Section 3:
Program Based Action Plans

(Top) Sanctuary Exploration Center. (Bottom, left) Dr. Steve Lonhart monitors for invasive species. (Bottom, right) ONMS vessel and a cruise ship. Photos: (top) NOAA; (bottom, right) Chad King/NOAA; (bottom, left) NOAA

- Education, Outreach, and Communication Action Plan
- Maritime Heritage Action Plan
- Operations and Administration Action Plan
- Research and Monitoring Action Plan
- Resource Protection Action Plan

Education, Outreach, and Communication Action Plan

Goal: To increase protection and appreciation of sanctuary resources by building greater public understanding, engagement, recreation, and stewardship throughout our highly diverse coastal communities.

Introduction

ONMS implements extensive education, outreach, recreation, and communication strategies to engage public constituents and help fulfill the overarching mission "to understand and protect the coastal ecosystem and cultural resources of Monterey Bay National Marine Sanctuary."

Education programs are designed to enhance public awareness and understanding of the sanctuary and its resources and build stewards to help take on the responsibility of protecting these special underwater treasures. Education programs conducted at MBNMS are in direct alignment with the ONMS education vision and mission.

> ONMS Education Vision: An ocean-literate public making informed environmental decisions.
>
> ONMS Education Mission: To inspire ocean and climate literacy and conservation through national marine sanctuaries.

The development of effective and coordinated education programs is a priority for all national marine sanctuaries. Over the past 25 years, ONMS has invested in long-term education strategies to raise the public's awareness and understanding of the local and regional marine environment, while creating engagement opportunities for protecting sanctuary resources. These education programs complement the sanctuary's broad-based community outreach efforts by focusing on targeted audiences such as students, teachers, families, and businesses.

ONMS works collaboratively with a number of partners to implement community-based education, interpretation, and volunteer programs. The sanctuary uses education as a resource management tool to address specific priority ecosystem protection issues identified during the management plan review process. Education is essential to achieving many of the sanctuary's management objectives. In addition, education is used to both complement and promote other sanctuary programs such as research, resource protection, and enforcement through multiple outreach and communication strategies.

To meet education and outreach goals, the 2008 MBNMS management plan laid out a set of specific strategies and activities for exploring new opportunities to reach constituents, such as the development of interpretative facilities, including visitor centers and signage, promoting fisheries related education, and increasing ocean literacy through volunteer engagements, business relations, and targeted multicultural K-12 education programs for teachers and students.

Beginning in 2008, ONMS focused its efforts with governmental and nonprofit partners on construction of the Sanctuary Exploration Center in the city of Santa Cruz, a large 12,000 ft^2 interpretative visitor center for education, outreach, and community engagement. Opened in 2012, the Sanctuary Exploration Center features state-of-the art interactive multimedia exhibits,

virtual theater experiences, a gift and bookstore showcasing local artists, and a teaching lab/classroom used for education programs and as a public meeting space. The Sanctuary Exploration Center provides a critical vehicle for interpretation of ocean resources and provides a tangible presence in the Monterey Bay community and across the five coastal counties adjacent to the sanctuary.

The Sanctuary Exploration Center offers multiple public programs, including docent-led guided tours, school field trips, and special events such as film festivals, science speaker symposiums, First Friday events promoting local community artists, and science and conservation conferences and workshops. Through interactive programs, visitors immerse themselves in the role of the sanctuary in coastal and ocean protection.

In addition to the Sanctuary Exploration Center, the Coastal Discovery Center, a 1,000 sq. foot office and interpretative center in partnership with California State Parks, is located at William Randolph Hearst Memorial State Beach in San Simeon and has served as an established sanctuary interpretation presence in MBNMS southern region since 2006. Hosting about 15,000 visitors annually, the Coastal Discovery Center introduces the natural and cultural history of this special part of the Central Coast.

More than 2,500 school children annually engage in experiential education programs at MBNMS visitor centers. Visitor centers feature hands-on activities such as pier oceanography, plankton sampling, beach exploration, marine debris assessment, marine mammal and bird identification, and sustainable fisheries management games. Students from diverse multicultural backgrounds learn about their role in ocean and wildlife protection and ONMS builds a new generation of stewards. Since 2006, over 650,000 visitors have experienced sanctuary interpretative facilities to heighten their awareness of ocean issues and resources, promote environmental stewardship, and foster community support and engagement in sanctuary programs and NOAA's National Marine Sanctuary System.

Citizen Science Programs

Beach COMBERS
A beach monitoring study, using volunteers to sample selected sections of beach for stranded marine birds and mammals.

First Flush
Held during the first major storm of the year, volunteers analyze water quality to characterize "first flush" storm water runoff.

Snapshot Day
Volunteers test water quality throughout the sanctuary's watersheds one day each spring.

Urban Watch
Volunteers collect urban runoff water samples from storm drains during dry weather months. Samples are analyzed for contaminants.

ONMS has developed and supported numerous community-based citizen science programs. Programs began in 1997 with Beach COMBERS, which was followed by the creation of water quality citizen science programs Urban Watch, Snapshot Day, and First Flush. ONMS also coordinated the early years of the sandy beach and rocky intertidal monitoring program LiMPETS (Long-Term Monitoring Program and Experiential Training for Students). Over the years, an increased number of partners have supported and taken the lead on several successful citizen science efforts. A consortium of agencies and Moss Landing Marine Labs now coordinates the Beach COMBERS program, while Pacific Grove Museum of Natural History, Greater Farallones Association, and Channel Islands and Greater Farallones national marine

sanctuaries all coordinate the LiMPETS network. Although ONMS continues to support these efforts, much of the focus on citizen science is placed on monitoring programs addressing specific resource protection priorities, such as sanctuary water quality.

Strategy EOC-1: Coordinate education programs through sanctuary visitor centers

ONMS will further develop and deliver K-12 educational programs aimed to increase ocean literacy and stewardship among students and teachers. Programs will be based on sanctuary ecosystems and resource protection issues and will be relevant to content standards in K-12 classrooms. Students and teacher participation and engagement in sanctuary education programs will increase knowledge of ocean issues and allow for opportunities to be more active stewards of the sanctuary.

Activity 1.1: Continue to deliver hands-on, K-12 student and teacher programming focused on sanctuary resources, research, and ecosystem protection issues at the Sanctuary Exploration Center and Coastal Discovery Center.

Activity 1.2: Develop a sanctuary visitor center K-12 education plan with theme-based activities for specific grade levels aligning with California Environmental Literacy Initiative standards and Next Generation Science Standards and incorporating ocean and climate literacy principles.

Activity 1.3: Use ONMS-developed curriculum resources for K-12 students through visitor center education programs to address emerging ocean issues such as a changing climate, ocean acidification, rising sea levels, and marine debris. Programs will emphasize the role individuals can take to help mitigate and prevent the effects of changing ocean conditions.

Activity 1.4: Implement K-12 teacher professional development trainings using ONMS curriculum resources and sanctuary citizen science monitoring through visitor center education programs.

Strategy EOC-2: Enhance sanctuary interpretation and outreach programs

Develop community support and partnerships for ocean conservation through targeted outreach and interpretation efforts. Strategies developed to address specific resource protection issues, such as water quality monitoring and field-based wildlife disturbance interpretative enforcement programs, are described in the Resource Protection, Wildlife Disturbance, and Water Quality action plans.

Activity 2.1: Provide comprehensive training, coordination, and support for volunteers in monitoring, interpretation, and outreach needs of the sanctuary, including visitor centers and citizen science monitoring.

Activity 2.2: Implement guided learning experiences for a wide range of culturally diverse audiences to build awareness and increase understanding of sanctuary resources, research, and

ecosystem protection issues (e.g., lecture series, docent-led visitor center tours, family and youth-focused programs), and instill bilingual materials where possible.

Activity 2.3: Implement fisheries-related education programs that promote sustainable fisheries through an understanding of fisheries science, including natural history, fishing techniques, and socioeconomics of fishing in the sanctuary (e.g., Voices of the Bay, Fishermen in the Classroom).

Activity 2.4: Host and participate in local, regional, and national outreach events to increase sanctuary awareness and public engagement and promote volunteer opportunities (e.g., Whale Fest, *Get Into Your Sanctuary* week, Coastal Discovery Fair).

Activity 2.5: Assess opportunities, develop outreach plans, and implement interpretative experiences using virtual technology (e.g., distance learning programs, telepresence, live video streaming).

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

Create stewards of the sanctuary by engaging youth and adults in large-scale, long-term citizen monitoring programs. Working with partner organizations, volunteers, students, and teachers, NOAA will support field-based monitoring programs relevant to MBNMS research, policy, and management. Strategies developed to address specific resource protection issues, such as long-term water quality monitoring, are described in the Water Quality and Resource Protection action plans.

Activity 3.1: Collaborate with other California national marine sanctuaries, the Pacific Grove Museum of Natural History, and partners to support on-going intertidal and sandy beach monitoring efforts and coordinated activities for the LiMPETS network.

Activity 3.2: In collaboration with Moss Landing Marine Laboratories, support ongoing beach monitoring efforts of the Beach COMBERS program, engaging volunteers to conduct surveys of sanctuary beaches for deposition of beach-cast carcasses of birds and mammals.

Activity 3.3: Identify and conduct needs assessments to develop additional citizen science monitoring programs and increase student, partner organization, and volunteer engagement using NOAA designed protocols with an emphasis in supporting K-12 education (e.g., NOAA Marine Debris Monitoring and Assessment Project, plankton monitoring).

Strategy EOC-4: Maintain and develop sanctuary-wide exhibits and interpretive signage

Increase awareness and build knowledge of the sanctuary through the development of interpretative signage and exhibits throughout the region.

Activity 4.1: Maintain and update existing interpretative signage inventory, including identification of repairs, replacements, or removals needed.

Activity 4.2: Identify opportunities and leverage partnerships for sanctuary-related interpretative signage projects at strategic locations for increased exposure of sanctuary messages to wide-ranging audiences (e.g., Sanctuary Scenic Trail, California Coastal Trail, Whale Trail).

Activity 4.3: Maintain and improve sanctuary visitor center-based exhibits for interpretation of sanctuary resources, research, ecosystem protection issues, and maritime heritage (e.g., ocean acidification, harmful algal blooms, coastal resilience and sea level rise, water quality, marine debris, wildlife disturbance, shipwrecks, underwater acoustics).

Activity 4.4: Develop and maintain placement of mobile exhibits and wayside technologies at strategic locations for increased exposure of sanctuary messages to wide-ranging audiences.

Activity 4.5: Develop a sanctuary visitor center interpretation and exhibit plan, using ONMS best practices, for the creation of new exhibits incorporating new themes, messages, research, and technologies.

Strategy EOC-5: Foster and promote government and community relations

Increase awareness of the inherent socioeconomic value of national marine sanctuaries to promote positive sentiment toward the sanctuary and to create a larger coalition of support for sanctuary programs among a broader and more diverse audience.

Activity 5.1: Build collaborative partnerships with local business and the tourism industry, such as visitor bureaus, travel and hospitality associations, and recreational on-the-water tour operators to raise ocean health awareness, develop sanctuary brand recognition, strengthen and broaden the community of support for sanctuary goals, and promote value-added benefits of the sanctuary to local economies.

Activity 5.2: Participate in the Monterey Bay Ecotourism Regional Initiative (MBETR). MBETR is a regional (Monterey, Santa Cruz, San Benito counties) effort to develop, integrate, and implement sustainable practices in the hospitality, tourism, recreation, and wellness business sectors. Highlight MBNMS as the inspiration and backdrop for why this region should be both protecting and promoting the sanctuary. One element of this work for ONMS will be the development and implementation of a business recognition program.

Activity 5.3: Engage in targeted outreach to local government, advisory boards, and educational institutions to foster and promote sanctuary relevance and awareness of the inherent socioeconomic value of national marine sanctuaries while garnering support from the broader constituency.

Activity 5.4: Deliver public presentations and serve as guest speakers with local communities, governments, and partner organizations with a focus on increasing awareness of sanctuary resources, research, ecosystem protection issues, education, and conservation efforts.

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

Leverage local, regional, and national media opportunities to engage the public through targeted communication of sanctuary resources, research, ecosystem protection issues, education, and volunteer programs.

Activity 6.1: Maintain and grow a contact database of media representatives and outlets with interest in sanctuary-related stories.

Activity 6.2: Develop a media communication plan for promoting ongoing public interest stories and short-term, event-driven media plans when appropriate.

Activity 6.3: Supply media outlets with sanctuary events and public interest stories and work with ONMS to distribute community announcements, media advisories, press releases, news articles, and web stories to the media when appropriate.

Activity 6.4: Build relationships with key local media representatives by organizing media visits to sanctuary activities, including research cruises and public events as appropriate.

Activity 6.5: Develop a comprehensive social media strategy, using NOAA/NOS social media protocols, to increase awareness of sanctuary research, education, and ecosystem protection programs and foster stewardship of sanctuary resources.

Activity 6.6: Assess opportunities, develop outreach plan, and produce educational video products to promote protection of sanctuary resources, including regular programming on local access television stations.

Strategy EOC-7: Engage in local, regional, and national collaborations to leverage education and outreach opportunities

Engage in local and regional groups to explore collaborations for the development of education partnerships and joint programs to reduce potential duplication of efforts (e.g., Monterey Bay Environmental Educators, Ocean Communicators Alliance, state marine protected areas collaboratives, Save Our Shores).

Activity 7.1: Support the Sanctuary Advisory Council in creating an Education Working Group or subcommittees for the development of specific education-related initiatives for addressing management issues as appropriate.

Activity 7.2: Develop appropriate ONMS West Coast region education and outreach projects that leverage opportunities and promote resources across West Coast national marine sanctuaries (e.g., ocean acidification outreach products, deep sea coral curriculum).

Activity 7.3: Support ONMS education and outreach initiatives leveraging and promoting the National Marine Sanctuary System-wide resources and messages (e.g., the Earth is Blue campaign).

Strategy EOC-8: evaluate effectiveness of sanctuary education and outreach efforts

Conducting evaluations for the systematic collection of information about activities and outcomes will provide the basis for assessment, improving effectiveness of program implementation and informing decisions about future program development. The evaluation methods and tools developed for education programs will track short- and long-term outcomes in measuring whether goals and objectives have been met.

Activity 8.1: Design and implement comprehensive evaluation strategies for existing and new K-12 education and citizen science programs, products, and activities to provide formative and summative assessments designed to meet stated goals, objectives, and desired outcomes.

Activity 8.2: Work through the Office of Management and Budget approval process to develop surveys or evaluation tools needed to support evaluation plans.

Relevant strategies/activities located elsewhere within this management plan

Strategy EOC-1 → Davidson Seamount Strategy DS-3
Activity EOC 1.1 → Climate Change Activity CC-3.1
Activity EOC 1.3 → Climate Change Activity CC-3.2
Strategy EOC-2 → Davidson Seamount Strategy DS-3
Strategy EOC-2 → Coastal Erosion and Sediment Management Activity CESM-8.2
Strategy EOC-4 → Davidson Seamount Strategy DS-3
Activity EOC 4.3 → Climate Change Activity CC-3.3
Activity EOC 5.4 → Resource Protection Activities RP-15.2, 17.2
Strategy EOC-6 → Davidson Seamount Strategy DS-3

Potential Partners

NOAA Office of Ocean Exploration and Research, National Marine Fisheries Service, NOAA Marine Debris Program, U.S. Forest Service, Elkhorn Slough National Estuarine Research Reserve, California State Parks, California Department of Fish and Wildlife, City of Monterey, City of Santa Cruz, National Marine Sanctuary Foundation, Monterey Bay National Marine Sanctuary Foundation, Ocean Protection Council, Save Our Shores, O'Neill Sea Odyssey, Seabird Protection Network, Friends of the Elephant Seal, One Cool Earth, Pacific Grove Museum of Natural History, Cabrillo College, Moss Landing Marine Laboratories, California State University Monterey Bay, Santa Cruz County Office of Education, Monterey County Office of Education, San Luis Obispo County Office of Education.

Education, Outreach, and Communications Action Plan Goal: To increase protection of sanctuary resources by building greater public understanding, engagement, and stewardship in our highly diverse coastal communities.

Performance Measures Table

Strategy Title	Desired Outcome	Measure	Who Measures	Timeline
Strategy EOC-1: Coordinate education programs through sanctuary visitor centers	Increase ocean literacy and stewardship among students and teachers	Five-year education plan for formal audiences	Education & Outreach Team	Year 3
		Student programs delivered	Education & Outreach Team	Ongoing
		K-12 teacher professional development trainings developed and delivered.	Education & Outreach Team	Year 4
Strategy EOC-2: Enhance sanctuary interpretation and outreach programs	Address specific resource protection issues through a variety of outreach programs	Volunteer programs have comprehensive training, coordination, and support	Education & Outreach Team	Ongoing
		Guided learning experiences implemented	Education & Outreach Team	Ongoing
		Fisheries-related education programs implemented	Education & Outreach Team	Opportunistic
		Interpretative experiences using virtual technology developed and implemented	Education & Outreach Team	Years 3-5, opportunistic

Strategy Title	Desired Outcome	Measure	Who Measures	Timeline
Strategy EOC-3: Promote public engagement and stewardship through citizen science monitoring programs	Create sanctuary stewards by engaging youth and adults in long-term, large-scale citizen monitoring programs.	LiMPETS network participation	Education & Outreach, Research teams	Ongoing
		Beach COMBERS program supported	Education & Outreach, Research teams	Ongoing
		Needs assessments developed and implemented	Education & Outreach Team	Year 2
Strategy EOC-4: Maintain and develop sanctuary-wide exhibits and interpretive signage	Increase awareness and build knowledge of the sanctuary through signage and exhibits	Updated interpretative signage inventory	Education & Outreach Team	Year 1
		Exhibits are properly maintained and provide relevant, updated content	Deputy Superintendent	Years 2-4
		Technologies are properly maintained and updated	Deputy Superintendent	Ongoing
		Five-year exhibit plan	Education & Outreach Team	Year 1
Strategy EOC-5: Foster and promote government and community relations	Promote positive sentiment toward the sanctuary	Increased engagement with business and tourism partners to raise awareness of sanctuary resources, programs, and issues	Superintendent, Education Team	Years 1-3
	Create a larger coalition of support for sanctuary programs	Recreation and Tourism Working Group supported	Superintendent, Education Team	Ongoing

Strategy Title	Desired Outcome	Measure	Who Measures	Timeline
Strategy EOC-6: Increase awareness of the sanctuary through effective media and communication tools	Leverage media opportunities to engage the public through targeted communication	Updated database of media outlets and reporters	Education Coordinator, Superintendent	Ongoing
		Five-year media engagement plan with comprehensive social media plan	Education Coordinator	Year 3
Strategy EOC-8: Evaluate effectiveness of sanctuary education and outreach efforts	Conduct periodic assessment of education and outreach programs to inform future program development	Comprehensive evaluation plan for existing and future education and outreach programs	Education Coordinator	Year 2
		Program assessments	Education Team	Year 3

Maritime Heritage Action Plan

Goal: Identify, protect, and raise awareness of the maritime cultural, historical, and archaeological resources in MBNMS.

Introduction

The history of California's central coast is predominantly a maritime one. From the days of the early Ohlone inhabitants to the European-American exploration and settlement of California to the present, coastal waterways have been a main route of travel, subsistence, and supply. Ocean-based commerce and industries (e.g., fisheries, shipping, military, recreation, tourism, extraction, exploration, research, and aesthetics) are important to the maritime history, modern economy, and social character of this region. These constantly changing human uses define the maritime heritage of the Central Coast sanctuaries and help interpret our evolving relationship with sanctuary resources. Ports such as San Francisco and Monterey and smaller coastal harbor towns developed through fishing, shipping, and economic exchange. Today these have become major urban areas, bringing millions of people in proximity to national marine sanctuaries. Many of these people are connected to sanctuaries through commercial and recreational activities such as surfing, boating, and diving.

The term “maritime heritage” encompasses elements in the cultural landscape, such as shipwrecks and other sites or objects, that are of archaeological, historical, or cultural significance found in, on, or under the seabed and which have been underwater for at least 50 years in most cases. Included within are archaeological resources (physical remains of past human activities), cultural heritage resources (native and indigenous groups and traditional practices), and historical resources (existing, still standing objects of historical interest).

Records indicate 463 vessel and aircraft losses occurred within the jurisdiction, or adjacent to the boundaries, of MBNMS (Smith, 2003). These shipwrecks were a result of the significant maritime exploration and commerce historically occurring in the region, coupled with a coastline dotted with shallow, rocky headlands, largely exposed to prevailing winds, storms, and fog. The seafloor has preserved remnants of the sites where people lived and of the vessels in which they conducted trade and fought wars. Ships, boats, wharves, lighthouses, lifesaving stations, whaling stations, prehistoric sites, and myriad other heritage treasures lay covered by water, sand, and time.

The National Marine Sanctuaries Act and site regulations mandate the management and protection of cultural and historical resources in the sanctuary. As with natural resources, numerous user and interest groups, from archaeologists to recreational divers, seek to interact with maritime heritage resources in many positive ways (e.g., discovery, exploration, survey, photography) but may also have negative impacts (e.g., anchor damage, artifact collecting). Cultural and historical resources are also impacted by natural factors like storm surge, currents, and degradation through corrosion and natural processes. Therefore, responsible, informed decisions must be made on how to manage these resources for the enjoyment and appreciation of current and future generations. Maritime heritage resources, unlike living resources, are nonrenewable, so it is especially important we protect these important links to our past.

ONMS is placing increasing emphasis on the development of maritime heritage programs to identify and protect submerged archaeological sites and to increase public awareness and appreciation of the maritime history associated with sanctuaries. A well-coordinated program is required to identify and assess shipwrecks for significance in accordance with the National Historic Preservation Act (NHPA); determine which sites may pose significant environmental hazards; protect sites from unauthorized disturbance; and develop heritage partnerships and education programs.

There have been several accomplishments since initiation and implementation of the 2008 management plan. The West Coast regional maritime heritage coordinator position was created and oversees maritime heritage projects in California and Washington. The coordinator completed the West Coast Regional Needs Assessment (Schwemmer, 2012), which served as the five-year plan for national marine sanctuaries along the West Coast.

Several wrecks have been extensively surveyed, including one just outside of MBNMS boundaries. The SS *Montebello* was studied as a potential oil spill threat and as a relevant historic shipwreck. Since 2003, ONMS and partners have carefully characterized and mapped the shipwreck and surrounding debris field. In 2011, NOAA worked with the United States Coast Guard, California's Department of Fish and Game, and partners to determine that there is no substantial oil threat from *Montebello* to California waters and shorelines. Detailed mapping and site characterizations of the USS *Macon* and SS *Montebello* led to nomination submissions to the National Park Service and subsequent listings on the National Register of Historic Places. In 2015-16, NOAA and partners mapped and surveyed the WWII-era aircraft carrier USS *Independence*.

Outreach efforts have included expanding MBNMS maritime heritage webpages to include the known losses inventory, field research, technical reports, and links to local maritime heritage exhibits. Educational materials (*Macon* DVD and *Noticias de Monterey* publication) were created and shared with the public and used for docent training. Preserve America funding was received to update the *Montebello* video for the Coastal Discovery Center. Maritime heritage and fishing topics were included in signage for the city of Monterey. In addition, several exhibits were created: fishing history exhibit and multi-beam sonar interactive at the Sanctuary Exploration Center; whaling exhibit at the Coastal Discovery Center; and lighthouse history exhibit at Pigeon Point Light Station.

Activities will include inventorying, locating, surveying, and monitoring both historic shipwrecks and those posing an environmental threat to sanctuary marine resources; and characterizing and protecting maritime heritage resources.

Strategy MH-1: Inventory and assess submerged sites

NOAA will collaborate with state and federal agencies and the private sector to gather resource documentation and to create opportunities to locate and record submerged archaeological resources in accordance with sections 106 and 110 of the NHPA.

Activity 1.1: Inventory shipwrecks and expand the MBNMS shipwreck database with the goal of furthering section 110 compliance and determining eligibility for inclusion on the National Register of Historic Places. Continue to establish external partnerships to inventory potential

shipwreck sites with other federal, state, and local agencies, vocational archaeologists, commercial and recreational divers, and fishermen. Continue to populate and expand the MBNMS shipwreck database managed by the West Coast regional maritime heritage coordinator.

Activity 1.2: Conduct shipwreck reconnaissance expeditions that include systematic research and surveys of archaeological sites. Reconnaissance surveys should include seafloor mapping associated with historic documentation on last reported positions of ship and aircraft wreck sites, including the barge *Umpqua 11* and passenger steamship *San Juan*. Systematic research should include a return survey to the USS *Independence*. Ocean Exploration Trust E/V *Nautilus* surveys within national marine sanctuaries along the West Coast will have a World War II focus and may include high-definition video survey at the *Montebello* site.

Activity 1.3: Determine eligibility and nominate appropriate submerged archaeological sites for inclusion in the National Register of Historic Places.

Activity 1.4: Conduct research on maritime cultural landscapes, including:

1. Shipwrecks, exploration, fishing and fisheries, trade vessels, routes, and nationalities;
2. Shoreline structures such as lighthouses, life-saving stations, fort, canneries, dog-hole ports, and whaling facilities;
3. Native and Indigenous groups and traditional practices;
4. Traditional recreational activities such as diving, surfing, and boating; and
5. Stewardship of our cultural and historic maritime resources.

Strategy MH-2: Threat assessment for shipwrecks and submerged structures

NOAA is faced with the challenge of identifying and monitoring historic and non-historic shipwrecks potentially posing environmental threats to sanctuary marine resources. Information pertaining to shipwrecks as environmental threats is provided to NOAA's Emergency Response Division and ONMS for the development of the Environmental Response and Management Application (ERMA) and Remediation of Underwater Legacy Environmental Threats (RULET) database systems. In compliance with Section 106 of the NHPA and the NMSA, the sanctuaries will develop a plan to address this issue, as there are many historic shipwrecks with hazardous potential.

Activity 2.1: As needed, add to the inventory of shipwrecks, inside and outside of sanctuary boundaries, posing environmental threats to sanctuary marine resources. This inventory is based upon primary and secondary source documentation from established shipwreck databases, as well as interviews with commercial and recreational divers and fishermen who frequently visit submerged shipwrecks.

Activity 2.2: Monitor hazardous shipwreck sites. Monitor sites already identified as threats to sanctuary marine resources. Facilitate a research design with other trustee agencies to develop a plan to monitor and prevent, reduce, and respond to environmental threats from any such vessels. Use protocols for site evaluation based on monitoring work similar to the shipwrecks *Jacob Luckenbach* and *Montebello*.

Strategy MH-3: Protect and manage submerged archaeological resources

As part of the NEPA compliance process, NOAA is required to submit a review under Section 106 of the NHPA identifying historic and prehistoric archaeological properties and to consider activities that may have an adverse or no adverse effect on these properties. NOAA will protect and manage submerged archaeological resources in several ways, including: (1) permitting and authorization decisions, (2) through enforcement and education, and (3) by assessing shipwrecks as potential environmental threats.

Activity 3.1: Coordinate stewardship of submerged resources. Develop protocols to manage, monitor, and protect submerged sites in partnership with appropriate local law enforcement agencies where required.

Activity 3.2: Provide training to sanctuary staff and facilitate training for partners. The training will focus on the importance of submerged archaeological resources and the need and tools to manage and protect them under Section 106 requirements.

Activity 3.3: Inventory archaeological and historic resources currently outside sanctuary boundaries that may be of significant historic interest or may pose a threat to sanctuary resources.

Activity 3.4: Develop and implement outreach campaigns focused on how to deal with artifacts and historic resources inadvertently brought to the surface (e.g., traditional fishing resources, anchor lines).

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Strategy MH-4: Develop maritime cultural landscape-focused education and outreach programs

The maritime cultural landscape provides a theme to educate and inform people along the California coast and throughout the country about the relationship between humans and the ocean. Through websites, museum exhibits, and other tools, ONMS will continue to provide information on maritime cultural landscapes.

Activity 4.1: Create, expand, and populate MBNMS's website. The website should include specific information about maritime heritage resources, such as native and Indigenous connections to place, living journals of shipwreck survivors, archaeological project updates, potential environmental threats and maps.

Activity 4.2: Develop and implement education and outreach programs and materials. Products will include: (1) USS *Macon* book created by Texas A&M University and NOAA staff; (2) USS *Macon* curriculum to be made publicly available.

Activity 4.3: Collaborate on maritime heritage resource exhibits and signage. ONMS will incorporate maritime cultural landscape themes and messages as part of the California Statewide Signage, Exhibits, and Facilities Plan.

Activity 4.4: Provide lectures to the public and academic community.

Potential Partners

NOAA Emergency Response Division, NOAA Office of Response and Restoration, NOAA Office of Law Enforcement, National Park Service, California State Historic Preservation Office, California Sea Grant, California State Parks, California State Lands Commission, Coastal Maritime Archaeology Resources, local museums, and historic parks.

Maritime Heritage Action Plan Goal: Identify, protect, and raise awareness of the maritime cultural, historical, and archaeological resources in MBNMS.

Performance Measures Table

Strategy Title	Desired Outcome (Objective)	Output Measure	Who Measures	Timeline
Strategy MH-1: Inventory and assess submerged sites	Resource documentation gathered to create opportunities to local and recorded submerged archeological resources	Expanded shipwreck database	West Coast Region Maritime Heritage Coordinator	Year 3 Ongoing
Strategy MH-2: Threat assessment for shipwrecks and submerged structures	Protection and management of submerged archeological resources through permitting, enforcement, education, and threat assessment	Hazardous wrecks in database	West Coast Region Maritime Heritage Coordinator	Year 2
			Resource Protection Coordinator	Year 2
Strategy MH-4: Develop maritime cultural landscape-focused education and outreach programs	Expanded sanctuary maritime heritage webpages	Website	Research Specialist	Ongoing
	The public is informed about relationship between humans and the ocean	Exhibits and signage	Education Coordinator	Year 3

Operations and Administration Action Plan

Goal: Address the necessary operations and administration activities required for implementation of an effective program, including identifying staffing and infrastructure resource needs and operational improvements.

Introduction

The desired outcome of the Operations and Administration Action Plan is the increased protection of Monterey Bay National Marine Sanctuary resources and qualities, achieved with the budget and staff necessary for implementation of the action plans. In order to effectively achieve the strategies outlined in the other action plans, ONMS needs to maintain basic staffing, infrastructure, and administrative functions at the site. This action plan addresses these operational needs and details ONMS' plans to maintain its field-based capabilities, maintain and train its staff and volunteers, maintain adequate facilities and other infrastructure, complete its annual budgeting process, manage contracts, maintain its advisory council (and subgroups), and report on management plan implementation progress. In effect, this Operations and Administration Action Plan supports all other action plans in this management plan.

Strategy OA-1: Management of MBNMS

Operating funds for sanctuary management come primarily from federal appropriations to ONMS. These funds cover expenses such as personnel salaries, vessel use and maintenance, utilities, property rental, equipment, and supplies.

Unpredictable and variable funding for staff and program development may affect specific aspects of the sanctuary management plan. The scale and scope of certain programs may be modified due to unforeseeable changes in funding levels. However, the overarching goals of the plan will remain unchanged.

Activity 1.1: Develop, manage, and track MBNMS annual operating plans and budget per ONMS and West Coast region guidance. Sanctuary staff will continue to perform budget planning and tracking and produce an annual operating plan. The management plan will be used as a guide to set budget and project priorities outlined each year in annual operating plans.

Activity 1.2: Facilitate contracts, grants, and acquisitions in compliance with Federal Acquisition Regulations. NOAA ONMS will continue to work with the NOAA Western Regional Center (WRC) to provide a comprehensive suite of administrative services including procurement, program support services, health and safety, administrative payments, space management, publications, and security. NOAA ONMS will continue to work with the WRC as needed for services.

Strategy OA-2: Support management plan priorities

The implementation of these action plans is highly dependent on available staffing and financial resource allocation. 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 federal, state, and local government agencies, as well

as private organizations and individuals. MBNMS administration provides an organized structure and support system for implementing management strategies while providing the flexibility and guidance necessary to address changing, new, and emerging resource management issues.

Activity 2.1: Track management plan accomplishments. Establish reporting mechanisms/processes for management plan implementation and emerging issues.

Activity 2.2: Assess management plan performance through the development of performance goals, measures, and outcomes for each strategy. NOAA will conduct routine evaluations to collect and record data on MBNMS performance over time. Using these data, staff will (a) evaluate progress towards achievement of each action plan's desired outcomes and (b) assess the role or added value of those outcomes in the overall accomplishment of site goals and objectives.

Activity 2.3: Develop memoranda of agreement for programs, partnerships, and administrative needs to support management and programmatic activities as needed.

Activity 2.4: Cultivate foundation partnerships to facilitate programs in support of the management plan. Staff will focus on partnerships with the California Marine Sanctuary Foundation and the Monterey Bay National Marine Sanctuary Foundation (a local chapter of the National Marine Sanctuary Foundation).

Activity 2.5: Cultivate external partnerships to support management activities. Overlapping jurisdictions, different agency mandates, and limited resources necessitate the development of a management plan that brings together multiple institutions for the common purpose of ecosystem protection. ONMS is committed to coordinating with other federal, state, and local agencies in a continuous ecosystem management process to ensure the long-term protection of the unique cultural resources, habitats, and wildlife of this region, while considering the demands of multi-use interests.

Strategy OA-3: Coordinate and support Sanctuary Advisory Council

Section 315 of the NMSA authorizes the Secretary of Commerce to establish sanctuary advisory councils to advise and make recommendations to the Secretary of Commerce in the designation and management of national marine sanctuaries. This authority was delegated to the director of the Office of National Marine Sanctuaries who, working with local community interests, established the advisory council for MBNMS in 1994. The council functions in an advisory capacity to MBNMS's superintendent to:

A. Help strengthen and provide support for the growth of programs at MBNMS;
B. Assist in protection of MBNMS resources by helping identify needed research to protect MBNMS resources; and
C. Assist in building community support through problem solving, consensus building, new constituency development, increasing opportunities for revenue enhancement, and increasing understanding about MBNMS.

The Sanctuary Advisory Council assists in carrying out the goals and objectives of the MBNMS management plan. ONMS programs promoting research, education, and resource protection are

a major focus for the Sanctuary Advisory Council and members serve as ambassadors promoting sanctuary stewardship.

Activity 3.1: Support the Sanctuary Advisory Council. The council has proven to be a powerful voice for the general public, channeling citizen concerns, ideas, and needs. The council provides an important public forum for MBNMS constituents, working to enhance communications and provide a conduit for bringing the concerns of user groups and stakeholders to the attention of the sanctuary superintendent, NOAA, and the Department of Commerce. The Sanctuary Advisory Council meets six times per year in open sessions located throughout MBNMS.

Staff support the following council activities:

A. Administration of the Sanctuary Advisory Council website (meeting schedules, agendas, locations, meeting minutes, membership contact information, and log of Sanctuary Advisory Council actions);
B. Administration of the Sanctuary Advisory Council listserv and "interests" email list for members of the public to receive Sanctuary Advisory Council meeting notices and other information;
C. Development of the Sanctuary Advisory Council's annual work plan; and
D. Compilation of an annual report of Sanctuary Advisory Council achievements, milestones, and recommendations.

Activity 3.2: Periodically review and update the Sanctuary Advisory Council charter. The superintendent and the Sanctuary Advisory Council review the charter on a five-year cycle to ensure it is up to date and adequately addresses problems or needs of the Sanctuary Advisory Council, or any new legal or programmatic requirements of the program. The Sanctuary Advisory Council charter outlines the objectives and scope of the Sanctuary Advisory Council's activities, description of duties for which the Sanctuary Advisory Council is responsible, procedural requirements on the appointment of Sanctuary Advisory Council members and officers, requirements for the conduct of Sanctuary Advisory Council members and meetings, and other requirements. (See National Marine Sanctuaries Act, Section 315, Advisory Councils.)

Activity 3.3: Periodically review Sanctuary Advisory Council membership. The Sanctuary Advisory Council may periodically review its membership to determine if it has the appropriate membership for community and agency involvement. The council may also review the focus and membership of its working groups as necessary to implement MBNMS programs.

Activity 3.4: Continue coordination between the advisory councils of Monterey Bay and Greater Farallones national marine sanctuaries. To ensure integration on issues and opportunities for MBNMS' northern management area, a meeting of the two councils will be held biannually. The two councils may also choose to appoint liaisons from their councils to attend each other's meetings.

Activity 3.5: Support the three standing working groups of the Sanctuary Advisory Council: the Research Advisory Panel, the Conservation Working Group, and the Recreation and Tourism Working Group. NOAA will continue to work with each working group to refine membership and decision-making protocols.

Strategy OA-4: Support staff and facilities

The main office is located in Monterey, California, with satellite offices in Santa Cruz and San Simeon, California. The sanctuary's premier 14,000 square foot visitor facility, the Sanctuary Exploration Center, is in Santa Cruz and additional staff are co-located at the National Marine Fisheries Laboratory. In San Simeon, sanctuary assets include an 800 square foot visitor center and office co-located with California State Parks at William Randolph Hearst Memorial Beach. Additional facilities include a shared space at the U.S. Coast Guard Station for marine operations (diving and boating) and a floating dock (currently managed by the West Coast Regional Office). ONMS staff at MBNMS purchase, maintain, and implement policy, standardization, and assessment of most IT systems for those offices.

Activity 4.1: Coordinate and oversee acquisition (retention) of sanctuary offices, visitor facilities, marine operations, and vessel slips. Provide operational support for facility maintenance, inspections, and contract work to ensure uninterrupted use of facilities. Outlining the annual requirements for each facility allows staff to address maintenance needs and develop long-term life-cycle plans.

Activity 4.2: Ensure safety and security at all sites. Outline safety plans for all facilities per Federal Protective Service' Facility Security Assessments.

Activity 4.3: Provide support of computers, servers, and peripherals. Maintain working hardware and licensed software. Maintenance done on site when possible. This includes budgeting for new computers as part of the lifecycle planning. Oversee IT policy compliance

Activity 4.4: Administer and enhance MBNMS website and social media.

Strategy OA-5: Facilitate field operations

Field operations on or in the water or the air, or along the shoreline, are critical to ensuring effective and efficient sanctuary activities for research, resource protection, emergency response, and education. Providing staff with the appropriate equipment, training, and oversight is essential to maintaining the highest level of safety while planning and conducting field operations.

Activity 5.1: Pursue a variety of platforms for conducting field activities in MBNMS. Small boats and planes are the primary platform for on-the-water operations for purposes of research monitoring, resource protection activities, and support of select educational programs. Other platforms (e.g., NOAA ships, partner vessels) for research and resource protection activities are used as available. The West Coast Regional Office manages the R/V *Fulmar*. Supporting MBNMS field activities includes:

A. Planning and coordinating missions relative to MBNMS management needs;
B. Seeking opportunities for small boat, ship, and aircraft time to implement research, monitoring, and resource protection needs (NOAA, USCG, other partners);
C. Planning and acquiring a small boat for localized diving and resource protection actions using existing staff capabilities and training; and

D. Maintaining training and certifications to conduct field operations on a variety of vessels and aircraft (e.g., boat safety drills, aircraft evacuation drills).

Activity 5.2: Support safe field operations (e.g., shoreline reconnaissance, diving). Field operations in MBNMS encompass a variety of shoreline, diving, and overflight activities, each with a unique set of environmental factors, safety requirements, and training. NOAA is committed to maintaining the highest level of safety for staff, observers, and research partners.

To conduct safe field operations, NOAA is committed to:

A. Maintaining annual hazardous waste operations and emergency response (HAZWOPER) training for field operatives;
B. Maintaining field kits and personal protective equipment for approved field operations; and
C. Participating in oil spill response training and drills for both field operations (Shoreline Cleanup and Assessment Technique [SCAT]) and incident command.

To conduct safe dive operations, NOAA is committed to:

A. Adhering to the NOAA/ONMS requirements for all divers;
B. Maintaining a unit diving supervisor on staff;
C. Maintaining NOAA Diver certifications for dive staff;
D. Maintaining dive equipment to NOAA/ONMS standards; and
E. Participating in regular safety training/drills, simulations, and inspections.

Activity 5.3: Identify needs for diving operations from the MBNMS management plan. ONMS will develop a dive operations plan articulating the needs of a diving program, including the projected needs as indicated in other action plans.

Activity 5.4: Implement small boat operations to address activities identified in the management plan. Staff will develop a small boat operation plan articulating the use of a new small boat, which will be operated in adherence to all NOAA safety guidelines and ONMS best management practices currently in place.

Strategy OA-6: Support diversity, equity, and inclusion

NOAA is firmly committed to increasing the diversity within its workforce and creating inclusive work environments where everyone feels valued and experiences a true sense of belonging. NOAA will continue to take direct steps to increase the diversity of its workforce, as well as provide an equitable and inclusive work environment. NOAA is also working to build internal capacity to improve engagement and collaboration with Indigenous communities adjacent to, and associated with, sanctuaries to improve understanding and recognize their rights, responsibilities, knowledge, values and connections to places and resources that are part of national marine sanctuaries. These connections to place are central to the identities and cultures of Indigenous peoples, and working with Indigenous communities is essential to fulfilling NOAA's mission to protect these nationally significant places for current and future generations.

Activity 6.1: Coordinate with NOAA staff on implementation of NOAA's Diversity and Inclusion Strategic Plan.

Activity 6.2: Participate in ONMS Diversity and Inclusion strategic working groups.

Activity 6.3: Identify and explore opportunities to increase diversity in the MBNMS workforce and advisory council.

Activity 6.4: Develop and initiate an Indigenous Engagement strategy.

Operations and Administration Action Plan Goal: Address the necessary operations and administration activities required for implementation of an effective program, including identifying staffing and infrastructure resource needs and operational improvements.

Performance Measures Table

Strategy Title	Desired Outcome (Objective)	Output Measure	Who Measures	Timeline
OA-1: Management of MBNMS budget	MBNMS's annual appropriation is tracked and managed	Budget plan and annual operating plans	Superintendent and Deputy	Annually
		Finalized contracts and acquisitions	Superintendent and Deputy	Annually
OA-2: Support management plan priorities	Management plan accomplishments tracked	Annual accomplishments report	Superintendent and Deputy	Annual
OA-3: Coordinate and support Sanctuary Advisory Council	Sanctuary Advisory Council maintained	Six meetings/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	2025
OA-5: Facilitate field operations	Maintain the highest level of safety when planning and conducting field operations	HAZWOPER certification maintained	Emergency Response Coordinator	Annually
		Field kits and personal protective equipment maintained	Emergency Response Coordinator	Annually
		Participation in oil spill response trainings	Superintendent	Opportunistically

Strategy Title	Desired Outcome (Objective)	Output Measure	Who Measures	Timeline
		Adherence to NOAA/ONMS diver requirements	MBNMS Dive Safety Officer	Ongoing
		Unit Diving Supervisor on staff	MBNMS Dive Safety Officer	Ongoing
		NOAA Diver certifications and equipment maintained	MBNMS Dive Safety Officer	Ongoing
		Participation in regular safety training/drills, simulations and inspections	MBNMS Dive Safety Officer	Ongoing
OA-6: Support Diversity, Equity and Inclusion	Creation of a working environment better reflecting sanctuary communities on the Central California coast	Increase in the diversity of the sanctuary's workforce	Superintendent	Ongoing
		Participation in regional and national strategic planning efforts related to diversity, equity and inclusion	Deputy Superintendent	Ongoing
	Increased engagement with Indigenous communities	Indigenous Engagement Strategy completed	Superintendent	Ongoing

Research and Monitoring Action Plan

Goal: To assess changes in species, habitats, and processes and participate in regional research and monitoring to better characterize and understand the sanctuary ecosystem and support ecosystem management, resource protection, and education.

Introduction

One of the specifically stated purposes of the NMSA is to support, promote, and coordinate scientific research on and long-term monitoring of the resources of areas designated as national marine sanctuaries. The general approach of the sanctuary's research program is to synthesize existing scientific information, determine applied science information gaps, develop collaborations to gather information, and interpret research results for the sanctuary superintendent and other NOAA staff. In particular, MBNMS site staff will continue to be leaders for several West Coast-wide or national initiatives and programs of significance. An overview of the MBNMS research program is available online, with specific information on a regional collaboration to compile information on 176 major monitoring programs.

Strategy RM-1: Characterize biological and physical features in MBNMS

To understand and protect an area of the ocean, we must know the distribution of habitats present and species living there. ONMS has technical reports (MBNMS, 2019) and a series of maps (e.g., those available on SIMoN) characterizing the sanctuary. However, at 6,094 square miles (15,783.4 square kilometers), MBNMS is a large and complex area, a majority of which has never been visited or studied.

Activity 1.1: Continue characterization of marine environments identified in the condition report: estuarine, nearshore (high tide to 98.4 feet/30 meters), offshore (beyond 98.4 feet/30 meters deep), and Davidson Seamount. Develop opportunistic, collaborative, and grant-funded projects to continue characterizing the sanctuary to inform required condition reports, with a focus on the least sampled habitats: beaches, mid-water, and Davidson Seamount. Staff will continue with developing and characterizing a known species inventory/list of the sanctuary. Staff will also continue, pending ship time availability, characterization of the Big Sur nearshore habitats through the dive program. Information will be included in scientific publication and on the SIMoN website, and available for management response on issues like damage assessments.

Activity 1.2: Encourage research in SESAs. Through regular Research Activity Panel meetings and permit applications, regional scientists will be encouraged to focus research on SESAs. Through allocation processes for NOAA ships and airplanes and through a collaboration with the Benthic Ecology Lab at MBARI, staff will continue to characterize the Davidson Seamount Management Zone and Sur Ridge.

Activity 1.3: Maintain a bibliography and technical report database on sanctuary-related science. Publications by staff and other papers relevant to sanctuary management issues will be updated to the online bibliographic and technical report database for easy access, to inform education, protection, and science efforts.

Activity 1.4: Produce condition reports in advance of any management plan update. Staff are required to complete condition reports on the health of MBNMS prior to management plan updates. Between reports, sanctuary staff contribute to national efforts at improving the reports, such as adding confidence levels to assessments and including socioeconomic indicators. Expertise from the site will be shared with other sites as they develop condition reports.

Strategy RM-2: Maintain and expand the Sanctuary Integrated Monitoring Network (SIMoN)

Continue site-driven, partner-supported collaborations focused on monitoring in the sanctuary. In addition to conducting science, the SIMoN website is maintained to serve as a portal to information from historical and ongoing research and monitoring programs taking place in the sanctuary. Differentiating between human-caused and natural variation is key to understanding those aspects of the system affected by human actions and providing insight on how we may be able to change human behavior to maintain resources and ecosystem services.

Activity 2.1: Maintain existing, and implement new, monitoring and research programs to understand natural and human caused changes in sanctuary resources, including the effectiveness of management actions. Using staff's field expertise and by developing regional collaborations, provide data to assess the status and trends of ecological and environmental resources, addressing research needs identified in the action plans making up the MBNMS management plan. The research program typically has no internal funds to support this work other than for staff time, so the focus is on identifying information gaps, grant writing, and collaborating with other agencies and academic institutions. Efforts will continue to assess beach cast organisms and subtidal reefs within scuba depths and in SESAs.

Activity 2.2: Maintain an online database of existing and historic monitoring programs for the four West Coast sanctuaries in the national marine sanctuaries system. SIMoN has an online database of over 100 monitoring related projects that will be kept up to date if they are active, or designated as historical if they are not. Information on additional monitoring projects relevant to this management plan will be added to continue informing adaptive management efforts.

Activity 2.3: Provide online updates to managers and the public on sporadic natural and human caused events in the sanctuary. Populate the news-like feature on the SIMoN website as relevant marine events happen. NOAA uses this system to detect trends in natural and human-caused events not happening often enough to detect with standard monitoring programs and to efficiently inform news media, managers, and the public about sporadic events as they occur.

Activity 2.4: Develop new and maintain existing online tools to synthesize and disseminate monitoring and research information. Based on priorities in this management plan and opportunistic funding, SIMoN team members, along with contractors and collaborators, will develop new tools to visualize metadata, locate information about research and monitoring projects, and share images and videos of sanctuary resources with the public.

Activity 2.5: Maintain and develop natural history information and digital images of common sanctuary species, habitats, and human uses. Continue to supervise volunteers and interns to add new content on species found in the sanctuary, expanding on field guide resources available

on the web and via smart phones (e.g., the SeaPhoto app). New images will be added to the SIMoN photo library on a regular basis.

Activity 2.6: Support infrastructure and system guidance for Cordell Bank, Channel Islands, and Greater Farallones national marine sanctuaries SIMoN efforts. Continue ongoing efforts to secure external funding for hosting and maintaining the regional SIMoN website and, as staff time permits, continue to support expansion of web-based capabilities at all West Coast region sites. The website work entails coding for database integration and web tool development and technical support for all five sanctuaries on the west coast.

Strategy RM-3: Support science focused on priority sanctuary needs

This management plan identifies a wide variety of research and monitoring needs. These needs can be addressed through existing staff knowledge, literature reviews, interviewing experts in the related subjects, developing collaborations, writing research grants, or conducting field research. The needs also extend to sharing expertise, knowledge, and costs across the five west coast sanctuaries and with other sanctuaries throughout the system.

Activity 3.1: Maintain an annotated list of applied research needs for management of the sanctuary. Maintain and update science needs assessment documents on the National Marine Sanctuary System website, including background and science products needed for effective resource characterization and management. These documents are used by scientists interested in doing research in MBNMS.

Activity 3.2: Provide letters of support for appropriate applied science proposals. Many grant funding agencies require an applied use component to their grants, or some indication of the societal benefits of the proposed research. Staff will continue writing letters of support for scientists proposing sanctuary related research.

Activity 3.3: Apply for NOAA Ship time (i.e., NOAA Ship *Bell M. Shimada*) and airplane time to support regional applied science. NOAA provides annual opportunities to apply for use of large NOAA Corps research vessels and airplanes. Staff will continue to participate in annual proposal writing efforts for NOAA research assets, particularly as these assets tend to be the only access to the Davidson Seamount Management Zone.

Activity 3.4: Write research proposals for grant funds. When necessary science for management decisions are not available, staff will develop research proposals for outside funds to implement the research. Staff expects to continue writing grants to support: Beach COMBERS monitoring program, deep-sea coral restoration, analyzing data from the MARS hydrophone, characterizing deep seafloor habitats, monitoring subtidal reefs, microplastics sampling, and integrated ecosystem assessments. Other projects will be pursued as opportunities become available.

Activity 3.5: Promote regional science to obtain funding from different levels of the Office of National Marine Sanctuaries. ONMS periodically has program funds and staff support for specific projects. Staff will pursue these assets to address applied science needs, including: Dr. Nancy Foster and Hollings scholars to characterize the sanctuary with comprehensive species inventories; mitigation funds to characterize the sanctuary soundscape; national diver program

funds for cross-site kelp forest monitoring; and integrated funds for ocean observatory program development. Other opportunities will be pursued as they develop and address other needs identified in this management plan.

Activity 3.6: Serve on thesis and dissertation committees at regional academic institutions for projects specific to addressing the sanctuary's research needs. Supervise interns, scholars, and fellows working on science projects related to sanctuary resources.

Activity 3.7: Promote use of sanctuary vessels (boats) to further sanctuary science. The ONMS West Coast Regional Office manages research vessels, the flagship being the R/V *Fulmar*. These vessels are well suited for sanctuary research and staff will encourage and facilitate their use to address research and monitoring needs. Writing grants may include covering the cost of operating the ONMS vessels. In addition, develop cross-site funding opportunities and ship time proposals for use of larger research vessels and associated remotely operated vehicles. For example, coordinate proposal submission, cruise planning, and cruise implementation with NOAA and Ocean Exploration Trust for use of the assets of the E/V *Nautilus*.

Activity 3.8: Provide scuba diving expertise and related ecological knowledge to science collaborations. ONMS has an active dive program at MBNMS, including a dive unit supervisor serving NOAA divers at other organizational units. Divers at the site are also experts in subtidal ecology and singularly informed on the Big Sur coastline. Staff will collaborate with groups monitoring resources, maintaining buoys, making collections, and undertaking other activities addressing research and monitoring needs of the sanctuary.

Activity 3.9: Conduct research and monitoring when support is available and staff expertise is the most effective way to address management needs. Where appropriate this expertise will be used to gather information needed for management decisions, when other options are less effective.

Strategy RM-4: Facilitate the flow of science information among academic institutions, government agencies, and other institutions

To effectively compile existing or develop new research to address sanctuary needs, it is necessary to match available science capabilities with these needs. Moreover, it takes coordination skills to develop products that experts in different fields can understand and use. Through extensive collaborations, sanctuary research needs are integrated among regional and national groups and information is presented across a broad spectrum of interested users of scientific information.

Activity 4.1: Administer the Research Activity Panel. Coordinate five meetings per year of the MBNMS Research Activity Panel, made up of 23 representatives from regional research organizations. Panel members advise sanctuary staff as requested and provide links to subject experts if they cannot address an issue. This panel is an effective networking group for developing cooperative research projects. The chair and vice chair of the Research Activity Panel serve as research representatives on the Sanctuary Advisory Council.

Activity 4.2: Support condition report needs for monitoring information through integration of SIMoN with NOAA's Integrated Ecosystem Assessment, the Marine Biodiversity Observation

Network collaboration, and the Central and Northern California Ocean Observing System. Staff are required to complete a condition report on the health of the sanctuary before initiating a management plan review. To provide updated information in between publications of condition reports, staff are working on several grants and with several organizations to develop online monitoring information, in graphic ecosystem models, to describe the ongoing health and ecosystem interactions in the sanctuary.

Activity 4.3: Participate in the development of web portals external to the sanctuary site to share information supporting resource management data needs. Continue grant funded work on the Monterey Bay Marine Biodiversity Observation Network (MBON) to develop web portals with information on changes in sanctuary resources through time and their correlations. This is part of a collaboration among ONMS headquarters, Monterey Bay, Channel Islands, and Florida Keys national marine sanctuaries, and a dozen other academic and government organizations. One of the main products of this multi-million-dollar grant is to develop a portal to serve MBNMS' condition report information needs.

Activity 4.4: Participate in formal research agreements with academic institutions. ONMS research staff have formal positions at local research institutions as adjunct research faculty, research affiliates, and research associates. Staff also serve on governing councils and strategic planning groups and as program advisors, including the NOAA Center for Coastal and Marine Ecosystems at CSUMB. These positions allow staff to integrate sanctuary research needs into operational requirements of these institutions. A large focus of these efforts is to share computer and data resources with faculty and students to address marine conservation research needs.

Activity 4.5: Provide regular communications about the health of Elkhorn Slough. Sanctuary staff gather, synthesize, and share the research, policy, and science of regional partners through the MBNMS condition report, the SIMoN website, and interactive models as a way to continue to inform partners about Elkhorn Slough, monitoring efforts, and overall health.

Strategy RM-5: Interpret select technical science information

Scientific information can be complex and therefore needs special interpretation for use by policy makers, educators, and the general public.

Activity 5.1: Publish scientific papers and technical reports and provide related information appropriate for social media and websites. Make research and monitoring information available for future use by writing scientific papers and technical reports. Update the research and maritime heritage sections of the MBNMS website and regularly post to the MBNMS Facebook and Twitter accounts.

Activity 5.2: Participate in the development of public speaker series. Lead the process for selection and presentation forum for the annual Ricketts Memorial Award and Lecture and work on sanctuary sponsored events by identifying appropriate science speakers.

Activity 5.3: Mentor interns, research fellows, graduate students, Dr. Nancy Foster Scholars, and Hollings Scholars. Serve on review panels for the ONMS process for selecting Dr. Nancy Foster and Hollings scholars. Interns are supervised every summer and sometimes throughout the year to help address science needs in this management plan.

Activity 5.4: Provide information to the Sanctuary Advisory Council through the Research Activity Panel and direct staff reports. Regularly present research needs and results to the Research Activity Panel, and Sanctuary Advisory Council as part of informing management and policy.

Activity 5.5: Serve as experts on marine health, technology, and events for local, regional, and national media. Staff serve as national experts on some topics (e.g., kelp forests, invasive species, lost shipping containers) and are frequently contacted by national and international media for information and comments. Moreover, local media expect sanctuary staff to be informed contacts on any marine topic of public interest. Staff perform regular media interviews and provide contacts for regional experts to help educate the public about marine science.

Activity 5.6: Participate in presentations to share sanctuary science with the general public, volunteer groups, community groups, agency scientists, and agency (including international) leadership. Upon request, staff will give presentations on science at scientific meetings, to advisory councils, to agency leaders, at academic institutions, and to the public.

Activity 5.7: Assist in technical and mapping graphics for exhibit development at MBNMS education centers and assist in video productions that highlight habitats, species, and science in the sanctuary. Use scientific expertise, ability to gather information, and GIS skills to assist with exhibit and program development at the Sanctuary Exploration Center and Coastal Discovery Center. Provide imagery and expertise in video productions.

Relevant strategies/activities located elsewhere within this management plan

Strategy RM-1 → Resource Protection Activity RP-12.1
Strategy RM-1 → Resource Protection Activity RP-17.3
Strategy RM-2 → Resource Protection Activity RP-12.1
Strategy RM-2 → Resource Protection Activity RP-17.3
Strategy RM-2 → Introduced Species Strategy IS-4
Strategy RM-3 → Coastal Erosion and Sediment Management Activity CESM-7.3
Strategy RM-5 → Resource Protection Activity RP-12.2

Potential Partners

California Department of Fish and Wildlife; California Ocean Science Trust; California Sea Grant; California State University, Monterey Bay; Central and Northern California Ocean Observing System; Central Coast Regional Water Quality Control Board; Central Coast Wetlands Group; Channel Islands National Marine Sanctuary; Cordell Bank National Marine Sanctuary; Elkhorn Slough National Estuarine Research Reserve; Greater Farallones National Marine Sanctuary; Hopkins Marine Station; Monterey Bay Aquarium; Middlebury Institute of International Studies at Monterey; Monterey Bay Aquarium Research Institute; Moss Landing Marine Laboratories; National Marine Fisheries Service; Naval Postgraduate School; Office of Marine and Aviation Operations; Stanford University; State Water Resources Control Board; United States Environmental Protection Agency; United States Geological Survey; University of California at Davis; University of California at Santa Cruz (also see SIMoN Network Partners).

Research and Monitoring Action Plan Goal: Assess changes in species, habitats, and processes and participate in regional research and monitoring to better characterize and understand the sanctuary ecosystem and to support ecosystem management, resource protection, and education programs.

Performance Measures Table

Strategy Title	Desired Outcome (Objective)	Output Measure	Who Measures	Timeline
Strategy RM-1: Characterize biological and physical features in MBNMS	Continue characterizing the sanctuary to inform nationally mandated condition reports	Grant proposal to the U.S. Integrated Ocean Observing System to fund condition report critical parameter measurements	Research Coordinator	Year 1
		Grant proposal to assess impacts of anthropogenic sounds	Research Coordinator	Year 2
		Publish condition report	Research Coordinator	Year 8
Strategy RM-2: Maintain and expand the Sanctuary Integrated Monitoring Network (SIMoN)	Site driven, partner supported collaboration focused on monitoring are maintained	Monitoring programs, natural history information and digital images on SIMoN website	SIMoN Scientist	Years 1-5
	SIMoN provides a portal of historic and current monitoring programs in sanctuary	“Sporadic Events” updated on SIMoN website as identified	SIMoN Scientist	Years 1-5
Strategy RM-3: Support science focused on priority sanctuary needs	Sanctuary research and monitoring needs identified	Annotated list of applied research needs for sanctuary developed	Research Team	Years 3, 5
	NOAA Ship time is used	Annual research proposals developed	Research Team	Years 1-5

Strategy Title	Desired Outcome (Objective)	Output Measure	Who Measures	Timeline
	Staff expertise used when it is the most effective way to address management needs	Annual training of PISCO divers for kelp forest monitoring	Research Team	Years 1-5
Strategy RM-4: Facilitate the flow of science information among academic institutions, government agencies, and other institutions	Sanctuary research and monitoring efforts, projects, and data are widely communicated and available to partners	Research Activity Panel administered	Research Team	Years 1-5
		Ecosystem trend data portals added to SIMoN website	Research Team	Years 1-5
Strategy RM-5: Interpret select technical science information	Make sanctuary science topics accessible to policy makers and the public	Publish scientific papers and technical reports	Research Coordinator	Years 1, 3, 5

Resource Protection Action Plan

Goal: Maintain and improve the sanctuary's natural biological and ecological processes by evaluating and addressing adverse impacts from human activities on sanctuary ecosystems.

Introduction

One of the primary mandates of the NMSA and ONMS's resource protection programs is to protect and restore the biological, historical, and cultural resources in the sanctuary.

The general approach of the resource protection program is to collaborate on management efforts with local stakeholders to identify and directly reduce impacts to wildlife and other protected resources, as well as to balance the protection of sanctuary resources and improving scientific understanding. This action plan aims to improve resource protection and management on select site-specific issues through the application of marine spatial planning (MSP) principles. Marine spatial planning involves a comprehensive, ecosystem-based approach and process through which compatible human uses are objectively and transparently allocated to appropriate ocean areas to sustain critical ecological, economic, and cultural services for future generations. Resource protection issues are also addressed through response to emergency events, reviewing and commenting on coastal development projects and permits with potential to impact the sanctuary, regulations on prohibited activities, and issuing permits with conditions to minimize impacts.

A number of the 2008 issue-based action plans were fully or partially completed and new strategies incorporated into this management plan. For example, the Desalination Action Plan is no longer a stand-alone action plan, as desalination guidelines were published in 2010 and environmental review and permitting for proposed desalination projects will be included in Strategy 3 of this plan. Similarly, the Submerged Cables, Coastal Erosion, and Cruise Ship Discharges plans were implemented, and remaining actions are tied to ONMS's permit processes, so are no longer individual plans.

This action plan includes strategies and activities in the areas of collaborative planning and management; marine policy, permitting, and enforcement; resource protection outreach and interpretation; vessel traffic; collaboration with fisheries managers; recreation; low flying aircraft; alternative energy; conservation practices (MPAs); and emergency response and restoration. In addition, sanctuary staff will continue to be leaders for several west coast-wide or national initiatives and programs of significance in resource protection.

Strategy RP-1: Continue to build partnerships and leverage opportunities for protecting sanctuary wildlife, habitats, qualities, and cultural resources through collaborative planning and management

ONMS resource protection programs rely on collaborative partnerships to be sustainable. They include the Water Quality Protection Program (a separate action plan) and the work with the Coastal Regional Sediment Management Plans (a strategy in the Climate Change Action Plan). Below are four additional collaborative resource protection programs.

Activity 1.1: Continue collaborations to image areas identified in SESAs in order to characterize and map biogenic hot spots. Encourage use of research to develop innovative management approaches in SESAs through ROV and AUV technologies.

Activity 1.2: Coordinate with other agencies to track compliance of the IMO-adopted recommended tracks for vessels carrying hazardous cargo. The IMO-adopted recommended tracks were established in 2000 to reduce threats of spills by vessel traffic such as container ships, bulk carriers, and oil tankers.

Activity 1.3: Participate in a regional risk assessment of whale strikes from vessels over 300 tons.

Activity 1.4: Participate in landslide management along California State Route 1 in partnership with Caltrans and other resource management partners. NOAA will work with NMFS, CDFW, and other partners to determine and implement a plan of action. Actions are case specific, but may include monitoring species and their habitat, baseline assessments to characterize the status of marine resources, or efforts to rescue organisms in imminent danger (e.g., black abalone in danger of burial by ongoing, wave-generated movement of sediment).

Activity 1.5: Continue to contribute to documents outlining sanctuary resource protection priority needs. Develop cross-site funding opportunities and proposals for priority programs and projects (e.g., climate vulnerability assessments).

Strategy RP-2: Enhance socioeconomic program

Up-to-date socioeconomic data are needed to support the conservation and management goals for the sanctuary (strengthen and improve conservation of marine wildlife, including whales, pinnipeds, sea otters, and seabirds) and to satisfy legal mandates under the National Marine Sanctuaries Act (16 U.S.C. 1431 *et seq*), Endangered Species Act (16 U.S.C. 1531 *et seq*), Marine Mammal Protection Act (16 U.S.C. 1361 *et seq*), National Environmental Policy Act (42 U.S.C. 4321), Executive Order 12866 (EO 12866), and other pertinent statutes.

Activity 2.1: Conduct surveys to targeted user groups (e.g., wildlife viewing operators) to gather data on the non-consumptive market value of marine wildlife and other sanctuary resources.

Activity 2.2: Analyze data to better understand how wildlife viewing operators are using the sanctuary from a spatial use and economic perspective.

Strategy RP-3: Maintain and enhance permitting and environmental review program

The NOAA/ONMS permit program provides a mechanism to review requests to conduct prohibited activities, such as altering the submerged lands or discharging within the sanctuary. Where appropriate, NOAA will permit or authorize these activities with specific terms and conditions focused on reducing and/or mitigating impacts to sanctuary resources. Types of permits include research, education, and special uses.

Activity 3.1: Evaluate and process permit applications for research and education activities, authorization activities, or special use permit activities. General permits are issued for research and education activities that benefit the sanctuary. Authorizations are issued as appropriate for agency-issued coastal development permits (CDPs) or National Pollutant Discharge Elimination System (NPDES) permits for discharges entering the sanctuary.

Activity 3.2: Conduct environmental review, as necessary, under NEPA. Levels of NEPA review can include a categorical exclusion, an environmental assessment, or an environmental impact statement. The NEPA process includes conducting informal and formal consultation with other agencies to ensure compliance. For example, consultations on proposed coastal development projects in sanctuary jurisdiction (below mean high water) include conducting Section 7 consultations for Endangered Species Act, Section 106 for the Historic Preservation Act, and the Coastal Zone Management Act.

Activity 3.3: Heighten stakeholder knowledge of the permitting program through an improved permit website, reporting, and more frequent interaction with the Research Advisory Panel and Sanctuary Advisory Council.

Activity 3.4: Monitor and review permit compliance by reviewing reports, tracking permitted activities using tools such as the permit online database, and reporting any non-compliance to the enforcement program.

Activity 3.5: Streamline permit application and evaluation process by collaborating with ONMS staff to develop an online application that directly links to the online permit database.

Activity 3.6: Manage and track special use permits for all ONMS-approved categories, including use of desalination pipelines, flights in NOAA restricted overflight zones, placement of objects on the seafloor, fireworks displays, and submarine cables.

Strategy RP-4: Review projects, plans, and permits of other agencies

NOAA conducts interagency program reviews on a variety of marine policy issues in order to provide policy guidance to federal and state agencies regarding sanctuary policies and regulations. This would include activities in federal, state, and local jurisdictions and includes actions by NOAA NMFS, EPA, USCG, California Coastal Commission, Regional Water Board, and the California Resources Agency.

Activity 4.1: Review and comment on other federal, state, and local agencies' programs, policies, regulation modifications, and environmental reviews during interagency and public processes, including general plan updates and local coastal plan updates.

Strategy RP-5: Implement enforcement programs

Having effective surveillance and enforcement capabilities are critical to ensure protection of sanctuary resources. This includes the visibility of enforcement through an officer in the field as well as deputized state enforcement partners who can carry out activities through a joint enforcement agreement.

Activity 5.1: Increase the field presence within MBNMS to detect prohibited activities and enhance protection of sanctuary resources. This increased field presence can include on-the-water presence, aircraft, and shoreline surveys.

Activity 5.2: Improve the interagency coordination of enforcement through coordination with NOAA Office of Law Enforcement and with California state wardens and rangers to address potential and actual sanctuary violations in the field.

Activity 5.3: Develop annual enforcement priorities for inclusion in the NOAA Joint Enforcement Agreement (JEA) with the state of California.

Activity 5.4: Facilitate communication among law enforcement entities through coordination of the Law Enforcement Technical Advisory Committee.

Activity 5.5: Continue collaboration with USCG to conduct random joint inspections of cruise ships visiting Monterey (or other MBNMS ports) to verify their adherence with ONMS and Coast Guard regulations. Inspections will review ship logs, interview crew members, and physically inspect engine room, waste management, and other work spaces to ensure that prescribed environmental safeguards and practices are in order.

Strategy RP-6: Interpret and distribute resource protection information

Resource protection staff will continue to provide information to the Sanctuary Advisory Council, volunteers, interns, and the public on issues of concern. Outreach will be delivered through reports, products, and presentations.

Activity 6.1: Publish technical reports and provide information appropriate for social media, websites, presentations, and verbal reports for the public.

Activity 6.2: Conduct targeted outreach to appropriate groups on the definition of cruise ships and the sanctuary's cruise ship regulation, which is inclusive of condo ships (purchased berths).

Activity 6.3: Conduct targeted outreach to appropriate groups regarding clarification of what vessel conditions constitute desertion of a vessel at anchor in the sanctuary and how to correct this condition.

Activity 6.4: Share sanctuary information with volunteer groups, visitor center docents, community groups, agency scientists, and the general public.

Activity 6.5: Mentor interns including local graduate students, Bren School students, and Hollings Scholars.

Activity 6.6: Update the Sanctuary Advisory Council, the Conservation Working Group, and Research Activity Panel on key policy developments and changes. The Conservation Working Group is administered by the resource protection team and serves as a forum for conservation issues, identifying resource protection needs, and providing advice and information on issues in response to requests from staff and the Sanctuary Advisory Council.

Activity 6.7: Serve as experts on water quality, desalination, wildlife disturbance, coastal erosion issues, marine debris, and other topics of interest for local, regional, and national media.

Activity 6.8: Participate in conferences, workshops, presentations, and panel discussions regarding marine policy issues.

Strategy RP-7: Coordinate resource protection programs, including interpretive enforcement and citizen science programs

Resource protection programs include a variety of interpretive and citizen science efforts, including approximately 250 active and trained water quality volunteers. Citizen science programs require significant program oversight, scientific review, data processing, and reporting in addition to recruiting, training, and recognizing volunteers for their service.

Activity 7.1: Administer and support citizen water quality programs like First Flush, Urban Watch, and Snapshot Day volunteer programs.

Activity 7.2: Administer and support interpretive enforcement programs like Team OCEAN and Bay Net volunteer programs.

Strategy RP-8: Review and revise the sanctuary's spill response plan and emergency response information

Oil spills are a threat to sanctuary resources. Therefore, trained emergency response staff must be ready at any time to respond to an oil spill in MBNMS or another sanctuary site.

Activity 8.1: Review and revise existing oil spill response plan. This would include emergency response notification and identifying specific duties and response protocols for sanctuary staff.

Activity 8.2: Continue to participate and train staff during tabletop and other emergency response drills.

Activity 8.3: Update GIS and other data in the Environmental Response Management Application (ERMA). This database is widely used by NOAA and other agencies during emergency situations.

Strategy RP-9: Develop and implement restoration and recovery plans to address habitat damages and endangered species

When sanctuary resources are injured, lost, or destroyed, a restoration plan is developed in order to implement restoration actions to restore injured natural resources. Examples include lost shipping containers or sunken vessels.

Activity 9.1: Coordinate with other NOAA programs and other pertinent agencies to implement approved restoration plans to restore sanctuary wildlife and habitats.

Activity 9.2: Participate in black abalone recovery efforts in partnership with NMFS, CDFW, and UCSC.

Strategy RP-10: Implement sanctuary ecologically significant areas (SESAs)

In response to the needs for more ecosystem-based management and for focal areas in such a large sanctuary, NOAA identified 16 sanctuary ecologically significant areas (SESAs) in 2013. These areas encompass remarkable, representative, and/or sensitive marine habitats, communities, and ecological processes. SESAs are focused on deep-water benthic habitats located in offshore (> 3 miles from shore) federal waters, including portions of MBNMS to the west of state waters and the Davidson Seamount Management Zone. SESAs support the following management needs:

A. Improving our understanding of deep-water habitats and organisms.
B. Improving our ability to adaptively manage important resources and serve as test cases for other areas within MBNMS. SESA information prepares staff for engaging in NOAA NMFS review of groundfish Essential Fish Habitat, as well as future potential issues including offshore energy development, offshore aquaculture, oil spills, proposed changes to shipping lanes, noise, or climate changes.
C. Targeting research and monitoring efforts and coordinating with the scientific community. Findings from focal areas may help inform future management decisions and policy in other parts of MBNMS.
D. Measuring and evaluating the status, trends, and protection levels for condition reports and management plans.

In order to identify SESAs, NOAA ONMS worked with the scientists, fishermen, conservation NGOs, and other agencies to collect and evaluate over 150 layers of GIS data. Primary and secondary criteria were identified to select areas addressing multiple objectives. Primary criteria include benthic habitat identified by depth zones, substrate type, benthic structure-forming invertebrates (e.g., deep-sea corals and sponges) and locations where visual or research data have been collected. Secondary criteria include upwelling hotspots, visual imagery, stakeholder input and existing management connections.

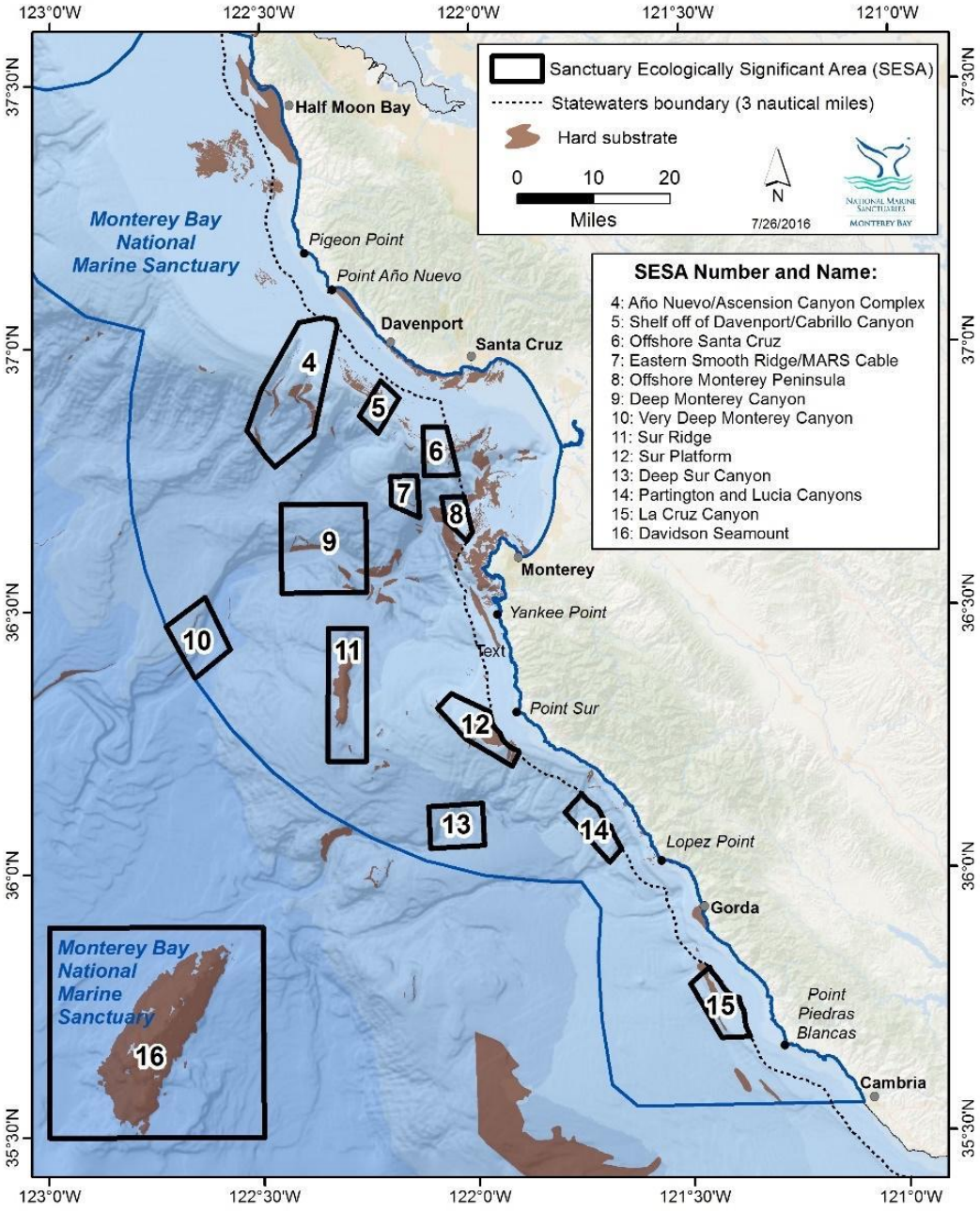

Figure RP-1. Sanctuary Ecologically Significant Areas (SESA) Image: NOAA

Activity 10.1: Target research and monitoring efforts in SESAs through coordination with the scientific community. Continue to image areas identified in SESAs in order to characterize and map biogenic hot spots through ROV and AUV technologies.

Activity 10.2: Complete a SESA technical report to describe the methods applied for the identification of SESAs.

Activity 10.3: Continue to use SESA data in ecosystem management decisions (i.e., contribute data and information to state and federal fishery management agencies as needed.)

Strategy RP-11: Track and monitor vessel traffic compliance

The IMO-adopted recommended tracks were established in 2000 to reduce threats of spills by vessel traffic such as container ships, bulk carriers, and oil tankers. Since that time, NOAA has periodically analyzed compliance and published reports. (MBNMS, 2014).

Activity 11.1: Continue to track and monitor container ships, bulk freighters, and vessels carrying hazardous materials for compliance with IMO recommended tracks.

Activity 11.2: Coordinate with the U.S. Coast Guard on contact and notifications for vessels deviating from tracks. USCG has jurisdiction for all mariners and can contact a vessel directly while underway and request they resume use of the recommended tracks.

Activity 11.3: Coordinate at a regional level on reducing the number of whale ship strikes in national marine sanctuaries in California. Channel Islands, Greater Farallones, Cordell Bank, and Monterey Bay national marine sanctuaries have an ongoing vessel speed reduction program in the San Francisco and Santa Barbara traffic separation schemes (TSS) to protect whales listed under the Endangered Species Act, the Marine Mammal Protection Act, and the National Marine Sanctuaries Act.

Strategy RP-12: Collaborate on fishery management issues

NOAA ONMS collaborates with NMFS, the Pacific Fishery Management Council, the California Fish and Game Commission, and the California Department of Fish and Wildlife on a variety of fisheries related issues, as described in the following activities.

Activity 12.1: Coordinate research on EFH areas with NMFS.

Activity 12.2: Continue to collaborate with the Pacific Fishery Management Council, NMFS, California Department of Fish and Wildlife, and California Fish and Game Commission on fishery issues of concern.

Strategy RP-13: Assess motorized personal watercraft (MPWC) zones

Sanctuary regulations have restricted the use of MPWC to five zones within the sanctuary since 1992. MPWC's high speed and maneuverability pose a unique and significant threat of disturbance to nearshore sanctuary habitats and wildlife through persistent and repetitive operation within sensitive nearshore environments that are usually safe from such intensive mechanized activity. Potential impacts include physical damage to marine life and shallow habitats, and behavioral modification and site abandonment/avoidance by seabirds, marine mammals, and sea turtles. In addition to environmental impact threats, conflicts have persisted between MPWCs and other recreational ocean users due to the erratic noise signature and operating patterns. Use and maintenance of the zones (buoy markers) are issues of concern, specifically in regards to relative value.

Activity 13.1: Complete a study to determine recreational use levels of MPWC zones, their environmental, aesthetic and navigational impacts, and the current relevance of the zones in meeting their originally intended purposes and present findings.

Activity 13.2: Develop an outreach strategy to address any alteration to MPWC zoning.

Strategy RP-14: Coordinate regionally, nationally, and internationally on marine protected areas

MPAs are special places (including national marine sanctuaries) where human activities are carefully managed to achieve conservation goals. They vary in size and allow different types of use depending upon their conservation goals. Some are designed to protect large ocean ecosystems. Others may safeguard a particular fishery, rare species, critical habitat for marine life, or underwater historical sites. Some may be "no take" areas prohibiting all fishing, drilling, mining and/or other extractive activities. Others allow some commercial and recreational fishing. Most MPAs allow research, education, and recreational activities like kayaking, surfing, and diving.

California has created a statewide system of MPAs in state waters (<3 miles from shore). There are 29 state MPAs within MBNMS, with various levels of protection. ONMS supports the state of California's implementation of these MPAs through assistance with research and monitoring, education and outreach, and enforcement. Nationally, MBNMS is part of a network of MPAs, the National Marine Sanctuary System. This system includes 15 national marine sanctuaries and Papahānaumokuākea and Rose Atoll marine national monuments.

Activity 14.1: Collaborate with the state of California on MPA management, including research and monitoring, outreach and education, and policy and compliance-related issues. The MPA work plan can be found online.

Activity 14.2: Assess and track new proposed MPA and other area-based management designations as they relate to MBNMS (e.g., proposed Chumash Heritage National Marine Sanctuary, proposed changes to state and federal fishery zones).

Strategy RP-15: Maintain NOAA regulated overflight zones

NOAA addresses overflight disturbance through a mix of educational outreach, regulatory, and enforcement approaches. Sanctuary regulations explicitly prohibit harassment of marine mammals, turtles and birds by any means, including disturbance from the air. All of the marine mammal and turtle species and most birds that frequent the sanctuary are also protected under the Endangered Species Act, Marine Mammal Protection Act, or Migratory Bird Treaty Act everywhere within the United States and its territories.

In addition to the general prohibition against disturbance of marine mammals, turtle, and birds, sanctuary regulations prohibit the operation of motorized aircraft (including model aircraft, quadcopters, and drones) within four NOAA regulated overflight zones in the sanctuary. If a flying apparatus of any kind has a motor, then it must remain above 1,000 feet (304.8 meters) altitude within the four zones. The zones include coastal waters from the mean high tide line seaward to distances of up to 5.75 miles (9.3 kilometers) offshore. This work will require collaboration with Greater Farallones National Marine Sanctuary staff and the Seabird Protection Network on tracking and compliance activities.

Activity 15.1: Track and monitor compliance with overflight zone restrictions. Staff will keep a record of reported and observed alleged and apparent violations of the zones and report as needed.

Activity 15.2: Provide outreach on overflight zone restrictions including use of Unmanned Aerial Systems or drones. Staff will implement periodic outreach to pilots and/or pilot associations and clubs. This may include in-person presentations, providing one-pagers or brochures, or sending links to MBNMS webpages.

Strategy RP-16: Track and respond to offshore wind and wave energy proposals

Offshore wind power is the use of wind farms in the ocean to harvest and transport wind energy (generate electricity). Higher and more consistent/persistent winds are available offshore compared to on land, so offshore wind power's electrical generation is typically higher per amount of capacity installed, though costs for such operations tend to be much greater. At the end of 2016, the total worldwide offshore wind power capacity was 14,384 megawatts. The largest offshore wind farms are currently in northern Europe, especially in the United Kingdom and Germany, which together account for over two thirds of the total offshore wind power installed worldwide.

As California continues to seek a great percentage of statewide energy usage by electricity and promote alternative (renewable) power sources, the demand for alternative energy generation is expected to increase. Offshore areas within and adjacent to MBNMS have consistent wind patterns suitable for development. Interest currently exists for using floating wind turbines, secured by mooring cables and connected to onshore receiving stations, in deep-water areas offshore of Central California. The use of such turbines poses unique resource protection issues for MBNMS. The southern region of MBNMS, near the Monterey/San Luis Obispo county line, has received the most serious, dedicated interest by energy developers and regulatory agencies. While NOAA's regulations for MBNMS do not explicitly restrict wind turbine installation or operation within MBNMS, ancillary structures such as anchors for floating turbines and power cables on the seabed would be prohibited without a permit. Yet, sanctuary regulations do not currently include a permit-lease process such as that managed by the Bureau of Ocean Energy Management (BOEM) for many parts of the outer continental shelf. There are currently no leasable offshore tracts within MBNMS. NOAA is assessing the potential impacts to resources and the socioeconomics posed by offshore wind energy development. Any consideration regarding offshore wind energy development in the sanctuary would involve an extensive public process and stakeholder engagement.

Activity 16.1: Share SESA and other information on environmentally sensitive areas and species and human use areas of potential conflict with proposed offshore wind or wave energy activities with BOEM and other agencies.

Activity 16.2: Outline proposed guidelines for siting constraints of offshore wind and wave energy activities.

Activity 16.3: Develop a baseline information, research, and monitoring program for proposed areas.

Activity 16.4: Develop regulatory response strategies (including special use permit options) for proposed projects sited outside and/or inside MBNMS boundaries.

Activity 16.5: Assess non-market value of habitat loss due to installation.

Activity 16.6: Explore decommissioning guideline options.

Strategy RP-17: Initiate assessment for the use of artificial reefs for recreation, restoration, or other uses in MBNMS

Installation of artificial reefs in MBNMS has been suggested by the diving community as a dive attraction. Permitting for this activity falls under the primary jurisdiction of the state of California, with the sanctuary having authorization authority (for a state permit). The state lacked resources to update an artificial reef plan previously, but initiated a process in 2017 to update the 1990 plan. The plan will likely take some time to finalize, as its focus was primarily on sportfish enhancement and did not consider diving reefs. As proposals for artificial reefs in MBNMS are developed, NOAA will track and review as appropriate. There are many questions related to the impacts of installation and maintenance to the habitat, the costs and responsibility of maintenance and/or removal of the artificial reef, and ultimately, liability.

Activity 17.1: Track progress of the state's artificial reef policy development.

Activity 17.2: Share relevant information with the state of California artificial reef team.

Activity 17.3: Assess the current regulatory, funding, and liability conditions for existing artificial reefs used for diving.

Activity 17.4: Develop baseline information, as needed, for proposed sites.

Activity 17.5: Assess non-market value of habitat loss due to installation.

Relevant strategies/activities located elsewhere within this management plan:

Strategy RP-4 → Coastal Erosion and Sediment Management Activity CESM-7.3
Strategy RP-5 → Coastal Erosion and Sediment Management Activity CESM-6.2
Activity RP 7.2 → Wildlife Disturbance Activity WD-1.3
Activity RP-10.1 → Research & Monitoring Strategies RM-1, 2
Activity RP-10.2 → Research & Monitoring Strategy RM-5
Activity RP-13.2 → Education, Outreach, and Communications Activity EOC-5.4
Activity RP-15.2 → Education, Outreach, and Communications Activity EOC-5.4
Activity RP-16.3 → Research & Monitoring Strategies RM-1, 2

Potential Partners

California Resources Agency; California Department of Fish and Wildlife; California State Lands Commission; California Coastal Commission; Central Coast Regional Water Quality Control Board; Central Coast Wetlands Group; Caltrans; Elkhorn Slough National Estuarine Research Reserve; Hopkins Marine Station; Monterey Bay Aquarium; Middlebury Institute of International Studies at Monterey; Monterey Bay Aquarium Research Institute; Moss Landing Marine Laboratories; NOAA National Marine Fisheries Service; Naval Postgraduate School; Pacific Fishery Management Council; State Water Resources Control Board; EPA; U.S.

Geological Survey; U.S. Fish and Wildlife Service, University of California at Santa Cruz; Santa Cruz and Monterey counties; cities of Monterey, Pacific Grove, Marina, Salinas, Castroville, Santa Cruz; Moss Landing Harbor District; WQPP Partners.

Resource Protection Action Plan Goal: Maintain and improve the sanctuary's natural biological and ecological processes by evaluating and addressing adverse impacts from human activities on sanctuary ecosystems.

Performance Measures Table

Strategy Title	Desired Outcome (Objective)	Output Measure	Who Measures	Timeline
Strategy RP-1: Build partnerships and leverage opportunities for protecting sanctuary wildlife, habitats, qualities, and cultural resources through collaborative planning and management	Maintain collaborative partnerships to implement management plan activities	Vessel traffic compliance report	Resource Protection Coordinator	Annually
		Whale strike risk assessment completed	Permit Coordinator	Year 1
		Landslide meetings and activities permitted	Resource Protection Coordinator	Annually
Strategy RP-2: Enhance socioeconomic program	Current socioeconomic data to support conservation and management goals of the sanctuary are compiled	Survey results report	Resource Protection Coordinator	Year 3
Strategy RP-3: Maintain and enhance permitting and environmental review program	Continually improve the permit process from application through issuance	Permitting evaluation	Permit Coordinator	Annually
		NEPA documents	Resource Protection Staff	Annually
		Permit website updated	Permit Coordinator	Year 2
		Special use permit tracking database	Resource Protection Staff	Annually
Strategy RP-5: Implement enforcement programs	Implement an effective enforcement program	Annual enforcement priorities for NOAA Joint Enforcement Agreement developed	Regulatory Coordinator	Annually

Strategy Title	Desired Outcome (Objective)	Output Measure	Who Measures	Timeline
		Law Enforcement Technical Advisory Committee coordinated	Regulatory Coordinator	Quarterly
Strategy RP-7: Coordinate resource protection programs including interpretive enforcement and citizen science programs	Increase protection of sanctuary resources through public engagement	Water quality volunteer programs implemented	Volunteer Coordinator	Annually
		Interpretive enforcement programs implemented	Volunteer Coordinator	Annually
Strategy RP-8: Review and revise the sanctuary's spill response plan and emergency response information in order to be prepared to respond to an incident	NOAA is prepared for spill response	Revised oil spill response plan	Emergency Response Coordinator	Year 1
		Updated entries in the Environmental Response Management Application	GIS staff	Annually
Strategy RP-10: Implement sanctuary ecologically significant areas (SESAs)	Biogenic hot spots identified in SESAs	SESAs mapped and characterized	Research and Resource Protection Coordinators	Years 1-4
Strategy RP-11: Track and monitor vessel traffic compliance	Container ships compliant with regulations	Ships tracked and monitored for zone use	Resource Protection Team	Ongoing
Strategy RP-12: Collaborate on fishery management issues	New EFH conservation area monitored	Monitoring program in place	Research and Resource Protection Coordinators	Ongoing
	Voluntary management area implemented	Implementation plan disseminated	Resource Protection Coordinator	Year 1
Strategy RP-13: Assess Motorized personal watercraft (MPWC) zones	Improved MPWC Zone demarcation	Completed MPWC Zone use study & marker buoy impacts.	Regulatory Coordinator	Year 2
		MPWC Zone relevance report	Regulatory Coordinator	Year 3

Strategy Title	Desired Outcome (Objective)	Output Measure	Who Measures	Timeline
Strategy RP-1715: Maintain NOAA regulated overflight zones	Compliance with restricted overflight zones	Monitoring program and data summary	Regulatory Coordinator	Years 2-4
	Public knowledge of overflight zones restrictions including use of drones	Outreach plan implementation	Permit Coordinator, Education & Outreach Coordinator, and Resource Protection team	Years 2-4
Strategy RP-16: Track and respond to offshore wind and wave energy proposals	BOEM possesses information regarding sensitive areas, species, and human uses of potential conflicts with proposed offshore wind or wave energy activities	Data sets shared	Resource Protection Coordinator and GIS Specialist	As needed
		Siting constraints identified	Superintendent and Resource Protection Coordinator	As needed
		Baseline data requirements identified	Superintendent, Resource Protection Coordinator, and Research Coordinator	As needed
Strategy RP-17: Initiate assessment for the use of artificial reefs for recreation, restoration, or other uses in MBNMS	State of California artificial reef team has relevant habitat and species data	Data sets shared	Research and Resource Protection Coordinators	As needed
	Regulatory, funding, and liability conditions for existing artificial reefs (dive) compiled	Report	Regulatory Coordinator	Year 4-5
	Clear understanding of costs to environment	Socioeconomic assessment of non-market value of habitat area proposed	ONMS Socioeconomic team	Year 4-5