Office of National Marine Sanctuaries
National Oceanic and Atmospheric Administration

Channel Islands National Marine Sanctuary

Final Management Plan







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U.S. Department of Commerce
Gina Raimondo, Secretary

National Oceanic and Atmospheric Administration
Richard W. Spinrad, Ph.D., Under Secretary of Commerce for Oceans and Atmosphere and NOAA Administrator

National Ocean Service
Nicole LeBoeuf, Assistant Administrator

Office of National Marine Sanctuaries
John Armor, Director
Monique Baskin, Deputy Director

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Schooling fish over eelgrass, northside of Santa Cruz Island; kelp forest with California sheephead at Gull Island off Santa Cruz Island; research vessel *Shearwater*, southside of Santa Cruz Island; humpback whale fluke off southeast San Miguel Island; sailboats at anchor in Pelican Bay, Santa Cruz Island; Northern elephant seal at Simonton Cove, San Miguel Island; Chumash tomol paddlers at sunrise heading to Limuw (Santa Cruz Island). Photos: Robert Schwemmer/NOAA

As required periodically by the National Marine Sanctuaries Act (NMSA; 16 U.S.C. 1431 *et seq.*), the National Oceanic and Atmospheric Administration (NOAA) has updated the management plan for Channel Islands National Marine Sanctuary (CINMS or sanctuary). The issue areas and programs addressed in this document were built with guidance from the general public, the Office of National Marine Sanctuaries (ONMS), agency representatives, experts in the field, and the CINMS Advisory Council (Sanctuary Advisory Council).

For readers wanting to learn more about the management plan, sanctuary policies and community-based management processes, we encourage you to visit the sanctuary's website. Readers who do not have internet access may call the sanctuary office at (805) 699-5422 to request relevant documents or further information.

ONMS seeks to protect treasured places in the ocean and Great Lakes. Today, the program manages 15 national marine sanctuaries and two marine national monuments, encompassing more than 620,000 square miles of America's ocean and Great Lakes natural and cultural resources.

ONMS is a program office within NOAA's National Ocean Service. The National Ocean Service is dedicated to exploring, understanding, conserving and restoring the nation's coasts and oceans and works to balance environmental protection with economic prosperity in its mission, promoting safe navigation, supporting coastal communities, sustaining coastal habitats and mitigating coastal hazards.

NOAA, an agency of the U.S. Department of Commerce, is dedicated to enhancing economic security and national safety through the prediction and research of weather and climate-related events and providing environmental stewardship of our nation's coastal and marine resources.

For more information:

Chris Mobley, Superintendent
NOAA Channel Islands National Marine Sanctuary
Ocean Science Education Building 514, MC 6155
University of California Santa Barbara
Santa Barbara, CA 93106-6155
(805) 203-0613

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Executive Summary

Channel Islands National Marine Sanctuary (CINMS or sanctuary) is one of 15 national marine sanctuaries administered by the National Oceanic and Atmospheric Administration (NOAA), an agency within the United States Department of Commerce. The sanctuary surrounds five of the eight Channel Islands: San Miguel, Santa Rosa, Santa Cruz, Anacapa, and Santa Barbara off the coast of California, and encompasses 1,470 square miles of ocean extending an average distance of 6 nautical miles from island shorelines, and at its deepest point, reaches 5,597 feet. The sanctuary is home to numerous species of mammals, seabirds, fishes, invertebrates, and algae in a remarkably productive coastal environment. Within its boundary is a rich array of habitats, from rugged rocky shores and lush kelp forests to deep canyons and seagrass beds. The islands and surrounding sanctuary waters have been, and remain, sacred to Indigenous Chumash people. In addition, while the offshore location of the sanctuary limits human presence, the area is significant for a variety of human uses, such as recreation, tourism, commercial fishing, research, and education.

This management plan revises the 2009 management plan,[1] and focuses on how best over the next five to ten years to understand and protect the sanctuary's resources by addressing critical and emerging threats, and effectively implementing and sustaining core programs that support the vision and the mission. In preparing this management plan, ONMS spent considerable time reviewing past actions, looking closely at the condition of and threats to the sanctuary's resources, learning from Chumash community members,[2] listening to and reviewing public input, and engaging in thoughtful discussions with the CINMS Advisory Council (Sanctuary Advisory Council).[3] This process helped ONMS identify the top priorities to be addressed in the action plans, each presenting future-oriented strategies and activities. The management plan includes 11 action plans covering issue- and program-based themes that are intended to guide ONMS over the coming five to ten years. Across these action plans, four important cross-cutting themes and approaches are emphasized: addressing climate change, fostering diversity and inclusion, relying on partnerships and collaborations, and supporting community-based engagement.

[1] https://channelislands.noaa.gov/management/manplan/cinms_fmp_2009.pdf
[2] https://sanctuaries.noaa.gov/media/docs/2016-condition-report-channel-islands-nms.pdf#page=187
[3] The Channel Islands National Marine Sanctuary Advisory Council is a 21-seat body of public stakeholder participants and partnering government agency representatives that meets six times per year to provide advice on management of the sanctuary. For more information, see Strategy OA-3 in this plan, or visit https://channelislands.noaa.gov/sac/.

Action Plans

- ***Climate Change:*** Sanctuary waters, as well as surrounding coastal areas and communities, are experiencing climate-related stressors (e.g., ocean acidification, thermal stress, and hypoxia) that will increase in frequency and intensity over the coming decades. This action plan outlines strategies to better understand and mitigate the effects of climate change on sanctuary resources through capacity building and collaborative partnerships.
- ***Marine Debris:*** This action plan prioritizes the assessment of marine debris within CINMS and development of a better understanding of how marine debris affects sanctuary resources. Strategies include sustaining and expanding island shoreline cleanup efforts, pursuing collaborative efforts with the local fishing community, and implementing education and outreach initiatives with partners.
- ***Vessel Traffic:*** A wide array of public and private vessels carry visitors and cargo while transiting through the sanctuary year-round. This action plan outlines strategies to facilitate vessel activity while protecting sanctuary resources. Some strategies include engaging boaters and the shipping industry, tracking and monitoring vessel traffic, and enacting policies to foster safe navigation and protect sanctuary resources in coordination with other agencies and partners.
- ***Introduced Species:*** Introduced species are an increasingly common global threat, and the rate of invasion of introduced species continues to accelerate. The strategies in this action plan outline efforts to reduce the introduction, spread, and establishment of introduced species, and to track, study, and, where possible, control populations of introduced species already established in the sanctuary.
- ***Zone Management:*** This action plan focuses on implementing effective management and enforcement strategies of existing protective zones established within the sanctuary, including the Channel Islands network of marine reserves and conservation areas designated by NOAA and the state of California.
- ***Education and Outreach:*** This action plan seeks to increase appreciation and stewardship of sanctuary resources by building greater public understanding, engagement, and awareness throughout our diverse coastal communities. This action plan also focuses on support for sanctuary recreational activities and tourism.
- ***Research and Monitoring:*** To expand our understanding of the sanctuary ecosystems, this action plan outlines five strategies for research and monitoring that are responsive to existing resource protection and management concerns, yet are also forward-looking to support ecosystem-based management decision making, resource protection initiatives, and education and outreach programs.
- ***Resource Protection:*** This action plan identifies five strategies to reduce human impacts to marine wildlife and other sanctuary resources. Through collaborative management with local stakeholders and in partnership and consultation with relevant local, state, and federal government agencies, this action plan seeks to protect the biological, historical, and cultural resources in the sanctuary from known, emerging, and future unknown threats.

- ***Cultural Heritage:*** To respectfully honor, celebrate, and protect the unique Indigenous cultural heritage resources connected to the sanctuary, this action plan features strategies and activities that support meaningful Chumash Community collaborations, engagement with Chumash community partners revitalizing maritime traditions, and appropriate integration of traditional ecological knowledge.
- ***Maritime Heritage:*** This action plan describes strategies and activities focused on the understanding, protection, and interpretation of the unique maritime heritage resources and values connected to sanctuary waters.
- ***Operations and Administration:*** This action plan addresses the necessary operational and administrative activities required for implementing an effective program, including staffing, infrastructure needs, and operational improvements.

Section 1:
Introduction

Common dolphins in Channel Islands National Marine Sanctuary. Photo: Robert Schwemmer/NOAA

Background

Channel Islands National Marine Sanctuary (CINMS or sanctuary), located off the coast of Santa Barbara and Ventura counties in California, encompasses 1,470 square miles of water offshore of Anacapa, Santa Barbara, Santa Cruz, San Miguel, and Santa Rosa islands. The sanctuary contains remarkable biodiversity, productive ecosystems, sensitive species and habitats, shipwrecks, and other maritime heritage artifacts. The islands and surrounding waters are sacred to the Indigenous Chumash people. Many valuable commercial and recreational activities, such as fishing, shipping, and tourism, occur in the sanctuary.[4]

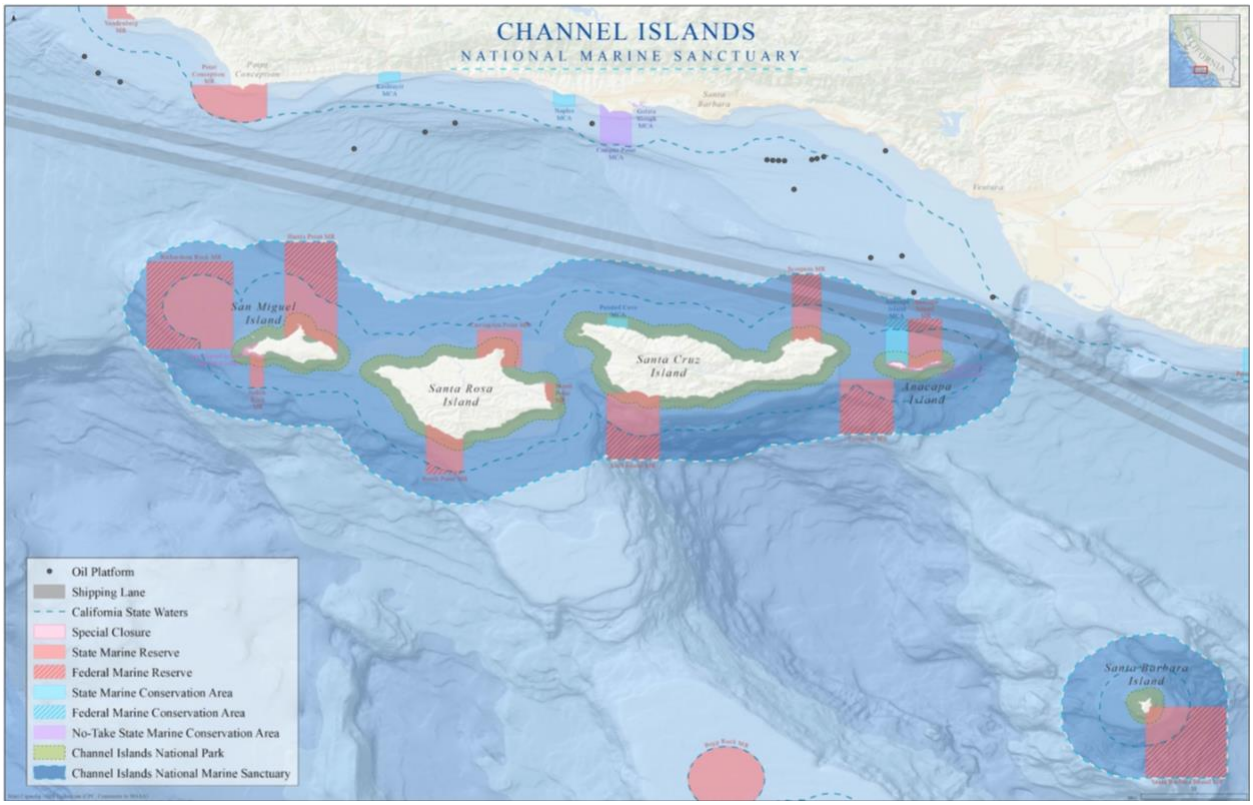

Figure 1. Sanctuary boundaries, including marine reserves and conservation areas zones. Source: NOAA

[4] Detailed descriptions of the sanctuary's environment can be found in the CINMS condition report (available online at https://sanctuaries.noaa.gov/science/condition/cinms/), as well as in the final environmental assessment for this management plan update process (available online at https://channelislands.noaa.gov/manage/plan/revision.html).

A comprehensive ecosystem-based management approach is used to promote long-term conservation of sanctuary waters, wildlife, habitats, and cultural resources, while allowing compatible human uses. Among the zones established within the sanctuary, a state/federal network of 11 no-take marine reserves and two marine conservation areas (only limited fishing allowed) helps provide additional resource protection[5] (Figure 1).

This updated management plan revises the 2009 plan and continues to focus on understanding and protecting the resources of CINMS. In preparing this updated plan, ONMS spent considerable time reviewing past actions, looking closely at the condition of and threats to the sanctuary's resources, learning from Chumash community members, listening to and reviewing public input, and engaging in thoughtful discussions with the CINMS Advisory Council (Sanctuary Advisory Council).

Many marine resource management issues confront the sanctuary. The action plans within this management plan provide strategies to understand the issues and protect the marine environments of the sanctuary. The action plans address these issues through education and outreach, research and monitoring, zone management, collaborative planning and management efforts, and enforcement of existing regulations. The majority of actions described within this management plan will be addressed in partnership with local, state, and other federal agencies, interested tribal governments and bands, as well as numerous stakeholders and nonprofit organizations.

This management plan is comprised of 11 action plans guiding ONMS for the next five to 10 years. The action plans are grouped into two main management themes: issue- and program-based. The issue-based action plans address priority issues (i.e., climate change, marine debris, introduced species, and vessel traffic) identified through the public scoping and Sanctuary Advisory Council input processes. The programmatic action plans address the procedural requirements needed to implement the management plan and meet the National Marine Sanctuaries Act (NMSA) mandates of resource protection, research, and education. Each action plan defines goals, describes strategies and planned activities, and describes mechanisms to evaluate implementation progress.

This introductory section provides background information about ONMS, the setting and conditions at CINMS, and the sanctuary management plan review process.

Overview of the Office of National Marine Sanctuaries

ONMS serves as the trustee for a network of underwater parks encompassing more than 620,000 square miles of marine and Great Lakes waters nationwide. As part of the Department of Commerce and managed by the National Ocean Service (NOS) in the National Oceanic and Atmospheric Administration (NOAA), ONMS provides oversight and coordination among 15 national marine sanctuaries and two marine national monuments. Since 1972, ONMS has worked cooperatively with the public and federal, state, tribal, and local officials to promote

[5] In 2019, the network of Channel Islands Marine Reserves and Conservation Areas was recognized with a platinum-level Blue Parks Award, indicating achievement of the highest science-based standards for marine life protection and management, and recognizing outstanding efforts by managers and local stakeholders to effectively protect marine ecosystems now and into the future.

conservation while allowing compatible commercial and recreational activities. Increasing public awareness and protection of the marine environment and its natural and cultural resources is accomplished through site management, scientific research, monitoring, exploration, engagement, and educational programs, fulfilling our mission to the American people.

ONMS manages these protected areas by setting priorities for addressing resource management issues and directing program and policy development. ONMS is responsible for ensuring each sanctuary has an updated management plan consistent with the NMSA, which includes management strategies to address current and emerging threats. On an annual basis, ONMS reviews and adjusts funding priorities and requirements to reflect resource management needs across the National Marine Sanctuary System. ONMS also monitors the effectiveness of sanctuary management plans, makes recommendations to promulgate regulatory changes where necessary, and monitors intra- and inter-agency agreements.

The National Marine Sanctuaries Act

The National Marine Sanctuaries Act (NMSA), as amended (16 U.S.C. §§ 1431 *et seq*.), is the law creating and guiding management of the sanctuary system. The NMSA authorizes the Secretary of Commerce to designate as national marine sanctuaries areas of the marine environment or Great Lakes of special national significance due to their conservation, recreational, ecological, historical, scientific, cultural, archeological, educational, or aesthetic qualities. The primary objective of the NMSA is to protect sanctuary resources. The NMSA also directs facilitation of all public and private uses of those resources compatible with the primary objective of resource protection. The NMSA is available from the ONMS website.

Ecosystem-Based Management in ONMS

The purpose and policy of the NMSA is to maintain natural resources and their ecological function through comprehensive conservation and management. The National Marine Sanctuary System and its units subscribe to a broad and comprehensive management approach in keeping with the NMSA's primary objective of resource protection. This approach differs from the various laws directed at managing single or limited numbers of species or specific human activities within the ocean. Ecosystem-based management serves as a framework for addressing long-term protection of a wide range of living and non-living marine resources, while allowing multiple uses within the sanctuary deemed compatible with resource protection. The ecosystems managed by ONMS span diverse geographic, administrative, political, and economic boundaries. Therefore, strong partnerships among resource agencies, non-governmental interests, members of the public and scientific community, user groups, and conservationists are essential.

CINMS Designation and Regulations

CINMS was federally designated in recognition of its national significance as an area of exceptional natural beauty and resources, and due to heightened concerns following the 1969 oil spill in the Santa Barbara Channel. In March of 1980, San Miguel, Santa Rosa, Santa Cruz, Anacapa, and Santa Barbara islands, and the waters within one nautical mile of each island,

were designated as Channel Islands National Park, the nation's 40th national park. That same year, on October 2, 1980, NOAA designated the ocean waters extending from mean high tide to six nautical miles offshore from those five islands, as well as the waters surrounding Richardson Rock, and Castle Rock, as Channel Islands National Marine Sanctuary (Figure 1). In 2003, the state of California implemented a network of marine reserves and conservation areas within a portion of the sanctuary's state waters. In 2006 and 2007, NOAA augmented and complemented the network by extending the marine reserves and conservation areas into federal waters, resulting in a total of 11 marine reserves and two marine conservation areas established to provide greater resource protection within the sanctuary.

All activities (e.g., fishing, boating, diving, research, and education) may be conducted within the sanctuary unless prohibited or otherwise regulated by CINMS or other jurisdictional authorities. Any individual who destroys, causes the loss of, or injures any sanctuary resource is subject to liability under Section 312 of the NMSA, as amended. The full regulatory text of the CINMS-specific regulations is published in the Code of Federal Regulations at 15 C.F.R. §§ 922.70–922.74, and the sanctuary's scope of regulatory authority is presented in Appendix D of this management plan.

Mission and Goals

The sanctuary's mission is to understand and protect the marine ecosystem and cultural resources of CINMS for current and future generations, using cutting edge marine science, fostering public awareness and stewardship, and supporting access and responsible use.

The sanctuary's program goals, consistent with the NMSA, are to:

A. Enhance resource protection through comprehensive and coordinated conservation and management tailored to the specific resources that complements existing regulatory authorities.
B. Support, promote, and coordinate scientific research on and monitoring of the sanctuary's marine resources to improve management decision-making.
C. Enhance public awareness, understanding, and wise use of the marine environment through education, outreach, and community involvement programs.
D. Facilitate, to the extent compatible with the primary objective of resource protection, multiple uses of the sanctuary not prohibited pursuant to other authorities.
E. Maintain five primary program areas supporting the administration of CINMS: research and monitoring, resource protection, education and outreach, maritime heritage, and program operations.

Sanctuary Management Approaches

ONMS provides marine resource protection that is place-based, long-term, and ecosystem-focused. ONMS employs a multi-disciplinary strategy for conservation programming. This includes implementing education and outreach programming to raise public awareness and understanding about the sanctuary, and to inspire conservation and stewardship. ONMS also addresses management needs through applied research and monitoring, including conservation science, social science, and historical studies. Further, ONMS seeks to engage with the

community in tending to the needs of the sanctuary, supporting meaningful roles for volunteers and interacting with advisory council members and various maritime stakeholders.

Another important aspect of the sanctuary's management approach is rooted in the NMSA, which establishes that one of the purposes of national marine sanctuaries is to facilitate public uses that are compatible with the primary objective of resource protection (16 U.S.C. § 1431(b)(6)). ONMS works to support coastal economies by promoting and protecting healthy resources accessible to human uses that do not interfere with sustaining long-term ecosystem protection. Finally, recognizing that the task of managing the sanctuary is complex and vast, all of these approaches are conducted through a wide variety of partnerships and other collaborative arrangements.

Relationships with Other Agencies, Authorities, Tribes, and Chumash Community

Consistent with the NMSA (16 U.S.C. § 1431(b)(2)), NOAA seeks to provide comprehensive and coordinated sanctuary management in ways that complement existing regulatory authorities. Management actions are made more effective and efficient through the sharing of resources and expertise among government agencies that play various roles related to the marine ecosystems and human activities of the sanctuary. Addressing the full extent of responsibilities and challenges within sanctuary waters exceeds the jurisdiction, resources, and ability of any one agency or entity. Consequently, NOAA regularly works with other federal and state agencies in order to optimize collective efforts applied to sanctuary resource protection, research and monitoring, enforcement, emergency response, education and outreach, place-based management, and more.

In addition to coordination with federal, state, and local jurisdictions, NOAA also has an important responsibility and opportunity to work with Indigenous communities to better understand and recognize their rights, responsibilities, knowledge, and connections to places that are a part of national marine sanctuaries. At CINMS, this pertains to the Chumash community. The connection to the waters of the sanctuary and adjacent islands is central to the identities and cultures of Chumash people.[6] Recognizing and valuing these relationships is essential to NOAA's mission to protect the sanctuary for current and future generations. Developing and sustaining appropriate engagement with the Chumash community involves building trust and respect through long-term relationships (see Box 2 in the Cultural Heritage Action Plan). ONMS will respectfully work with interested Chumash bands, tribal governments, and organizations, and as appropriate engage in legally-required government-to-government consultations with the federally-recognized Santa Ynez Band of Chumash Indians.

CINMS and Fisheries Management

The National Marine Fisheries Service, Pacific Fishery Management Council, California Department of Fish and Wildlife, and California Fish and Game Commission together lead the regulation and management of federal and state fishery resources in CINMS. ONMS consults, coordinates, and collaborates with these agencies to help sustain the health and productivity of

[6] 2016 CINMS Condition Report, pg. 187 (available online at https://sanctuaries.noaa.gov/media/docs/2016-condition-report-channel-islands-nms.pdf#page=187)

fishing grounds within the sanctuary and provide long-term ecosystem-based conservation. The NMSA prescribes the manner in which NOAA coordinates the development or adjustment of fishing regulations within a national marine sanctuary, and cooperates with other appropriate fishery management authorities (16 U.S.C. § 1434(a)(5)).

Sanctuary staff have successfully collaborated with local fishermen to address a variety of fishing-related issues and pursue joint projects of interest. This has included co-developing resources to address trap loss, conducting shoreline debris removal events, installing commercial fisheries signage at harbors, coordinating urchin diver safety during shark research trips, and promoting youth educational fishing trips. In addition, sanctuary staff have promoted and protected the prime fishing habitats of CINMS through use of its regulatory authority to address potential new developments or activities, including commercial aquaculture facilities and cruise ship visits.

ONMS will strive to support regular communication and information sharing between sanctuary staff and fishing community representatives, among other relevant approaches that could help improve the sanctuary's engagement with local fishing communities.[7] Maintaining this connection can promote sanctuary management transparency and create a collaborative space to help identify and understand emergent issues and potential solutions. Additionally, regular communications can help create new opportunities to engage in joint projects and work collaboratively toward shared goals.

Sanctuary Setting and Condition

The sanctuary's oceanographic, biological, social, and cultural setting is nationally significant and unique. The sanctuary wraps around five offshore Channel Islands that are managed as a National Park and, for 76% of Santa Cruz Island, a Nature Conservancy preserve. Its waters are steeped in Chumash history and enduring sacred value. The sanctuary's marine ecosystems, rich diversity of life, and maritime heritage resources support a varied mix of important human uses and values. Detailed information about the sanctuary setting can be found in the sanctuary's latest condition report,[8] and in Chapter 4 of the environmental assessment.[9]

Condition Report

In 2019, NOAA published a revised CINMS condition report, providing an extensive analysis of the status and trends of sanctuary resources and its ecosystem services. The report was prepared with the input and review of more than 80 scientists, many of whom participated in workshops to identify ecosystem indicators and determine the status and trends for the sanctuary's water quality, habitat, living resources, and maritime archaeological resources. Evaluations of status and trends were based on the interpretation of quantitative data and, when necessary,

[7] MPA Human Uses Project Report (available online at https://caseagrant.ucsd.edu/sites/default/files/Final%20Report_MPA%20LTM%20Human%20Uses%20Study_Bonkoski%20et%20al._December2021.pdf, pp. 114–126)
[8] The latest CINMS condition report is available online at https://sanctuaries.noaa.gov/science/condition/cinms/welcome.html
[9] CINMS Final Environmental Assessment (available online at https://channelislands.noaa.gov/manage/plan/revision.html)

qualitative assessments, together with the observations of scientists and resource managers. Since publication of the report in 2019, ONMS developed a Sanctuary Ecosystem Trends online tool to help interpret and update many of the datasets used in the condition report.[10]

The report also assessed sanctuary ecosystem services provided to a variety of human uses and values, including a notable contribution from Chumash authors describing the value of sanctuary waters to their Indigenous community from their own perspective. Overall, the condition report helped to highlight several issues of concern that were subsequently also raised during public scoping meetings as areas of interest for possible sanctuary management attention. Highlighted issues included vessel traffic, introduced species, ocean noise, marine debris, harmful algal blooms, and climate-driven changes to ocean conditions, as well as information about the value of the sanctuary environment to Chumash people.[11] The action plans within this management plan have been well informed by the condition report and are responsive to the report's findings.

Developing and Implementing this Management Plan

Management Plan Review

The NMSA requires the review of management plans to be conducted by all national marine sanctuaries (16 U.S.C. §1434(e)) to ensure each site properly conserves and protects its living and cultural resources. Management plans present goals, strategies, and actions to guide the development and prioritization of future budgets and management activities.

The current Channel Islands National Marine Sanctuary Management Plan was published in 2009 (U.S. DOC 2009).[12] Implementation of the plan has been tracked over time, and in 2017, NOAA initiated a management plan review pursuant to NMSA section 304(e). This rapid internal review found that significant progress had been made in conducting planned activities, and called for revisions of the management plan to occur following completion of the sanctuary's next condition report.[13] Based upon the findings of the condition report,[14] and in consideration of changing conditions and circumstances over time, it became clear that an update to the 2009 management plan was needed to address recent scientific discoveries, advancements in managing marine resources, and new resource management issues.

The current management plan revision process was based on five fundamental steps:

1. Completion of the site's condition report.
2. A public comment period including public scoping meetings (2019–2020).
3. The prioritization of issues and development of action plans (2020–2021).

[10] https://noaa-onms.github.io/cinms/
[11] https://sanctuaries.noaa.gov/science/condition/cinms/welcome.html
[12] Channel Islands National Marine Sanctuary 2009 Management Plan/Final Environmental Impact Statement (available online at: https://nmschannelislands.blob.core.windows.net/channelislands-prod/media/archive/management/manplan/cinms_fmp_2009.pdf)
[13] Implementation progress for the 2009 CINMS management plan is summarized in this May 2018 public presentation to the Sanctuary Advisory Council (available online at https://channelislands.noaa.gov/media/docs/20180515-cinms-management-plan-internal-review.pdf)
[14] https://sanctuaries.noaa.gov/science/condition/cinms/welcome.html

4. The preparation of, release of, and solicitation of public comments on a draft management plan and draft environmental assessment (2021–2022).
5. Preparation and release of this final management plan and a final environmental assessment, with revisions informed by 2021–2022 public comments.

Condition Report

As noted above, ONMS condition reports draw on the best available science, most recent data, and expert input to assess the status of various parts of the sanctuary ecosystem. The CINMS condition report, published in 2019 using data through 2016, helps inform ONMS, partners, and the public of current and emerging issues that may require management attention. The condition report served as a critical source of information to support the development of this updated sanctuary management plan.

Public Scoping

Following release of the 2019 condition report, ONMS examined current sanctuary issues, threats, and opportunities by using community-based processes and providing opportunities for public input. On October 1, 2019, NOAA published a notice of public scoping for the review of the CINMS management plan (84 FR 52053). This notice informed the public of the proposed action, announced public scoping meetings, and solicited public comments. NOAA conducted two public scoping meetings on October 22 and 23, 2019, and received over 230 written and oral comments from 65 different individuals, organizations, and agencies. ONMS prepared a summary scoping report in January 2020.[15]

Identification and Prioritization of Issues

In 2020, the Sanctuary Advisory Council reviewed a detailed summary of public scoping comments and provided advice to the sanctuary superintendent in the form of prioritization ratings. Council member ratings, further supported by their written and oral comments, provided an overview of stakeholder preferences regarding inclusion or exclusion of a variety of issues within the sanctuary management plan.[16] With due consideration of public scoping comments and input from the Sanctuary Advisory Council, ONMS developed a more focused set of priority issues to be included in this management plan. An initial list of priority issues was presented to and discussed with the advisory council members in May 2020. A more developed list was then presented to the Sanctuary Advisory Council in September 2020, reflecting the planned structure for 10 proposed action plans developed within the draft management plan. Throughout the process, ONMS discussed various management plan issues with the Sanctuary Advisory Council, learning about select topics from expert presenters and receiving additional council input and advice on a range of issues.

[15] Public scoping comment summary (available online at https://nmschannelislands.blob.core.windows.net/channelislands-prod/media/docs/20200124-cinms-mpr-scoping-comments-summary.pdf)
[16] https://channelislands.noaa.gov/media/docs/20200319-cinms-mpr-scoping-comment-worksheet-scores.pdf

Public Comment on Draft Management Plan and Environmental Assessment

NOAA released the draft management plan and draft environmental assessment on December 17, 2021, and received 36 comments (letters and oral testimony) during the public review period through February 24, 2022. Altogether, the comments contained 159 specific requests and suggestions for consideration. All comments received, in full format, are archived and available for viewing at regulations.gov (docket #NOAA-NOS-2019-0110). In response to many comments, NOAA made a variety of improvements to this management plan, where appropriate. For a summary of comments received and NOAA's responses, see Appendix B of the final environmental assessment.

Action Plan Development

The management plan is comprised of 11 action plans developed by ONMS. Each action plan provides specific strategies, activities, and performance measures (Appendix A) to address key issues and sustain core sanctuary programs.

Action Plan Components

Action plans are the means by which ONMS has identified and organized priority management issues and core functions. Action plans are designed to provide forward-looking strategic guidance to ONMS over the next five to 10 years. Each action plan begins with an overarching goal and an introduction to the issue or programmatic function. The core of each action plan is a series of strategies articulating ***what*** NOAA (or ONMS) intends to achieve with the strategy. Following the strategy are one or more activities that explain specific steps regarding ***how*** the strategy will be achieved. A list of existing and potential partners is also included for each action plan, as well as a table of identified performance measures that ONMS will use to evaluate progress.

Multidisciplinary Implementation

Each action plan is intended to be a discrete plan addressing a priority issue or carrying out a core sanctuary program. However, all issues require the common tools of research, monitoring, education, outreach, enforcement, administrative and operational support, agency coordination, and partnership development. ONMS will seek to maximize the synergy between action plans by exploring mutual research and monitoring needs for the various action plans and combining education and outreach needs to common audiences. Each of the action plans requires support from core sanctuary program areas to ensure success.

Cross-Cutting Themes

In preparing this management plan, ONMS spent considerable time reviewing past actions, looking closely at the condition of and threats to the sanctuary's resources, learning from Chumash community members, listening to public input, and engaging in thoughtful discussions with the Sanctuary Advisory Council. This process helped ONMS identify the top priorities to be addressed in 11 action plans, each presenting future-oriented strategies and activities. Cutting across the many action plans are a few recurring themes that stand out:

- Addressing climate change.
- Diversity and inclusion.
- Partnerships and collaborations.
- Community-based engagement.

Climate Change

As the sanctuary's condition report revealed,[17] and follow-on climate impacts work made clear,[18] the climate-driven effects of a changing ocean have brought significant challenges to sustaining marine ecosystem functions as we have known them, and in turn are bringing changes to the way in which humans interact with and enjoy the local marine environment. Concerns about climate change were the most commonly raised category of public scoping comment received, and this was in turn amplified by wide support from advisory council members. Thus, a Climate Change Action Plan is included within this management plan. Moreover, a climate change focus is relevant to and part of most of the other action plans as well, with related activities found in the action plans for research and monitoring, education and outreach, introduced species, and more. As a priority concern, climate change effects loom large, and ONMS intends to position CINMS to help us better understand, adapt to, educate, and inspire actions to help address this substantial threat.

Diversity and Inclusion

Whether within a natural ecosystem or a human community, diversity creates strength and resilience. ONMS values the remarkable diversity of knowledge, perspectives, and experience found throughout sanctuary communities. Across all of the strategies described in this management plan, ONMS will seek to invite and include a broader diversity of individuals to participate in activities or gain access to the benefits provided by sanctuary programming.

Partnerships and Collaborations

ONMS understands that management success is contingent upon developing and maintaining a variety of productive partnerships and collaborative arrangements. The sanctuary's large offshore ocean area combined with the broad scope of issues and activities to be managed necessitates the involvement of more organizations than just ONMS. Thankfully, a host of state and federal agencies we work with play active roles around the Channel Islands, including marine enforcement, emergency response, environmental monitoring, fisheries management, the management of Channel Islands National Park, and more. Additionally, ONMS collaborates with a variety of research, educational, Chumash, and non-profit organizations, and businesses that collectively help support various aspects of the sanctuary's mission. In order to be successful, we need to work with a variety of partners, both existing and yet to be developed. Thus, collaboration is a recurrent theme in most of the strategies and activities of the 11 action plans.

[17] https://sanctuaries.noaa.gov/science/condition/cinms/welcome.html
[18] https://nmschannelislands.blob.core.windows.net/channelislands-prod/media/docs/20200511-cinms-climate-change-impacts-report.pdf

Community-Based Engagement

In addition to a strong reliance upon partnerships and collaborative arrangements, sanctuary programs are typically rooted within the local community. Two examples of this include the Sanctuary Advisory Council, which draws on extensive local experience and builds a sense of community stewardship for the sanctuary, and the Channel Islands Naturalist Corps, whose more than 150 fully engaged volunteers come from the local community. Many of the programs and projects described within the 11 action plans involve an element of working within local communities to invite active participation and foster the development of community pride and stewardship for the sanctuary.

Performance Evaluation

Success will be evaluated through performance measures identified for each of the action plans, shown in Appendix A. As each action plan is implemented, staff will work cooperatively with partners and the Sanctuary Advisory Council, receiving ongoing feedback and input on the implementation of management plan strategies. The use of quantitative conservation targets is important and will be used on a case-by-case basis to adaptively address management needs to advance conservation and protection of sanctuary resources. Additionally, to more comprehensively inform adaptive management, sanctuaries periodically assess the status and trends of sanctuary resources through the development of condition reports. When the next sanctuary condition report is prepared, the report will serve as an updated comprehensive assessment of the sanctuary's biological, ecological, and maritime heritage resources.

Section 2:
Action Plans

(Top) Humpback whale breaches within the sanctuary; (bottom left) a NOAA diver swims at Anacapa Island; (bottom right) tomol paddlers head to Limuw (Santa Cruz Island). Photos: Robert Schwemmer/NOAA

- Climate Change Action Plan
- Marine Debris Action Plan
- Vessel Traffic Action Plan
- Introduced Species Action Plan
- Zone Management Action Plan
- Education and Outreach Action Plan
- Research and Monitoring Action Plan
- Resource Protection Action Plan
- Cultural Heritage Action Plan
- Maritime Heritage Action Plan
- Operations and Administration Action Plan

Climate Change Action Plan

Goal: Investigate and improve ecosystem resilience, ecosystem services, climate adaptation, and ocean acidification through research and monitoring, capacity building, collaborative partnerships, and public education and outreach.

Introduction

The impacts of climate change are intensifying both globally and locally, threatening physical, social, economic, and environmental well-being. Sanctuary waters are also experiencing the effects of climate-related stressors, including ocean acidification, increasing water temperatures, deoxygenation, and changing oceanographic processes. These stressors are expected to worsen over the coming decades, which in turn is expected to impact, and likely reduce, the ecosystem services the sanctuary provides. Confronting and addressing the effects of climate change on national marine sanctuaries is a high priority for NOAA's Office of National Marine Sanctuaries (ONMS). The 2021–2023 ONMS Climate Resilience Plan[19] commits the organization to integrating a climate-informed approach to management, and recent climate change-related projects have increased our understanding of the immediate threats and feasibility of responses to climate change. This has included developing an Ocean Acidification Action Plan for National Marine Sanctuaries of the West Coast (Lott et al., 2011),[20] numerous climate-related findings within the CINMS condition report (ONMS, 2019),[21] a CINMS Climate Impacts Profile (ONMS, 2020),[22] and participating in a climate change rapid vulnerability assessment (2016).

To support the health and viability of the sanctuary's natural resources, this action plan focuses on five strategies to help understand, predict, communicate, and address climate impact issues. While actions are primarily focused on a relatively small area (i.e., within CINMS), they are intended to contribute information and to inspire broader response efforts on larger scales. Furthermore, addressing the impacts of climate change is cross-cutting in nature, consequently, many of the other nine action plans contain some climate-relevant activities. As community concern over the impacts of climate change on sanctuary resources was strongly expressed during public scoping and Sanctuary Advisory Council meetings, the development of the climate change action plan was strengthened by the input and assistance from the climate change subcommittee of the Sanctuary Advisory Council.

[19] https://sanctuaries.noaa.gov/management/climate/
[20] https://nmssanctuaries.blob.core.windows.net/sanctuaries-prod/media/archive/about/pdfs/wc_onms_plan.pdf
[21] https://sanctuaries.noaa.gov/science/condition/cinms/
[22] https://nmschannelislands.blob.core.windows.net/channelislands-prod/media/docs/20200511-cinms-climate-change-impacts-report.pdf

Strategy CC-1: Climate resilience and adaptation planning

To address vulnerabilities of sanctuary resources to climate change effects, ONMS will conduct expert workshops to assess future conditions, risks, and potential tipping points. The identification and development of ocean climate indicators will be used to focus research and monitoring efforts, and inform the development of a climate adaptation plan. Management actions will be identified to help address specific threats, support the adaptive capacity of sanctuary stakeholders, and increase the sanctuary's resilience to climate change effects.

Activity 1.1: Conduct an ecosystem-focused climate vulnerability assessment stakeholder workshop to identify how and why focal resources (habitats, species) and ecosystem services across the sanctuary's ocean region may be affected by future climate and ocean conditions, including adaptive capacities and, where known, thresholds or tipping points. Outcomes will include: 1) a set of local ocean climate indicators that link to larger scale regional indicators (e.g., ocean acidification, sea surface temperature) that will help focus research and monitoring across the region to detect and track climate effects, and 2) a list of species, habitats, and ecosystem services that are most vulnerable to projected climate change impacts and that will aid future adaptation planning.

Activity 1.2: Collect baseline information about the adaptive capacity and awareness of sanctuary stakeholders to climate change impacts. Using existing data and selective interviews, evaluate the adaptive capacity for stakeholders to make changes when faced with climate-related environmental changes and seek to understand stakeholder perceptions of related risk. ONMS will also evaluate where users obtain information about climate change.

Activity 1.3: Develop an ocean climate vulnerability assessment report. Informed by a vulnerability assessment stakeholder workshop (Activity 1.1), the report will provide expert-driven, scientifically sound assessments to enable marine resource managers to respond to, plan for, and manage the impacts of climate change to habitats, species, and ecosystem services within the region. The report will also incorporate findings from a 2017 Santa Barbara Coastal Vulnerability Assessment,[23] a 2016 CINMS Rapid Vulnerability Assessment, and the 2016 CINMS condition report.[24]

Activity 1.4: Develop a climate adaptation plan. Based on results from the climate vulnerability assessment workshop and report (activities 1.1 and 1.3), the plan will identify actions to address specific climate change vulnerabilities, build adaptive capacity of the sanctuary's stakeholders, and lay a foundation for implementing management actions to achieve a healthier sanctuary that is more resilient to climate change effects (For an ONMS report example, see the climate adaptation plan for Greater Farallones National Marine Sanctuary[25]).

[23] https://caseagrant.ucsd.edu/sites/default/files/SBA-CEVA-final-0917.pdf
[24] https://sanctuaries.noaa.gov/science/condition/cinms/
[25] https://farallones.noaa.gov/manage/climate/adaptation.html

Strategy CC-2: Reduce greenhouse gas emissions

ONMS strives to reduce greenhouse gas emissions from sanctuary offices, vehicles, and vessels. ONMS will measure emissions levels for CINMS activities compared annually to baseline levels. ONMS does not plan to scale back important field research, monitoring, and enforcement activities through efforts to reduce carbon dioxide and other greenhouse gas emissions. Note also that vessel speed reduction programs, described at Strategy VS-1, also help reduce greenhouse gas emissions by slowing ships transiting past the Channel Islands.

Activity 2.1: Complete a baseline emissions inventory for sanctuary facilities and operations. The emissions inventory will establish a baseline of the sanctuary's use of cars, boats, and travel; use of energy in offices and other facilities; generation of waste and recycling or composting; and use of water.

Activity 2.2: Develop, implement, and evaluate a Green Operations Plan. Building on data from the emissions inventory (Activity 2.1), the plan will emphasize areas for improvement. Staff will be encouraged to address, where feasible, transportation management, energy efficiency, waste management, water management, and education and outreach, with the goal of significantly reducing the carbon footprint of sanctuary operations.

Activity 2.3: Develop and promote new and existing guidelines for best practices to help lower emissions from motorized boats that come to the sanctuary. Work to draw attention to the importance of boats reducing carbon emissions and highlight sanctuary boaters who are reducing emissions.

Strategy CC-3: Public engagement and communication on ocean-climate impacts and solutions

To interpret the effects of climate change on the ocean, particularly within the sanctuary, ONMS will develop educational resources for schools and informal education providers to reach a diversity of individuals and organizations concerned about or impacted by climate change. Staff will work with relevant partners to encourage actions to reduce impacts.

Activity 3.1: Create local ocean acidification and climate data resources for use in K–16 education[26] by informal education providers and in public outreach materials for sanctuary users, volunteer training, visitor center exhibits, and signage. Highlight the needs and interests of the diverse and often underserved communities that may not typically be reached with this type of information, but may nonetheless be even more severely impacted by the effects of climate change and ocean acidification. In developing these materials, work with the sanctuary's education and research departments as well as regional academic and informal education partners (e.g., zoos, aquariums, natural history museums).

[26] K–16 refers to Kindergarten through undergraduate college level education.

Activity 3.2: Work with partners, including Bay Watershed Education and Training (B-WET) grantees, to incorporate NOAA-developed and local climate/ocean acidification resources into K–16 classroom and informal education provider settings by offering data tools and professional development opportunities for educators.

Activity 3.3: Develop and share education and communication resources and support partners that are promoting community-based, climate-friendly actions and solutions. Incorporate NOAA and ONMS Ocean and Climate Literacy messages into education and communication materials. Share best practices to help advance public understanding of climate change, including ocean acidification impacts and the effects of marine reserves.

Strategy CC-4: Support, track, and share ocean climate and acidification monitoring and research

ONMS will pursue and develop collaborative research and monitoring partnerships to advance understanding and support the long-term tracking of climate-relevant ocean conditions. This will include ocean acidification, climate change buffer zones, carbon budget and sequestration in the sanctuary ecosystem, and improving understanding of susceptible human uses. Support for collaborating partners may include vessel operations, input from the Sanctuary Advisory Council's Research Activities Panel, and the coordinated pursuit of resources from NOAA offices and other institutions. This strategy is cross-cutting with Research and Monitoring Action Plan strategies RM-1, RM-2, and Strategy CC-1.

Activity 4.1: Collaborate with research partners to help develop and support long-term ocean acidification monitoring programs to track regional changes in pH and climate-relevant oceanographic conditions. These relevant climate and ocean acidification indicators will help ONMS understand spatial changes in environmental conditions, establish baseline information to support applied research, and quantify any ability of biogenic habitat to buffer changes to ambient local seascape conditions.[27]

Activity 4.2: Enact or support research efforts to understand sanctuary resource response to thermal extremes and acidifying water with special emphasis on susceptible fisheries, blue carbon initiatives, sensitive habitats, biological adaptability, climate change refugia, and restoration. Develop or direct research to understand management actions that can be taken to support resources and ecosystem services over the long term.

Strategy CC-5: Assess climate impacts to deep-sea corals and sponges

To assess climate impacts to deep-sea corals and sponges, vulnerable benthic habitats, particularly those with high biodiversity, first need to be identified via exploratory visual surveys. Then, target communities need to be characterized to establish present day health and condition baselines. Once established, these baselines can be used to evaluate future climate change impacts on deep water habitats. The activities below outline how to approach these

[27] "Blue carbon" is the term for carbon captured by the world's ocean and coastal ecosystems. Some marine habitats, such as kelp and seagrasses, are known to sequester carbon.

knowledge gaps and address this climate change strategy, relying heavily on partnerships and participating in multi-agency campaigns to conduct research.

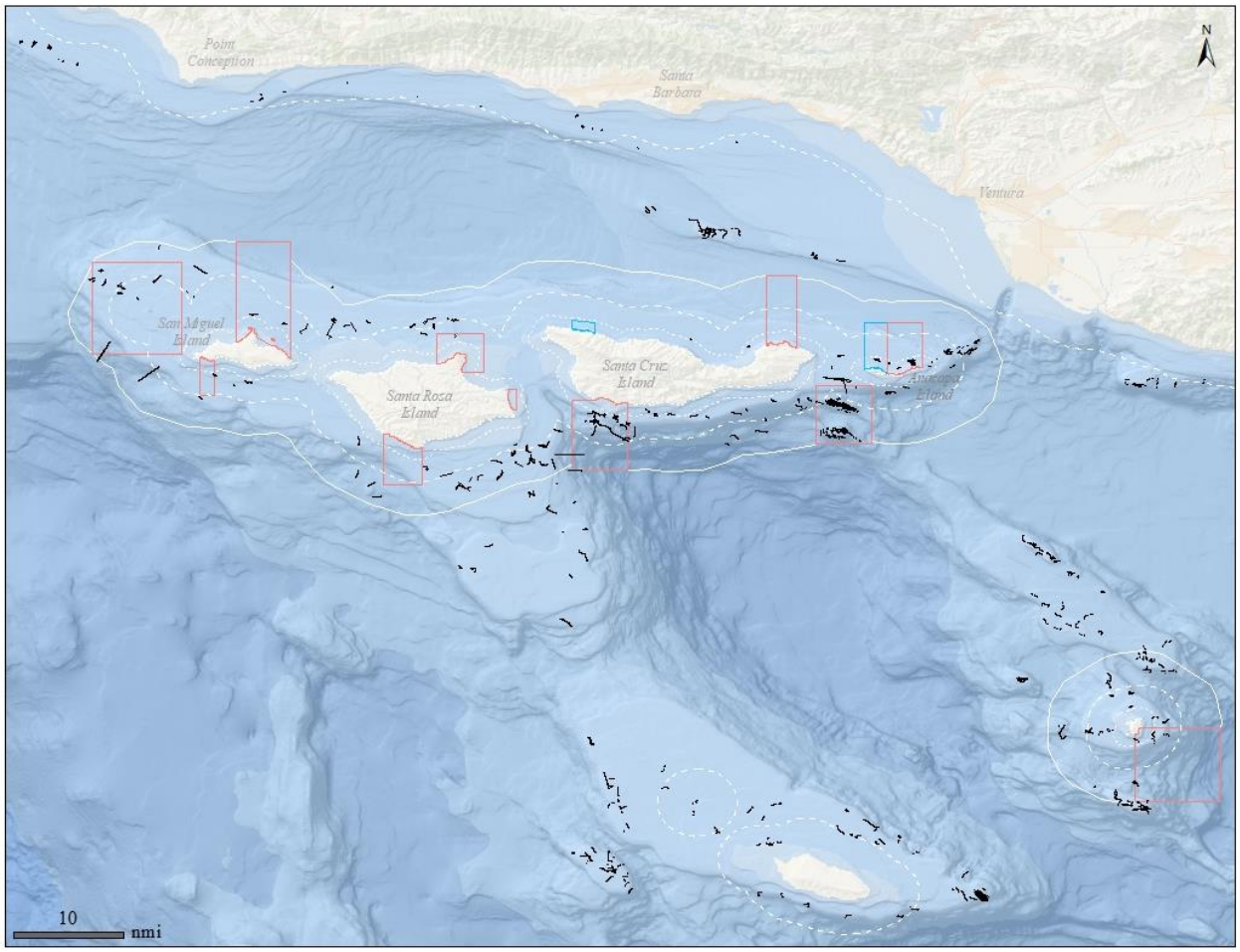

Figure 2. Seafloor sites within and adjacent to the sanctuary that have been explored with remotely operated vehicles to survey habitats, particularly deep-sea corals and sponges, between 2011–2017. Map source: NOAA

Activity 5.1: Explore and characterize unsurveyed areas of the sanctuary's deep seafloor. Lead efforts to pursue collaborative projects with partners, building on the track record of success at CINMS. Locate and assess the health and climate risk of deep-sea coral and sponge communities by conducting standardized, quantitative transects and recording oceanographic measurements alongside biological observations.

Activity 5.2: Revisit and resurvey deep seafloor communities within the sanctuary (Figure 2). Pursue collaborative projects with partnering organizations in order to bring together needed resources. Use repeat surveys to monitor and track potential climate-driven changes to the condition and species composition of deep-sea coral and sponge communities, as well as understand how these communities respond to changing ocean conditions.

Activity 5.3: Increase digital storage capacity for deep seafloor images and data. Work with partners to analyze data and disseminate findings to target audiences. Create a library of representative imagery.

Strategy CC-6: Understand the role of Channel Islands and regional marine reserves as reference areas for studying climate change

To better understand the role of the Channel Islands and regional marine reserves as reference areas for climate change, ONMS will conduct and support research on how no-take marine reserves function in the face of a shifting climate. Staff will also conduct evaluations and forecasts of performance for the reserve system around the Channel Islands and communicate findings to the general public.

Activity 6.1: Conduct and support research studies on ecological mechanisms modified by marine reserves including biodiversity preservation, resistance to the arrival or disruptive effects of non-native species, and protection of keystone and foundational species.

Activity 6.2: Investigate how marine reserves affect habitat utilization and species connectivity, and provide species movement corridors. Collaborate with partners in support of pursuing this research through joint proposal development, vessel support, and other science staff contributions.

Activity 6.3: In collaboration with agency and academic partners, complete forecast and vulnerability studies on marine reserve performance in maintaining ecosystem function over short (5–10 years), medium (10–50 years), and long term (50–100 years) time scales, and identify potential adaptive management strategies for maintaining marine reserve function. These marine reserve-focused assessments will be conducted, and adaptation strategies proposed, as part of the workshop and reporting processes described in Strategy CC-1 (Activities 1.3, 1.4, and 1.5).

Existing and Potential Partners

The following list primarily reflects established sanctuary partners, but it is expected to change over time as opportunities, conditions, and entities evolve.

Academic and Affiliated Associations

California State University Channel Islands, California State University Long Beach, California State University Northridge, Marine Research and Exploration, Monterey Bay Aquarium Research Institute, Santa Barbara City College, University of California, Santa Barbara, Ventura County Community College District.

Chumash Government and Community Organizations

Santa Ynez Band of Chumash Indians, Wishtoyo Foundation, Barbareño Chumash Council, Coastal Band of the Chumash Nation, Barbareño Band of Chumash Indians, Barbareño/Ventureño Band of Mission Indians.

Government Agencies

Bureau of Ocean Energy Management, California Department of Fish and Wildlife, California Department of Parks and Recreation, California Ocean Protection Council, California State Lands Commission, National Marine Fisheries Service, NOAA B-WET Program, National Park Service, NOAA Climate Program Office, NOAA Deep Sea Coral Research and Technology Program, NOAA Fisheries Restoration Center, NOAA Integrated Ecosystem Assessment Program, NOAA National Centers for Coastal and Ocean Science, NOAA Northwest and Southwest Fishery Science Centers, NOAA Ocean Acidification Program, NOAA Pacific Marine Environmental Laboratory, Pacific Fishery Management Council, Santa Barbara County Office of Education, U.S. Geological Survey, Ventura County Office of Education.

Non-Governmental Organizations

Aquariums, museums and informal science centers, Aquarium of the Pacific, Association of Zoos and Aquariums, California Sea Grant, Community Environmental Council, Environmental Defense Center, Multicultural Education for Resource Issues Threatening Oceans Foundation, Monterey Bay Aquarium, Sierra Club, other interested local conservation organizations and stakeholder groups.

Marine Debris Action Plan

Goal: Assess, reduce, and remove marine debris in the sanctuary using collaborative approaches supported by effective education and outreach programming.

Introduction

Marine debris, defined as any persistent, anthropogenic, solid material that is disposed of or abandoned in the ocean, threatens ecosystem function, human health, and safe navigation in the sanctuary. Although the offshore location of the sanctuary and undeveloped nature of the islands provides a buffer from some of the types of debris that are produced along the mainland coast, marine debris enters the sanctuary unintentionally (e.g., lost fishing gear) or from indirect sources that are hard to pinpoint (e.g., floating plastic debris). Furthermore, the distribution and type of marine debris across the sanctuary is not uniform; for example, marine debris along the shoreline of Santa Rosa Island consists mostly of lost fishing gear, whereas Santa Cruz Island marine debris is mostly miscellaneous plastics (Miller et al., 2018). Thus, removal and outreach efforts may need to be island-specific.

ONMS has addressed marine debris issues in the sanctuary through numerous initiatives. To address lost fishing gear, which can fatally entangle animals, ONMS partners with local lobster fishermen and others to remove lost fishing gear off of sanctuary shorelines and seafloor. Plastic pollution that may be fatal if ingested by animals is an increasing concern, and is becoming better understood through the efforts of local research partners (e.g., California State University Channel Islands). In addition, the Sanctuary Advisory Council identified marine debris as a top level priority for inclusion within this management plan, and provided input and advice. The council also adopted a written resolution in 2011 supporting federal and statewide legislative efforts and local ordinances by municipalities and counties to ban the use and distribution of single-use plastic bags.

Fostering partnerships with external organizations and agencies will leverage resources to address marine debris impacts. Important partners are expected to include the NOAA Marine Debris Program,[28] the National Marine Sanctuary Foundation, California State University Channel Islands, local commercial and recreational fishermen, and non-profit organizations that conduct research, outreach, and removal of debris. Sanctuary strategies and activities align with and benefit from California's Ocean Litter Strategy (California Ocean Protection Council and NOAA, 2018), a blueprint for statewide action on this issue developed by the Ocean Protection Council and NOAA's Marine Debris Program.[29]

[28] https://marinedebris.noaa.gov/discover-issue
[29] https://opc.ca.gov/webmaster/_media_library/2018/06/2018_CA_OceanLitterStrategy.pdf

Strategy MD-1: Assess the scope, scale, and sources of marine debris in the sanctuary

Working with sanctuary partners, ONMS will evaluate the sources and types of marine debris impacting sanctuary resources at varying temporal and spatial scales. The evaluation will improve our understanding of how marine debris impacts sanctuary resources by identifying the level of persistence of debris, how it enters the sanctuary, and documenting the effects of mitigation efforts within and beyond the sanctuary.

Activity 1.1: Support and promote regional research efforts to monitor and assess the extent and sources of marine debris in the sanctuary (Box 1). Provide assistance with monitoring programs, data analysis, testing of remote sensing tools, and vessel support. Potential partners may include: local community, university, or other existing research and monitoring programs (e.g., California State University Channel Islands, UC Santa Barbara, NOAA Marine Debris Monitoring and Assessment Project[30]).

Activity 1.2: Identify potential marine debris sources during coastal cleanup events (e.g., programs hosted by local grant recipients of NOAA's Bay Watershed Education and Training (B-WET) program, Multicultural Education for Resource Issues Threatening Oceans Foundation).

Activity 1.3: Promote and attract external research attention on identified marine debris scientific gaps and needs that will support sanctuary resource protection and management. Knowledge gaps will be identified in the ONMS Science Needs Assessments[31] and by engaging with the Research Activities Panel.

[30] https://marinedebris.noaa.gov/research/monitoring-toolbox
[31] https://sanctuaries.noaa.gov/science/assessment/

Box 1: Marine debris research questions to address with partners[32]

- What threats do marine debris pose to sanctuary resources? For example, from microplastics (<5mm), consumer plastics, lost fishing gear, and abandoned/lost vessels, and emergent threats.
- What are the spatial and temporal trends of marine debris accumulation throughout sanctuary waters?
- What are the predicted impacts to sanctuary resources over multiple time scales? For example, short (5–10 years), medium (10–50 years) and long (50–100 years) terms?
- What conservation and/or educational tools can be used to reduce marine debris impacts?
- What are the sources of marine debris inputs, and what are the barriers or opportunities to reducing new inputs?
- What human dimensions and ecosystem services are most at risk from marine debris, and how can the sanctuary increase resiliency?

Strategy MD-2: Remove marine debris and reduce new inputs

Working with partners, ONMS will remove marine debris from the sanctuary and reduce new inputs. Programs will focus on community shoreline cleanup events, fishing gear removal efforts, improved waste management efforts, responding to vessel casualty incidents, and supporting local jurisdictions and state efforts aimed at reducing the use of products that are harmful to the ocean environment.

Activity 2.1: Plan and conduct periodic sanctuary-led community shoreline debris cleanup events on the islands, working in conjunction with a variety of participating and supporting partners. Bring greater awareness to the issue by linking the cleanups to popular annual events, such as the ONMS Get Into Your Sanctuary weekend and California Coastal Cleanup Day.

Activity 2.2: Support fishing gear removal programs active within the sanctuary. This will include continued implementation of "*Goal: Clean Seas Channel Islands*,"[33] a partnership with the National Marine Sanctuary Foundation that engages commercial lobster fishers to remove lost traps, fishing gear, and trash from the sanctuary's shorelines. Additional partners include California State University Channel Islands, Island Packers, Santa Barbara Adventure Company, and Santa Barbara Channelkeeper.

[32] Derived from 2021 ONMS Science Needs Assessment research questions for addressing CINMS priority management issues (in development), to be posted at: https://sanctuaries.noaa.gov/science/assessment/
[33] https://marinesanctuary.org/goal-clean-seas-channel-islands/

Activity 2.3: Continue to coordinate with organizations that responsibly conduct submerged debris removal projects, including the Sea Doc Society's California Lost Fishing Gear Removal Project and the Ocean Defenders Alliance. Consult on diving locations, address sanctuary permitting needs, and retrieve reporting data.

Activity 2.4: Respond to marine vessel casualty incidents and other discharge events to reduce the introduction of new debris. Use regulatory authority and coordinate with other authorities to effect prompt salvage and removal of debris from vessel grounding and sinking incidents.

Activity 2.5: Partner with local, state, and federal governments on marine debris initiatives and regulations. Support state-wide efforts working on California's Ocean Litter strategy (California Ocean Protection Council and NOAA, 2018), including the Top Ten Recommendations to Address Plastic Pollution in California's Coastal and Marine Ecosystems[34] endorsed by the Ocean Protection Council.

Activity 2.6: Support waste management and recycling initiatives on the mainland, as well as efforts to develop alternatives to plastics and other harmful materials, both of which can help reduce new inputs of problematic debris into the sanctuary.[35]

Strategy MD-3: Raise public awareness about marine debris

Use existing and new education and outreach programs to raise public awareness about how marine debris threatens sanctuary resources.

Activity 3.1: Develop and conduct general and targeted outreach, in collaboration with partners and stakeholders, to reduce new sources of debris. Outreach efforts will focus on local businesses and user groups who are on the water (e.g., fishing, tourism) with diverse outreach tools. Outreach tools include: shoreline cleanup events, event booths, signage, media stories, social media, videos, brochures, public presentations, visitor center displays, and interpretative programs.

Activity 3.2: Work with the fishing community to reduce fishing-related marine debris. Implement monofilament fishing line recycling collection sites, encourage the development and use of alternatives (e.g., biodegradable fishing line), and create new education programs focused on reducing monofilament line debris in the sanctuary. Outreach will focus on initiatives with charter fishing vessels, piers, harbors and marinas, and other mainland and island fishing sites.

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[34] https://www.opc.ca.gov/webmaster/ftp/pdf/agenda_items/20210216/Item_4_Plastic_Pollution_Recommendations_Staff_Rec_Revised_and_Endorsed_FINAL_20210323.pdf

[35] https://nmssanctuaries.blob.core.windows.net/sanctuaries-prod/media/docs/20210520-wcr-climate-impacts-profile.pdf

Existing and Potential Partners

The following list primarily reflects established sanctuary partners, but it is expected to change over time as opportunities, conditions, and entities evolve.

Government Agencies

California Coastal Commission, California Department of Fish and Wildlife Office of Spill Prevention and Response, California Division of Boating and Waterways, California Ocean Protection Council, California State Parks, Channel Islands National Park, NOAA Marine Debris Program, Santa Barbara County Parks, United States Coast Guard, Ventura County Parks.

Non-Governmental Organizations

California Marine Sanctuary Foundation, California Whale Rescue, Island Packers, National Marine Sanctuary Foundation, Ocean Defenders Alliance, Santa Barbara Adventure Company, Santa Barbara Channel Keeper, Save Our Shores, Sea Doc Society's California Lost Fishing Gear Removal Project, Surfrider Foundation, The Nature Conservancy.

Academic and Affiliated Associations

California Cooperative Oceanic Fisheries Investigations, California State University Channel Islands, Santa Rosa Island Research Station (Marine Debris Project Manager), University of California Santa Barbara Environmental Entrepreneur Program, University of California Santa Barbara Goleta Entrepreneurial Magnet), University of California Santa Barbara School of Mechanical Engineering.

Vessel Traffic Action Plan

Goal: Ensure that vessel traffic in the sanctuary is compatible with protecting sanctuary resources.

Introduction

A wide array of public and private vessels operate within the sanctuary. Nearly 5,000 large transit ships pass through the sanctuary annually,[36] and thousands of additional smaller vessels (e.g., recreational, commercial, and research) visit the sanctuary from harbors in Los Angeles, Ventura, and Santa Barbara. As a result, the extensive vessel use affects sanctuary resources. For example:

1. Collisions between ships and endangered marine mammals and sea turtles may lead to animal injuries and death.[37]
2. Groundings and sinkings of vessels may release pollutants and debris into the water.
3. Transiting vessels may generate underwater noise and introduce non-native species to the region.
4. Anchors disrupt sensitive species and habitats (e.g., eelgrass beds).

Therefore, tracking and monitoring all vessel activities will advance our goal to facilitate and manage sanctuary use while protecting sanctuary resources. To implement this action plan, ONMS will continue to partner with other agencies and other organizations within the region in an effort to reduce the risk of lethal ship strikes and noise levels to endangered and threatened marine animals. For over 10 years, the sanctuary has worked with the National Marine Fisheries Service and U.S. Coast Guard to slow ships down via seasonal voluntary and incentive based vessel speed reduction (VSR) zones, and separate ships and whales via modified shipping lanes. ONMS will continue to engage boaters and the shipping industry, track and monitor vessel traffic, and enact policies to foster safe navigation in coordination with other agencies and partners following these approaches. The plan proposes to continue to enact sanctuary regulations and policies that prohibit illegal discharges and to create permanent and seasonal wildlife safety zones within 1 nautical mile of the islands and region-wide when endangered whales are present. Furthermore, ONMS will also utilize unique new methods, such as a corporate social responsibility campaign, to encourage corporations, retailers, and consumers to consider VSR in market purchases.

Strategy VT-1: Vessel speed reduction (VSR)

With partners, continue to promote VSR programs, which encourage vessels greater than 300 gross registered tons to reduce speeds to 10 knots or less in sanctuary and regional waters. Programs, which may be voluntary or incentive-based, offer positive public business recognition and financial rewards to container and car carrier companies transiting slowly through the Santa Barbara Channel region. Shipping industry participation in VSR programs in our region

[36] Marine Exchange of Southern California, 2018
[37] NOAA NMFS Large Whale Strandings Database and Rockwood et al., 2017

has increased modestly from <10% in 2014 to around 50% in 2020, despite the challenges faced by lack of sustained funding. Our goal is to boost cooperation to over 90%.

Activity 1.1: Support whale monitoring and detection efforts to inform the annual establishment of the seasonal voluntary VSR whale advisory zone. Partners may include: the Benioff Ocean Initiative's Whale Safe team (Whale Safe Web Portal[38]), Point Blue Conservation Science, and The Nature Conservancy.

Activity 1.2: Conduct outreach to the shipping industry to explain the voluntary VSR program. Outreach may include: broadcasting voluntary VSR notices from May through November using NOAA Weather radio and U.S. Coast Guard (USCG) Local Notice to Mariners; attending and organizing industry meetings; and coordinating with the USCG to contact vessels not cooperating with VSR and area to be avoided zones.

Activity 1.3: Promote and recognize volunteer compliance within the shipping industry. Engage the shipping industry with email, an award ceremony, and advertising. Work with ONMS and NOAA communications teams to generate positive media reporting on levels of cooperation.

Activity 1.4: Continue to support the incentive-based partnership program, Protecting Blue Whales and Blue Skies.[39] This will involve staff time to coordinate with partners, and to plan for, launch, monitor, and report-out on incentive-based VSR program participation.

Activity 1.5: Increase whale ship strike and VSR program awareness within NOAA, the U.S. Congress, corporations, and the general public. Conduct briefings and meetings, and implement a public relations campaign.

Activity 1.6: Develop and support a whale safe corporate social responsibility campaign. Work with academic, non-profit, and private sector partners to research and develop a campaign focused on inspiring corporate retailers to adopt policies and practices aligning with consumer-supported values (i.e., the protection of whales, including whale-safe product shipment).

Activity 1.7: Inform further actions to adequately address the ship strike issue, including consideration of management actions to reduce vessel strikes to levels that ensure species survival and recovery. Consider recommendations provided by the Sanctuary Advisory Council's former Marine Shipping Working Group (CINMS, 2016).[40]

[38] https://whalesafe.com/
[39] https://www.bluewhalesblueskies.org/brands
[40] https://channelislands.noaa.gov/media/docs/2016-sac-marine-shipping-working-group-final-report.pdf

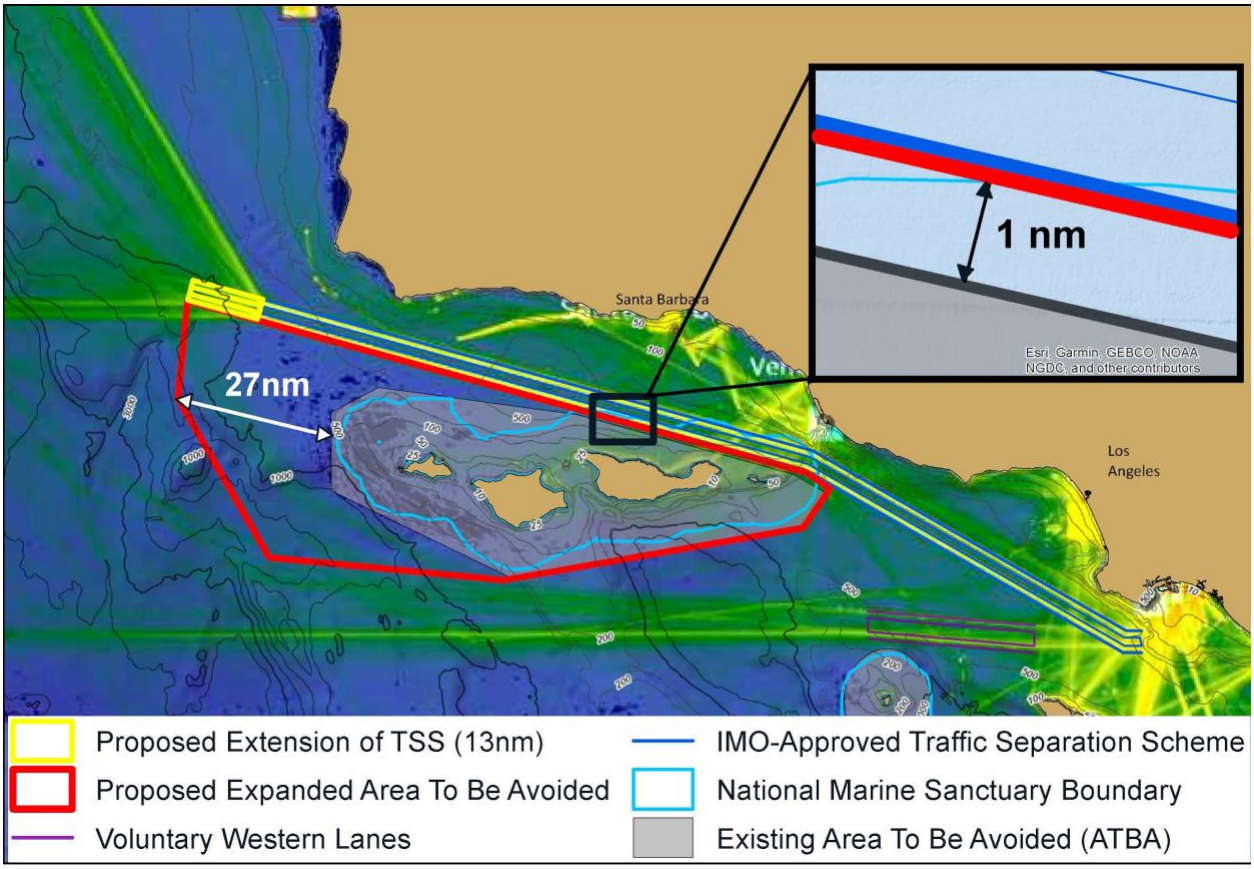

Figure 3. Proposed traffic separation scheme extension and area to be avoided modification. Source: NOAA

Strategy VT-2: Manage vessels spatially

Separating ships and whales is one of the most effective ways to reduce ship strike risk. This can be accomplished by extending shipping lanes, changing the configuration of lanes, and expanding navigational areas to be avoided.[41]

Activity 2.1: Track compliance via analysis of automatic identification system (AIS) ship tracks pending adoption of the International Maritime Organization expansion proposal on the western end of the Santa Barbara Channel (expected 2023), and incorporate the Traffic Separation Scheme extension and navigational area to be avoided expansion in outreach programs to the shipping industry (Figure 3).

[41] These and other ideas were explored by the Sanctuary Advisory Council in 2015–2016, providing an important report that will continue to be used when considering possible approaches to reduce ship strike risk (available online at: https://channelislands.noaa.gov/media/docs/2016-sac-marine-shipping-working-group-final-report.pdf)

Activity 2.2: ONMS will engage in regional ocean management issues and projects that may affect ship traffic within and around the sanctuary by attending working group meetings, working with the Sanctuary Advisory Council, and communicating with regional studies (e.g., USCG Pacific Port Access Route Study,[42] offshore energy development).

Strategy VT-3: Track and monitor vessel activity

To better understand how people use the sanctuary, ONMS will track and monitor vessel activity. Tracking and monitoring all vessel activities for all vessel sizes will advance our goal to facilitate and manage sanctuary use while protecting sanctuary resources.

Activity 3.1: Secure access to AIS data, which is a navigational safety system primarily used for large vessels that transmits high frequency radio signals from each vessel several times a minute. AIS data informs sanctuary management in many important ways, including for VSR program cooperation, emergency response, understanding sanctuary visitation and ship navigation patterns, supporting law enforcement agencies, and more. Work with National Marine Fisheries Service to establish a long-term partnership to support AIS data delivery and analysis.

Activity 3.2: Advance the research, development and application of surveillance technologies to assist with understanding all sanctuary vessel traffic, while ensuring compliance with all applicable laws and policies. ONMS will work with partners to evaluate, prioritize, and test a wide variety of marine domain awareness surveillance technologies (e.g., shore-based radar, satellite, uncrewed ocean surface systems, aerial surveys, and Vessel Monitoring Systems).

Activity 3.3: Develop a spatially-explicit time series of vessel use in and around the sanctuary over time.

Existing and Potential Partners

The following list primarily reflects established sanctuary partners, but it is expected to change over time as opportunities, conditions, and entities evolve.

Academic and Affiliated Associations

Scripps Institute of Oceanography, University of California Santa Barbara Bren School of Environmental Science and Management, University of California Santa Barbara, University of Southern California Sea Grant.

Chumash Government and Community Organizations

Santa Ynez Band of Chumash Indians, Wishtoyo Foundation, Barbareño Chumash Council, Coastal Band of the Chumash Nation, Barbareño Band of Chumash Indians, Barbareño/Ventureño Band of Mission Indians.

[42] https://www.federalregister.gov/documents/2021/07/29/2021-15923/port-access-route-study-the-pacific-coast-from-washington-to-california

Government Agencies

California Air Resources Board, California Ocean Protection Council, Cordell Bank National Marine Sanctuary, Greater Farallones National Marine Sanctuary, National Marine Fisheries Service, Santa Barbara County Air Pollution Control District, San Francisco Bay Area Air Quality Management District, U.S. Coast Guard, U.S. Environmental Protection Agency, University of Southern California Sea Grant, Port of Hueneme, U.S. Navy, Ventura County Air Pollution Control District.

Non-Governmental Organizations

Benioff Ocean Institute, California Marine Sanctuary Foundation, Environmental Defense Center, Greater Farallones Association, The Nature Conservancy, Star Crest Consulting, Point Blue Conservation Science, Volgenau Foundation.

Introduced Species Action Plan

Goal: Prevent the introduction, spread, and establishment of new introduced species and control and/or eradicate existing introduced species.

Introduction

Introduced species (also commonly referred to as "non-native" or "non-indigenous" species) are plants and animals living outside their native geographical range due to human activities introducing them to an ecosystem or aiding their survivorship. Some introduced species may be benign; however, some become invasive by causing ecological or economic harm in their newly inhabited environment. For example, invasive species may cause declines, extirpations, or extinctions of native marine life, reduce biodiversity by competing with native organisms for limited resources, and alter habitats.

Although federal regulations prohibit the introduction of introduced species into the sanctuary (15 CFR § 922.72(a)(12)), these species have been found in sanctuary waters. The spread of invasive algal species within the sanctuary, particularly devil weed (*Sargassum horneri*) and more recently Japanese kelp (*Undaria pinnatifida*), has the potential to cause adverse ecological and economic impacts (Diaz et al., 2018). In addition, the Asian red alga (*Caulacanthus ustulatus*) has been observed at one site at Anacapa Island, and the invasive bryozoan *Watersipora* spp. has been observed on numerous oil platforms in the southeast Santa Barbara Channel as well as natural reefs and pier pilings in the sanctuary (Page et al., 2018).

Preventing and controlling marine introduced species is an ONMS priority. These species may be introduced and spread unintentionally from the hulls, lines, propellers, or ballast water of large, oceangoing ships, as well as from smaller private and commercial boats. Vessel traffic associated with increasing levels of international trade is the primary vector for the introduction of non-indigenous species in California marine waters. After initially being introduced by large, oceangoing ships, local small boats may accelerate the spread of introduced species across the sanctuary. Strategies to contain, control, and slow the spread of introduced species are prioritized, as well as preventative measures to avoid future invasions. Additionally, ONMS is prioritizing research to develop a completed inventory cataloging known marine species within the sanctuary, both native and introduced (see Strategy RM-4, Activity 4.4).

The strategies in this action plan focus on: 1) research, detection, and monitoring efforts within the Santa Barbara Channel; 2) the management of invasion vectors and prevention promotion; and 3) coordination of response plans for current and future introduced species. Among all action plans, partnerships are essential to tackle the challenges of marine introduced species. Thus, ONMS will continue to work within NOAA and the Biosecurity Management Group to bring in additional partners, resources, relevant expertise, scientific understanding, and management guidance.

Strategy IS-1: Support research, detection, and monitoring efforts

This first strategy strives to improve knowledge of existing and potential introduced species within the sanctuary. With partners, ONMS will assess the potential and observed levels of ecosystem change and disturbance, and support efforts to detect, track, monitor, and genetically trace introduced species.

Activity 1.1: Support research efforts on introduced species of brown algae to assess their impacts to sanctuary marine ecosystems, preferred habitats, species, or ecosystem services such as commercial and recreational fishing. Synthesize and distill information regarding marine introduced species for the resource protection and management teams. Distribute information regarding funding opportunities through research partners and the Research Activities Panel. Prioritize vessel time requests related to introduced species.

Activity 1.2: Collaborate with programs that track, detect and monitor the spread of introduced species. Support may include: promoting citizen science, sampling for environmental DNA to detect source populations, vessel and diving support. Partners include: Channel Islands Biosecurity Management Group, Channel Islands National Park, Partnership for Interdisciplinary Studies of Coastal Oceans, Reef Check California, and the University of California Santa Barbara Marine Biodiversity Observation Network.

Strategy IS-2: Manage invasion vectors and promote prevention through education and outreach

It is critical for ONMS and other resource managers to promote the prevention of introduced species through education and outreach on best practices. Introduced species can become established very quickly, and once established, their control and eradication becomes complex, costly, and is usually unsuccessful.

Activity 2.1: Modify ONMS field operations to apply best management practices focused on controlling pathways and vectors of transmission. Best management practices are well established (Diaz et al., 2018), and include:

- Thoroughly clean before and after every use gear such as diving equipment, fishing traps, anchors, and marine research equipment that may be in the water for an extended period of time.
- Conduct inspections of gear and vessels to check for fouling.
- Hulls should be regularly cleaned and inspected, and/or have antifouling coatings on them. Also, conduct hull de-fouling before, and not during, a visit to the sanctuary.
- Continually monitor potential vectors in partnership with the U.S. Coast Guard.

Activity 2.2: Coordinate with multiple agencies and entities to collectively address introduced species issues, promoting increased attention to marine species. Collaborate with involved partners to identify and pursue funding opportunities, and develop education and outreach initiatives focused on increasing public awareness and promoting precautionary practices.[43]

Activity 2.3: Provide public education on marine introduced species of concern, the dangers of transporting these species, practices necessary to reduce transport risks prior to visiting the sanctuary, and how to report sightings. This will involve coordinating and providing resources to support local training workshops, and focus on local boaters, harbor communities, and other sanctuary visitors. Encourage sanctuary visitors to report sightings of invasive species at marineinvasives.org or via the iNaturalist.org app.

Activity 2.4: Inform state and federal legislative, regulatory and policy approaches, permitting, and interpretive and regulatory enforcement. For example, Marine Invasive Species Program (MISP) within the California Department of Fish and Wildlife's (CDFW) Office of Spill Prevention and Response posts monitoring data on the internet, updates the data on an annual basis, and submits a report to the Legislature detailing the results of the monitoring. It also coordinates with the California State Lands Commission to control the release of introduced species from the ballast of ocean-going vessels.

Strategy IS-3: Coordinate response plans with partners

If and when introductions do occur, ONMS will quickly assess the threat and respond with unified eradication or control efforts in coordination with regional and state partners. Eradication (i.e., the removal or destruction of the entire population of introduced species) is desirable, if feasible, and will be considered first through timely consultation with relevant partners and experts. If eradication is not feasible due to the extent of species establishment and other factors such as eradication costs, a team will determine if control measures are appropriate (i.e., containing, suppressing, or reducing populations) and if long-term management is necessary. Timely response by ONMS will also require advance planning for securing any necessary permits that may be required to conduct in-water activities.

Activity 3.1: Assess the potential threat level of a newly discovered introduced species within or near the sanctuary. This would involve assessing the situation with the Channel Islands Biosecurity Management Group and research partners to determine appropriate initial responses to pursue, following general introduced species response protocols (Figure 4). Eradication is a preferred outcome, but if not feasible then control measures will be assessed. Set quantifiable targets where feasible and appropriate to measure acceptable rates of growth or decline in species distribution.

[43] A key partner will be the Channel Islands Biosecurity Management Group. Led by the National Park Service (Channel Islands National Park), this group of agencies and other entities focuses collectively on biosecurity protection of the Channel Islands (terrestrial environment, and more recently marine environment) to prevent new invasions of introduced species via all major vectors, supporting early detection of invasives with monitoring protocols, rapid response strategies, and the creation and dissemination of education programs.

Activity 3.2: Form an emergency response team to execute the response plan quickly, following outlined objectives and protocols in the response plan, and document response efforts.

Activity 3.3: To the extent practicable and in collaboration with partners, support the restoration of natural habitats if deemed feasible and warranted (i.e., whether habitats and local ecological communities can be restored given the current extent of invasion).

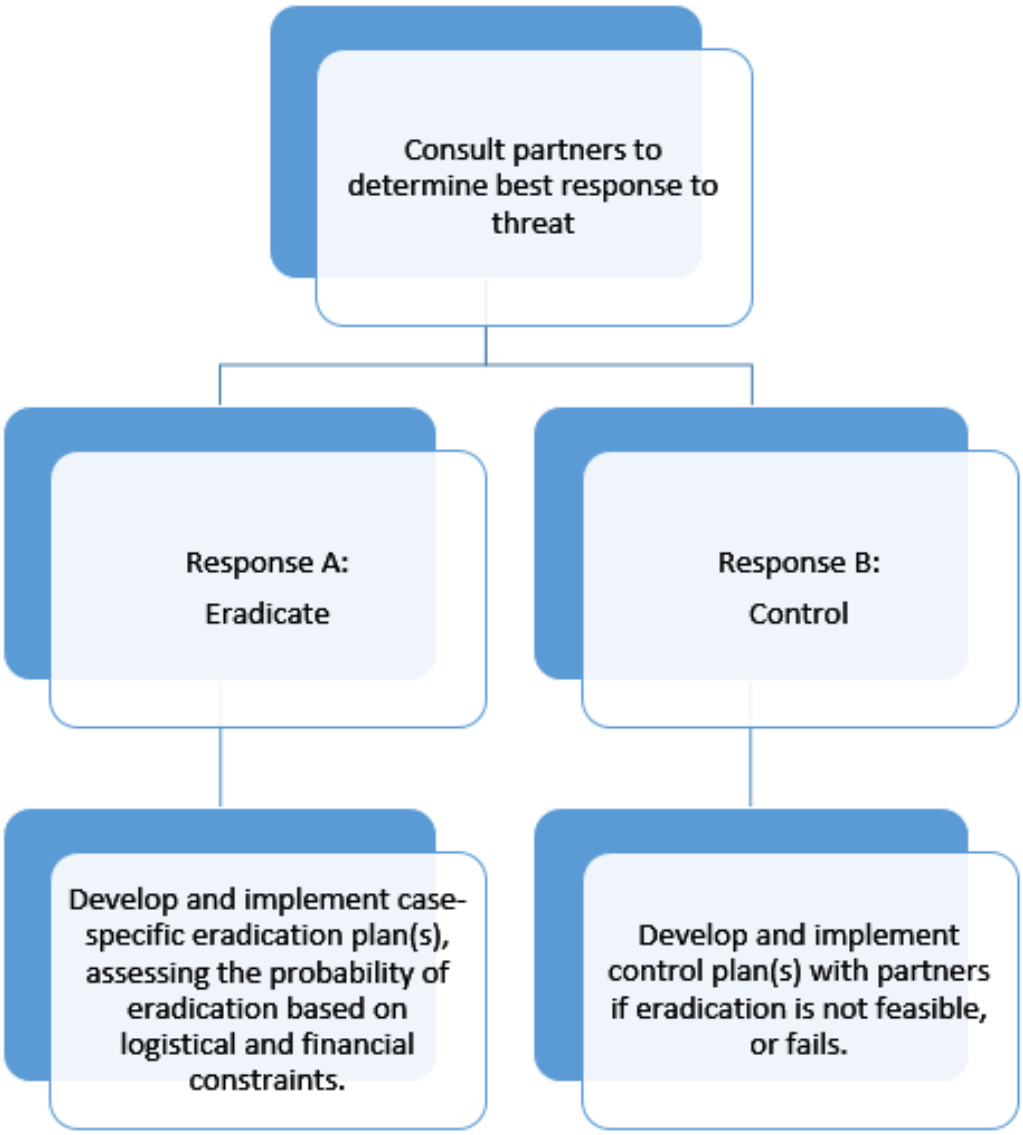

Figure 4. Introduced Species Response Protocol. Source: NOAA

Existing and Potential Partners

The following list primarily reflects established sanctuary partners, but it is expected to change over time as opportunities, conditions, and entities evolve.

Academic and Affiliated Associations

California State University Channel Islands Santa Rosa Island Research Station, Partnership for Interdisciplinary Studies of Coastal Oceans, Reef Check California, University of California Natural Reserve System, University of California Sea Grant California Sea Grant Extension Program.

Chumash Government and Community Organizations

Santa Ynez Band of Chumash Indians, Wishtoyo Foundation, Barbareño Chumash Council, Coastal Band of the Chumash Nation, Barbareño Band of Chumash Indians, Barbareño/Ventureño Band of Mission Indians.

Government Agencies

Aquatic Invasive Species Program, California Agencies Aquatic Invasive Species team, California Coastal Commission, California Department of Fish and Wildlife (Marine Region), California Division of Boating and Waterways, California Invasive Species Advisory Committee, California Ocean Protection Council, California State Lands Commission, California State Water Resources Control Board, Invasive Species Council of California, National Invasive Species Council, Naval Base Ventura County, Reef Environment Education Foundation, NOAA Invasive Species Program, Port of Hueneme, Sanctuary Advisory Council, U.S. Navy (San Clemente Island), San Nicolas Island Naval operations, U.S. Fish and Wildlife Service, United States Coast Guard, United States Coast Guard Auxiliary, Ventura Harbor District.

Non-Governmental Organizations

Biosecurity Management Group (led by Channel Islands National Park), Catalina Island Conservancy, Channel Islands Harbor Department, Local divers and boaters, Nature Conservancy (California Chapter), Santa Barbara Harbor.

Zone Management Action Plan

Goal: Manage the sanctuary's protective zones via monitoring, outreach, enforcement, and cooperative administration. Work with partners to evaluate zone performance to inform future adaptive management.

Introduction

To separate conflicting human uses and protect sensitive marine species, habitats, and cultural sites, several zoning schemes exist within CINMS boundaries, including:

- A joint state/NOAA network of marine reserves and marine conservation areas that prohibit all or some forms of extraction while allowing non-consumptive activities.
- An internationally designated Channel Islands Biosphere Region with CINMS at its core and including the nearby coastal communities that depend on a healthy, thriving Santa Barbara Channel.
- A 1 nautical mile buffer around the five islands of the Channel Islands National Park islands to protect marine mammals, seabirds, and sensitive habitats from large vessel traffic, low flying motorized aircraft, and motorized personal watercraft.

This action plan focuses on the following strategies:

1. Support management of the Channel Islands network of 11 state and federal marine reserves and two marine conservation areas.
2. Manage zones and sensitive areas to minimize disturbance to sanctuary resources.
3. Participate in the Channel Islands Biosphere Reserve system.

Effectively managing the various zoned areas within the sanctuary, including reviewing performance and periodically considering adaptations, requires working in partnership with state and federal agencies. This includes collaborating on state and federal initiatives related to addressing climate change effects and marine conservation goals.

Strategy ZM-1: Support management of the Channel Islands network of marine reserves and marine conservation areas

Support management, monitoring, education, enforcement, and review of the network of Channel Islands marine reserves and marine conservation areas. Partner with implementing state and federal agencies, involved research institutions, the Santa Barbara Channel Marine Protected Area Collaborative,[44] and others. Consider possible future adaptations of the Channel Islands network of marine reserves and conservation areas.

Activity 1.1: Engage the Sanctuary Advisory Council with periodic updates on administration and performance of the Channel Islands network of marine reserves and conservation areas. Solicit council discussion, feedback, and advice on sustaining and improving all aspects of managing these zones.

[44] https://www.mpacollaborative.org/santabarbara/

Activity 1.2: Support the state of California's marine protected area (MPA) ongoing Decadal Management Review process,[45] planned for completion in 2023. Encourage and promote participation in the review process by local sanctuary stakeholders. Provide updates and respond to information requests from MPA partners, such as the California Fish and Game Commission and CDFW, as needed. To help inform the review, provide CDFW with information related to the status of managing of the Channel Islands network, including monitoring, enforcement, and outreach data.

Activity 1.3: Informed by the MPA Decadal Management Review Process, evaluate the need for any adaptations in federal waters portions of the joint state/NOAA network of Channel Islands marine reserves and conservation areas in close consultation with CDFW. Engage local stakeholders through the Sanctuary Advisory Council and its working groups. Approach the Pacific Fishery Management Council as needed. If future regulatory changes are necessary, NOAA would do so through a rulemaking process pursuant to NMSA procedures, National Environmental Policy Act environmental compliance requirements, agency and tribal consultations, and public input (see also "CINMS and Fisheries Management" in the Introduction section).

Activity 1.4: Continue support for outreach and education. To improve awareness of and compliance with Channel Islands marine reserves and conservation areas, ONMS will continue to collaborate with the state of California in the development of interpretive outreach products (e.g., printed materials, digital resources) and signs that target priority user groups.

Activity 1.5: Engage the Santa Barbara Channel Marine Protected Area Collaborative.[46] Support enhanced public understanding of and compliance of the marine reserves and conservation areas within the region. Pursue grants, create new outreach products, assess compliance, and work with a variety of stakeholders, including the fishing community.

Activity 1.6: Support continued long-term ecological and socio-economic monitoring of the Channel Islands marine reserves and conservation areas. Provide support to research partners, including sanctuary research vessel use, pursuing joint proposals for relevant studies, and providing assistance with data analyses. Develop digital infrastructure to incorporate monitoring data into data products that assess zone efficacy and performance.

Activity 1.7: Encourage and promote targeted research efforts with partners focused on understanding and predicting the performance of Channel Islands marine reserves and conservation areas in the face of climate-driven changes.

[45] https://wildlife.ca.gov/Conservation/Marine/MPAs/Management/Decadal-Review#56638606-learn-more

[46] MPA Collaboratives are community-level groups that are an important part of the California Ocean Protection Council's guiding principles for governing California's statewide MPA network. These groups support meaningful partnerships at the local, regional, and national levels to leverage resources and ensure transparency. For more information about the Santa Barbara Channel MPA collaborative: https://www.mpacollaborative.org/santabarbara/.

Activity 1.8: Support targeted and effective cooperative enforcement of Channel Islands marine reserves and conservation areas. Continue to cooperate with and support CDFW, National Park Service, U.S. Coast Guard and NOAA's Office of Law Enforcement through the provision of mobile applications (i.e., electronic Fisheries Information Network System, shore based radar systems, and other enforcement data collection and tracking tools). Continue to actively support and participate with the Island Sentinel cooperative enforcement group.

Strategy ZM-2: Manage zones and sensitive areas

To minimize disturbance to sensitive animals and habitats and protect sanctuary resources, ONMS will manage sanctuary zones and sensitive areas with monitoring, collaborate with partner agencies, and conduct education and outreach to the public.

Activity 2.1: Track and monitor vessel and aircraft traffic. As noted in the Vessel Traffic Action Plan, ONMS will continue to monitor AIS, shore-based radar, and other vessel tracking technology to track large and small vessel traffic within CINMS and ensure compliance with all sanctuary regulations. If and when unauthorized incursions occur, ONMS will work with law enforcement partners to respond.

Activity 2.2: Increase public awareness of sanctuary zones by providing education and outreach to sanctuary users and visitors (boat-based or air-based, including pilots and drone-operators). For example, continue to reach out to aircraft pilot associations concerning the location of the CINMS overflight restricted zone, explaining the zone's purpose of minimizing disturbance to nesting and roosting seabirds and pinnipeds hauled out on island beaches.

Activity 2.3: Through sanctuary permitting conditions applied to research, education, or management activities, protect discrete areas from avoidable disturbance to sensitive habitats, species, maritime cultural sites, and other ocean uses. For example, permittees may be required to avoid known shipwreck sites and deep-sea corals when conducting research activities that may disturb the seabed.

Strategy ZM-3: Participate in the Channel Islands Biosphere Reserve system

ONMS cooperates with global programs in support of the conservation of marine resources, which is one of the stated purposes for national marine sanctuaries listed in the NMSA (16 U.S.C. § 1431(b)(9)). CINMS and Channel Islands National Park will continue to act as principal management agencies for the Channel Islands Biosphere Reserve (designated in 1976 as a Biosphere Reserve by the Man and the Biosphere Programme[47] of the United Nations Educational, Scientific, and Cultural Organization[48] and coordinate with local, state, and federal jurisdictions, to promote conservation of biodiversity and sustainable human use.

[47] Man and the Biosphere Program: https://en.unesco.org/mab
[48] http://www.unesco.org/new/en/natural-sciences/environment/ecological-sciences/biosphere-reserves/europe-north-america/united-states-of-america/channel-islands/

Activity 3.1: Coordinate with relevant local, state, and federal jurisdictions in the Channel Islands Biosphere Region to promote awareness and integration of the Biosphere Programme tenets of conservation and sustainable economic use.

Activity 3.2: Participate in United States Biosphere Network working groups to learn and share lessons learned on effective governance of the Channel Islands Biosphere Region.

Activity 3.3: Integrate the Man and the Biosphere program into sanctuary education/outreach to raise awareness of the public living and thriving in the Channel Islands Biosphere Region.

Existing and Potential Partners

The following list primarily reflects established sanctuary partners, but it is expected to change over time as opportunities, conditions, and entities evolve.

Academic and Affiliated Associations

California State University Channel Islands, California State University Long Beach, California State University Northridge, Marine Research and Exploration, Monterey Bay Aquarium Research Institute, Santa Barbara City College, University of California, Santa Barbara, Ventura County Community College District.

Chumash Government and Community Organizations

Santa Ynez Band of Chumash Indians, Wishtoyo Foundation, Barbareño Chumash Council, Coastal Band of the Chumash Nation, Barbareño Band of Chumash Indians, Barbareño/Ventureño Band of Mission Indians.

Government Agencies

California Department of Fish and Wildlife, California Ocean Protection Council, National Marine Fisheries Service, National Park Service, NOAA Office of Law Enforcement, Pacific Fishery Management Council, Sanctuary Advisory Council, U.S. Coast Guard.

Non-Governmental Organizations

California Marine Sanctuary Foundation, Man and Biosphere Programme of the United Nations Educational, Scientific, and Cultural Organization, Protected Seas, Santa Barbara Channel Marine Protected Area Collaborative.

Education and Outreach Action Plan

Goal: Inspire ocean literacy, climate literacy, stewardship, and conservation of the sanctuary through education and outreach. Enhance outreach and engagement to support sustainable tourism and responsible recreational enjoyment of the sanctuary. Create an ocean-literate public capable of making informed environmental decisions.

Introduction

CINMS serves as a world-class living laboratory and outdoor classroom, providing outstanding opportunities for hands-on education and lifelong learning. Its proximity to Los Angeles, one of the largest and most culturally diverse metropolitan areas in the country, requires building meaningful and culturally-aware connections with communities. ONMS will continue to explore emerging technologies to reach different sanctuary audiences, foster their connection to the sanctuary, and communicate the innovative science and management used to protect sanctuary marine resources. The remote, offshore location of the sanctuary limits access to visitors aboard private boats, charter cruises, and Channel Islands National Park concession vessels. Therefore, the sanctuary relies on partnerships throughout the tri-county region (Santa Barbara, Ventura, and Los Angeles) to provide interpretive and virtual opportunities for people who may not actually visit the sanctuary, as well as support for sustainable tourism and recreation.

In this action plan, six strategies highlight how ONMS will meet its goals to engage with the support of partnerships. Strategies and activities include:

1. Advancing K–16 education programs to support improved sanctuary stewardship and ocean and climate literacy.
2. Enhancing sanctuary interpretation, volunteer, and outreach programs.
3. Sustaining volunteering and citizen science opportunities.
4. Promoting interpretation of the sanctuary's maritime heritage, cultural significance, and natural resources.
5. Fostering and promoting responsible recreational and sustainable tourism use of the sanctuary in support of the blue economy.[49]
6. Increasing awareness of the sanctuary and engagement through media and communication tools.

Strategy EO-1: Advance K–16 education programming to support sanctuary stewardship and climate literacy

Develop and promote engagement with curricula, activities, professional development, and meaningful field experiences to support kindergarten through college students with a focus on increasing ocean and climate literacy and stewardship among a diversity of students and teachers, including from underserved communities. Base programs on sanctuary ecosystems and resource protection issues, assuring relevance to academic standards for various educational settings. Increase teacher and student knowledge of ocean issues and inspire active stewardship of the sanctuary.

[49] https://oceanservice.noaa.gov/economy/blue-economy-strategy/

Activity 1.1: Continue to develop and deliver hands-on and virtual K–16 student and teacher curricula and activities focused on sanctuary resources, research, stewardship, ecosystem protection issues, and resource protection efforts (e.g., whale conservation and vessel speed reduction programs). Focus expanding outreach to previously underserved communities in the region.

Activity 1.2: Promote NOAA-developed curriculum resources for use with a diversity of K–16 students to address the impacts of emerging ocean issues (e.g., marine debris and climate change) on ocean and coastal ecosystems.

Activity 1.3: Support teacher professional development, meaningful in-person field experiences, and use of virtual tools (see Activity 2.5). For example, CINMS researchers will mentor teachers aboard the R/V *Shearwater* via the NOAA Teacher at Sea[50] program to highlight career pathways for students.

Strategy EO-2: Enhance sanctuary interpretation, volunteer, and outreach programs

Develop community support and partnerships for ocean conservation through targeted outreach and interpretation efforts reaching a widely diverse audience. Use multiple languages where appropriate and feasible. Focus on engaging the public in specific resource protection issues.

Activity 2.1: Implement guided learning experiences at sanctuary partner visitor centers, museums, aquariums, and tourism providers to build awareness and increase understanding of sanctuary resources, research, and ecosystem protection issues. For example, this can include partner lecture series, Channel Islands Boating Center summer programs, Santa Barbara Museum of Natural History Sea Center, Santa Barbara Maritime Museum docent training, and Channel Islands Naturalist Corps-led tours. Promote participation in these learning experiences that is inviting to and inclusive of a diversity of community members.

Activity 2.2: Support fishing-related education projects and outreach tools that promote sustainable fishing practices to youth, families, and other recreational fishers in collaboration with local partners from the recreational fishing community. Focal topics can include fisheries science, natural history, recreational fishing techniques, the socioeconomics of fishing in the sanctuary, and the benefit to fishing conditions from sanctuary protections.

Activity 2.3: Increase sanctuary visibility and enhance public engagement by conducting in-person outreach activities at select community events and gatherings (e.g., the Celebration of the Whales at Channel Islands Harbor, *Get Into Your Sanctuary* Weekend,[51] Earth Day festivals, and more).

[50] https://teacheratsea.noaa.gov/#/home/
[51] https://sanctuaries.noaa.gov/visit/giys.html

Activity 2.4: Assess opportunities, develop outreach plans, and implement interpretative experiences using new responsive technology tools for diverse audiences. This may include distance learning programs, telepresence, live video streaming, and expanded use of virtual reality and immersive experiences (e.g., Explore the Blue: 360° Sea Lion Encounter video and lesson plan).

Activity 2.5: Support sanctuary resource protection through development and dissemination of print and digital products (e.g., brochures, posters, videos, maps, and guides).

Strategy EO-3: Promote public engagement and stewardship through citizen science monitoring programs

Create stewards of the sanctuary by engaging youth and adults in long-term citizen science monitoring programs.

Activity 3.1: Build capacity of Channel Islands Naturalist Corps volunteers to monitor marine mammals using the Ocean Alert[52] and Spotter Pro[53] mobile applications, and support ongoing whale photo-ID monitoring efforts.

Activity 3.2: Continue to work with partners to develop and maintain innovative citizen science tools, create public facing data visualization tools, and engage volunteers and the public in use of mobile apps. These tools help efficiently collect sightings information on whales and other marine mammals in support CINMS research and monitoring priorities (e.g., Spotter Pro, Ocean Alert, and Whale Alert[54] apps).

Activity 3.3: Support and build capacity for the Long Term Monitoring Program and Experiential Training for Students[55] (LiMPETS) network, which monitors rocky intertidal and sandy beach communities throughout coastal California and the Channel Islands.

Activity 3.4: Develop additional citizen science monitoring programs and tools to engage students, partner organizations, volunteers and non-traditional audiences, using NOAA-designed protocols to address emerging resource protection issues.[56] For example, encourage volunteers to use NOAA's Marine Debris Tracker application,[57] and encourage scuba divers to report sightings of endangered white abalone through the CINMS White Abalone Wanted Alive Initiative.

[52] https://www.boem.gov/boem-and-citizen-science#tabs-1293
[53] http://conserve.io/spotter
[54] http://www.whalealert.org/
[55] https://limpets.org/
[56] NOAA Citizen Science Strategy (available online at https://sciencecouncil.noaa.gov/Portals/0/Citizen%20Science%20Strategy%20_final.pdf?ver=2021-01-15-103436-693)
[57] https://marinedebris.noaa.gov/partnerships/marine-debris-tracker

Strategy EO-4: Maintain, develop, and expand exhibits and signs

Maintain, develop, and expand sanctuary-wide exhibits and interpretive signage at existing and planned marine and natural resource-based visitor centers, as well as other key locations in the region, to maximize the sanctuary's regional public exposure.

Activity 4.1: Update the sanctuary's 2015 Long Range Interpretive Plan, developing revised themes and target audiences to guide the refresh of interpretive exhibits. Exhibit updates and designs for new installations will highlight priority themes and messages emerging from new scientific information (e.g., condition report results) as well as issues represented in this management plan (e.g., climate change, marine debris, introduced species, Chumash connections, and more).

Activity 4.2: Maintain and update existing sanctuary interpretive sign inventory and add new sanctuary-related interpretative signage at strategic locations. For example, coastal locations of interest for new signs include Ventura Pier and boardwalk, Port Hueneme fishing pier, and many other potential local mainland locations (e.g., beaches, overlooks, piers, trails) previously suggested by the Sanctuary Advisory Council.[58]

Activity 4.3: Review, manage, and improve sanctuary visitor center-based exhibits. In consultation with education program partners and the Sanctuary Advisory Council, ONMS will periodically evaluate existing and potential new and emerging visitor center facilities to assess updates needed, new opportunities, and resource requirements. This will include an assessment of the potential for developing a sanctuary-owned visitor center.

Activity 4.4: Develop and manage use of mobile exhibits and interactive technology tools for increased exposure of sanctuary messages to wide-ranging audiences. ONMS will pursue opportunities to collaborate with partners to pursue necessary funding and develop programming for these emerging technologies.

Strategy EO-5: Foster and promote sustainable tourism and responsible use in support of the blue economy

Increase awareness about the socioeconomic value of the sanctuary for sustainable tourism and recreation and promote responsible human uses and quality visitor experiences for a diversity of community members. Support implementation of the ONMS West Coast Blue Economy Plan, the NOAA Blue Economy Strategic Plan,[59] the ONMS Tourism Strategic Plan and Recreation Action Plan (in development), and collaborate with related state efforts.[60]

[58] Sanctuary Advisory Council input was provided on January 22, 2021 (meeting summary available online at https://nmschannelislands.blob.core.windows.net/channelislands-prod/media/docs/20210122-sac-notes.pdf)
[59] https://oceanservice.noaa.gov/economy/blue-economy-strategy/
[60] For example, see Respect Wildlife at https://respect-wildlife.org/about-us, and the California Recreate Responsibly Coalition at https://www.recreateresponsibly.org/california-coalition.

Activity 5.1: Encourage awareness about sustainable tourism and recreation opportunities within the sanctuary through collaborative partnerships with local businesses and the tourism industry, such as visitor bureaus, to develop sanctuary brand recognition, strengthen and broaden community of support for CINMS goals, and promote value-added benefits of the sanctuary to local economies.

Activity 5.2: Promote responsible human uses within the sanctuary, quality visitor experiences, and enhanced access to a diversity of audiences. Conduct outreach on responsible recreational activities, using visitor access point signage (see EO 4, Activity 4.2), interpretive programs (e.g., Channel Islands Naturalist Corps), and social media campaigns (e.g., *Get Into Your Sanctuary*[61]).

Activity 5.3: Enhance and continue collaboration between the sanctuary, tourism purveyors, and recreation vendors. Provide interpretation on local marine excursion vessels, and establish a promotional sanctuary business recognition program for local recreational fishing and dive tour operators. Involve local business owners in the design of recognition programs.

Activity 5.4: Collaborate with recreational fishing community members to improve understanding of the sanctuary and explore ways to promote sanctuary enjoyment by this community. Work together with interested parties to define activities, messages, and initiatives that promote responsible recreational fishing within sanctuary waters, and engage these members in stewardship opportunities. Pursue a partnership-based approach with state and federal agencies, such as NOAA Fisheries and California Department of Fish and Wildlife.

Activity 5.5: Foster awareness of ocean health and sustainable tourism practices in the sanctuary to ensure thriving and responsible recreation, tourism, and compatible commercial activities. Develop messaging, activities, and events through active collaboration with the private sector, including but not limited to commercial passenger fishing vessel operators.

Activity 5.6: Characterize tourism value in the sanctuary. Use place-based and system-wide studies to assess tourism activity levels. This activity is aligned with activities outlined in Strategy RM-2 that will characterize and monitor ecosystem services of the sanctuary.

Strategy EO-6: Increase awareness of the sanctuary and engagement through effective media and communication tools

Leverage local, regional, and national media opportunities and social media platforms to generate interest and engage diverse audiences. Reach and attract audiences through targeted communications about sanctuary species and habitats, scientific developments, ecosystem protection issues, educational opportunities, responsible recreation and tourism opportunities, volunteer programs, and more.

[61] https://sanctuaries.noaa.gov/visit/giys.html

Activity 6.1: Maintain a contact database of media representatives with interest in sanctuary-related stories at the local, regional, and national level. Develop a media communication plan for promoting ongoing public interest stories and short-term, event-driven media plans when appropriate. Build relationships with key local media representatives, including new and diverse outlets, by organizing visits to sanctuary activities, including research cruises and public events as appropriate.

Activity 6.2: Supply media outlets with sanctuary events and public interest stories, and coordinate with ONMS to provide media distribution of community announcements, media advisories, press releases, news articles, and web stories. Contribute media outreach content, including media b-roll, sanctuary Earth is Blue[62] images and video footage, and web and social media resources. Collaborate with sanctuary partners to contribute to their media outreach efforts that relate to the CINMS mission.

Activity 6.3: Implement a comprehensive social media strategy that increases public awareness of inspiring and compelling sanctuary research, education, and ecosystem protection programs, fostering sanctuary stewardship (e.g., *Get Into Your Sanctuary*[63] campaign and photo contest), and reaching a diverse audience. Follow NOAA protocols for social media use.

Existing and Potential Partners

Education and outreach partnerships are dynamic. The following list primarily reflects established sanctuary partners, but it is expected to change over time as opportunities, conditions, and entities evolve.

Academic and Affiliated Associations

California State University Channel Islands, Channel Islands Boating Center, Lompoc Unified School District, Oxnard College, Oxnard Marine Education Center, Oxnard Unified School District, Santa Barbara City College, Santa Barbara Union School District, University of California Santa Barbara, Ventura College, Ventura County Office of Education, Ventura Unified School District.

Government Agencies

Bureau of Ocean Energy Management, California Department of Fish and Wildlife, California MPA Collaborative Network, California State Parks Channel Coast District, California Sea Grant, Channel Islands National Park, City of Goleta, City of Lompoc, City of Oxnard, City of Santa Barbara, City of Santa Barbara Waterfront District, City of Shell Beach, City of Ventura, County of Ventura, NOAA Teacher at Sea Program, NOAA B-WET program, NOAA Fisheries, NOAA Marine Debris Program, Santa Barbara County Parks, U.S. Fish and Wildlife Service, University of Southern California Sea Grant, Vandenberg Air Force Base, Ventura Port District, Ventura County Channel Islands Harbor Department.

[62] https://sanctuaries.noaa.gov/earthisblue.html
[63] https://sanctuaries.noaa.gov/visit/giys.html

Chumash Government and Community Organizations

Santa Ynez Band of Chumash Indians, Wishtoyo Foundation, Barbareño Chumash Council, Coastal Band of the Chumash Nation, Barbareño Band of Chumash Indians, Barbareño/Ventureño Band of Mission Indians.

Non-Governmental Organizations

Multicultural Education for Resource Issues Threatening Oceans Foundation, Santa Barbara Museum of Natural History Sea Center, Santa Barbara Maritime Museum, Aquarium of the Pacific, Reel Guppy Outdoors, ConserveIO, Pacific Grove Museum, Greater Farallones Association, Ocean Institute, Laguna Ocean Foundation, Cabrillo Marine Aquarium, Santa Monica Pier, Malibu Divers, Channel Islands Expeditions, Ventura Dive and Sport, Raptor Dive Charters, Spectre Dive Boat, Santa Barbara Aquatics, Santa Barbara Landing, Marine Emporium Landing, Cabrillo High School Aquarium, Santa Barbara Museum of Natural History Sea Center, Santa Barbara Maritime Museum, Outdoors Santa Barbara Visitor Center, Santa Barbara Adventure Company, Surfrider Foundation, Island Packers, Condor Express, Celebration Cruises, Santa Barbara Sailing Center, Channel Islands Sportfishing, Ventura Sportfishing, Youth Literacy Program (Capt. David Bacon), Visit Santa Barbara, Ventura Visitors and Convention Bureau, Oxnard Visitors and Convention Bureau, Central Coast Tourism Council, Visit California, Ocean Exploration Trust.

Research and Monitoring Action Plan

Goal: Ensure the best available science is accessible to address current and projected needs of sanctuary management, resource protection, and education/outreach. Fill knowledge gaps by conducting, coordinating, and promoting characterization, monitoring, and assessment activities as well as through synthesis of existing information.

Introduction

Research and monitoring activities must be responsive to existing resource protection and management concerns, able to evaluate issues of emerging concern, and provide ONMS with the information fundamental to sound decision making. To address the diverse array of issues the sanctuary faces, the sanctuary research team actively leads and participates in a broad array of both field based and analytical research, as well as the dissemination of information to aid sanctuary management. In this action plan, the strategies highlight a mix of directed sanctuary-led research, partnerships, and improvements to the ways in which scientific information is translated, interpreted, and used to inform management decisions. The strategies outlined below will help the CINMS Research Team equip sanctuary management with the best available science for decision-making across a spectrum of resource management issues.

Much of this work is accomplished through partnership and coordination at the local, regional, and national levels. ONMS relies heavily on partners (e.g., federal and state agencies, academics, non-governmental organizations, and private sector companies) and engages with partners through announcement of funding opportunities, provision of letters of support, and in-kind contributions of field or analytical time and vessel support. In addition, the research team benefits from having a diverse and capable Research Activities Panel to rely on for guidance. Distilled information is made immediately available to ONMS education, outreach, and resource protection staff, and is also distributed via the Sanctuary Integrated Monitoring Network web portal,[64] presentations at conferences and workshops, and through the development of technical reports and peer-reviewed publications. Additionally, the CINMS Research Team participates in a number of mentoring opportunities, such as hosting fellows and interns to teach the next generation about the role of science in management and policy.

Strategy RM-1: Characterize and monitor the biological and physical features and processes associated with the sanctuary

Identifying, tracking, and researching the biophysical environment is fundamental to understanding sanctuary management challenges. ONMS will address information gaps and continue to collect critical long-term monitoring data with partners. Focal areas include, but are not limited to, oceanographic conditions, acoustic monitoring, and ecosystem connectivity.

[64] https://sanctuarysimon.org/

Activity 1.1: Develop project ideas and write ecosystem monitoring research proposals for internal and external funding and vessel time to address resource protection and management needs at site, regional, and national levels. Proposals will support projects related to our top science needs[65] as well as emerging priorities.

Activity 1.2: Actively participate in research and monitoring efforts when ONMS expertise is the most effective way to address management requirements for information. Participation includes shore-based, vessel-based, and scuba-based operations. CINMS has an active dive program, including a Unit Diving Supervisor. ONMS will collaborate with entities monitoring resources, maintaining data buoys and instruments, making collections, and undertaking other activities addressing CINMS research and monitoring needs.

Activity 1.3: Maintain and develop partnerships with various partners, including federal and state government agencies, academics, non-governmental organizations, the private sector, and foundations. ONMS will integrate with existing networks, including use of the Research Activities Panel and other research consortia (e.g., the Expanding Pacific Research and Exploration of Submerged Systems and the Southern California Ocean Observing System).

Activity 1.4: Actively identify and engage potential funding organizations to seek support for both in-house and partner-based projects geared at meeting high priority resource management needs (e.g., reducing plastics, addressing climate change issues, and considering impacts in deep-sea environments).

Strategy RM-2: Characterize and monitor ecosystem services of the sanctuary

The sanctuary supports a number of ecosystem services, which represent the benefits people gain from ecosystem functions (e.g., the provisioning, regulating, cultural, and other supporting services). Ecosystem services are vital to a wide array of users and stakeholders, but depend on healthy oceans. ONMS will address information gaps in understanding ecosystem services and human use patterns, as well as assess the adaptability of communities to forecasted ecosystem changes.

Activity 2.1: Characterize and monitor ecosystem services at site, regional, and national levels. Develop research proposals that seek funding from NOAA and external partners in support of projects related to top sanctuary ecosystem service science needs.[66] Direct this work to better understand human use within CINMS and the benefits people derive from the interacting sanctuary resources. For example, ONMS will collaborate with the Sanctuary Use Characterization, Assessment, and Research program that develops profiles of sanctuary communities.

Activity 2.2: Actively participate in select ecosystem service research and monitoring efforts. ONMS will serve as principal investigators when it is the most effective way to apply expertise and address management requirements for human use information.

[65] https://sanctuaries.noaa.gov/science/assessment/cinms.html
[66] https://sanctuaries.noaa.gov/science/assessment/cinms.html

Activity 2.3: Maintain and develop partnerships to characterize and monitor ecosystem services. Pursue and work with a diversity of willing partners, including those of a traditional nature (e.g., federal and state government agencies, tribal governments and groups, academic institutions, and non-profit organization) as well as non-traditional groups (e.g., private sector entities, non-profit foundations). ONMS will integrate efforts into existing networks, such as those of the Research Activities Panel and other consortia.

Activity 2.4: Actively identify and engage with potential funding organizations to seek support for both in-house and partner-based research projects geared at better understanding the connection between the site and the community (e.g., climate impacts to stakeholders, traditional ecological knowledge, and barriers to access).

Activity 2.5: Evaluate and implement, if feasible, a sanctuary Sentinel Site[67] designation for Ecosystem Services. Such a designation could help increase regional and national visibility, and attract supportive partnerships, for human dimension-related research needs.

Strategy RM-3: Interpret and apply technical science information to meet sanctuary needs

Timely interpretation of the best available science is critical to support sanctuary decision making. ONMS will convene groups of external researchers, to provide timely analysis and synthesis that meets management, resource protection, and education/outreach needs.

Activity 3.1: Serve as experts on a wide array of topics in support of management, resource protection and education/outreach needs. This can include the development of white papers, responses to internal agency requests and public inquiries, and the creation of media, including stories, articles, videos, exhibits, signs, and interactive technologies.

Activity 3.2: Through participation in working groups and conferences, ensure sanctuary research is vetted, informed by, and coordinated with the broader research and management communities.

Activity 3.3: Establish a robust Research Activities Panel based on the principles of diversity and inclusion.[68] Promote equal participation and engagement from all members (see also Activity 5.5). Maintain a Research Activities Panel steering committee composed of a subset of Research Activities Panel members that will support those same values.

Activity 3.4: Ensure staff maintain scientific integrity through the publication of sanctuary science in peer-reviewed scientific journals and NOAA technical reports.

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[67] https://sanctuaries.noaa.gov/science/sentinel-site-program/

[68] The Research Activities Panel is a working group of the Sanctuary Advisory Council and is composed of representatives from regional research organizations. The role of the Research Activities Panel is to review research priorities related to management of the sanctuary, to promote, encourage and review research projects in the sanctuary, and to provide scientific advice through the Sanctuary Advisory Council. In addition, the Research Activities Panel assists sanctuary management with the organization and dissemination of information about research activities within the sanctuary and helps facilitate the integration of marine research and policy.

Strategy RM-4: Support regional science priorities

CINMS is located within a marine transition zone that is affected by oceanographic conditions outside of its boundaries. Thus, understanding how the sanctuary performs requires knowledge of regional resource trends to give context to changes happening within sanctuary waters.

Activity 4.1: Share research expertise across national marine sanctuary sites. Research staff will regularly share information and resources with other sanctuary sites, especially within the West Coast region, focused on areas of expertise such as condition report development, ocean noise, telemetry, deep sea exploration, human dimensions, ecosystem services, climate change, and seafloor characterization.

Activity 4.2: Facilitate the critical communication between researchers, resource managers, educators, and the public through maintenance and upgrades of the online Sanctuary Integrated Monitoring Network[69] database. This web portal provides summary metadata from ongoing, recently completed, and historic monitoring and research projects within the sanctuary.

Activity 4.3: Pursue appropriate collaborative arrangements to invite, understand, and include Chumash traditional ecological knowledge into sanctuary programs and projects. See also Strategy CH-5, Activity 5.2.

Activity 4.4: Complete the development of a known species inventory for the sanctuary. This will involve conducting additional species literature research, database management, taxonomic expert review, and publication. The inventory project, which began in 2019 and has identified thousands of species, will provide a better understanding of sanctuary biodiversity and inform scientific resource and sanctuary management.

Strategy RM-5: Support national science priorities

As a national network of protected areas, sanctuaries can benefit from national collaborations that inform issues affecting sites around the system. By focusing on cohesive ways to track and report on issues that broadly impact multiple sanctuaries, the research team can advance ocean conservation nationally and internationally, and share ideas from a broad range of researchers.

Activity 5.1: Provide up-to-date information on priority conservation issues facing the sanctuary (science needs assessments[70]). This information will be used to define and guide the science and information needs necessary to address these issues. In turn, this will guide current and future partners, including academics (professional and students), non-profit organizations, government programs (local, state, federal, and tribal), and commercial businesses (e.g., technology-based companies), who seek to implement studies that support sanctuary management.

Activity 5.2: Develop communication and outreach tools for science-based data visualization to make routinely updated monitoring data more accessible. Integrate these tools with existing status and trend reporting in sanctuaries (condition reports). Expand this effort nationally to link vetted condition report indicators across sites with “live” time series data (i.e.,

[69] https://sanctuarysimon.org/
[70] https://sanctuaries.noaa.gov/science/assessment/cinms.html

"webenization"). These synthesized data products will then be made accessible online. Advance the development of new indicators related to climate, deep-sea ecosystems, and human use.

Activity 5.3: Ensure research staff from CINMS maintain key connections with national priorities that have site level significance, including: deep-sea characterization, monitoring and assessment, applications of artificial intelligence, acoustic telemetry, social science strategies, impacts of ocean noise, and dive safety.

Activity 5.4: Support development of the next generation of scientists and expand diversity of the science community through mentoring. Mentoring can include: serving on committees; hosting interns and fellows (e.g., Council on Ocean Affairs Science and Technology, Hollings, Nancy Foster, Sea Grant); serving on graduate student committees; hosting University of California Santa Barbara Bren School projects; supervising undergraduates and Partnerships for Enhanced Engagement in Research students; promoting citizen science; and participating in NOAA Teacher at Sea and NOAA Student at Sea programs.

Existing and Potential Partners

The following list primarily reflects established sanctuary partners, but it is expected to change over time as opportunities, conditions, and entities evolve.

Academic and Affiliated Associations

California Cooperative Oceanic Fisheries Investigations, California Sea Grant, California State University at Channel Islands, California State University at Long Beach, California State University at Northridge, CalPoly San Luis Obispo, Scripps Institution of Oceanography, Southern & Central California Coastal Ocean Observing Systems, Stanford University, University of California at Santa Cruz, University of California at San Diego, University of California at Santa Barbara, University of Southern California Sea Grant.

Chumash Government and Community Organizations

Santa Ynez Band of Chumash Indians, Wishtoyo Foundation, Barbareño Chumash Council, Coastal Band of the Chumash Nation, Barbareño Band of Chumash Indians, Barbareño/Ventureño Band of Mission Indians.

Government Agencies

Bureau of Ocean Energy Management, California Coastal Commission, California Department of Fish and Wildlife, California Ocean Protection Council, California Ocean Science Trust, Environmental Protection Agency, National Oceanic and Atmospheric Administration, Pacific Fishery Management Council, National Park Service, United States Geological Survey.

Non-Governmental Organizations

Marine Applied Research and Exploration, Monterey Bay Aquarium, Monterey Bay Aquarium Research Institute, Ocean Exploration Trust, Reef Environmental Education Foundation, The Nature Conservancy.

Resource Protection Action Plan

Goal: Maintain, protect, and restore the sanctuary's natural biological communities and maritime heritage resources by evaluating and addressing adverse impacts from human activities.

Introduction

The core purposes and policies of the National Marine Sanctuaries Act (NMSA) guide the sanctuary's resource protection program and this action plan. Specifically, listed among NMSA purposes for national marine sanctuaries are:[71]

> (3) To *maintain the natural biological communities in the national marine sanctuaries, and to protect, and, where appropriate, restore and enhance natural habitats, populations, and ecological processes.*
>
> (6) To *facilitate to the extent compatible with the primary objective of resource protection, all public and private uses of the resources of these marine areas not prohibited pursuant to other authorities.*

The sanctuary is affected by a complex and dynamic range of challenges and threats. For example, impacts to sanctuary resources and human use could be associated with significant population growth in counties adjacent to the sanctuary, a changing climate, rapid technological changes, new interests in using ocean space and harnessing resources, and improvements in marine monitoring and detection capabilities. These changes can affect the nature and extent of industrial, scientific, commercial and recreational maritime activities, often leading to new sanctuary resource protection issues and challenges that must be addressed.

This action plan includes strategies and activities in the areas of emergency response, enforcement, emerging issues, permitting, collaborative planning, and management with NOAA and other agencies. The sanctuary will continue to develop and implement resource protection strategies, activities, policies, and programs related to the network of marine reserves and marine conservation areas, state and federally managed fisheries, marine mammals and seabirds, sensitive habitats, shipping, visitor use, and emerging issues. To the extent practicable given available resources, ONMS will work in a coordinated and complementary manner with local stakeholders and authorities that have similar or overlapping mandates, jurisdiction, objectives, or interests (see partners listed below). This includes a priority focus on implementing a multi-jurisdictional approach to effective collaborative enforcement of sanctuary regulations. Additionally, ONMS will strive to provide long-term resource protection in the face of climate change (see the Climate Change Action Plan).

[71] (16 U.S.C. §§ 1431(b)(3), (b)(6).)

Strategy RP-1: Respond to emergencies that threaten sanctuary resources

Provide oversight and coordinate response with other key agencies to emergency incidents such as oil and other hazardous material spills in or near the sanctuary, vessel and aircraft groundings or sinkings, and other emergencies that threaten sanctuary resources. As needed, follow up with assessments of injuries to sanctuary resources, damage assessment case processing, restoration planning, and other actions to mitigate adverse impacts to the ecosystem and ecosystem services.

Activity 1.1: Integrate into the Incident Command System[72] to help respond to marine-based emergencies and drills within or adjacent to the sanctuary.

Activity 1.2: Develop and document case-specific injury assessments, resolutions, restoration and monitoring plans (if necessary), and associated cost estimates.

Activity 1.3: Maintain situational awareness and all necessary qualifications and training for emergency response (e.g., Hazardous Waste Operations and Emergency Response, Shoreline Cleanup and Assessment Technique, Incident Command System-100, CPR/First Aid). Coordinate periodic (ideally annual) reviews, and make recommendations to ensure site readiness, such as updating Area Contingency Plans.

Activity 1.4: Develop incident-specific solutions to ensure timely and cost effective removal of grounded vessels, cleanup of debris, and accountability for unrecoverable and sunken boats or other pollutants and materials. Work collaboratively with partners to pursue solutions that ensure responsible parties take appropriate action and/or are held accountable.

Activity 1.5: Serve as regional support to National Marine Fisheries Service Stranding Network to support marine mammal entanglements and stranding response, including training ONMS vessel crew and staff. Assist development and testing of innovative gear and fishing practices to reduce entanglements.

Activity 1.6: Review and revise existing oil spill response plan. This includes regular updating of emergency response notification procedures and identifying specific duties and response protocols for ONMS.

Strategy RP-2: Enforce regulations to protect sanctuary resources

Effective surveillance and enforcement are critical to protecting sanctuary resources. ONMS works with NOAA's Office of Law Enforcement and General Counsel, and with external law enforcement partners (e.g., California Department of Fish and Wildlife, National Park Service, and U.S. Coast Guard) to enforce sanctuary regulations and all other state and federal regulations applicable within the sanctuary.

[72] The Incident Command System refers to the combination of facilities, equipment, personnel, procedures, and communications operating within a common organizational structure and designed to aid in the management of resources during incident response.

Activity 2.1: Participate in the regional cooperative enforcement group, "Island Sentinel," which includes Office of Law Enforcement, California Department of Fish and Wildlife, National Park Service, U.S. Coast Guard, and others. Facilitate and participate in coordination calls, act as liaison to these agencies, and facilitate their provision of enforcement updates to the Sanctuary Advisory Council.

Activity 2.2: Facilitate the development and implementation of new enforcement tools and techniques to improve data collection and sharing across agencies. Technology may include: shore based radar, crewed and uncrewed aircraft surveillance, automatic identification systems, remote sensing, and the electronic Fisheries Information Network System mobile app.

Activity 2.3: Conduct outreach and training for partner enforcement agencies that is focused on explaining sanctuary regulations and highlighting important issues at CINMS, such as enforcement of protective sanctuary zones.

Activity 2.4: Provide clear protocols for effectively and efficiently documenting suspected violations in cooperation with Office of Law Enforcement. For example, document and quantify incoming complaints, suspected violations, incident referrals, and resource impacts.

Strategy RP-3: Respond to current and emerging issues

The activities supporting this strategy focus on identifying, tracking, and assessing risk for potential threats to sanctuary resources in preparation for potentially taking protective management action, and pursuing new opportunities, where appropriate. With regard to emergency response situations that could harm sanctuary resources, see Strategy RP-1.

Activity 3.1: Track and monitor emerging issues that may pose a threat to natural or cultural sanctuary resources, or that may offer opportunities to pursue ecosystem restoration projects. This may include, but not be limited to: impacts to sensitive habitats such as deep sea corals and eelgrass; impacts to commercial and recreational fishing grounds; nearby proposed offshore energy or aquaculture projects; activities associated with the decommissioning and removal of offshore oil and gas platforms adjacent to the CINMS boundary.

Activity 3.2: Evaluate if ONMS is able to address the new or modified issue by considering the intensity, duration, and geographic extent of the potential threat to sanctuary resources or qualities, and whether the issue is within ONMS jurisdiction and/or mandate to address. Prioritize the issue by examining the rate at which the potential issue and/or threat is growing, and soliciting input from ONMS, the public, the Sanctuary Advisory Council, appropriate state and federal agencies, and other partners. If appropriate, respond to the issue by working with relevant state and federal agencies, scientific institutions, and other partners to develop a comprehensive response plan.

Strategy RP-4: Permit appropriate research, education, and management activities

Where appropriate, ONMS will issue permits for activities that advance sanctuary research, education, and management goals, providing specific terms and conditions to reduce and mitigate short term impacts to sanctuary resources.

Activity 4.1: Evaluate and process permit applications for proposed research, education, and management activities.

Activity 4.2: Conduct environmental review, as necessary, under the National Environmental Policy Act for proposed research, education, or management related activities.

Activity 4.3: Monitor and review permit compliance by reviewing permittee required reports, tracking permitted activities using the sanctuaries permit database, and reporting any non-compliance to the enforcement program.

Strategy RP-5: Review and provide policy guidance on activities of other agencies

To implement sanctuary policies and regulations, ONMS provides input on projects, plans, and permits of NOAA and other state and federal agencies, providing policy guidance as needed.

Activity 5.1: Provide protection to sanctuary resources through timely and effective inter-agency coordination and commenting. Request prioritization of sanctuary resource protection when commenting to and collaborating with federal, state, and local jurisdictions prior to project approvals, National Environmental Policy Act process completion, or other agency decision making steps.

Activity 5.2: Provide ongoing protection to sanctuary resources by ensuring that federal agencies consult with ONMS pursuant to NMSA requirements (16 U.S.C. § 1434(d)). Coordinate and consult with state and federal agencies (e.g., National Park Service, NOAA Fisheries, USCG, Department of Defense, California Fish and Game Commission, California Ocean Protection Council, and others) involved in the development of marine resource management policies to ensure consideration of sanctuary needs and contributions.

Activity 5.3: Consult with the California Ocean Protection Council regarding the state's interests in strengthening biodiversity protection within California national marine sanctuaries (California Natural Resources Agency, 2021).

Existing and Potential Partners

The following list primarily reflects established sanctuary partners, but it is expected to change over time as opportunities, conditions, and entities evolve.

Academic and Affiliated Associations

California State University Channel Islands, California State University Long Beach, California State University Northridge, Marine Research and Exploration, Monterey Bay Aquarium Research Institute, Santa Barbara City College, University of California, Santa Barbara, Ventura County Community College District.

Chumash Government and Community Organizations

Santa Ynez Band of Chumash Indians, Wishtoyo Foundation, Barbareño Chumash Council, Coastal Band of the Chumash Nation, Barbareño Band of Chumash Indians, Barbareño/Ventureño Band of Mission Indians.

Government Agencies

Bureau of Ocean Energy Management, California Coastal Commission, California Department of Fish and Wildlife/Office of Spill Prevention and Response, California Fish and Game Commission, California Ocean Protection Council, California State Lands Commission, National Marine Fisheries Service, NOAA B-WET Program, National Park Service, NOAA Climate Program Office, NOAA Deep Sea Coral Research and Technology Program, NOAA Fisheries Restoration Center, NOAA General Counsel (Natural Resources and Enforcement sections), NOAA Integrated Ecosystem Assessment Program, NOAA National Centers for Coastal and Ocean Science, NOAA Northwest and Southwest Fishery Science Centers, NOAA Ocean Acidification Program, NOAA Office of Law Enforcement, NOAA Pacific Marine Environmental Laboratory, Pacific Fishery Management Council, Sanctuary Advisory Council, Santa Barbara County Office of Education, Sierra Club, U.S. Coast Guard, U.S. Geological Survey, Ventura County Office of Education.

Cultural Heritage Action Plan

Goal: Respectfully honor, celebrate, and protect the unique Indigenous cultural heritage resources connected to the sanctuary through meaningful collaboration and partnership with interested Chumash community tribes, organizations, and members. Engage with and learn from Chumash community partners revitalizing maritime traditions, using traditional ecological knowledge, and stewarding sanctuary waters.

Introduction

With utmost respect for Indigenous communities that have lived in the area of the sanctuary for time immemorial, this action plan describes strategies and activities focused on the enhancement of Chumash community partnerships to support their deep connection to this special place. Additionally, this action plan emphasizes a pursuit of greater understanding, respect, protection, and interpretation of the unique Chumash cultural resources and values connected to sanctuary waters. Inclusive of this important work is collaborative engagement with contemporary Chumash community partners who seek to continue stewarding these invaluable waters.

As stated by Chumash community authors in the Chumash Ecosystem Service Assessment of the most recent sanctuary condition report (2019), "The Chumash peoples, including Chumash culture, values, cosmology, lifeways, epistemologies, and languages have thus emerged specifically from the lands and waters of the Santa Barbara Channel and have continued to develop and change in relationship with them."[73] The Chumash community, in keeping with their deep ancestral ties with these lands and waters, continue their cultural work, including traditional tomol crossings from the mainland to *Limuw* (Santa Cruz Island) in traditionally-built plank canoes ("tomols"). ONMS is proud to have played a support role that began in the late 1990s, financially assisting local Chumash community members and the newly formed Chumash Maritime Association as they brought back the building of these traditional plank canoes. This led to a modern resurgence of tomol paddling in local waters, which ONMS has also been very proud to support through a planning and water safety role since 2001.

Thus, the strategies and activities within this action plan are inspired and informed by more than two decades of ONMS humbly learning from Chumash community members that have participated with the CINMS Sanctuary Advisory Council, welcomed ONMS to be part of the annual tomol crossing event, and engaged with sanctuary staff through a variety of sanctuary programs and projects.

Following guidance from the 2021 White House Memorandum on Tribal Consultation and Strengthening Nation-to-Nation Relationships,[74] and Joint Secretarial Order 3404 signed in 2022 by the Secretary of Commerce,[75] ONMS is committed to working in partnership with willing and interested members and groups from the Chumash community. The pursuit of

[73] https://sanctuaries.noaa.gov/media/docs/2016-condition-report-channel-islands-nms.pdf#page=187
[74] https://www.whitehouse.gov/briefing-room/presidential-actions/2021/01/26/memorandum-on-tribal-consultation-and-strengthening-nation-to-nation-relationships/
[75] https://www.doi.gov/sites/doi.gov/files/elips/documents/joint-so-3403-a1_0.pdf

partnerships and collaborations will also be guided by ONMS principles and approaches to fostering Indigenous community engagement (Box 2).

Box 2: ONMS Approaches to Fostering Indigenous Community Engagement

- Build trust and respect through long-term cooperative relationships with Indigenous communities by listening to and meaningfully engaging and consulting with them.
- Recognize that respect for Indigenous knowledge, cultures, and traditional practices contributes to sustainable and equitable development and supports the ONMS mission.
- Promote collaborative and reciprocal relationships with Indigenous communities by sharing and co-generating knowledge and information, clarifying expectations, and communicating our responsibilities, intentions, commitments, other resources, and limitations.
- Understand and acknowledge the historical, political, social, cultural, and environmental context of Indigenous communities with ties to sanctuaries and monuments.
- Recognize the diversity of ways that Indigenous communities organize, govern, and exercise sovereignty and self-determination.
- Acknowledge that Indigenous communities are the custodians of their heritage and culture, and have the right to practice and revitalize their cultural traditions and customs. This includes the right to maintain, protect, and develop the past, present, and future manifestations of their cultures. Indigenous communities control access to and use of this knowledge and other tangible and intangible manifestations of their culture.
- Ensure ONMS leadership and staff are aware of the sensitivities surrounding information sharing, terminology, protocols, and world views when discussing or representing Indigenous communities and their cultures.
- Recognize the spectrum of interactions from informal engagement to formal consultation, and ensure that ONMS staff understand when certain approaches are appropriate and are equipped with tools and training to support each approach.
- Work with Indigenous communities to develop and implement management actions to understand, interpret, and protect tangible and intangible Indigenous cultural resources, including how ONMS represents any associated information in messaging and outreach products.
- Increase accountability of ONMS staff on Indigenous engagement through individual performance plans and other reporting.

Strategy CH-1: Support elevation of Chumash voices through increased engagement

Provide sanctuary resources and communication platforms to respectfully offer meaningful opportunities for Chumash community people, tribes, and partnering organizations to be seen and heard by the broader public. By assisting Chumash voices and messages to be effectively delivered, help build greater public awareness, understanding, and respect for Chumash cultural identity and connections to sanctuary waters.

Activity 1.1: Continue to provide opportunities for Chumash voices to be elevated and heard through sanctuary programs. In coordination with Chumash community representatives appointed to the Sanctuary Advisory Council, and with other interested Chumash tribes and contacts, support Chumash cultural revitalization efforts and Chumash sharing of traditional maritime knowledge to help others learn about Chumash culture.

Activity 1.2: Work with Chumash partners to appropriately connect their Indigenous language place names, species names, stories, traditions, and other cultural information as content for maps, interpretive materials, exhibits, signage, reports, publications, and online outreach platforms (e.g., Earth is Blue videos and web story features).

Activity 1.3: Collaborate with Chumash community partners to pursue Chumash-related sanctuary interpretive exhibits of mutual interest. Jointly pursue resources to ensure the appropriate development of Indigenous exhibits, respecting cultural knowledge and the value of Indigenous knowledge and time.

Strategy CH-2: Support tomol activities

ONMS is proud to have played a support role in the late 1990s to financially assist local Chumash community members and the newly formed Chumash Maritime Association as they brought back the building of these traditional plank canoes. This led to tomol paddling coming back to local waters, which ONMS has also been very proud to support through a planning and water safety role since 2001. Since then, ONMS has prioritized use of CINMS vessels, maritime expertise, staff time, safety knowledge, and more to support the annual tomol crossing event.

Activity 2.1: Provide continued planning, navigation, and safety support for annual tomol crossing events. As invited, ONMS and its vessel operators will provide safety planning and on-water safety vessel assistance during the 20-mile paddle as it has since 2001.

Activity 2.2: By invitation and with permission from Chumash community contacts, continue to provide multimedia support to the tomol crossing and other sanctuary-related events.

Activity 2.3: Share with Chumash partners any sanctuary multimedia products generated during tomol crossings or other Chumash events. As needed, enter into agreements related to securing footage and likeness of Chumash activities and people and the subsequent sharing of resources.

Strategy CH-3: Protect submerged cultural resources

Provide protection to submerged cultural resources within the sanctuary through enforcement of existing sanctuary regulations, sanctuary permit processing, and compliance with Section 106 of the National Historic Preservation Act (NHPA).[76]

Activity 3.1: Through education and outreach programming, and law enforcement partnerships, increase awareness of the fully protected status of all cultural and historic resources within the sanctuary.[77]

Activity 3.2: Contact and appropriately consult with Chumash tribes in compliance with NHPA Section 106 review requirements. Conduct timely consultations prior to ONMS taking federal actions at CINMS that have the potential to adversely affect known historic properties (see 54 U.S.C. § 306108).

Activity 3.3: Mitigate potential disturbance to submerged cultural resources when processing sanctuary research permit requests. Consult with appropriate tribal experts. Integrate tribal values and cultural resource sensitivity information into permittee education materials and briefings.

Strategy CH-4: Improve Chumash Community engagement and consultation

Pursue improved communications, consultations, and methods for engaging with Chumash Community members, particularly those tribes, groups or individuals that are interested in or have concerns about sanctuary programs or ONMS management decisions. Enhance staff cultural awareness, and increase support for Chumash Community engagement through the CINMS Sanctuary Advisory Council and its Chumash Community Working Group.

Activity 4.1: Develop and implement an improved communication and interaction process to support meaningful engagement with Chumash tribal bands. This can include timely notification on projects of potential tribal interest, meaningful discussion and learning, and consideration of concerns and suggestions prior to NOAA decision making.

Activity 4.2: Learn from Indigenous collaborative management arrangements in place at other protected areas, and consider future adoption of new approaches to improve CINMS management based upon lessons learned and successful models. For example, track the implementation of Indigenous collaborative management frameworks suggested for the proposed Chumash Heritage National Marine Sanctuary,[78] considering how successful developments could potentially enhance CINMS management.

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[76] In compliance with Section 106 of the NHPA, ONMS is required to identify historic and potentially historic property locations and, prior to taking a federal action, consider activities that may adversely affect these properties.

[77] See 15 C.F.R. 922.72(a)(8), which prohibits "[m]oving, removing, injuring, or possessing, or attempting to move, remove, injure, or possess a Sanctuary historical resource."

[78] https://sanctuaries.noaa.gov/chumash-heritage/

Activity 4.3: Conduct timely and meaningful tribal consultation processes prior to ONMS decision-making on projects that could affect cultural resources or tribal interests. Work with local tribes to develop and follow project consultation protocols. This process includes NOAA meeting legally required government-to-government consultation responsibilities with the federally recognized Santa Ynez Band of Chumash Indians.

Activity 4.4: Support reactivation of the Chumash Community Working Group of the CINMS Sanctuary Advisory Council. This important group's meetings were halted due to COVID-related impacts. Aided by staff planning and administrative support, the working group can again play a vital role in bringing together Chumash Community members interested in advancing their cultural interests in partnership with the Sanctuary Advisory Council and ONMS.

Activity 4.5: Expand the Indigenous cultural awareness of staff members. Pursue and provide additional learning and training opportunities to staff, volunteers and Sanctuary Advisory Council members focused on Chumash history, cultural values, and best practices for respectful and meaningful Indigenous community engagement. Increase staff interactions with Chumash community members across all sanctuary program areas.

Activity 4.6: Collaborate with and partner on cultural heritage programming with the proposed Chumash Heritage National Marine Sanctuary (if designated). In particular, coordinate efforts to pursue joint programming, information sharing, and cross-sanctuary support to enhance Indigenous community engagement with the new sanctuary as well as CINMS.

Strategy CH-5: Support tribal cultural landscape assessments and Traditional Ecological Knowledge

Apply ONMS experience in support of developing Tribal cultural landscape[79] assessments to help Chumash tribes and groups obtain a deeper holistic understanding of Chumash cultural heritage resources and values associated with the sanctuary. Enhance sanctuary management and research programs by working with indigenous community members and other cultural experts to explore ways to gather, share, and apply (when appropriate) traditional ecological knowledge,[80] local and customary knowledge, and information obtained from cultural resource analyses.

[79] A Tribal Cultural Landscape refers to any place in which a relationship, past or present, exists among a spatial area, resource, and associated group of Indigenous people whose cultural practices, beliefs, or identity connects them to that place. A tribal cultural landscape is determined by and known to a culturally related group of Indigenous people with relationships to that place (more information at https://sanctuaries.noaa.gov/tribal-landscapes/).

[80] Traditional and local knowledge is the integrated and situated knowledge held by individuals and communities about people, places, and livelihoods. It is a living body of knowledge that includes environmental observations and experiences that occur in places and within an Indigenous cultural context; as such, traditional ecological knowledge is embedded in culture and cannot be separated from the people and places where it is generated (Usher, 2000; Nadasdy, 1999).

Activity 5.1: Provide interested Chumash tribal communities with support and guidance to conduct tribal cultural landscape assessments. Enter into necessary agreements to properly address resources needed and privacy of culturally sensitive information. Use the framework presented in the Guidance Document for Characterizing Tribal Cultural Landscapes (Ball et al. 2015), and coordinate with the Bureau of Ocean Energy Management and partners that have also been offering cultural landscape assessment assistance to local area tribes. Support the development of tribes' knowledge base through the use of ethnographic and oral history inquiries, non-invasive and culturally sensitive methods, and by following tribe-specific protocols established regarding any disposition of culturally sensitive information.

Activity 5.2: Pursue appropriate collaborative arrangements to invite, understand, and include Chumash traditional ecological knowledge in sanctuary programs and projects. Work closely with Chumash community representatives on the CINMS Sanctuary Advisory Council and other Chumash partners to identify and implement proper protocols and participants.[81]

Activity 5.3: Participate in and promote scholarly and educational events that bring together experts in Chumash tribal knowledge, natural science, and social science to discuss sanctuary management issues (e.g., resource protection, science needs, educational programming) and the potential applications of traditional ecological knowledge.

Existing and Potential Partners

The following list primarily reflects established sanctuary partners, but it is expected to change over time as opportunities, conditions, and entities evolve.

Chumash Government and Community Organizations

Santa Ynez Band of Chumash Indians, Chumash Maritime Association, Wishtoyo Foundation, Barbareño Chumash Council, Coastal Band of the Chumash Nation, Barbareño Band of Chumash Indians, Barbareño/Ventureño Band of Mission Indians, Chumash Community Working Group of the Sanctuary Advisory Council, Tomol Captain leadership, and other interested Chumash bands, tribal governments, and organizations.

Government Agencies

Bureau of Ocean Energy Management, California State Historic Preservation Office, California State Lands Commission, ONMS Maritime Heritage Program.

Non-Governmental Organizations

Aquariums, museums, and informal science centers, Aquarium of the Pacific, Association of Zoos and Aquariums, California Sea Grant, University of Southern California Sea Grant, Channel Islands Maritime Museum.

[81] ONMS will seek to understand and incorporate traditional ecological knowledge respectfully and through appropriate processes, guided in part by relevant NOAA guidance and best practices (available online at https://www.noaa.gov/sites/default/files/2021-11/19-065933-Traditional-Knowledge-in-Decision-Making-Document-Signed.pdf).

Maritime Heritage Action Plan

Goal: Identify, protect, and raise awareness of the sanctuary's maritime, historical, cultural, and archaeological resources.

Introduction

This action plan describes strategies and activities focused on the understanding, protection, and interpretation of the unique maritime heritage resources and values connected to sanctuary waters.

Historical archaeological and cultural resources are collectively referred to as "maritime heritage" and include the wide variety of tangible and intangible resources that represent our human connections to ocean areas. Archaeological sites and other cultural resources within the sanctuary, such as shipwrecks and Chumash Native American artifacts, are protected under state and federal law, including sanctuary regulations (15 C.F.R. §922.72(a)(8)) and the National Historic Preservation Act (54 U.S.C. §§ 300101 *et seq*.). To enforce these regulations, NOAA partners with the National Park Service, U.S. Coast Guard, and the state of California. ONMS also prioritizes conducting education and outreach with boaters to reduce negative impacts to the maritime heritage resources. The goal of these programs is to educate and increase public awareness and appreciation of the cultural connections and maritime history associated with sanctuaries.

Strategy MH-1: Inventory and assess cultural resources and maritime heritage sites

Since 1980, ONMS has partnered with Channel Islands National Park, the state of California, and volunteers from Coastal Maritime Archaeology Resources to conduct joint missions on new shipwreck discoveries and inventory submerged sites. In compliance with Section 110 of the National Historic Preservation Act (NHPA), ONMS will inventory, assess, and protect traditional cultural properties, submerged shipwrecks, aircraft, and other maritime heritage resources.

Activity 1.1: Identify potential historic property sites and other undocumented maritime heritage resources within the sanctuary, evaluating them under nomination criteria for the National Register of Historic Places. Update the ONMS Maritime Archaeology Resource Inventory System.

Activity 1.2: In collaboration with agencies, tribes, stakeholders, and subject matter experts, plan and conduct periodic reconnaissance expeditions to survey maritime heritage sites via remotely operated vehicles or scuba-based operations. Check on the condition of known heritage resources to assess any changes or potential human impacts.

Activity 1.3: Continue to work with partners to analyze sanctuary seafloor mapping data, remotely operated vehicle footage, and autonomous underwater vehicle surveys in an effort to identify new maritime heritage resources. Information sources will include previously acquired data as well as new data of opportunity from NOAA and other partner mapping missions.

Strategy MH-2: Manage and protect submerged maritime heritage resources

In compliance with the National Environmental Policy Act and Section 106 of the NHPA, ONMS is required to identify historic and potentially historic property locations and to consider activities that may have an adverse effect on these properties. ONMS will protect and manage maritime heritage resources via: 1) permitting and authorization decisions; 2) education initiatives to inform users about relevant regulations and promote public stewardship; and 3) enforcement coordinated with federal, tribal, and state partners.

Activity 2.1: Prior to enacting management activities or issuing sanctuary permits, ONMS will comply with NHPA Section 106 review requirements to account for potential adverse effects on sanctuary historic properties (as defined in 54 U.S.C. § 306108).

Activity 2.2: Conduct targeted outreach and support collaborative stewardship initiatives with relevant partners and stakeholders to increase awareness and protection of maritime heritage resources. For example, coordinate with Chumash community contacts, the sport diving community, maritime museums and other learning centers, and law enforcement agencies.

Activity 2.3: Develop protocols to monitor climate-related effects on maritime heritage resources. Sanctuary waters are experiencing the effects of climate-related stressors (e.g., ocean acidification, increasing water temperatures, deoxygenation, and changing oceanographic processes) that are expected to worsen over the coming decades.

Strategy MH-3: Develop maritime cultural landscape-focused education and outreach

Maritime cultural landscapes, which describe the relationship between people and the ocean, provide an assessment tool for better understanding the wide range of heritage resources and values associated with marine protected areas. Effectively implementing the landscape approach offers opportunities to acquire a deeper knowledge of these resources across the span of history and geography of these places, providing essential context for contemporary management decision-making, and actively engaging key communities.

Activity 3.1: Develop a maritime cultural landscape study focused on the deeper knowledge of the sanctuary and its surrounding maritime heritage resources and related activities. Engage the public, Chumash partners, local and academic communities, and stakeholders.

Activity 3.2: Conduct research on maritime culture, including: Chumash practices, shipwrecks, shoreline structures (e.g., lighthouses), coastal and geological surveys, traditional recreational activities (e.g., surfing, fishing), and stewardship. Develop maritime cultural landscape studies[82] in collaboration with relevant experts.

[82] Maritime cultural landscape studies help ONMS understand the complex, dynamic, and evolving relationships of people and the sea. The study of maritime cultural landscapes allows ONMS to explore the diversity of human experiences, behaviors, and interactions with the maritime system.

Activity 3.3: Expand the sanctuary's maritime heritage website. Potential updates may include: Chumash heritage and their connections to place; maritime heritage resource; living journals of shipwreck survivors; archaeological expedition updates; and the development of a shipwreck story map.

Activity 3.4: Lead and support efforts to create and maintain exhibits related to sanctuary maritime heritage resources, and to conduct associated public lectures. Pursue these arrangements in partnership with visitor centers and learning centers including the Santa Barbara Maritime Museum, Channel Islands Maritime Museum, and Channel Islands Boating Center.

Existing and Potential Partners

The following list primarily reflects established sanctuary partners, but it is expected to change over time as opportunities, conditions, and entities evolve.

Academic and Affiliated Associations

California State University Channel Islands, California State University Long Beach, California State University Northridge, Marine Research and Exploration, Monterey Bay Aquarium Research Institute, Santa Barbara City College, University of California, Santa Barbara, University of California Los Angeles, Ventura County Community College District.

Chumash Government and Community Organizations

Santa Ynez Band of Chumash Indians, Chumash Maritime Association, Wishtoyo Foundation, Barbareño Chumash Council, Coastal Band of the Chumash Nation, Barbareño Band of Chumash Indians, Barbareño/Ventureño Band of Mission Indians, Chumash Community Working Group of the Sanctuary Advisory Council, Tomol Captain leadership, and other interested Chumash bands, tribal governments, and organizations.

Government Agencies

Bureau of Ocean Energy Management, California Department of Parks and Recreation, California State Historic Preservation Office, California State Lands Commission, ONMS Maritime Heritage Program, National Marine Fisheries Service, NOAA B-WET Program, National Park Service Submerged Resources Center, NOAA Climate Program Office, NOAA Deep Sea Coral Research and Technology Program, NOAA Fisheries Restoration Center, NOAA Integrated Ecosystem Assessment Program, NOAA National Centers for Coastal and Ocean Science, NOAA Office of Coast Survey, NOAA Northwest and Southwest Fishery Science Centers, NOAA Ocean Acidification Program, NOAA Pacific Marine Environmental Laboratory, Pacific Fishery Management Council, Santa Barbara County Office of Education, U.S. Geological Survey, U.S. Coast Guard, Ventura County Office of Education.

Non-Governmental Organizations

Aquariums, museums, and informal science centers, Aquarium of Pacific, Association of Zoos and Aquariums, California Sea Grant, Community Environmental Council, Channel Islands Maritime Museum, Diving With a Purpose, Scripps Institution of Oceanography, Society of Black Archaeologists.

Operations and Administration Action Plan

Goal: Provide operations and administrative support required for implementation of effective programs, including CINMS Sanctuary Advisory Council coordination, facilitation of safe field operations, performance tracking, and partnership support.

Introduction

Effective sanctuary management is built upon a solid base of administrative and operational support. This action plan strategically prioritizes continuing support for and enhancement of the Sanctuary Advisory Council, the maintenance and safe operation of sanctuary vessels, partnership development, and performance measurement. These functions are necessary to support all of the action plans within this management plan.

It is also important to note that, although not presented here as new strategies or activities, there are many day-to-day functions that provide important ongoing administrative support services necessary to sustain operations. This includes managing the sanctuary's budget, developing and tracking annual operating plans, facilitating contracts and grants, handling procurements and acquisitions, managing facilities and NOAA assets, ensuring safety and security measures, and providing management and training of staff.

Strategy OA-1: Coordinate and support the Sanctuary Advisory Council

Since its establishment, the Sanctuary Advisory Council has provided vital advice for the decisions affecting the sanctuary, bringing valuable community expertise to the task of ensuring effective sanctuary management. ONMS will continue to support the ongoing operation of the Sanctuary Advisory Council and seek input on sanctuary issues.

Activity 1.1: Support ongoing operation of the Sanctuary Advisory Council. Operational support will include scheduling and conducting regular council meetings, developing agendas, making public announcements, updating the website, and maintaining the email-based communication system.

Activity 1.2: Seek input from the Sanctuary Advisory Council to inform the revision and renewal of the council's 5-year charter, associated operational protocols,[83] and the CINMS management plan.

Activity 1.3: Support increased diversification of advisory council membership, outreach, and accessibility. Working in collaboration with ONMS headquarters and nationwide advisory council coordinators, evaluate barriers to broader participation on the Sanctuary Advisory Council and work to find solutions. This will also include finding ways to make advisory council meetings more accessible and inclusive to a diversity of guests, students, and speakers.

[83] https://channelislands.noaa.gov/sac/charter.html

Activity 1.4: Support working groups and subcommittees of the Sanctuary Advisory Council.[84] This includes**:** the council's Research Advisory Panel, Conservation Working Group, Sanctuary Education Team, Chumash Community Working Group, and Marketing Subcommittee. ONMS will continue to provide support to working group chairpersons to assist with meeting planning, group deliberations, and guidance on development of advice for consideration by the full advisory council.

Activity 1.5: Support meetings of a Commercial Fishing Working Group of the Sanctuary Advisory Council. Work closely with the commercial fishing seat member and alternate on the Sanctuary Advisory Council to develop a plan for membership outreach, and meeting agendas and scheduling. Focus on increasing awareness of sanctuary actions, finding collaborative projects of benefit to the fishing community, and improving understanding of how the sanctuary co-exists with fisheries management.

Strategy OA-2: Maintain safe field operation platforms and applied technologies

Providing staff with the appropriate vehicles, equipment, technology, training, and oversight is essential to maintaining the highest level of safety while planning and conducting field operations. To support effective and safe field operations, ONMS will maintain research vessels, aircraft, and other platforms, maintain safety for staff and partners, and maintain safe diving activities.

Activity 2.1: Support the maintenance, operation, and replacement of research vessels, aircraft, and other available platforms. ONMS will plan for and manage lifecycle costs, technological refreshment, upgrades, and replacement of new and existing assets to align with operational requirements. This will involve:

- Seeking collaborative opportunities for use of small boats, ship time, uncrewed systems, and aircraft time to support sanctuary needs.
- Planning and acquiring a replacement for the existing Class III sanctuary research vessel (R/V). The R/V *Shearwater* was put into service in 2002, and was designed for a 20 year service life.
- Maintaining staff training and certifications in order to conduct routine field and emergency operations on a variety of vessels and aircraft.

Activity 2.2: Maintain the highest level of safety and readiness for staff, research partners, and observers during field operations. For example, divers and boat crew will maintain current first aid, CPR, emergency oxygen administration; field operatives will undergo hazardous waste operations and emergency response training; and ONMS will participate in oil spill response training and drills.

[84] https://channelislands.noaa.gov/sac/working_groups.html

Activity 2.3: Identify needs for diving operations from the management plan. ONMS will develop a dive operations plan articulating the needs of the sanctuary diving program, including the projected needs as indicated in other action plans. All diving plans will adhere to NOAA/ONMS diving requirements.

Strategy OA-3: Performance tracking and partnership support

Implementation of the management plan requires coordination within and between action plans, sharing of staff and financial resources between program areas, and cooperation and coordination among many partner agencies, organizations, and individuals. Performance of the management plan will be tracked and partnerships will be fostered.

Activity 3.1: Assess management plan performance through tracking and reporting on the stated goals, measures, and outcomes for each strategy (see Appendix A). Establish reporting mechanisms/processes for management plan implementation, emerging issues, milestones, and accomplishments.

Activity 3.2: Develop and maintain memoranda of agreement to support programs, partnerships, and administrative needs related to management and programmatic activities. Develop, revise, and maintain these inter and intra agency agreements as needed.

Activity 3.3: Cultivate non-profit partnerships to facilitate programs in support of the management plan, as well as collaborative arrangements with a variety of public and private sector partners. For example, ONMS will focus on partnerships with the California Marine Sanctuary Foundation and the National Marine Sanctuary Foundation.

Activity 3.4: Cultivate external partnerships to support management activities. Overlapping jurisdictions, differing agency mandates, and limited resources necessitate the development of a management plan that brings together multiple institutions for the common purpose of comprehensive ecosystem protection.

Existing and Potential Partners

Including but not limited to: California Department of Fish and Wildlife, California Marine Sanctuary Foundation, Cardinal Point Captains, Channel Islands National Park, City of Santa Barbara, County of Ventura Harbor Department, National Marine Sanctuary Foundation, Naval Base Ventura County, Sanctuary Advisory Council and subgroups, University of California Santa Barbara, U.S. Coast Guard, Vandenberg Air Force Base.

Section 3:
Appendices

Waves at Santa Rosa Island. Photo: Robert Schwemmer/NOAA

Appendix A: Performance Measures

Climate Change Action Plan

Strategy Title	Desired Outcomes (Objectives)	Output Measure	Who Measures	Timeline
Strategy CC-1: Address coastal resilience and adaptation planning	Identification of coastal and ocean resources and sanctuary users likely to be affected by future climate conditions Identification of climate adaptation measures to reduce vulnerabilities of resources and users	Vulnerability assessment workshop	Climate project coordinator with support from CINMS staff	Years 2–3
		Assessment of stakeholder adaptive capacity and climate learning	Climate project coordinator with support from CINMS staff	Years 2–3
		Vulnerability assessment report completed	Climate project coordinator with Support from CINMS staff	Year 3
		Climate adaptation plan completed	Climate project coordinator with Support from CINMS staff	Year 4
Strategy CC-2: Reduce greenhouse gas emissions	Identify carbon footprint of sanctuary operations	Emissions inventory	Climate project coordinator, CINMS Operations Team	Year 3
		Green operations plan	Climate project coordinator, CINMS Operations Team	Year 4
	Implementation of plan to reduce emissions	Annual progress report	Climate project coordinator, CINMS Operations Team	Annually, after year 4
	Reduction in shipping vessel emissions through incentivized speed reduction	Tracked reduction in levels of ship pollution	Air District partners/ resource protection coordinator	Annually
	Boater education and outreach for vessel emissions reduction	New or existing education and outreach materials developed or promoted	Education and outreach coordinator, climate project coordinator	Years 2–3

Strategy Title	Desired Outcomes (Objectives)	Output Measure	Who Measures	Timeline
		Educational and outreach materials disseminated to sanctuary users and the Sanctuary Advisory Council	Education and outreach coordinator, council coordinator, climate project coordinator	Year 4
Strategy CC-3: Public engagement and communication	Educate the public about climate change impacts to the sanctuary and local solutions	Educational materials and data resources developed to increase public awareness of ocean and coastal climate issues	Education and Outreach Team, research coordinator, climate project coordinator	Years 2–3
		Data resources and educational materials for K–16, disseminated to teachers, informal education centers, sanctuary users and the public	Education and Outreach Team, research coordinator, climate project coordinator	Years 3–4
Strategy CC-4: Support, track, and share ocean climate and acidification monitoring and research	Improve physical and digital infrastructure to improve availability for actionable climate and ocean acidification information	Internal knowledge of on-going climate and ocean acidification research and monitoring efforts built and maintained	Climate project coordinator, research coordinator	Annually
		Existing data streams incorporated into online interactive condition report	Climate project coordinator, research coordinator	Annually, after year 1
		New research partnerships developed to improve spatial and temporal climate and ocean acidification data coverage and understanding	Climate project coordinator	Annually, after year 1
Strategy CC-5: Assess climate impacts to deep-sea	Implement and support efforts to map distribution of deep-sea coral and	Conducted, participated in, or informed deep-sea exploration expeditions and data products	Research coordinator, climate project coordinator	Concurrent with site condition report

Strategy Title	Desired Outcomes (Objectives)	Output Measure	Who Measures	Timeline
corals and sponges	sponge communities, and track changes to environmental conditions, species composition, and community health	Improved digital infrastructure for storage of data, analyses, and products	Research coordinator, climate project coordinator	Initial assessment: year 1, annual evaluation thereafter
		Critical findings communicated within and outside of ONMS	Research coordinator, education and outreach coordinator, climate project coordinator	Annually
Strategy CC-6: Understand the role of Channel Islands and regional marine reserves as reference areas for studying climate change	Continue to support MPA monitoring	Continued vessel support for MPA monitoring	Research coordinator	Annually, after year 1
	Develop methods of marine reserve assessment for climate driven impacts	Peer-reviewed publications and grants developed	Climate project coordinator	Years 1–3

Marine Debris Action Plan

Strategy Title	Desired Outcomes (Objectives)	Output Measure	Who Measures	Timeline
Strategy MD-1: Assess the scope, scale, and sources of marine debris in the sanctuary	Monitor and assess the types and sources of persistent marine debris in the sanctuary	Database and/or reports created on the amounts and locations of marine debris, including sources	Resource protection and research teams	Year 1 and ongoing as needed
Strategy MD-2: Remove marine debris and reduce new inputs	Cleanup events are conducted as part of Goal: Clean Seas Channel Islands. Marine vessel landings and other discharge incidents are responded to and tracked.	Maintain records of cleanup events including amount of debris removed; emergency response efforts recorded	Resource Protection Team	Year 1 onward

Strategy Title	Desired Outcomes (Objectives)	Output Measure	Who Measures	Timeline
Strategy MD-3: Raise public awareness about marine debris	Increase public knowledge and participation in marine debris reduction activities	Outreach programming	Education and Outreach Team	Year 1 onward

Vessel Traffic Action Plan

Strategy Title	Desired Outcomes (Objectives)	Output Measure	Who Measures	Timeline
Strategy VT-1: Vessel speed reduction	Reduced risk in VSR zones (reduced levels of ship strikes), reduced noise and air emissions	Monitoring of AIS to determine adherence; analyze reduced ocean noise and air emissions; and increased cooperation Observation of a declining trend in levels of ship strikes occurring within CINMS VSR zone by tracking ship strikes through National Marine Fisheries Service Stranding Network database, and estimated strikes by Pt. Blue modelers	Resource protection coordinator and Air District partners	Year 1 onward
Strategy VT-2: Manage vessels spatially	International Maritime Organization adoption of area to be avoided expansion and traffic separation scheme extension (expected 2022) Safer whales	Monitoring AIS data to determine adherence to International Maritime Organization actions Reduced ship strikes in those areas	Resource protection coordinator	Years 1–2 for establishment, years 2–5 implementation and monitoring
Strategy VT-3: Track and monitor vessel activity	Better understanding of temporal and spatial use; research and development on technologies	Number of sanctuary users via vessel counts	Resource protection coordinator	Year 1 onward

Introduced Species Action Plan

Strategy Title	Desired Outcomes (Objectives)	Output Measure	Who Measures	Timeline
Strategy IS-1: Support research, detection and monitoring efforts	Improved understanding of introduced species risks to CINMS native species and habitats Knowledge and tracking of introduced species detections/arrivals within CINMS over time	Publish research reports and papers Create database of known introduced species in CINMS	Research Team	Year 1, ongoing
Strategy IS-2: Manage invasion vectors and promote prevention through education and outreach	Boaters and harbor officials are informed and taking precautionary steps to reduce risk of transporting introduced species to the sanctuary.	Outreach products created and delivered to priority audiences	Resource protection coordinator, Education and Outreach Team	Year 1, ongoing
Strategy IS-3: Coordinate response plans with partners	A coordinated response group applies best available expertise, response protocols and strategies, and agency jurisdictions to respond effectively in a timely manner.	Documented response efforts; set quantifiable targets where feasible	Resource protection coordinator, Education and Outreach Team	As needed when/if there is a new introduction

Zone Management Action Plan

Strategy Title	Desired Outcomes (Objectives)	Output Measure	Who Measures	Timeline
Strategy ZM-1: Marine reserves and marine conservation areas	Protection, deeper scientific and educational understanding of sanctuary resources	Status and trends of sanctuary resources inside/outside reserves/conservation areas, i.e., documented in decadal review results	Resource protection coordinator, research and education departments	Ongoing
Strategy ZM-2: Management of zones and sensitive areas	Prevent or minimize disturbance to sanctuary resources	Minimal to mitigatable short term adverse impacts	Resource protection coordinator	Ongoing
Strategy ZM-3: Channel Islands Biosphere Region	Broad public and government awareness of biosphere	Integration of biosphere tenets into regional management.	Resource protection coordinator	Ongoing

Education and Outreach Action Plan

Strategy Title	Desired Outcomes (Objectives)	Output Measure	Who Measures	Timeline
Strategy EO-1: Advance K–12 and college education programming to support sanctuary stewardship and ocean and climate literacy	Increase climate and ocean literacy and stewardship among students and teachers by addressing priority management issues	Hands-on and virtual K–16 student and teacher curriculum/activities delivered	Education and Outreach Team, NOAA B-WET Program, external evaluation program	Year 1 and ongoing
		K–16 teacher professional development trainings developed and delivered		
		NOAA-developed curriculum resources promoted		
Strategy EO-2: Enhance sanctuary interpretation, volunteer, and outreach programs	Address specific resource protection issues through a variety of outreach programs	Guided learning experiences implemented	Education and Outreach Team, Research Team, resource protection coordinator	Year 1 and ongoing
		Volunteer programs have comprehensive training, coordination, and support.		
		Fisheries-related education programs implemented		

Strategy Title	Desired Outcomes (Objectives)	Output Measure	Who Measures	Timeline
		Interpretative experiences using virtual technology developed and implemented		
Strategy EO-3: Promote public engagement and stewardship through citizen science monitoring programs	Engage youth and adults in long-term, large-scale citizen monitoring programs	Maintain mobile applications (Spotter pro, Whale Alert)	Education and Outreach Team, resource protection coordinator, Research Team	Year 1 and ongoing
		Data management and sharing in support of CINMS whale ship strike reduction programs and partners		
		LiMPETS data collection supported, aligned with other relevant data sharing protocols		
		Implement and maintain White Abalone Citizen Science Monitoring program		
Strategy EO-4: Visitor centers, partner facilities, and signage	Increase awareness and build knowledge of the sanctuary through signage and exhibits	Updated interpretive sign inventory	Education and Outreach Team, superintendent, deputy superintendent of programs	Year 1 and Ongoing
		Exhibits are properly maintained and provide relevant, updated content.		
		Technologies are properly maintained and provide relevant, updated content.		
		Updated long range interpretive plan, with strategies for developing future exhibits		
Strategy EO-5: Foster and promote sustainable tourism and responsible use in support of the blue	Increase awareness about sustainable tourism and recreation opportunities within national marine sanctuaries; promote	Responsible recreation outreach; *Get into Your Sanctuary* campaign and collaboration with recreation providers (e.g., marine excursion vessel operator memorandum of agreement)	Education and Outreach Team	Year 1 and ongoing

Strategy Title	Desired Outcomes (Objectives)	Output Measure	Who Measures	Timeline
economy	responsible human uses and quality visitor experiences; enhance collaboration between sanctuaries, tourism purveyors, and recreation vendors, and protect biodiversity and economic productivity in national marine sanctuaries	Channel Islands Naturalist Corps interpretation and sanctuary outreach product distribution		
		CINMS content and membership with local, regional, and state visitor and convention bureaus		
		Human use and economic surveys guided by ONMS		
Strategy EO-6: Increase awareness and engagement through effective media and communication tools	Leverage media opportunities to engage the public through targeted communication	News media and social media outreach campaigns	Program coordinators, superintendent	Year 1 and ongoing

Research and Monitoring Action Plan

Strategy Title	Desired Outcomes (Objectives)	Output Measure	Who Measures	Timeline
Strategy RM-1: Characterize and monitor the biological and physical features and processes associated with the sanctuary	CINMS testbed for addressing regional and national ecosystem monitoring requirements	Proposals submitted to funding entities	Research Team	Years 1–5
	Partnerships continue to adapt to current and emerging information gaps.	New partnerships established	Research Team	Years 1–5
	Balanced research team of field scientists and data analysts integrating with research community	Trainings, certifications, conferences, and workshops attended	Research Team	Years 1–5

Strategy Title	Desired Outcomes (Objectives)	Output Measure	Who Measures	Timeline
Strategy RM-2: Characterize and monitor ecosystem services provided by the sanctuary	CINMS testbed for addressing regional and national ecosystem services monitoring requirements	Proposals submitted to funding entities	Research Team (social science lead)	Years 1–5
	Partnerships continue to adapt to current and emerging information gaps.	New partnerships established	Research Team (social science lead)	Years 1–5
	CINMS evaluated as a sentinel site for human dimensions and ecosystem services	Proposal submitted for consideration of sentinel site	Superintendent	Year 3
Strategy RM-3: Interpret and apply technical science info to meet sanctuary needs	Research published in the peer-reviewed literature	Publish scientific papers and technical reports	Research Team	Years 1–5
	Sanctuary Advisory Council apprised of latest scientific/research efforts	Presentations and other communications made to the Sanctuary Advisory Council and associated working groups	Research Team	Years 1–5
	Research Activities Panel re-configured with essential expertise to address current and emerging information gaps	Establishment of new Research Activities Panel	Research coordinator	Year 1
Strategy RM-4: Support regional science priorities	A complementary group of researchers spanning expertise relevant to regional issues	Regional coordination calls and meetings	Research coordinator	Years 1–5
	A functional database of new/historical projects occurring in CINMS	Research and monitoring projects updated on the Sanctuary Integrated Monitoring Network	Research Team (Sanctuary Integrated Monitoring Network lead)	Years 1–5
Strategy RM-5: Support national science priorities	Clearly articulated scientific requirements	Development and maintenance of science needs assessments	Research Team	Years 1–5
	A program encouraging mentorship for the next generation	Fellows and interns trained	Research Team	Years 1–5

Strategy Title	Desired Outcomes (Objectives)	Output Measure	Who Measures	Timeline
	Relevant and accessible scientific data for resource managers	Expand concept for online interactive condition report	Research Team	Years 1–5

Resource Protection Action Plan

Strategy Title	Desired Outcomes (Objectives)	Output Measure	Who Measures	Timeline
Strategy RP-1: Respond to emergencies that threaten sanctuary resources	Protection of sanctuary resources; coordination with other emergency response agencies	Healthy sanctuary resources with minimal to mitigatable short term impacts. On a case-by-case basis, quantifiable measures and targets can be used to guide response activities. For example, seeking zero debris scattering for a disabled vessel adrift, or zero oil spill effects reaching a coastal wetland area Presence and actions of emergency responders and ONMS to prevent or respond to emergencies (e.g., a grounded vessel)	Resource protection coordinator, in coordination with other responding agencies	Ongoing (as incidents occur)
Strategy RP-2: Enforce regulations to protect sanctuary resources	Coordination with enforcement partners	Presence and actions of enforcement partners to protect sanctuary resources Number of sanctuary incidents reported to NOAA and cases pursued over time	Resource protection coordinator, in coordination with NOAA and other law enforcement partners	Ongoing, with annual summary of incidents and cases
Strategy RP-3: Identify, evaluate, prioritize, and respond to current and emerging issues	Prevention or minimization of issues (i.e., introduced species) threatening sanctuary resources	Coordination with agency partners to marshal resources and implement agency actions	Resource protection coordinator	Ongoing, as new issues arise and require response

Strategy Title	Desired Outcomes (Objectives)	Output Measure	Who Measures	Timeline
Strategy RP-4: Permit appropriate research, education, and management activities	Further scientific understanding, educational access, and sound management of the sanctuary	Minimal to mitigatable short-term impacts Scientific data collected, number of students/people educated; enhanced management such as access to islands from new piers	Resource protection coordinator, in coordination with ONMS on permit issuance.	Ongoing, as permit applications are submitted.
Strategy RP-5: Review and provide policy guidance on activities of other agencies	Protection of sanctuary resources	Integration of sanctuary policy into other agency actions Timely and thorough response to requests for review or consultation	Resource protection coordinator	Ongoing, as the need for agency coordination arises.

Cultural Heritage Action Plan

Strategy Title	Desired Outcomes (Objectives)	Output Measure	Who Measures	Timeline
Strategy CH-1: Support elevation of Chumash voices through increased engagement	Increased visibility of Chumash cultural information available through sanctuary programs and products	Number of sanctuary products featuring Chumash messages, stories, and information	Team lead for Education & Outreach Team; maritime heritage coordinator	Years 1–5
Strategy CM-2: Support tomol activities	Safety and successful tomol crossings continue, supported by CINMS involvement	Consistent annual ONMS support for tomol crossing planning, navigational safety, and multimedia	Deputy superintendent and vessel operations coordinator	Annually, Years 1–5
Strategy CH-3: Protect submerged cultural resources	Cultural resources within the sanctuary remain respectfully undisturbed.	Number of sanctuary permits specifically contributing to the protection of submerged cultural resources	Resource protection coordinator	Years 1–5

Strategy Title	Desired Outcomes (Objectives)	Output Measure	Who Measures	Timeline
Strategy CH-4: Improve Chumash community engagement and consultation	Chumash community members come together regularly to engage in sanctuary management issues, assisted by sanctuary staff support.	Number of meaningful and productive meetings of the Chumash community working group; Chumash appointments to the Sanctuary Advisory Council with no membership gaps	Advisory council coordinator	Years 1–5
Strategy CH-5: Support tribal cultural landscape assessments and Traditional Ecological Knowledge	Improved understanding of Chumash knowledge applicable to sanctuary management	Completion of at least one tribal cultural landscape assessment		Years 2–4

Maritime Heritage Action Plan

Strategy Title	Desired Outcomes (Objectives)	Output Measure	Who Measures	Timeline
Strategy MH-1: Inventory and assess cultural resources and maritime heritage sites	Sites inventoried, surveyed, and evaluated for National Register of Historic Places nomination criteria	Expand shipwreck database	Maritime heritage coordinator	Ongoing
	Monitor sites for human and/or environment changes	Populate ONMS Maritime Archaeology Resource Inventory System	Maritime heritage coordinator	
Strategy MH-2: Manage and protect submerged archaeological resources	Protection and management of submerged archaeological resources through permitting, enforcement, education, and stewardship	Compliance with National Environmental Policy Act and Sections 106 and 110 of the National Historic Preservation Act	Maritime heritage coordinator	Ongoing

Strategy Title	Desired Outcomes (Objectives)	Output Measure	Who Measures	Timeline
	Develop protocols to monitor climate change effects on maritime heritage resources	Document climate-related effects on maritime heritage resources	Maritime heritage coordinator and research coordinator	Years 2–3
Strategy MH-3: Develop maritime cultural landscape-focused education and outreach	Develop maritime or tribal cultural landscape initiatives	CINMS website	Maritime heritage coordinator	Ongoing
	Expand CINMS maritime heritage outreach	Exhibits and signage	Education and outreach coordinators	Year 2
	Partner with museums and education centers on maritime heritage exhibits and outreach programs	Public presentations and academia	Maritime heritage coordinator and education and outreach coordinator	Ongoing

Operations and Administration Action Plan

Strategy Title	Desired Outcomes (Objectives)	Output Measure	Who Measures	Timeline
Strategy OA-1: Coordinate and support Sanctuary Advisory Council	Sanctuary Advisory Council maintained	Six meetings per year	Advisory council coordinator and deputy superintendent	Annually
		Annual Sanctuary Advisory Council report	Deputy superintendent	Annually
	Sanctuary Advisory Council charter updated as needed	Revised and approved charter	Deputy superintendent	2024 and 2029

Strategy Title	Desired Outcomes (Objectives)	Output Measure	Who Measures	Timeline
Strategy OA-2: Maintain safe field operation platforms and applied technologies	Maintain the highest level of safety when planning and conducting field operations	Schedule days at sea with staff and partners aboard CINMS vessels for operations, and charter flights, in support of research, monitoring, education and outreach, emergency operations, and support of partner agencies, training, drills, and transportation	Vessel operations coordinator, resource protection coordinator (for flights)	Ongoing
		Maintain certifications, training, and proficiency for vessel crew Schedule and oversee safety training and drills	Vessel operations coordinator	Ongoing
		Maintain Hazardous Waste Operations and Emergency Response certifications	Emergency response coordinator	Annually
		Maintain field kits and personal protective equipment	Emergency response coordinator	Annually
		Participate in oil spill response trainings	Resource protection coordinator and deputy superintendent	Opportunistically
		Adhere to NOAA/ONMS diver requirements	CINMS dive safety officer	Ongoing
		Unit diving supervisor on staff	CINMS dive safety officer	Ongoing
		NOAA diver certifications and equipment maintained	CINMS dive safety officer	Ongoing
		Participation in regular safety training/drills, simulations, and inspections	Vessel operations coordinator and CINMS dive safety officer	Ongoing

Strategy Title	Desired Outcomes (Objectives)	Output Measure	Who Measures	Timeline
Strategy OA-3: Performance tracking and partnership support	Management plan accomplishments tracked	Annual accomplishments report	Superintendent and deputy superintendent	Annually

Appendix B: References

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Appendix C: Acronyms

AIS	automatic identification system
B-WET	Bay Watershed Education and Training
CDFW	California Department of Fish and Wildlife
C.F.R.	Code of Federal Regulations
CINMS	Channel Islands National Marine Sanctuary
FR	Federal Register
K–16	kindergarten through undergraduate college
NOS	National Ocean Service
LiMPETS	Long Term Monitoring Program and Experiential Training for Students
MPA	marine protected area
NHPA	National Historic Preservation Act
NMSA	National Marine Sanctuaries Act
NOAA	National Oceanic and Atmospheric Administration
ONMS	Office of National Marine Sanctuaries
U.S.C.	United States Code
USCG	United States Coast Guard
VSR	vessel speed reduction

Appendix D: Sanctuary Regulations and Scope of Regulatory Authority

D.1 – Sanctuary Regulations

Federal regulations for Channel Islands National Marine Sanctuary are listed in the Code of Federal Regulations at Title 15, Sections 922.70 through 922.74.[85] These regulations were last modified on January 16, 2009 (74 FR 3260), with the exception of 15 C.F.R. 922.72(a)(7) concerning sanctuary overflights, which was last modified on January 26, 2012 (77 FR 3922).

D.2 – Scope of Regulatory Authority

To the extent necessary and reasonable to ensure the protection and management of sanctuary resources and qualities, Article IV of the terms of designation for CINMS establishes several activities as subject to potential regulation, including prohibitions. Activities subject to regulation are listed below, and can also be found published in the Federal Register (74 FR 3219).[86]

daArticle IV. Scope of Regulations.

Section 1. Activities Subject to Regulation

The following activities are subject to regulation, including prohibition, as may be necessary to ensure the management, protection, and preservation of the conservation, recreational, ecological, historical, cultural, archeological, scientific, educational, and esthetic resources and qualities of this area:

a. Exploring for, developing, or producing hydrocarbons or minerals within the Sanctuary;
b. Discharging or depositing from within or into the Sanctuary any material or other matter;
c. Discharging or depositing from beyond the boundary of the Sanctuary any material or other matter that subsequently enters the Sanctuary and injures a Sanctuary resource or quality;
d. Drilling into, dredging, or otherwise altering the submerged lands of the Sanctuary; or constructing, placing, or abandoning any structure, material, or other matter on or in the submerged lands of the Sanctuary;
e. Operating a vessel (i.e., watercraft of any description) within the Sanctuary except fishing vessels or vessels traveling within a Vessel Traffic Separation Scheme or Port Access Route designated by the Coast Guard outside of 1 nmi from any Island;
f. Disturbing a marine mammal or seabird by an overflight below 1000 feet;
g. Within a marine reserve, marine park, or marine conservation area, harvesting, removing, taking, injuring, destroying, possessing, collecting, moving, or causing the loss

[85] CINMS regulations are officially printed in the Code of Federal Regulations at 15 C.F.R. §§ 922.70–922.74, available online at https://www.ecfr.gov/cgi-bin/retrieveECFR?gp=1&SID=72c0b3e229cd9f8d3ba8b7e5bc516d61&h=L&mc=true&n=pt15.3.922&r=PART&ty=HTML#sp15.3.922.g

[86] Also available online at: https://nmssanctuaries.blob.core.windows.net/sanctuaries-prod/media/archive/management/fr/74_fr_3216.pdf

of any Sanctuary resource, including living or dead organisms or historical resources, or attempting any of these activities;

h. Within a marine reserve, marine park, or marine conservation area, possessing fishing gear;
i. Moving, removing, injuring, possessing, or attempting to move, remove, injure, or possess a Sanctuary historical resource;
j. Taking any marine mammal, sea turtle, or seabird within or above the Sanctuary;
k. Possessing within the Sanctuary (regardless of where taken from, moved, or removed from) any marine mammal, sea turtle, or seabird;
l. Marking, defacing, damaging, moving, removing, or tampering with any sign, notice, or placard, whether temporary or permanent, or any monument, stake, post, or other boundary marker related to the Sanctuary;
m. Introducing or otherwise releasing from within or into the Sanctuary an introduced species.

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