Enabling Legislation

The historical park was initially created in 1890 by an unumbered Presidential Proclamation to create a public park for *public uses*. In 1910 the purpose was expanded by Presidential Proclamation 959 to preserve:

> *the decisive battle ground of the Russian conquest of Alaska in 1804, and also the site of the former village of the Kik-Siti tribe, the most warlike of the Alaskan Indians; and that here also are the graves of a Russian midshipman and six sailors, killed in the conflict, and numerous totem poles constructed by the Indians, which record the genealogical history of their several clans.*

The purposes of the Park were expanded by Public Law 92 - 501:

> *to preserve in public ownership for the benefit and inspiration of present and future generations of Americans an area which illustrates a part of the early history of the United States by commemorating czarist Russia's exploration and colonization of Alaska* and to be managed in accordance with the NPS Organic Act.

War in the Pacific National Historical Park (WAPA)

https://www.nps.gov/wapa/index.htm

Marine Ecoregion
Mariana Islands

Traditional Territory
Chamorro/CHamoru

Enabling Legislation
Enabling legislation states the historical park was created:

> *in order to commemorate the bravery and sacrifice of those participating in the campaigns of the Pacific theater of World War II and to conserve and interpret outstanding natural, scenic, and historic values and objects on the island of Guam for the benefit and enjoyment of present and future generations.*

Wrangell - St. Elias National Park and Preserve (WRST)

https://www.nps.gov/wrst/index.htm

Marine Ecoregion
Gulf of Alaska

Traditional Territory
Ahtna Nenn', Dënéndeh, Eyak, Lingít Aaní (Tlingit), Michif Piyii (Métis), and Upper Tanana

Enabling Legislation
Enabling legislation states the monument and preserve shall be managed:

> *to maintain unimpaired the scenic beauty and quality of high mountain peaks, foothills, glacial systems, lakes, and streams, valleys, and coastal landscapes in their natural state; to protect habitat for, and populations of, fish and wildlife including but not limited to caribou, brown/grizzly bears, Dall sheep, moose, wolves, trumpeter swans and other waterfowl, and marine mammals; and to provide continued opportunities including reasonable access for mountain climbing, mountaineering, and other wilderness recreational activities. Subsistence uses by local residents shall be permitted in the park.*

Appendix B. Accomplishment Highlights, 2008-2020

Completed:

Project: 2015 Taan Fjord landslide prompted a research project to study climate change impacts on glaciers. This work was conducted through partnerships with several universities. (The 2015 Taan Fiord Landslide and Tsunami)

In 2016, the NPS, the Alaska SeaLife Center, and NOAA sponsored an Ocean Acidification workshop in Juneau, Alaska.

Project: (2019) Conserving coral reefs in the Pacific Islands. Interns from the University of Hawai'i Hilo (PIPES internship) created a video of their experience working with the National Park Service to conserve coral reefs. A story also appeared in a press release: Stewardship Is in Our Bones.

A collaboration with University of Alaska Fairbanks on the ethnography of climate change at Bering Land Bridge National Preserve and Klondike Gold Rush National Historical Park and surrounding regions (Project Jukebox - Project Jukebox | Digital Branch of the University of Alaska Fairbanks Oral History Program).

University of Alaska Fairbanks and Stanford University partnership to address the impacts to access to subsistence resources in the Arctic due to climate change. (Respect the Land (Kamaksriłiq Nunam Irrusianik) - YouTube).

Project: Paleo climate change - shape of paleo coastline of Glacier Bay, Alaska determining timing of coastline accessibility use as a throughway. Also identifying historic coastlines location changes due to glaciation.

Project: Cruise ship standards of care for the Arctic - To develop best practices for cruise ships in the Arctic as new waterways become available. This is a partnership with the Wildlife Conservation Society. (Why the National Park Service Cares about Shipping in the Arctic)

Project: Changing Tides - Investigating the ties between intertidal invertebrates, brown bears, and people in Lake Clark and Katmai national parks and preserves. (for example, Changing Tides - The Ocean Connection - YouTube). The Changing Tides project was broadcast to millions of viewers in Germany through a wildlife program led by Andreas Kieling.

Projects involving marine debris in Alaska: Clean up garbage in five parks (2015); cleanups every year, when possible, in Kenai Fjords National Park; village outreach partnership with Alaska SeaLife Center; marine science informal education (e.g., "Scoop on Poop"); travel to over 100 villages throughout Alaska to run through programs with teachers in person; and partnerships with Kachemak Bay Research Reserve and the Center for Alaskan Coastal Studies.

Project: Characterization of differential vulnerability to ocean acidification between NPS networks in the Pacific West Region (2017 funded project) - Ocean Acidification monitoring program throughout parks on the western coast to look at local, sub-regional, and regional changes.

Intertidal Science Sampler: Cabrillo National Monument developed a science communication division to develop outreach programs for teachers and school groups. Students collect data in the field and NPS employees go back to the classrooms to show how to analyze the data. In 2015, 9 schools with 727 students were included in this program.

Project: (2009) Established a Marine Protected Area (MPA) in Point Reyes National Seashore in conjunction with the state of California, UCSD, UCSC, and CSUMB. MPAs include restriction areas and additional long-term monitoring.

Project: (2008-2010) The Research Learning Center staff participated in stakeholder group for designating California MPAs.

Project: (2014-2017) Restoring Drakes Estero – Removing derelict fishing gear, underwater debris, and debris from beaches and sandbars to improve seal pupping habitat, eelgrass habitat, and overall water quality. This project also allowed for long-term monitoring of invasive species, eelgrass, water quality, and harbor seal ecology. (Drakes Estero Restoration - Point Reyes National Seashore)

Project: Studies to initiate sea otter populations in San Francisco Bay and Drakes Estero as a part of potential recovery for the species historic range. This project is a partnership with Sonoma State University, USGS, UCSC, and the Monterey Bay Aquarium. (Hughes, B. B., et al. 2019. Species recovery and recolonization of past habitats: lessons for science and conservation from sea otters in estuaries. PeerJ 7: e8100 https://doi.org/10.7717/peerj.8100)

2018 - 2019 partnered with NOAA, Marin County office of education, California Academy of Sciences, and UC Berkeley to create an ocean climate change educator program. A total of 27 teachers participated in developing climate curricula.

Point Reyes National Seashore - Outreach for use in education in the form of short videos and podcasts (Multimedia Presentations: The Natural Laboratory - Point Reyes National Seashore).

Point Reyes National Seashore and Golden Gate National Recreation Area have convened state and NGO partners to present to NPS and other law enforcement on MPA issues, violations, strategies, and collaborations, along with a session with the assistant Sonoma County District Attorney, who spoke with NPS staff on how to best enforce.

NPS Research Learning Center, NOAA, and DOI staff taught a one-week course on marine spatial planning in Chile (2014).

Established the Pacific Islands coral reef and water quality monitoring programs (2008).

Assessments of impacts caused by climate change to coastal parks have been completed by the NPS climate change program.

Alaska and Pacific West (Interior Regions 8-12) regional ocean coordinator positions were funded and staffed in 2010 as recommended by the National Ocean Strategy. Coordinators have spearheaded increases in coastal research and operations throughout the Pacific West and Alaska regions.

Project: Use stress and stable isotope signatures to infer environmental conditions linked to the unprecedented die-off of Common Murres wintering in national park waters.

Project: Teaming up with the COASST (Coastal Observation and Seabird Survey Team) - seabird mortality surveys (in partnership with Washington State) and community scientists for cluing in to the health of Alaska's coastal parks: Engaging local communities in tracking seabird mortality (Seabird Die-Offs, Keeping a Finger on the Pulse of Coastal Birds).

Letter of Intent (LOI) regarding islands and their surrounding marine ecosystems was signed in 2014 at the Trilateral Committee meeting between the U.S., Canada, and Mexico. The NPS is identified in the LOI as one of the agencies that intends to collaborate across international borders on these shared issues. We have been able to successfully execute projects, exchanges, and sharing of resources under the umbrella of the LOI.

Project: An assessment of the ecological impacts and the human health risks of fish consumption from a shallow reef site in War in the Pacific National Historical Park where 60 tons of unexploded ordnance were dumped by the Navy during World War II and remain in the park.

Project: Climate change vulnerability assessment of cultural resources in coastal NPS units of Guam.

Ongoing:

USGS/NPS studies to understand land-based pollution (sediment and nutrient) impacts to coral reefs and coral larval connectivity between the park units; nutrients and contaminants in submarine groundwater discharge and their influences on coral reefs; influences of circulation on crown-of-thorns outbreak and land-based pollution impacts to coral reefs; and sediment impacts to the bay and the burial of the shark heiau at Pu'ukohola Heiau NHS, Hawai'i.

Nearshore monitoring projects from San Diego, California to Southwest Alaska produced valuable studies regarding sea star wasting disease (an example from Alaska: Sea Star Wasting Disease in Southwest Alaska).

Nearshore Ecosystem Response to Deglaciation (NERD) in Kenai Fjord National Park is a project to study the ongoing changes in fjords as tidewater recedes. (Nearshore Ecosystem Response to Deglaciation)

Outreach for teachers to learn from scientists and bring field experiences to the classroom. In Alaska, the floating teacher workshop, where teachers went on a five-day trip to connect to the coastal and intertidal research being done in Kenai Fjords National Park (Exploring the Fjords: A Hands-On Teacher Workshop - YouTube) is one example. Annual teacher workshops are put on in Seward, Alaska, partnering with Alaska SeaLife Center.

Annual seabird research partnership in Resurrection Bay with NSF. Due to long-term monthly monitoring, we were able to see signs of the die-off about 8 months before it was apparent.

Pacific Flyway- bird migration tracking. Bioacoustic monitoring at Pacific Northwest parks and Channel Islands National Park in collaboration with Natural Sounds and Night Skies Division (NRSS).

Coordination with Regional Response Teams and Area Contingency Planning to better prepare for oil and chemical spills through planning and preparation.

Project: Near-term biological consequences of ocean acidification - Collection of plankton in Bering Land Bridge National Preserve and Cape Krusenstern National Monument to assess structural abnormalities, community composition, and size distribution.

Ongoing NOAA-NPS partnership to address ocean acidification. Partnership supports sampling of Ocean Acidification adjacent to NPS units.

Coastal California parks partner with several University of California campuses and PISCO to perform long-term intertidal and subtidal monitoring programs. This long-term monitoring (over 20 years at some sites) produces new projects and products:

- Project: The Giant Owl limpet - a story map and education outreach product from the vital signs long-term intertidal monitoring program.
- The Southern California coastal monitoring program, which has 30 years of consecutive data, has new partnerships with the U.S. Navy at Point Loma, as well as PISCO through the University of California system.
- Sea Star Wasting Syndrome, where many papers have come out including NPS employees and studies within NPS lands.
- Rocky intertidal monitoring program (PORE/GOGA)

Project: Black Abalone monitoring, assessment, and recruitment study examining artificial abalone recruitment substrate. This is a joint project between Channel Islands National Park, Golden Gate National Recreation Area, Point Reyes National Seashore, and National Marine Fisheries Service.

Projects regarding climate change at Point Reyes National Seashore: Sea-level rise modeling, coastal erosion studies for park infrastructure

Point Reyes National Seashore monitors pinnipeds. This is in collaboration with the Marine Mammal Center and University of California. (Pinniped Monitoring)

Inventory and monitoring of coastal resources: Marine mammal, water quality, groundwater, anchialine pools, coral reef/benthic, fish, seabird, rocky intertidal, sandy beach, kelp forest, freshwater stream, estuary and seagrass, nearshore coastal, lagoons, salt marsh, and coastal change.

Project: Respect Wildlife – a multi-agency and NGO partnership including Defenders of Wildlife, Sea Otter Savvy, NOAA Marine Sanctuaries, BLM, USFWS, California State Parks, and California Department of Fish and Wildlife, to create a campaign of unified messaging around respectful wildlife viewing.

Project: Coastal mapping – Lidar, bathymetry, habitat, photogrammetry, and image orthorectification throughout Alaska and the Pacific West Region.

Project: Coastal restoration – to rehabilitate, restore, and address degraded coastal resources in Alaska and the Pacific West Region.

Coastal cultural resource vulnerability assessments and monitoring: climate vulnerability, prioritization of at-risk resources, protect cultural resources from overuse, repatriation of exposed human remains, and documenting, collecting, and moving resources.

Facilities and infrastructure vulnerability assessments - rebuilding seawall at Saipan. Ongoing alignment of the natural resources program with the Strategic Facilities Investment Planning (SFIP) process to include climate change and other coastal hazards in support of wise investments in rehabilitation and coastal developments.

Ongoing partnership with CALeDNA (UC Santa Cruz) to detect, assess, and analyze environmental DNA within NPS units for harmful algal blooms, anadromous fish, aquatic invasive species, and threatened and endangered species.

Channel Islands National Park Live Dive education program. Students interact with a diver in the kelp forests live online. The diver takes and answers questions as students watch and engage.

Project: Underwater acoustic monitoring at National Park of American Samoa (NPAS) - collect and analyze acoustic data to provide critical baseline information on conditions in the park and the remote region of the south Pacific. A joint project between NOAA, National Park of American Samoa, NPS Water Resources Division, and the NPS Natural Sound and Night Skies Division. The NPAS acoustic monitoring station is part of the Ocean Noise Reference Station Network.

USGS and NPS partnership to study the impact of climate change and sea-level rise on future flooding of coastal NPS parks and USFWS refuges in Hawai'i, Guam, Commonwealth of Northern Mariana Islands, and American Samoa; historical trends and current patterns of anthropogenic nutrient loading to NPAS's Ofu pools and its impacts on coral health; and update benthic habitat maps for Kaloko-Honokōhau NHP, Pu'uhonua o Hōnaunau NHP, and Pu'ukohola Heiau NHS, Hawai'i.

Ongoing coral reef restoration effort at War in the Pacific NHP on Guam associated with large coral bleaching and die-off events over the past decade.

Cooperative development of the Marianas Trench National Marine Monument visitor center with USFWS in NPS buildings.

Ongoing restoration partnership project focused on white abalone restoration with NOAA and California Department of Fish and Wildlife at Channel Islands NP.

Appendix C. References and Useful Links

References

Caffrey, M. and R. Beavers. 2013. Planning for the impact of sea-level rise on US national parks. Park Science 30(1): 6-13.

Caffrey, M. and R. Beavers. 2008. Protecting cultural resources in coastal U.S. national parks from climate change. George Wright Forum 25(2):86–97.

Gonzalez, P., F. Wang, M. Notaro, D. J. Vimont, and J. W. Williams. 2018. Disproportionate magnitude of climate change in United States national parks. Environmental Research Letters 13: 10400.

Hutchings, R. M. 2016. Maritime heritage in crisis: Indigenous landscapes and global ecological breakdown. Taylor & Francis.

International Panel on Climate Change (IPCC). 2019. Special Report: Oceans and cryosphere.

Jarvis, J. B. 2015, January 20. Policy Memorandum 15-01. Addressing Climate Change and Natural Hazards for Facilities.

National Park Service (NPS). 2021. Planning for a Changing Climate: Climate-Smart Planning and Management in the National Park Service. National Park Service. Fort Collins, CO.

National Park Service (NPS) 2016. National Park Service Natural Resource Stewardship and Science Framework: Four pillars to guide natural resource activities and investments.

National Park Service (NPS). 2006. Management Policies 2006. Department of the Interior, Washington, DC.

National Park System Advisory Board, Science Committee. 2012. Revisiting Leopold: Resource Stewardship in the National Parks. National Park System Advisory Board.

Native Land Digital. 2021. Native Land. Available at: https://native-land.ca/ (accessed 4/2021)

Parris, A., P. Bromirski, V. Burkett, D. Cayan, M. Culver, J. Hall, R. Horton, K. Knuuti, R. Moss, J. Obeysekera, A. Sallenger, and J. Weiss. 2012. Global sea level rise scenarios for the U.S. National Climate Assessment. NOAA Technical Report OAR CPO-1. National Oceanic and Atmospheric Administration, Climate Program Office, Silver Spring, Maryland, USA.

Runyon, A. N., A. R. Carlson, J. Gross, D. J. Lawrence, and G. W. Schuurman. 2020. Repeatable approaches to work with scientific uncertainty and advance climate change adaptation in US national parks. Parks Stewardship Forum 36(1): 1734.

Schwartz, M. W., K. H. Redford, and E. F. Leslie. 2019. Fitting the U.S. National Park Service for Change. BioScience 69(8): 651-657.

Guidance Outlined in Previous Strategy Documents

	Current Strategy	Former Regional Strategy	National Strategy
Guidance	2021 National Park Service Arctic-Pacific Ocean Stewardship Strategy Goals	2008 National Park Service Pacific Ocean Parks Strategic Plan: Conserving Our Coastal, Island and Marine Resources	2006 National Ocean Park Stewardship Action Plan
Partnership and Collaboration	Identify, develop, and strengthen partnerships that enhance resource science, conservation, and education	Establish a seamless system of ocean parks, sanctuaries, refuges, and reserves	Establish a seamless system of ocean parks, sanctuaries, refuges, and reserves
Science and Technology	Understand and quantify ocean and coastal resources and their associated stressors and drivers.	Discover, map, and protect ocean parks	Discover, map, and protect ocean parks
Outreach, Interpretation, and Education	Engage individuals and communities in ocean park stewardship through outreach, interpretation, and education.	Engage visitors in ocean park stewardship	Engage visitors in ocean park stewardship
Management and Operations	Enhance effective ecosystem-based ocean and coastal operations and management.	Increase NPS technical capacity for ocean exploration and stewardship	Increase NPS technical capacity for ocean exploration and stewardship

Useful Links

NPS Coastal and Ocean Advisory and Support Team (COAST), SharePoint site (https://doimspp.sharepoint.com/sites/nps-coast/SitePages/COAST--Coastal-and-Ocean-Advisory.aspx)

Alaskan Inuit Food Security Conceptual Framework: How to Assess the Arctic From An Inuit Perspective (2016; https://circumpolar.org/wp-content/uploads/2016/10/Reports-by-Indigenous-Peoples-1.pdf)

Guidance and Responsibilities for Effective Tribal Consultation, Communication, and Engagement: A Guide for Agencies Working with West Coast Tribes on Ocean & Coastal Issues (July 2020; https://static1.squarespace.com/static/5bc79df3a9ab953d587032ca/t/5f0cdc876f40e375a32305af/1594678422449/WestCoastTribalEngagmentGuidance_July2020.pdf)

International Panel on Climate Change: Special Report on the Ocean and Cryosphere in a Changing Climate (2019; https://www.ipcc.ch/srocc/)

Native Lands Digital (https://native-land.ca/)

National Park Service Natural Resource Stewardship and Science Framework: Four pillars to guide natural resource activities and investments (2016; https://www.nps.gov/orgs/1778/upload/NRSS_Framework_Four_Pillars_-WCAG_2-0AA-1.pdf)

Ocean Park Stewardship Action Plan (2006-2008; https://irma.nps.gov/DataStore/DownloadFile/659233)

Pacific Ocean Park Strategic Plan: Conserving Our Coastal, Island, and Marine Resources (2008; https://irma.nps.gov/DataStore/Reference/Profile/2285270)

Pew Oceans Commission Report: America's Living Oceans – Charting a Course for Sea Change (2003; https://www.pewtrusts.org/en/research-and-analysis/reports/2003/06/02/americas-living-oceans-charting-a-course-for-sea-change)

Rethinking the National Parks for the 21st Century (2001; https://www.nps.gov/policy/report.htm)

Revisiting Leopold: Resource Stewardship in the National Parks (2014; https://www.nps.gov/calltoaction/PDF/LeopoldReport_2012.pdf)

Stewardship - Conserving Our Ocean Heritage (https://www.nps.gov/subjects/oceans/restoration.htm)

Tribal Engagement Guidance, West Coast Ocean Alliance (https://westcoastoceanalliance.org/tribal-engagement)

U.S. Commission on Ocean Policy: An Ocean Blueprint for the 21st Century (2004; https://govinfo.library.unt.edu/oceancommission/documents/full_color_rpt/welcome.html#:~:text=U.S.%20Commission%20on%20Ocean%20Policy%20Released%20by%20the,a%20new,%20coordinated%20and%20comprehensive%20national%20ocean%20policy.)

U.S. Ocean Action Plan (2004; https://www.cmts.gov/downloads/US_ocean_action_plan.pdf)

West Coast Ocean Alliance (formerly known as West Coast Regional Planning Body; https://westcoastoceanalliance.org/): A regional partnership focused enhanced management and coordination for the ocean along the west coast of the U.S. (Federal, State, and Tribal)

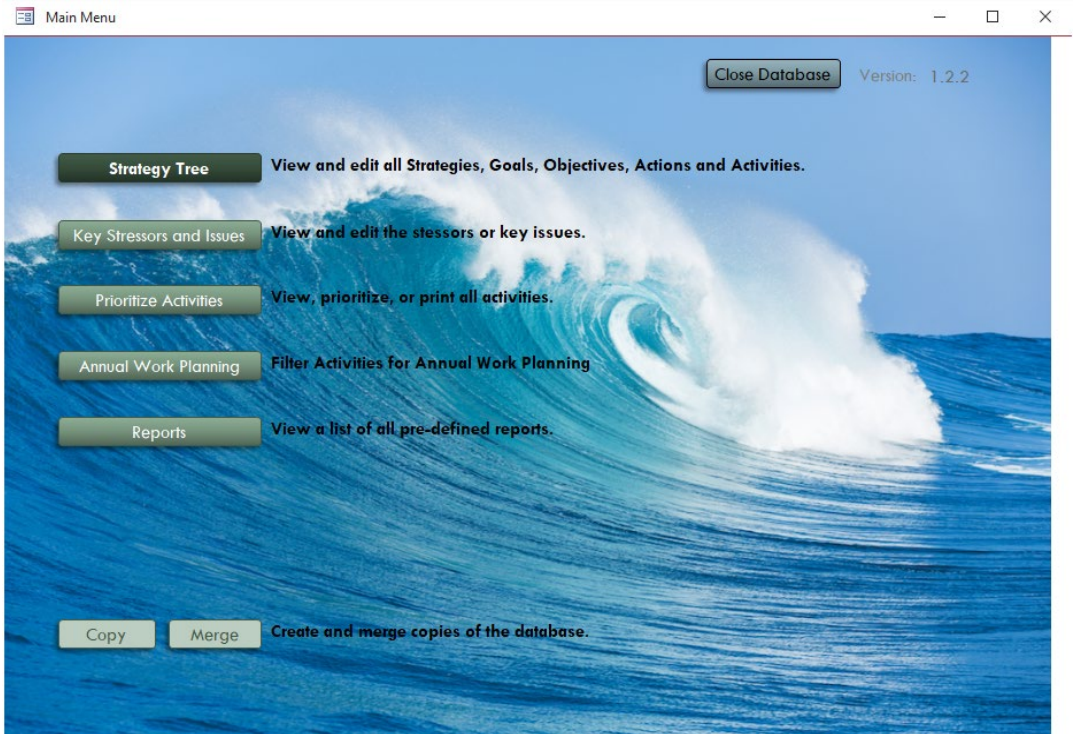
Appendix D. Projects Database Documentation

The Arctic-Pacific Ocean Stewardship Strategy (the "Strategy") has a robust Microsoft Access database to enable program leads at parks, regions, and the central office to add, prioritize, assign, track, and report on projects that have been identified. This document provides an overview of the database's basic functions to orient personnel to the user interface. It is not intended to provide an in-depth discussion of the database architecture that is expected to change over time. At annual meetings, new priorities and projects will be identified and selected for implementation. Completed projects will be marked closed and projects that are no longer feasible or relevant will be deleted. The database will regularly change and evolve to meet the Strategy's goals, objectives, and actions, as well as user needs.

The master database will be housed on the NPS Water Resources Division's COAST internal Sharepoint site. It cannot be changed or viewed on the site. It should be downloaded to a computer with Microsoft Access software installed to view and create reports.

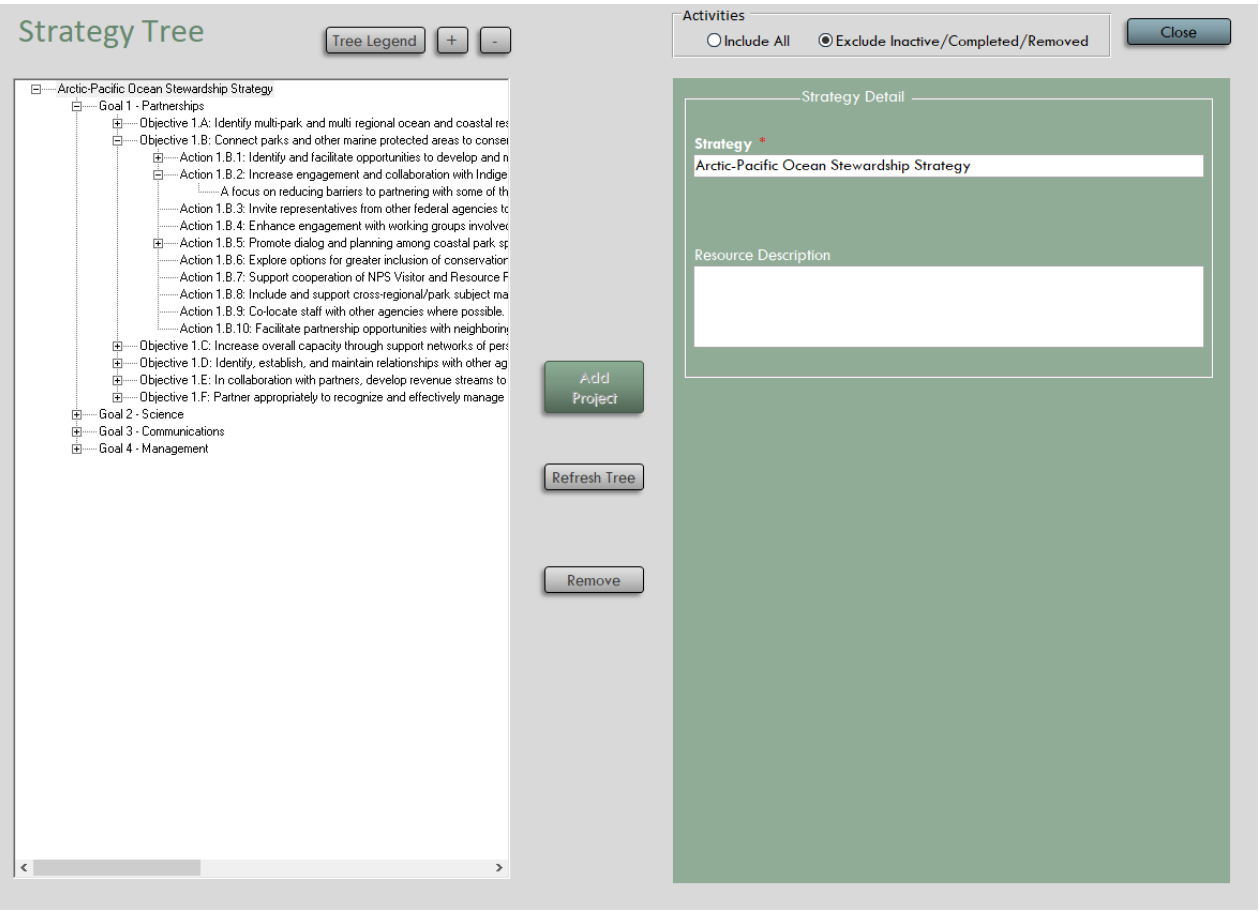
The database was adapted from the NPS Resource Stewardship Strategy database. The first version is 1.0.0. Minor version updates will be numbered sequentially (i.e., 1.1.0, 1.1.1, . . . 1.2.1, etc.). Major version updates will adopt the next whole number (i.e., 2.0.0) as the first digit in the version number. Each version update will be documented with a statement of the purpose and need for the update and what was changed. When opening the database, the user will see this Main Menu screen of options:

Main Menu



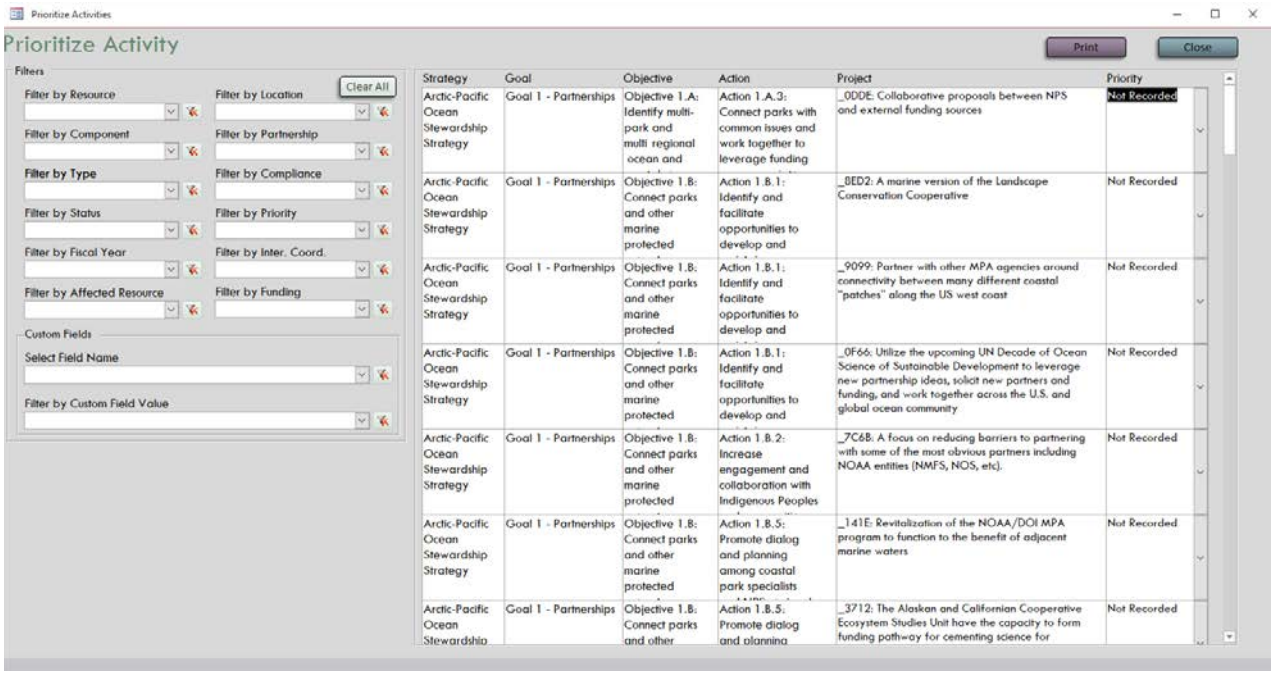
Strategy Tree

The Strategy Tree allows users to see all four of the Strategy's goals with their associated objectives and actions. The user can also add a project. An example of the expanded tree for Goal 1 (Partnerships) is shown below:



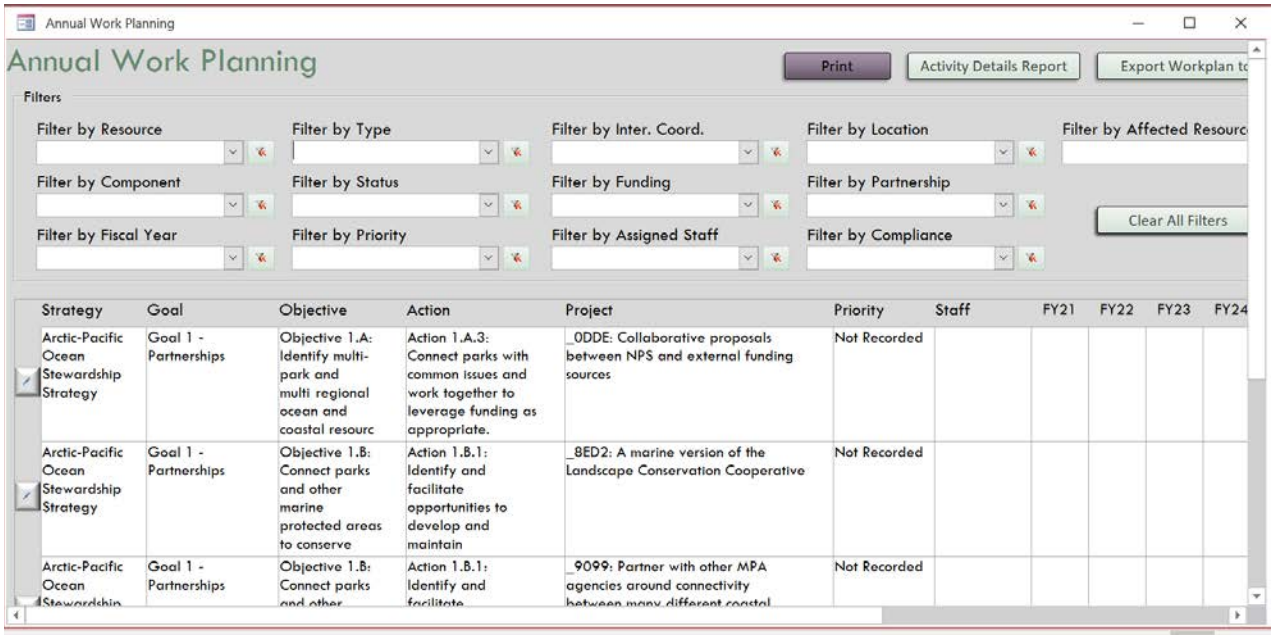
Project Prioritization

The user can identify new projects and prioritize them according to need, funding, and capacity. The master database will be kept current by updating this information at the annual prioritization meeting or as necessary to keep the master database current. The database has built-in search features as shown below for a search filtered by Goal 1 and fiscal year of project implementation (Fiscal Year 2023 in this case).



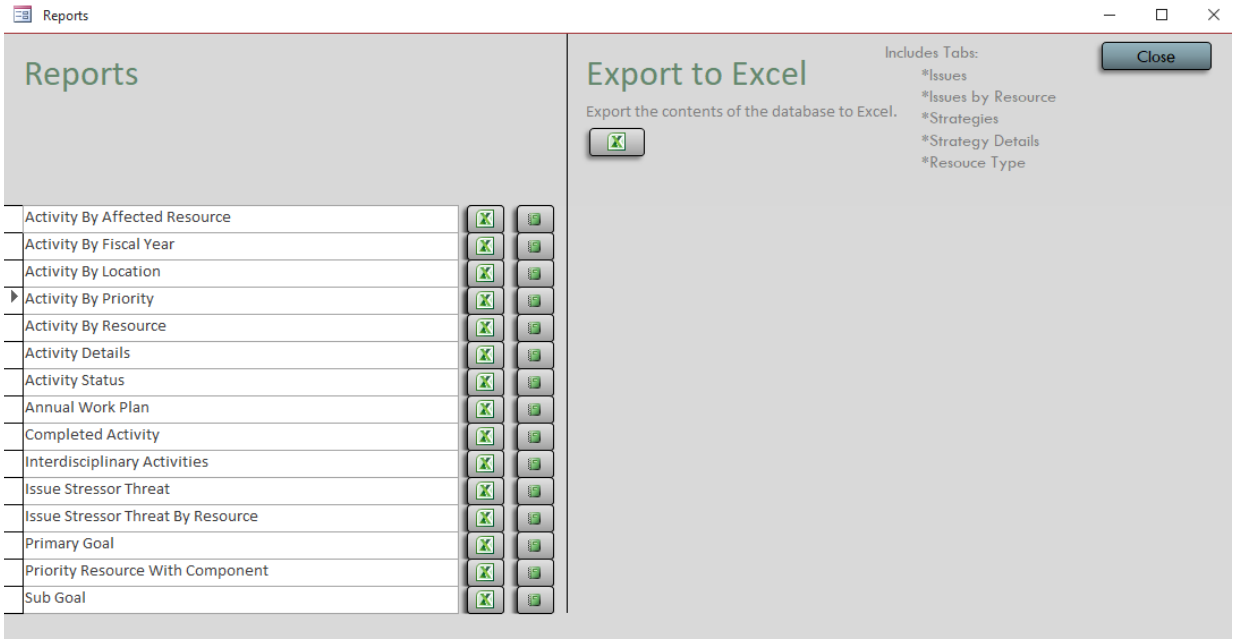
Annual Work Planning

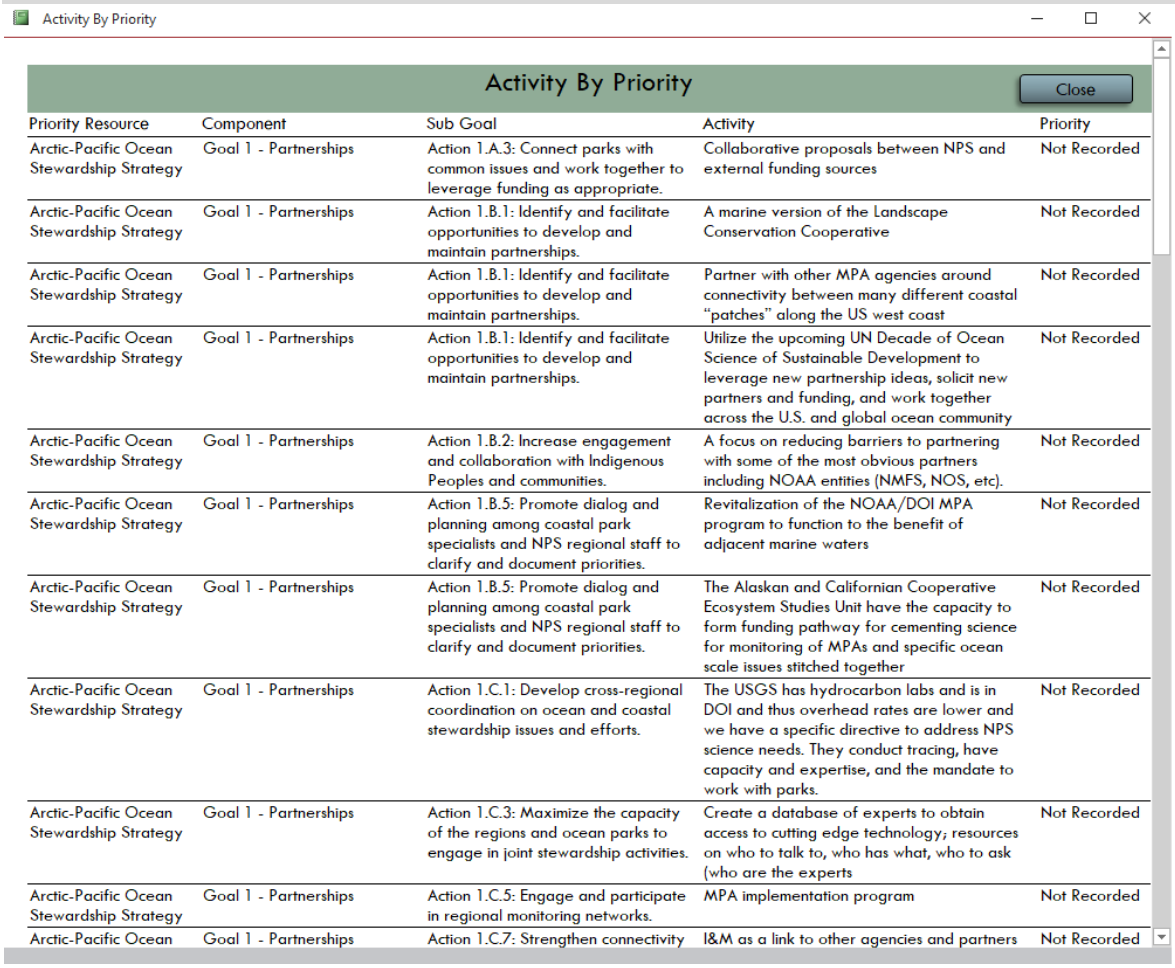
The database has a robust tool for annual work planning. The user assigns projects to an individual or program (e.g., regional ocean and coastal resources program). It also has data filters for easy searches on type, status, fiscal year, partnership, etc., as shown below. The user can generate detailed activity reports and export the work plan.



Reports

Users may generate several types of reports as shown below:





Priority Resource	Component	Sub Goal	Activity	Priority
Arctic-Pacific Ocean Stewardship Strategy	Goal 1 - Partnerships	Action 1.A.3: Connect parks with common issues and work together to leverage funding as appropriate.	Collaborative proposals between NPS and external funding sources	Not Recorded
Arctic-Pacific Ocean Stewardship Strategy	Goal 1 - Partnerships	Action 1.B.1: Identify and facilitate opportunities to develop and maintain partnerships.	A marine version of the Landscape Conservation Cooperative	Not Recorded
Arctic-Pacific Ocean Stewardship Strategy	Goal 1 - Partnerships	Action 1.B.1: Identify and facilitate opportunities to develop and maintain partnerships.	Partner with other MPA agencies around connectivity between many different coastal "patches" along the US west coast	Not Recorded
Arctic-Pacific Ocean Stewardship Strategy	Goal 1 - Partnerships	Action 1.B.1: Identify and facilitate opportunities to develop and maintain partnerships.	Utilize the upcoming UN Decade of Ocean Science of Sustainable Development to leverage new partnership ideas, solicit new partners and funding, and work together across the U.S. and global ocean community	Not Recorded
Arctic-Pacific Ocean Stewardship Strategy	Goal 1 - Partnerships	Action 1.B.2: Increase engagement and collaboration with Indigenous Peoples and communities.	A focus on reducing barriers to partnering with some of the most obvious partners including NOAA entities (NMFS, NOS, etc).	Not Recorded
Arctic-Pacific Ocean Stewardship Strategy	Goal 1 - Partnerships	Action 1.B.5: Promote dialog and planning among coastal park specialists and NPS regional staff to clarify and document priorities.	Revitalization of the NOAA/DOI MPA program to function to the benefit of adjacent marine waters	Not Recorded
Arctic-Pacific Ocean Stewardship Strategy	Goal 1 - Partnerships	Action 1.B.5: Promote dialog and planning among coastal park specialists and NPS regional staff to clarify and document priorities.	The Alaskan and Californian Cooperative Ecosystem Studies Unit have the capacity to form funding pathway for cementing science for monitoring of MPAs and specific ocean scale issues stitched together	Not Recorded
Arctic-Pacific Ocean Stewardship Strategy	Goal 1 - Partnerships	Action 1.C.1: Develop cross-regional coordination on ocean and coastal stewardship issues and efforts.	The USGS has hydrocarbon labs and is in DOI and thus overhead rates are lower and we have a specific directive to address NPS science needs. They conduct tracing, have capacity and expertise, and the mandate to work with parks.	Not Recorded
Arctic-Pacific Ocean Stewardship Strategy	Goal 1 - Partnerships	Action 1.C.3: Maximize the capacity of the regions and ocean parks to engage in joint stewardship activities.	Create a database of experts to obtain access to cutting edge technology; resources on who to talk to, who has what, who to ask (who are the experts	Not Recorded
Arctic-Pacific Ocean Stewardship Strategy	Goal 1 - Partnerships	Action 1.C.5: Engage and participate in regional monitoring networks.	MPA implementation program	Not Recorded
Arctic-Pacific Ocean	Goal 1 - Partnerships	Action 1.C.7: Strengthen connectivity	I&M as a link to other agencies and partners	Not Recorded

National Park Service
U.S. Department of the Interior

Ocean and Coastal Resources Program
Natural Resource Stewardship and Science
1201 Oakridge Drive, Suite 250
Fort Collins, CO 80525