

Part VII – Wildlife Disturbance Issues

Marine Mammal, Seabird, & Turtle Disturbance Motorized Personal Watercraft Tidepool Protection



Marine Mammal, Seabird and Turtle Disturbance Action Plan

Goal Statement

The goal of this action plan is to develop a program, with stakeholder input, to minimize disturbance of marine mammals, seabirds and turtles within the MBNMS.

MBNMS Staff Contact

Deirdre Hall Permit Coordinator

MBNMS Staff

Huff McGonigal Environmental Policy Specialist
Jen Jolly Education Specialist
Jennifer Parkin Research Specialist
Holly Price Resource Protection Coordinator
Lisa Emanuelson Resource Issue Education Specialist
Michele Roest Education and Outreach Specialist

Working Group Members

Roger Bland San Francisco State University
Jim Curland Defenders Of Wildlife
Hugh Knechtel US Fish & Wildlife Service
Harriet Mittedorf MBNMS Advisory Council, At Large
Michelle Knight Adventures By The Sea
Caryn Owen Friends Of The Sea Otter
Robert Brownell NOAA
Rick Hanks Bureau of Land Management
Scott Benson NOAA
Kaya Pederson Point Reyes Bird Observatory
Paul Kelly CA Dept of Fish & Game
Stephanie Burkhart U.S. Coast Guard
Nancy Black Monterey Bay Whale Watch
Karen Nordstrand Monterey Film Commission
Pat Smith Pilot
Jordan Baldueza U.S. Coast Guard

Introduction

The Sanctuary has one of the most diverse and abundant assemblages of marine animals in the world, including six species of pinniped, twenty-seven species of cetacean, four species of sea turtles, ninety-four species of seabirds and one species of sea otter (fissiped). Nearly all of the mammal and turtle species, and many birds, are protected under the Endangered Species Act, Marine Mammal Protection Act or Migratory Bird Treaty Act.

The Sanctuary is mandated to approach resource protection from a broad, ecosystem based perspective. This requires consideration of a complex array of habitats, species, and interconnected processes and their relationship to human activities.

The Monterey Bay National Marine Sanctuary has been dubbed “the Serengeti of the Sea” because so many large diverse animals are very easy to view and accessible to humans. Shorelines and offshore waters provide many opportunities for wildlife viewing, including whale watching, bird watching, observation of pinniped pupping, haulout activities, and tidepooling. With the multitude of opportunities for observing and interacting with nature comes the potential for wildlife disturbance which may result in impacts on marine resources such as: flushing of birds from nesting sites, pinnipeds abandoning pups, harassment or even death to wildlife. Certain recreational activities such as kayaking or boating, and some commercial activities such as low flying aircraft, whale watching operations, and fisheries interactions have the potential to harm or disturb marine mammals and seabirds.

Public awareness is necessary to effectively address wildlife disturbance issues since most people who choose to view marine wildlife do not intend to place the animals or themselves at risk. While it has been well established that it is harmful and dangerous to closely approach, handle or feed terrestrial wildlife (e.g., bears, deer, raccoons, nesting birds, etc.), many people do not yet seem to understand that these concerns also apply to marine wildlife.

Types of Wildlife in the MBNMS

The MBNMS is known both nationally and internationally as a veritable ‘hot spot’ for viewing marine life. There is significant interest and public participation in activities found in the region that offer wildlife viewing. Following is a description of wildlife species present in the MBNMS which are subject to disturbance.

Cetaceans

Of the twenty-seven species of cetaceans seen in the Monterey Bay area, about one-third occur with frequency. Of these twenty-seven species of whales, five are listed as endangered: the Blue, Fin, Humpback, Right, and Sperm. The highest concentration areas of cetaceans are within the central and southern portions of the MBNMS.

Fissipeds

The California or Southern sea otter is a threatened species that is found throughout the shallow waters of Monterey Bay National Marine Sanctuary, with its broader range stretching from the Gaviota Coast in Santa Barbara County to Half Moon Bay in San Mateo County. Sea otters inhabit a narrow zone of coastal waters, normally staying within one mile from shore. They forage in both rocky and soft-sediment communities as well as in the kelp understory and canopy. They seldom are found in open waters deeper than 30m, preferring instead the kelp beds, which serve as vital resting, foraging, and nursery sites. Otters are an important part of the marine ecosystem. By foraging on kelp-eating macroinvertebrates (especially sea urchins) sea otters can influence the abundance and species composition of kelp assemblages and animals within nearshore communities (Riedman, 1987).

Pinnipeds

There are a total of nine rookeries/colonies in the MBNMS. The five species of pinnipeds considered common in the Monterey Bay area include California sea lions, Steller sea lions, Northern elephant seals, Northern fur seals, and Pacific harbor seals. An additional species, the Guadalupe fur seal, has been reported from records of sick animals stranded on the beach.

Seabirds and shorebirds

Sanctuary waters are among the most heavily used by seabirds worldwide. Ninety-four species of seabird are known to occur regularly within and in the vicinity of the Sanctuary, and approximately ninety species of tidal and wetland birds occur on the shores, marshes, and estuaries bordering Sanctuary waters.

Several environmental features are responsible for the diverse assemblage of birds in the area, such as the Monterey Bay being located on the Pacific Flyway, allowing migratory birds a place to stopover during both north and south migrations between southern wintering grounds and northern breeding sites. The upwelling of nutrient-rich waters support highly productive food webs which provide abundant seabird prey, as well as the diversity of habitat types along the shore which increases the variety of bird species utilizing the MBNMS. Thus, many birds found in Sanctuary waters have come to feed, some from as far as New Zealand, often from nearby rookeries at the Farallon Island or Big Sur.

Turtles

The MBNMS is home to four species of sea turtles that frequent its waters —the Green, Pacific Ridley, Leatherback and Loggerhead sea turtles. The Leatherback is the most common. It is the largest turtle in the world and has the widest geographic range of any reptile. It is found in all of the world's major oceans and has been observed from the Arctic Circle to the edges of the Antarctic convergence zone. Leatherbacks are also one of the deepest diving animals known—descending to depths in excess of 1,300m. Leatherback turtle populations in the Pacific Ocean are declining at a disastrous rate. Since 1980 populations have dropped by more than 90%, and the accidental killing of leatherbacks by high seas commercial fishing fleets is a major contributor to that decline.

Endangered Species

Of the more than 116 federally listed threatened or endangered species (55 percent of all species nationwide) in California, twenty-six reside within the Sanctuary.

For additional information on species found within the Sanctuary visit the MBNMS site characterization at: <http://montereybay.nos.noaa.gov/sitechar/welcome.html>

Potential Disturbance Activities within the MBNMS

Over the last twenty years, increasing numbers of people have been seeking opportunities to view and experience marine wildlife. For the most part, wildlife viewing has resulted in many positive benefits including new economic opportunities for local communities, and increased public awareness and stewardship for marine resources. However, there is growing evidence that marine wildlife can be disturbed and/or injured when viewing activities are conducted inappropriately. Disturbance or injury also occurs through commercial harvest activities.

Frequent disturbance can adversely affect marine species. The effects of disturbance can be especially critical during sensitive time periods, such as feeding, breeding, resting, or nesting. Disturbance is likely to cause avoidance reactions and may result in interruptions of social behavior of animals and is capable of leading to long-term changes in distribution.

Motorized and Non-motorized Vessels

The use of motorized or non-motorized vessels (outboard or inboard boats, kayaks, canoes, underwater scooters, or other types of water craft) to interact with marine mammals in the wild is a rapidly growing activity nationwide. For example, NOAA FISHERIES and the MBNMS have received complaints from members of the public that include operators of motor vessels driving through groups of dolphins in order to elicit bow-riding behavior, whale watching vessels getting too close to whales or chasing animals in order to get a better view of them, and kayakers utilizing the quiet nature of their vessels to approach too close to sea otters and harbor seals. Also, fatal blunt trauma injuries to sea otters suggest that they are being hit by small boats particularly in areas near Elkhorn Slough and harbors. All of these actions cause animals to exhibit avoidance responses resultant from the interactions.

Fireworks

Fireworks displays over the Sanctuary have been traditionally conducted as part of national and community celebrations and foster public use and enjoyment of the marine environment. However, fireworks displays cause unacceptable levels of disturbance in certain areas. The MBNMS has worked with the National Marine Fisheries Service and the US Fish and Wildlife Service in developing solutions to this issue; it is expected that final implementation of those guidelines will occur in 2003. Traditional community fireworks displays will be allowed to continue at the existing locations, but there will be constraints on the number allowed per year, as well as designated zones where fireworks will be prohibited.

Overflight Impacts

Potential impacts from low-flying aircraft are addressed by a specific prohibition on flying under 1000 feet in designated overflight zones with sensitive wildlife. Some implementation problems have occurred due to pilot's lack of understanding and acknowledgement of the zones since they are not noted on aeronautical charts. MBNMS has begun an outreach campaign to pilot associations on the zones and the impacts of low flights, and is working to include notations on the FAA aeronautical charts. Additional outreach may be required to reach aviation companies which may be conducting whale watching trips within the Sanctuary Overflight Restriction Zones. This activity is also known to cause animals to exhibit avoidance responses resultant from the interactions.

Commercial Harvesting and Aquaculture Activities

Commercial harvesting of certain fish and kelp resources may result in varied types of disturbance to wildlife. The use of nighttime lighting in the commercial squid fishery may disturb certain seabirds such as pelicans, petrels, and auklets as well as sea otters by disrupting natural behavior. Kelp harvesting may involve potential disturbance of various fauna associated with the kelp ecosystem. Certain species such as sea otters could be prone to harassment by harvesting operations in the kelp beds. Certain methods of aquaculture can result in harm or

mortality to seabirds. Pens used for rearing juvenile species can trap seabirds attracted to the contents thereby resulting in injury or death.

How MBNMS Currently Addresses Wildlife Disturbance Issues

MBNMS addresses wildlife disturbance through a mix of educational outreach, regulations and enforcement. Sanctuary regulations explicitly prohibit harassment of marine mammals (as defined under the Marine Mammal Protection Act), sea turtles and birds. Other Sanctuary regulations relating to wildlife disturbance include restrictions on flying motorized aircraft below 1,000 feet in three designated sensitive areas, a prohibition on attracting white sharks, and restrictions on the use of motorized personal watercraft. Non-regulatory measures are also used by the Sanctuary to address wildlife disturbance, and include a variety of education and outreach activities and products.

There are several docent programs in high visitor use areas in the MBNMS. Some programs have been enacted to address concerns at specific locations such as the State or County Parks Programs at Point Lobos and the Fitzgerald Marine Reserve, other docent programs are more regional. Below is a description of MBNMS programs that enlist the help of specifically trained and educated volunteers.

Team OCEAN

An effort to address the disturbance of marine mammals and seabirds by recreational users of the Sanctuary was launched by the Sanctuary during the fall of 2000, and is now in its third year. The Team OCEAN summer outreach program employs on-the-water education efforts for the Monterey Peninsula and in Elkhorn Slough to prevent kayakers from approaching marine mammals such as sea otters too closely. Similarly, the Sanctuary has assisted in reducing harassment of the elephant seal population at Piedras Blancas, a location very near the highway where tourists were closely approaching the animals. These efforts have included assisting local nonprofit organizations in establishing an observer and docent network for the elephant seal haulout sites to facilitate observation opportunities at safe distances and locations, and improving interagency enforcement for cases where an educational approach has not sufficed.

Beach COMBERS

In 1997 a volunteer beach-monitoring program (Beach COMBERS: Coastal Ocean Mammal/Bird Education and Research Surveys) was established by the MBNMS and Moss Landing Marine Labs, to obtain information on rates of stranding for all Sanctuary marine birds and mammals. In addition, mortality events are detected, causes of mortality events are assessed, and oil and tar deposition is monitored. Some success stories to date include the discovery of banded birds from as far away as Hawaii; detection of unusually high numbers of dead adult harbor seals in localized areas; and a high deposition of Common Murres (a diving seabird), which led to the discovery of a previously unrecognized threat of gillnet mortality for Common Murres, harbor porpoise, and sea otters. The Beach COMBERS program has recently been expanded to Cambria, in the southern Sanctuary region. This program can help detect wildlife mortality patterns, although there often are a variety of possible causes of death.

Friends of the Elephant Seal

The Friends of the Elephant Seal (FES) is a non-profit organization, formed in 1997. It is dedicated to educating people about elephant seals and other marine life and to teaching stewardship for the central coast of California. The organization puts volunteers through a comprehensive training program, using local experts. Volunteers work at the elephant seal viewing site year-round, and make over 150,000 contacts per year, with visitors coming from all over the world. The program redirects visitors to appropriate viewing sites and advises visitors of safe viewing practices. MBNMS has provided funding for signage at the main viewing site, and serves as an advisory member to the Board of Directors, participates in the docent training, and provides general assistance and support. Currently, the FES is without an Executive Director and does not have secure funding.

BAYNET

BAYNET, an all volunteer, non-profit organization founded in 1996, is dedicated to the protection of natural resources and educating people about the wonders of the ocean and the living marine resources in California's Monterey Bay region. During the program's first four years, BAYNET volunteers spoke with more than 200,000 visitors from all over the world. In the year 2000 alone, BAYNET volunteers donated 1,700 hours of service. The MBNMS provides staff assistance and partial funding for the program. Recently, BAYNET lost the bulk of its funding and is actively seeking funding opportunities.

Watchable Wildlife

The Watchable Wildlife program is a unique partnership of federal and state wildlife agencies and non-profit organizations working to educate the public and commercial operators about safe and responsible wildlife viewing practices. The program has three immediate goals: (1) enhance public wildlife viewing opportunities; (2) provide education about wildlife and its needs; and (3) promote active support of wildlife conservation. Within NOAA, the National Ocean Service (through the National Marine Sanctuary Program) and the National Marine Fisheries Service (through the Office of Protected Resources) have been working together with the Watchable Wildlife program partners over the past five years to develop a “Watchable Wildlife” program specifically for marine species and habitats. The main purpose of the program is to provide the public with information about appropriate wildlife viewing practices for the marine environment that are consistent with wildlife protection laws and conservation efforts.

Regulations

Harassment within the Sanctuary is governed by a complex array of multi-jurisdictional laws and regulations such as the National Marine Sanctuaries Act, the Endangered Species Act, the Migratory Bird Treaty Act, and the Marine Mammal Protection Act. The following activities related to wildlife disturbance are prohibited within the Sanctuary: discharging materials (with certain exceptions); disturbing marine mammals sea turtles and birds; attracting white sharks; moving, possessing any historical resource, marine mammal, sea turtle or seabird; flying motorized aircraft below 1,000 feet in certain areas; and operation of jet skis outside of the four designated zones.

Enforcement

The shoreline of the MBNMS is approximately 300 miles long. The MBNMS has one dedicated NOAA Office of Law Enforcement agent to respond to potential violations of Sanctuary regulations. As might be expected with one dedicated agent responsible for coverage of an area the size of Connecticut, this enforcement agent has limited capabilities.

The Sanctuary relies heavily on collaborations with other cross-deputized partners such as the Department of Fish and Game and the Department of Parks and Recreation to assist with Sanctuary enforcement. The MBNMS also funds a half-time law enforcement officer working in the Cambria area, who assists with enforcement issues during the elephant seal pupping season and collaborates with the Friends of the Elephant Seal docents.

Enforcement patrols by the California Department of Fish and Game and the California Department of Parks and Recreation for the year 2000 - 2001 were tabulated at 2444 'patrol hours.' Each hour of enforcement patrol effort reflects the presence of an enforcement unit somewhere in the Sanctuary.

The MBNMS currently addresses some of these harassment issues through regulatory measures such as: prohibitions of white shark attraction, marine mammal and seabird harassment, over-flight restrictions for sensitive areas; as well as non-regulatory measures and other education and outreach efforts to minimize impacts to living marine resources. However, major disturbances to marine mammals and seabirds continue to be a major issue within the MBNMS and will be addressed in this Management Plan Review. A framework and strategies to address this issue will be incorporated and implemented as part of this site-specific action plan.

Strategies Overview

Despite the initial efforts outlined above, many species in the Sanctuary warrant further protection via outreach, education, enforcement or other strategies designed to inform the public and specific user groups of the need to prevent wildlife disturbance within the MBNMS. The draft action plan developed by the Working Group provides a framework of protective measures for human interactions with marine mammals, seabirds, and turtles through wildlife viewing, commercial harvesting, and aircraft overflights in the Sanctuary. The initial phase will focus on identifying gaps in the existing system of protection and formulating a plan to jointly develop specific, more detailed, recommendations for those topics which have emerged as priorities.

Strategy MMST-1: Vessel Disturbance

Strategy Description

This strategy recognizes the need to address the issue of disturbance by vessels. The following vessels are often a source of disturbance to seabird colonies, rookeries, haulout areas, or whales, when operating in sensitive areas: motorboats, whale watching vessels, kayaks, and military watercraft.

Activity 1.1: Finding, Modifying, and Developing Wildlife Viewing Guidelines

Identify existing guidelines such as those generated by Watchable Wildlife, and adapt them to the MBNMS area, where appropriate.

- A. Distribute wildlife viewing guidelines for approaching seabirds, marine mammals, and turtles. Whale watching guidelines should be developed to mirror those produced by NOAA and used at the Hawaiian Island Humpback Whale National Marine Sanctuary (HIHWNMS). These model guidelines should be adapted to incorporate behavioral, seasonal, or species-specific guidance.
- B. Package wildlife viewing guidelines to focus on the behavioral stress patterns of the animal. Recommendations for vessel maneuvering should be included which outline how to avoid the animal from certain directions and speeds. These guidelines should also incorporate the penalties for harassment including any potential fines that may be incurred as a result of inappropriate interactions.
- C. Conduct an assessment of target audiences to determine the best ways to package and distribute guidelines. The information provided in the wildlife viewing guidelines handbook should also be synthesized into a one-page brochure, if possible, so that operators or users have a quick reference guide to consult.
- D. Use the MBNMS website to post information pertaining to wildlife observation. Website links may include: tourism bureaus, conservation groups, chambers of commerce, visitor's bureaus, natural history museums, aquaria, sport fishing companies, dive shops, private boating clubs, universities, research organizations, restaurants, tour operators, agency websites such as California Department of Fish And Game, California Department of Fish And Game, NOAA Fisheries, and hotels. Interested parties would be able to link directly to the posted information as a way to provide guidance to their customers. Hard copies of the Wildlife Viewing Guidelines should also be available at the above listed venues to ensure that they reach a large audience.

Status: Phase 1

Potential Partners: Watchable Wildlife, National Marine Sanctuary Program, NOAA Fisheries, State Parks, California Coastal National Monuments, NOAA Office of Law Enforcement, US Fish and Wildlife

Activity 1.2: Continue and Strengthen MBNMS Team Ocean Kayak Program

Continue, strengthen, and expand the MBNMS Team OCEAN program, which educates on-the-water kayak users in an effort to prevent disturbance or harassment. The Team OCEAN program should expand into other areas such as Santa Cruz and San Simeon to further the message of

enjoying the Sanctuary without harassing the species that reside in it. The program should also expand to include interpretation to not just kayakers, but other boats as well.

Activity 1.3: Develop Informational Cards with Guidelines for Viewing Marine Species from Kayaks

These informational cards should include example photos of animals exhibiting avoidance behavior so that the kayaker will know if they are inciting harassment based on the reaction of the animals. These cards will further educate ocean users on animal behaviors which result from human interactions.

- A. Develop partnerships with kayak companies to attach the informational cards to kayaks
- B. BNMS staff should conduct bi-annual evaluations with kayak companies to ensure that these educational efforts are effective
- C. Distribute the informational cards and other signage to boating supply stores, kayak shops, or other commercial venues
- D. Develop additional educational training for local kayak and scuba diving shops, in order to reduce adverse reactions in species of concern. These training sessions should be complemented by outreach workshops outlined in other activities in this strategy.

Status: Phase 1

Potential Partners: Local kayak companies (rental/retail), Boating supply stores, Harbormasters, Kayak publications, Elkhorn Slough at Kirby Park

Activity 1.4: Outreach and Promotion of Wildlife Viewing Guidelines to Private Boaters

The MBNMS should conduct an assessment of the most effective way to reach boaters with educational materials, and cater outreach accordingly. In this instance the target audience is: recreational boaters, divers, whale watchers, nature enthusiasts, and recreational fishermen.

- A. The MBNMS should expand outreach to boaters to educate them on wildlife observation guidelines, and vessel operation etiquette, including boat or propeller strikes to marine life as this issue is of concern. This outreach should include wildlife viewing workshops and distribution of handbooks outlining appropriate behaviors.
- B. Post wildlife viewing guidelines information at launch ramps, parking areas, public restrooms, or fuel docks. This may not reach a significant number of the intended audience. Guidelines should be made available, free of charge, for distribution at the harbormaster office and retail boating stores. Speed guidelines which are often posted in harbors should be augmented with information about sensitive species in the area, such as sea otters.
- C. Develop a “Dock Walkers” program, in which educators encounter users at the harbor and instruct them about wildlife viewing. This should supplement signage and be implemented seasonally during high usage times.
- D. Consideration should be given as to how to best reach boaters from out of the area. The MBNMS should initiate collaboration with the CA Department of Motor Vehicles and provide them educational information to be included with the vessel registration information that the Department sends out on an annual basis.

- E. Use California Department of Fish and Game biologists who routinely check fish lengths and species information at boat launch ramps. These biologists should be invited to participate in any wildlife viewing training or workshops the MBNMS hosts so that they are able to provide information to the large number of recreational boaters and anglers they encounter.

Status: Phase 1

Potential Partners: California Department of Fish and Game, Department of Motor Vehicles, Fishing license distributors, Harbormaster/parking lots, US Fish and Wildlife, Save Our Shores, marinas, Defenders of Wildlife, Friends of the Sea Otter

Activity 1.5: Outreach and Promotion of Wildlife Viewing Guidelines to Whale Watching Vessels

Conduct training and outreach to vessel operators to ensure that operators are familiar with the parameters of the Marine Mammal Protection Act (MMPA), and operate their vessels within those confines.

- A. Conduct workshops and other training to ensure that operators of whale watching vessels are aware of the guidelines for wildlife viewing, and embrace those recommendations.
- B. Ensure that any handbooks that are developed for wildlife viewing are readily available to vessel captains.
- C. Provide a certificate or sticker to any whale watching captains participating in workshops or training. This certificate could be posted aboard the captain's vessel.

Status: Phase 1

Potential Partners: Whale watch companies, NOAA Fisheries, agency partners, NOAA Office of Law Enforcement

Activity 1.6: Increased Inter-agency Consultation Between Other Federal Agencies:

- A. Conduct outreach to military environmental liaison to ensure that the military is well versed in MBNMS requirements. This will aid the MBNMS in being aware of various proposed projects. Current regulations require other federal agencies to “consult” with the MBNMS when planning projects within Sanctuary boundaries. This is a formal process mandated by the MBNMS regulations. Although “consultation” is required, the military often overlooks this requirement. In addition, better overall coordination with Federal agencies could be achieved by improved communication.
- B. Conduct annual training with federal agencies to ensure that boat operators and pilots are aware of sensitive marine species areas and overflight zones. This annual training is especially important for the US Coast Guard, as they seem to have high turnover rates. This training will better enable the US Coast Guard to collaboratively enforce MBNMS regulations.
- C. Collaborate with Environmental Liaisons within federal agencies to ensure that detailed Geographic Information System (GIS) data outlining areas of concern is shared. This data would include species distribution, migratory corridors, seasonal patterns, etc. This information should be included in training and provided as an ongoing tool to better

coordinate military training activity to avoid impacts. US Coast Guard pilots have the ability to download this information directly into their electronic flight planners.

Status: Phase 1

Potential Partners: US Coast Guard, military, US Fish and Wildlife, California Coastal National Monument, US Geologic Survey, NOAA Fisheries

Strategy MMST-2: Low Flying Aircraft Disturbance

Strategy Description

This strategy recognizes the need to address and reduce the issue of disturbance by low flying aircraft. Low flying aircraft are known to cause seabirds, pinnipeds, and whales to exhibit avoidance responses resulting from the interactions. There are a variety of user groups associated with this activity, which may require different strategies in addressing the problem. The following actions and user groups are of concern: commercial film making flight operations, private non-profit aviation, military and agency (such as the US Coast Guard) aircraft, and other potential actions.

Activity 2.1: Resolution with the FAA

Current aeronautical charts incorrectly list the MBNMS overflight restriction zones as being a ‘recommendation’ rather than a ‘requirement’. Ensuring the correct verbiage and regulations are posted on the aeronautical charts is critical in an effort to inform pilots of the overflight restriction zones. The MBNMS should continue discussions and coordination with the NMSP headquarters who are working with the FAA legal staff to resolve this issue.

Status: Phase 1

Potential Partners: FAA, NMSP HQ

Activity 2.2: Research and Monitoring

An evaluation of key geographical areas should be undertaken to understand priority concern locations and disturbance frequency of these areas to assist in targeting needed outreach and enforcement.

- A. Develop a list of desirable sites that the film industry is often interested in using. These sites should be evaluated and monitored for potential impacts.
- B. The MBNMS should canvas researchers for data regarding low flying aircraft interactions that they may have observed while conducting research in the field. Use this information to further define areas that may be appropriate in conducting overflight operations.
- C. Consideration of potential impacts should be weighed for both fixed-wing aircraft and helicopters. There are inherent differences to the operating capabilities of these aircraft, and thus they cause different impacts to species of concern.
- D. The MBNMS should continue to monitor and evaluate key sensitive areas within the overflight zones.
- E. Evaluate overflights at an area outside the existing restriction zone on the San Mateo Coast. Devil's Slide rock hosts a colony of Common Murres, a seabird that has been heavily impacted by oiling events and the nearshore set gillnet fishery. In 1996 a 4.9 million dollar restoration project was implemented at this site through funding related to the tanker vessel Apex Houston oil spill. Since 1996, the Common Murre Restoration Project, led by the US Fish and Wildlife Service, in cooperation with NOAA and other state and federal agencies, has been using social attraction techniques to restore these colonies and habitat to fully sustain a healthy colony of seabirds. This seabird is particularly sensitive to low flying aircraft. This area not likely to be considered for

future inclusion in overflight restriction zones due to San Francisco International and Half Moon Bay Airport’s flight patterns. It is nonetheless important, however and should be a component of educational efforts and monitoring.

Status: Phase 1

Potential Partners: US Fish And Wildlife Service, Point Reyes Bird Observatory, California Coastal National Monuments, research institutes

Activity 2.3: Outreach to Pilots

The MBNMS should conduct an assessment of the most effective way to reach pilots with educational materials, and cater outreach accordingly. Strategies to address the above issues include a mix of educational outreach and enforcement. The MBNMS has conducted outreach to various pilot associations, by speaking to flying clubs and pilot associations.

- A. Broaden outreach efforts to encompass a larger number of pilots on a regular basis
- B. Include aviation user-groups in workshops which will be given on wildlife viewing etiquette, as current information suggests that pilots often conduct whale watching trips from aircraft
- C. Develop an educational poster for distribution to municipal airports, pilot training schools and flight schools, websites, aviation clubs, and other appropriate venues.
- D. Develop a brochure which outline the hazards created by low flying aircraft and distributed to appropriate users
- E. Create a mass mailing of educational materials to registered aviators. This may be helpful in making pilots aware of Sanctuary concerns
- F. Submit articles to aviation magazines (e.g., In Flight). This may be another avenue to pursue in the effort to reach pilots

Status: Phase 1

Potential Partners: Pilot organizations, Training schools, flight clubs, publications (Inflyer, PacFlyer, AOPA), airports, recruiting of volunteer pilots, US Fish and Wildlife, California Coastal National Monument

Activity 2.4: Coordination and Outreach to Film Commission

Film companies are generally not aware of MBNMS regulations pertaining to overflight restriction zones. Outreach should be conducted to local filmmaking commissions to make them aware of the sensitive Sanctuary resources, and the appropriate optimal seasonal operation “windows” for certain highly sensitive areas. In addition to the Overflight Restriction Zones information, general outreach on other land or boat-based filming activities should be conducted. For instance, information on elephant seals, seasonal nesting areas, etc, would be appropriate.

At certain times of the year, aircraft have been permitted to conduct overflight operations below 1000 feet. These permits or authorizations are constrained or modified to ensure protection of MBNMS resources. In instances where permission may be granted, biologists will need to confirm that the selected areas are free of protected species. The MBNMS recommends that the film industry purchase the services of independent biologists to monitor these areas in advance of any permitting activity. Pending the results, sensitive areas will be avoided and areas that may be

appropriate for low flying aircraft that will not cause harm to MBNMS resources, may be permitted.

Status: Phase 2

Potential Partners: County and State Film Commissions, Visitor and Tourism Bureaus, NOAA Fisheries, helicopter operation companies, State Parks, California Coastal National Monuments

Activity 2.5: Permit Guidance

- A. Coordinate and develop seasonal restrictions in concert with other regulatory agencies to provide a useful guide for filming companies. The MBNMS should work with other agencies to develop these guidelines and distribute the information to interested parties. In this way, agencies and industry will be aware of seasonal and cumulative restrictions in advance, rather than reacting to various permit requests on a case-by-case basis. The agency guidance should include language that addresses aircraft type, altitude and location recommendations.
- B. Conduct outreach for the owners of the few private airstrips along the Big Sur coast. Determine if the need to conduct landing operations below the 1000-foot overflight restriction zone exists. Further evaluation is needed of the potential impacts to MBNMS resources from overflight activity based in this area to outline possible seasonal conditions to avoid impacts. If pilots request to fly beneath the overflight restriction zones for the purposes of landing their small private airplanes, the MBNMS should evaluate these requests on a case-by-case basis to determine the impact to resources. The MBNMS may potentially allow certain uses of this sort, if appropriate, by issuing special use permits for the activity.
- C. The MBNMS should work with the Film Commission and film companies to ensure that pilots are fully aware of the permit conditions or restraints. Although the MBNMS carefully modifies permitted overflight activities to ensure that there are not impacts to sensitive species, pilots are sometimes not aware of the permit conditions. This could be achieved by requiring pilots to be co-signers on permits, and to meet with the MBNMS Permit Coordinator in advance of permit issuance to ensure familiarity with the sensitive resources.

Status: Phase 1

Potential Partners: California Department Of Fish And Game, State Parks, US Fish and Wildlife Service

Strategy MMST–3: Shore Based Disturbance

Strategy Description

This strategy recognizes the need to evaluate and possibly further address and reduce shore-based disturbance. Disturbance is known to cause seabirds, shorebirds, and pinnipeds to exhibit avoidance responses resultant from the interactions. There are a variety of species associated with this activity that may require different strategies in addressing the problem. The Marine Mammal Protection Act protects all species of marine mammals. Violation of the Act is also a violation of MBNMS regulations; however, disturbances do occur. The MBNMS should conduct an assessment of the target audience in order to develop the best tools and materials to reach them. The recommendations are as follows:

Activity 3.1: Develop Wildlife Viewing Guidelines

Identify, modify or draft appropriate guidelines for shore-based interactions with species of concern. This will complement the efforts listed in Strategy MMST-1.

Status: Phase 1

Potential Partners: BAYNET, docent outreach, non-profit groups, Save Our Shores, Ocean Conservancy, State Parks, Monterey Bay Aquarium, Friends of the Elephant Seal

Activity 3.2: Conduct Outreach

- A. Support organizations (as appropriate) that conduct activities that reduce harassment to wildlife. The Friends of the Elephant Seal, BAYNET, or similar programs, should be strengthened to ensure that volunteers continue to be available to interact with the public. The support may come in the form of signage, training, funding or other types of support. The MBNMS should also collaborate with programs such as Watchable Wildlife, and adopt some of those programs or tools where needed.
- B. Work with state parks and other sites that have intense visitor usage, to identify strategies to reduce wildlife disturbance. Signage at state parks, to complement docent programs, may be valuable placed in areas adjacent to assemblies of wildlife.
- C. Author a regular column in a local newspaper that would outline various educational components for the general public. The articles should offer seasonal information on various species, viewing protocols, pollution reduction tips, or other items of interest.

Status: Phase 1

Potential Partners: BAYNET, Friends of the Elephant Seal, docent outreach, non-profit groups, Save Our Shores, Ocean Conservancy, State Parks, Monterey Bay Aquarium, Friends of the Sea Otter

Activity 3.3: Consider Addressing Remote Controlled Airplanes Disturbance Issues

The MBNMS prohibits flying motorized aircraft below 1,000 feet within the Overflight Restriction Zones. The MBNMS also prohibits disturbing marine mammals, sea turtles and birds. The existing definitions of aircraft subject to MBNMS regulation should be interpreted to include remote controlled planes so that they are prohibited within the Overflight Restriction Zones. The operation of remote controlled airplanes operating in areas of high seabird and

shorebird concentration are of concern as they have the possibility to cause flushing events. This activity could be particularly problematic when conducted in areas such as Elkhorn Slough, which hosts a significant number of Sanctuary resources. The MBNMS should investigate the frequency and effects of this activity, and where appropriate, work with local municipalities to ensure that the activity is not occurring in highly sensitive habitat areas. Signage and outreach should be in place to educate the hobbyists on potential impacts their actions may cause.

Status: Phase 2

Potential Partners: Point Reyes Bird Observatory, State Parks, US Fish and Wildlife Service

Activity 3.4: Consider Addressing Parasail and Hang Glider Disturbance Issues

Parasail activity is not prohibited by MBNMS regulations, however it may cause the disturbance of snowy plovers. The snowy plover is a small, federally threatened shorebird that nests and winters on the sandy beaches of the Monterey Bay. During spring and summer, snowy plovers nest and raise chicks from Sunset State Beach south to Marina, at the Moss Landing Wildlife Area, and at pocket beaches in northern Santa Cruz County. Recreational usage of parasails and hang gliders has some impact on the species. Although the snowy plover is a MBNMS resource, the MBNMS is not the lead agency mandated to protect the snowy plover. Primary responsibility falls upon the US Fish and Wildlife Service. The MBNMS should aid and encourage other agencies to evaluate this issue further to determine appropriate actions or recommendations for protection of this species in areas where parasails and hang gliders are of concern.

Status: Phase 2

Potential Partners: Point Reyes Bird Observatory, State Parks, US Fish and Wildlife Service

Strategy MMST–4: Marine Debris

Strategy Description

Levels of debris in both the ocean and at the land-sea interface are of growing concern. This strategy recognizes the need to address disturbance by marine debris. Various types of debris are known to have adverse effects on marine species. Plastics in the marine environment never fully biodegrade. DDT and other hydrophobic compounds are known to adhere to plastics. Ingestion and entanglement are one of the many problems associated with marine debris, which may eventually lead to death for many organisms. Priority types of marine debris include balloons, abandoned/discarded fishing gear, plastics and styrofoam, and consumer goods including 6-pack rings, plastic shopping bags, etc. The MBNMS should conduct an assessment of the target audience in order to develop the best tools and materials to reach them.

Activity 4.1: Conduct Education and Outreach Programs to Illustrate the Problems Associated with Marine Debris

Determine how to best make this information available to the general public for land based education and all boaters—including the military, cruise ships, large commercial vessels, and fishermen for ocean based education. While the focus of this strategy would be to address plastics in the marine environment, it will also remind people that cigarettes are also trash and a form of marine debris.

- A. Engage the media in wildlife issues as they are a necessary outlet in increasing awareness of wildlife that have been adversely affected by debris, such as entangled animals. Publicity should be given to information about the location where pelagic plastics accumulate and the connection to both land-based and offshore actions.
- B. Evaluate sources of plastic debris and develop a targeted education program.
- C. Develop public service announcements that educate the public on the concerns and solutions to the issue. This public awareness strategy should fully integrate an educational component about marine debris into the campaign.

Status: Phase 2

Potential Partners: Fishing groups, recreational boaters, cities, watershed networks

Activity 4.2: Develop a Database to Monitor Marine Debris

The MBNMS will work with the Ocean Conservancy and the Coastal Commission to develop a database to track and characterize the type, location and amounts of marine debris collected through Coastal Cleanup efforts. Monitoring results will be integrated into the MBNMS SIMoN program.

Status: Phase 2

Potential Partners: Ocean Conservancy, American Plastics Council, California Coastal Commission, Save Our Shores, Surfrider Foundation, State Parks, Cites, school groups, US Fish and Wildlife Service

Activity 4.3: Increase Education About Balloon Disturbance

Balloons are often found at sea and have deleterious effects on various forms of marine species. Developing informational tags to be placed on commercial helium tanks and balloons, which illustrate the hazards of releasing balloons into the environment may reduce the instance of this form of marine debris. Information should also be provided to area businesses which make a regular practice of releasing balloons into the environment.

Status: Phase 1-Identify and conduct outreach to commercial users, Phase 2-Identify and conduct outreach to private users

Potential Partners: Santa Cruz boardwalk, local merchants, car dealerships, shopping centers, point of sale locations, schools, Public Service Announcements, Save Our Shores, non profits, and other environmental organizations

Activity 4.4: Develop Notification of Abandoned Gear Recovery Program

Implementing a notification and recovery program to collect fishing gear similar to the program created in the Northwest Hawaiian Islands in which derelict fishing gear is recovered could reduce abandoned or discarded gear. The US Coast Guard will retrieve abandoned fishing gear if it is deemed to be a hazard to navigation. Gear that is not a navigation hazard is not recovered.

- A. Investigate other programs for strategies which address this need. Educational efforts to fishermen and other users regarding the adverse effects of lost gear and debris will be valuable in combating this form of debris.
- B. Encourage the US Coast Guard to, where possible, recover derelict fishing gear, or assist in communication with others who could do so.
- C. Identify and enlist a network of partner organizations or individuals who are able to retrieve abandoned gear.
- D. Develop a notification system that the US Coast Guard, fishermen, researchers and other boaters can use to notify the recovery network of the locations of abandoned gear.
- E. Evaluate the feasibility of developing a shore-side reward program for removal of gear that becomes washed up on beaches. An education component would be necessary to alert beachgoers of the recovery program.

Status: Phase 2

Potential Partners: US Coast Guard, fishing groups, diving organizations, California Coastal Commission, research institutions, and environmental organizations.

Activity 4.5: Increase Debris Reduction Efforts To Municipalities

Local consumers, businesses, tourists, and residents should be made aware of the hazards associated with marine debris. Education efforts, in general, have been found to be more effective at the source of the problem than end-based solutions. Further education efforts are warranted to decrease the volume of trash found in the sea, as listed in *Activity 4.1*.

Identify the priority debris types to help formulate an educational approach to the issue. Conduct concerted educational efforts with municipalities in order to urge to install storm shields or catchment basins over storm drains. This would potentially reduce the amount of post consumer garbage from entering the ocean during times of dry weather.

Collaborate with municipalities, cities, and students to paint stencils on storm drains alerting others to this problem. Many coastal municipalities conduct storm drain stenciling to heighten awareness about storm runoff by making individuals aware that the final receptacle for trash found on the street is the ocean.

Support volunteer based creek cleanups conducted in advance of wet weather. These cleanup activities have been found to reduce the amount of plastic and trash contribution to the Sanctuary.

Status: Phase 2

Potential Partners: Municipalities, cities, schools, Surfrider, and environmental groups

Strategy MMST–5: Commercial Harvest Related Disturbance

Strategy Description

This strategy recognizes the need to address disturbance by commercial harvesting related issues. The following list identifies potential issues the workgroup is concerned with:

- Light disturbance on pelicans, petrels, auklets, and sea otters from squid fishing
- Disturbance via kelp harvesters
- Bycatch from fishing gear and aquaculture (turtles and seabirds)
- Nearshore fishery impacts to seabird colonies

Activity 5.1: Conduct Evaluation Or Research To Determine If Additional Solutions Are Needed

The MBNMS should conduct research activities to evaluate disturbance from kelp harvesting, lighting from squid fishing vessels, and aquaculture pens and gear entanglement. Potential solutions may include re-directing or shielding light sources in some fashion, and modifications to fishing gear and aquaculture pens to reduce bycatch and entanglement.

- A. Conduct an evaluation to determine if aquaculture pens should be redesigned to reduce entanglement of seabirds.
- B. Examine the issue of fishermen unintentionally snagging their gear on whales when both are focused on a concentrated feeding ground. Fishing boats have been observed inadvertently crossing paths with whales on occasion. An onsite enforcement officer should be made available to be present on the water at critical times of year. The MBNMS should more closely with others on this issue.
- C. Coordinate with other agencies to determine the times of peak concern for the above listed issues and respond accordingly.
- D. Invite fishermen to participate in training and workshops that will be conducted to reduce harassment or disturbance to marine species.

Status: Phase 2

Potential Partners: California Department Of Fish And Game, Research, Point Reyes Bird Observatory, US Fish And Wildlife Service, NOAA Fisheries, fishing organizations

Activity 5.2: Increase Interagency Coordination On Bycatch Reduction of Marine Mammals, Sea Turtles and Birds

Marine species are known to be prone to hooking and entanglement in fishing lines, gillnets, buoy anchor lines, discarded fishing gear, and other equipment, which can lead to serious injuries or death.

- A. Coordinate with NOAA Fisheries to ensure that levels of marine mammals, sea turtles, and bird bycatch and other fishery impacts are consistent with the resource protection goals of the Sanctuary.
- B. The MBNMS should investigate if NOAA Fisheries standards are consistent with Sanctuary goals.
- C. Investigation into other means of bycatch reduction should be conducted where appropriate.

Status: Phase 2

Potential Partners: California Department Of Fish And Game, Research, Point Reyes Bird Observatory, US Fish and Wildlife Service, NOAA Fisheries

Strategy MMST-6: Acoustic Disturbance

Strategy Description

Noise levels in the marine environment have been increasing over the years. These increases are resultant from increased shipping traffic, sonar technologies, and research projects. The effects of noise on marine mammals, seabirds, and turtles is not entirely known, though active sonar has been conclusively linked to the deaths of whales in other areas. This strategy recognizes the need to address disturbance by acoustic impacts. Issues of concern include the effects of acoustics on marine mammals by ships, the military, research, or other influences.

Activity 6.1: Research and Monitoring

Strategies to address the above issue include gathering more information and data on the effects of sound in the marine environment.

- A. Encourage passive acoustic monitoring in order to identify and quantify sources of anthropogenic noise.
- B. The MBNMS should continue to be apprised of survey and monitoring activities that are evaluating the effects of sound.

Status: Phase 2

Potential Partners: San Francisco State University, Stanford, Naval Postgraduate School, other research institutes, NOAA Fisheries, State Parks

Activity 6.2: Evaluation of Individual Projects

Potential effects of acoustic disturbance are not entirely known for marine species, however there is a correlation between acoustics and marine mammal stranding events in other areas of the world.

- A. Continue evaluating individual proposals on a case-by-case basis to determine impacts of proposed projects, and make management recommendations.
- B. The MBNMS should work with others to determine acceptable sound levels in the different frequency ranges affecting wildlife.
- C. Work with others to maintain a database of acoustic characteristics of scientific and industrial equipment.

Status: Phase 1

Potential Partners: San Francisco State University, Stanford, Naval Postgraduate School, other research institutes, NOAA Fisheries, State Parks

Strategy MMST-7: Turtle Disturbance

Activity 7.1: Evaluate the Issue

Strategies to address the disturbance of sea turtles in the MBNMS include working with NOAA Fisheries on further evaluation of sea turtle tracking projects, evaluation of stranding data, and developing a program to identify common sea turtle disturbance or harassment activities.

- A. The MBNMS should work with those involved in regional sea turtle research activities to determine primary threats, known disturbance activities, and strategies to reduce disturbance. Sea turtles are difficult to see from the water and are vulnerable to boat collisions and propeller strikes. Other known threats to turtles include the ingestion of garbage and marine debris such as plastic bags, styrofoam, balloons, and other plastics. These items can cause interference in metabolism or gut function as well being responsible for absorption of toxic byproducts. Contact with discharged oil can harm sea turtles by adversely affecting respiration, blood chemistry, and salt gland function. Ingestion of tar balls is also of concern.
- B. Include information specific to sea turtle species found within the MBNMS in wildlife viewing guidelines. Information on sea turtles should be incorporated into the outreach program to be conducted for the benefit of whale watch vessels and other boaters.

Status: Phase 1

Potential Partners: Past partners on outreach, enforcement, state parks, California Department Of Fish And Game, California Coastal National Monuments, police, US Fish And Wildlife Service, non-profits, NOAA Fisheries, cruise ship industry

Strategy MMST–8: Enforcement Activity Disturbance

This strategy recognizes the need to address disturbance by increasing both the on-the-water and on-land presence of Sanctuary enforcement in an effort to complement education efforts.

Activity 8.1: Strengthen Enforcement

It is critical to strengthen the availability of surveillance and enforcement capabilities, and to increase the visibility of Sanctuary enforcement to enhance educational efforts. In recent years reports of Sanctuary violations have not fully reached fruition due to complex legal pathways. It would be beneficial to the Sanctuary if the option to write an offender an on-the-spot ticket were in place.

- A. The MBNMS should finalize and use a summary settlement process, which would allow tickets or fines to be levied on-scene to offenders.
- B. Strengthen enforcement of Sanctuary violations to ensure greater protection of the Sanctuary.
- C. Pursue partnerships with other state and federal agencies to further protect Sanctuary resources.
- D. Improve inter-agency coordination on enforcement to leverage field efforts, including MBNMS, California Department of Fish and Game, State Parks, and local police.
- E. Implement coordination between MBNMS education and enforcement programs. Criteria should be developed in order to decide when to use education or enforcement.
- F. The MBNMS should define a system of referrals from docents to the enforcement officer. This system should clearly define guidance on when to call in enforcement.

Status: Phase 1

Potential Partners: NOAA Fisheries, State Parks, Department of Fish and Game, non-profits, Team OCEAN

Activity 8.2: Review Current Regulatory Scheme

The MBNMS should review the effectiveness and enforcement of existing laws and Sanctuary regulations since designation and take corrective actions where appropriate.

Status: Phase 2

Activity 8.3: Conduct Outreach

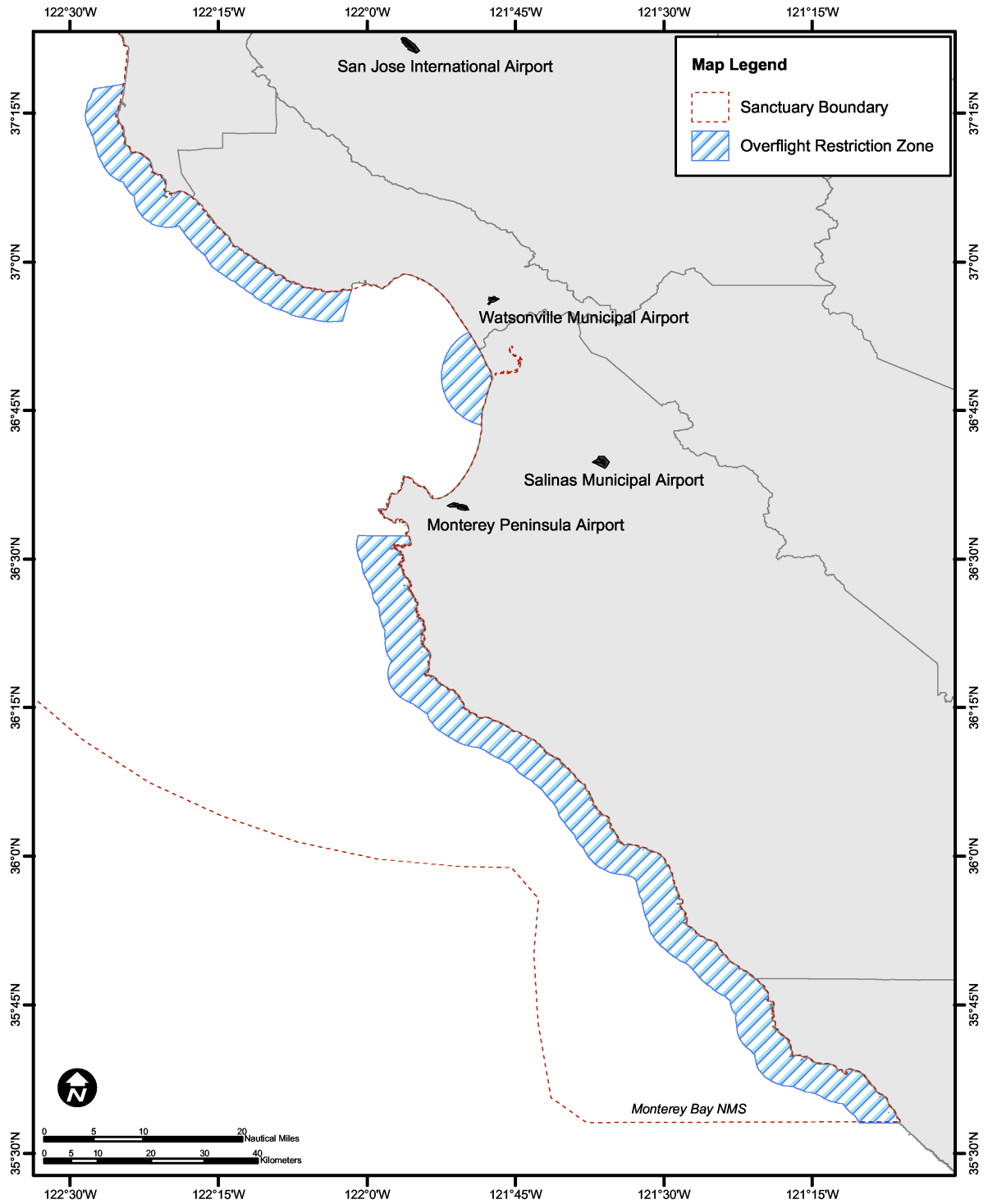
There is some confusion among members of the public as to what the MBNMS regulations are and who to contact in the event of a violation.

- A. The MBNMS should work with others regulatory agencies to develop and disseminate readily understandable information about complex regulations and multiple jurisdictions to the public and agencies.
- B. Develop coordinated training with enforcement personnel and docents on how to effectively report Sanctuary violations.
- C. Establish and promote a call-in system and infrastructure for the general public to report incidents for enforcement follow-up.

Status: Phase 1

Potential Partners: NOAA Fisheries, State Parks, Department of Fish and Game, non-profits, Team OCEAN

Figure MMST 1. Existing MBNMS Overflight Restriction Zones



Resolved Issue:

Fireworks

Firework displays over the MBNMS have traditionally been conducted as part of national and community celebrations, and foster public use and enjoyment of the marine environment. Firework displays also have the potential to cause unacceptable levels of disturbance to marine wildlife and habitats in some parts of the MBNMS and should thus be restricted from such areas.

The MBNMS is currently consulting with the US Fish and Wildlife Service and the National Marine Fisheries Service as required by the Endangered Species Act, Migratory Bird Treaty Act, and the Marine Mammal Protection Act.

The results of this consultation process are expected to yield guidance for the approval of MBNMS fireworks authorizations and will outline permit conditions and maximum number of fireworks allowed at various locations, including areas where fireworks will not be allowed.

Motorized Personal Watercraft Action Plan

Goal Statement

To minimize disturbance of marine wildlife by motorized personal watercraft, minimize user conflicts, and provide opportunities for MPWC use within the Sanctuary.

Working Group Members

MBNMS Staff Contact

Scott Kathey Regulatory Coordinator

MBNMS Staff

Lisa Emanuelson Resource Issue Education Specialist
Huff McGonigal Environmental Policy Specialist
Sean Morton Management Plan Coordinator

Working Group Members

Stephan Andranian American Watercraft Association
Doug Ardley Surfer's Environmental Alliance
Susan Danielson Save Our Shores
John Donaldson Personal Watercraft Industry Association
Jeff Field Tow-In Surfing and Surf Rescue
Dan Haifley Monterey Bay National Marine Sanctuary Advisory Council - Recreation
Mike Kimsey Surfrider Foundation - San Mateo Chapter
Don Kinnamon California Boating Safety Officers Association
Mike Laffen Monterey Bay National Marine Sanctuary Advisory Council - At-Large
Peter Mel Tow-In Surfing Competition
John Moule Surfrider Foundation - San Luis Obispo Chapter
Bob Puccinelli California Department of Fish & Game
Russ Robinson Recreational Boaters of California
Sean Smith Bluewater Network
Tom Stuhlreyer Monterey Bay National Marine Sanctuary Advisory Council - US Coast Guard
Dan Temko Pillar Point Harbor

Introduction

Motorized Personal Watercraft (MPWC) are small, fast, and highly maneuverable craft that possess unconventionally high thrust capability and horsepower relative to their size and weight. This characteristic enables them to make sharp turns at high speeds and alter direction rapidly, while maintaining controlled stability. Their small size, shallow draft, instant thrust, and “quick reflex” enable them to operate closer to shore and in areas that would commonly pose a hazard to conventional craft operating at comparable speeds. Many can be launched across a beach area, without the need for a launch ramp. Most MPWC are designed to shed water, enabling an operator to roll or swamp the vessel without serious complications or interruption of vessel performance. The ability to shunt water from the load carrying area exempts applicable MPWC

from Coast Guard safety rating standards for small boats. MPWC are often designed to accommodate sudden separation and quick remount by a rider. MPWC are not commonly equipped for night operation and have limited instrumentation and storage space compared to conventional vessels. MPWC propelled by a directional water jet pump do not commonly have a rudder and must attain a minimum speed threshold to achieve optimal maneuverability. Most models have no steering when the jet is idle.

Water jet-propelled MPWC gained mainstream popularity in the United States in the 1980s, and sales accelerated through the mid 1990s. Their size, power, speed and sophistication have advanced steadily. Some current models can carry up to 4 passengers and achieve maximum speeds between 30 and 60+ miles per hour. Engine size, horsepower ratings, and vessel range and endurance have increased over time.

In addition to water jet-propelled MPWC, other craft exist that are extremely maneuverable at high speeds, have shallow drafts, and powerful thrust/weight ratios, including small jet boats, air boats, hovercraft (air cushioned craft), hydrofoils, and miniature speed boats. Some of these also possess the ability to shunt water from the load carrying area.

The majority of MPWC currently operated within the Monterey Bay National Marine Sanctuary (MBNMS) are compact water jet-propelled craft that shed water from the passenger spaces. Larger size models are preferred in the high-energy ocean environment for increased power, range, and towing ability. Popular uses are operation within the surf zone, weaving in and out of wave lines, launching off the crest of waves and wakes, and towing surfers into large and/or remote wave breaks. MPWC are often operated in pairs or larger groups for camaraderie and improved safety.

At least eight State and local public safety agencies currently operate MPWC within the MBNMS for purposes of surf zone rescue. These agencies reposition MPWC ashore and conduct periodic training for potential ocean search-and-rescue missions. Public safety officials assert that MPWC are the only craft that can safely access the high-energy surf zone due to their rapid acceleration and maneuvering capabilities and that the craft provide an important tool for conducting rescues that would prove too risky or impossible to accomplish with other vessel types.

Use of MPWC to tow surfers into large waves at Mavericks, a surf break off Pillar Point in San Mateo County, is a relatively new technique in surfing, allowing surfers to catch massive waves previously considered too large to ride. Use of MPWC for this purpose has increased dramatically during the past few years at Mavericks. Tow-in surfing activity has been increasing at many traditional surfing locations in the Sanctuary, regardless of surf conditions. On days with moderate or low surf, MPWC provide ready access and improved flexibility for positioning surfers on wave breaks. On high surf days, MPWC provide access to areas normally considered too dangerous by paddle surfers. The MBNMS has received complaints by surfers, beachgoers, and coastal residents that the use of MPWC in traditional surfing areas has produced conflicts with other ocean users and caused disturbance of wildlife. During the designation of the MBNMS, the operation of MPWC in nearshore areas was identified as an activity that should be prohibited to avoid such impacts.

Since 1993, Sanctuary regulations have specifically defined MPWC and restricted them to certain zones in the Sanctuary in order to protect marine mammals and seabirds and minimize nearshore multiple use conflicts. However, many current MPWC designs do not fall within the Sanctuary's current definition of motorized personal watercraft because the definition was based on prevailing design and performance characteristics in 1992 that quickly became obsolete. As a result, newer MPWC have been operating in nearshore areas throughout the MBNMS, contrary to the intent of the Sanctuary's MPWC restrictions. Larger MPWC (3+ passenger capacity) comprise the majority of MPWC observed in the Sanctuary today. Since these craft are exempt (by definition) from current Sanctuary restrictions, the existing MPWC zones receive limited use and have become increasingly ineffective in serving their intended purpose.

History of MPWC Management in the MBNMS

The Monterey Bay National Marine Sanctuary restricted use of MPWC (as defined below) upon designation in 1992 and confined these craft to four zones outside of the four harbors in the Sanctuary. This regulation was intended to provide enhanced resource protection by prohibiting operation of MPWC in areas of high marine mammal and seabird concentrations, kelp forest areas, river mouths, estuaries, lagoons and other similar areas where sensitive marine resources are concentrated and most vulnerable to disturbance and other injury from MPWC. The MBNMS regulation defines a MPWC as any motorized vessel that is less than fifteen feet in length as manufactured, is capable of exceeding a speed of fifteen knots, and has the capacity to carry not more than the operator and one other person while in operation. The term includes, but is not limited to, jet skis, wet bikes, surf jets, miniature speed boats, air boats, and hovercraft. Since adoption of this regulation, manufacturers have designed and marketed many MPWC models capable of carrying two or three people in addition to the operator, which effectively exempts these craft from MBNMS zone restrictions.

Currently, MPWC may launch only within Monterey, Moss Landing, Santa Cruz, or Pillar Point Harbors and must proceed directly to an adjacent operating zone outside each harbor through a specified 100-yard wide access route. Zone boundaries are marked by a total of 21 yellow Sanctuary can buoys and 4 Coast Guard navigation aids. The zone buoys are positioned along the perimeter of each zone; however, they present added navigation hazards to mariners.

In order to inform users about use of the zones, eight large enamel interpretive signs were designed, produced, and installed at launch ramps in the four harbors within the Sanctuary. The signs are customized to each harbor location with text of Sanctuary MPWC regulations superimposed on a map depicting the nearest operating zone and access route. The Sanctuary also designed and published several thousand brochures to provide personal instructions for using the zones and complying with MBNMS regulations. The brochures were distributed to harbor offices and some retail shops. The total initial costs (material, transportation, and personnel) for deployment of buoys, signage, and brochures between 1996 and 1997 was estimated at \$83,000. Annual maintenance cost for the buoy system ranges from \$12,000 to \$15,000 per year, but is expected to drop slightly due to routine equipment rotation schedules begun in 2002. This does not include costs for republishing brochures or repairing/replacing signage.

MBNMS staff believe that sufficient research findings and empirical evidence exist to support continuing the agency's current management approach. Many assessments of MPWC impacts indicate that unrestricted access to all reaches of the Sanctuary by such craft would pose an unacceptable threat to wildlife and other ocean users. MPWC commonly accelerate and decelerate repeatedly and unpredictably, and travel at rapid speeds directly toward shore, while motorboats generally slow down as they approach shore. Accordingly, disturbance impacts associated with MPWC tend to be locally concentrated, producing effects that are more geographically limited yet potentially more severe than motorboat use, due to repeated disruptions and an accumulation of impacts in a shorter period of time. To prevent the disturbance of wildlife and other nearshore users, most MPWC have been restricted in protected marine areas adjacent to, or overlapping the MBNMS (e.g. the Gulf of the Farallones National Marine Sanctuary and nearshore areas of the Golden Gate National Recreation Area, Marin County, California State Parks, and the City of Santa Cruz). Current MBNMS management of MPWC is consistent with actions taken in these jurisdictions.

Strategy MPWC-1: MPWC Sample Definition

Issue Description

Current MBNMS regulation defines a motorized personal watercraft as any motorized vessel that is less than fifteen feet in length as manufactured, is capable of exceeding a speed of fifteen knots, and has the capacity to carry not more than the operator and one other person while in operation. The term includes, but is not limited to, jet skis, wet bikes, surf jets, miniature speed boats, air boats, and hovercraft. Since implementation of this regulation, most MPWC manufacturers have designed vehicles that fall outside the MBNMS definition. Many MPWC models are now capable of carrying two or three people in addition to the operator and are therefore not subject to the MBNMS regulation. The goal of this strategy is to use a definition that captures all motorized personal watercraft.

No Consensus

The working group did not reach consensus and is forwarding three positions on this proposed strategy.

Group Discussion Summary

The working group initially attempted to identify criteria for use in developing a new or revised MBNMS definition of MPWC. Many in the group determined that offering a sample definition that embodied certain criteria would be a more useful recommendation to the Sanctuary Advisory Council (SAC). The group struggled at length with crafting a definition that would identify the craft of concern with precision, anticipate future design changes, and avoid inclusion of vessels not intended for restriction. Some group members split over appropriate definition components, while others disagreed with any premise that MPWC should be defined for subsequent confinement to zones. As a result, the group agreed to forward two definitions for SAC consideration, as well as a position statement from those members opposing the definition of MPWC for restriction to zones. Those supporting a definition differed on whether reference to the mode of propulsion should be broad or specific.

Recommendation

Position A

Some members of the MPWC Working Group offer the following as an imperfect definition of MPWC, recognizing that a critical issue regarding MPWC operation in the Sanctuary is one of operator behavior, not solely vessel design:

Motorized Personal Watercraft means any watercraft less than 16 feet in length (as manufactured), propelled by a water jet pump, fan, or turbine, that is designed to be operated by standing, sitting, or kneeling on, astride, or behind the surface vessel, in contrast to a conventional boat, where the operator stands or sits inside the vessel.

Position B

Some members of the MPWC Working Group offer the following as an imperfect definition of MPWC, recognizing that a primary issue regarding MPWC operation in the Sanctuary is one of operator behavior, not solely vessel design:

Motorized Personal Watercraft means any watercraft less than 16 feet in length (as manufactured), propelled by machinery, that is designed to be operated by standing, sitting, or kneeling on, astride, or behind the surface vessel, in contrast to a conventional boat, where the operator stands or sits inside the vessel.

Position C

Some members of the MPWC Working Group offer the following instead of a sample definition:

Regarding MPWC, the primary issue is one of operator behavior, not vessel design.

Strategy MPWC-2: Zoning

Issue Description

The MBNMS has employed a zoning approach to MPWC management for ten years (since 1992) to prevent disturbance of marine wildlife, nearshore habitats, and other coastal users by MPWC. Four existing zones were sited based upon the location of public launch facilities, traditional areas of MPWC use, and local wildlife and marine recreation patterns. Zone boundaries are marked by a total of 21 yellow Sanctuary can buoys and 4 Coast Guard navigation aids. The markers are positioned along the perimeter of each zone; however, they present added navigation hazards to mariners. Overall, the zones have received little use by MPWC operators since many ride 3+ person capacity craft that are not restricted to the zones. If the definition of MPWC is changed to include 3+ person capacity craft, zone use patterns will likely change, though specific impacts by zone are unknown.

Partial Consensus

The working group reached consensus on *Activities 2.2* and *2.3*, but did not reach consensus on *Activity 2.1*.

Group Discussion Summary

The working group determined that the current buoy system was the most effective means of marking zone boundaries at this time and reached consensus on ways to improve the buoy system. The group considered and modified suggested criteria for use in evaluating whether an MPWC zone should remain open, but could not reach consensus because some members opposed MPWC zones altogether and any measure that might further reduce riding areas.

Recommendation

Activity 2.1: Criteria for Determining Which Zones Should Remain Open

The following list of criteria was discussed by the Working Group but was not finalized or approved:

- seasonal and annual MPWC use patterns
- wildlife impacts within the zones
- navigational hazards posed by zone markers
- ocean use conflicts within the zones
- fiscal cost of establishing and maintaining zone markers, signage, and outreach product
- availability of resources to monitor MPWC activity and enforce MPWC restrictions
- financial impacts to harbors and ramps from closing areas previously available to MPWC. The California Department of Boating and Waterways could potentially reduce funding support to launch facilities adjacent to areas closed to MPWC.
- proximity to or overlap with marine protected areas
- lost MPWC recreational opportunity

Activity 2.2: Improve Buoy Marking System

The visibility of the zone marker buoys will be enhanced by the following measures:

- A. Add PVC piping to extend buoy height above the waterline
- B. Mark buoys to identify their purpose

- C. Incorporate prominent USCG navigational aids into boundary marking schemes whenever possible

Status: Phase 2

Potential Partners: USCG

Activity 2.3: Implement Ongoing Buoy Maintenance Program To Assure Buoys Are On Station

The MBNMS will contract with a private vendor to conduct regular maintenance and any necessary modifications to the buoy system to help assure that buoys remain on station, minimize safety hazards, and correctly mark the prescribed zones.

Status: Phase 2

Strategy MPWC-3: Exceptions to Zone Restriction

Issue Description

If the current definition of MPWC is expanded to include 3+ person capacity craft, most MPWC within the Sanctuary will be restricted to existing operating zones. Such a change would limit current MPWC training by public safety agencies as well as tow-in surfing activities (a sport that has evolved and expanded since Sanctuary designation). Administrative policies and conditions must be developed to authorize any controlled operation of MPWC in areas of the MBNMS outside established operating zones.

At least eight State and local public safety agencies currently operate MPWC for purposes of surf zone rescue within the MBNMS. In order to use MPWC for response in critical areas, local response agencies must train their MPWC operators to be familiar with the nearshore areas and ocean dynamics in which they may be called to operate. Since many response areas lie outside of MBNMS MPWC zones, public safety personnel need an administrative mechanism that facilitates familiarization and proficiency training.

The nearshore area immediately southwest of Pillar Point, California (popularly named “Mavericks”) is known world-wide as a unique surfing venue where waves reaching a height of 50-60 feet occur periodically each year. It is the only site of its kind in the continental United States. Since the Mavericks area is outside of MBNMS MPWC operating zones, special administrative provisions would be required to allow MPWCs to tow in surfers at this location.

Partial Consensus

The working group reached consensus on *Activities 3.1* and *3.2*, but did not reach consensus on *Activities 3.3* and *3.4*.

Group Discussion Summary

The working group agreed that some provision should be made to allow for training (outside zone boundaries) of public safety personnel who use MPWC for marine rescues. The group could not reach consensus concerning a limited permit program for tow-in surfing at Mavericks because some members of the group opposed creation of any new riding areas and because the Mavericks site is immediately adjacent to Fitzgerald Marine Reserve.

Recommendation

Activity 3.1: Authorization for Training of Public Safety Personnel

NOAA will authorize public safety agencies operating MPWC within the Sanctuary to conduct MPWC training for locally assigned personnel.

Activity 3.2: Official Protocols For Training of Public Safety Personnel

MBNMS staff will consult with public safety agencies assigned jurisdictional authority within the Sanctuary area to develop MPWC training protocols for their emergency response personnel. At a minimum, the protocols will include the following terms and conditions:

- Training shall be conducted only for official government public safety personnel assigned to local units exercising jurisdictional authority within the Sanctuary
- Training shall not occur in sensitive habitat areas or disturb marine wildlife

- Training shall not interfere with other ocean users
- Authorized public safety agencies shall select training areas and periods in coordination with the MBNMS
- Authorized public safety agencies shall notify the MBNMS in advance of ocean training sessions
- Trainees shall use only agency authorized equipment that is marked for ready identification by the public
- Trainees shall perform training in accordance with strict standards prescribed by their respective agencies

Potential Partners: USCG, CDPD; Cities of Marina, Santa Cruz, Capitola, Half Moon Bay, and Monterey; Pillar Point Harbor; and Pacific Grove Ocean Rescue

Activity 3.3: Special Use Permit program for tow-in surfing activities at Mavericks (Pillar Point)

The working group did not reach consensus on minimum guidelines for the limited permitting of individuals to conduct MPWC tow-in operations at Mavericks during very high surf periods. Guidelines and specific permitting conditions were discussed at length and included a limited entry special use permit system; a cap on the number of MPWC allowed at the site at any given time; minimum wave heights for tow-in based on maximum wave heights surfed by paddle technique; fee-based funding for monitoring and enforcement; certification and training requirements; transit routes; etc. Though a majority of group members seemed willing to consider a controlled access program at Mavericks, individual group members indicated at the last meeting that they could not support a consensus recommendation. Cited objections included a concern for protected resources at Fitzgerald Marine Reserve (immediately adjacent to Mavericks) and objection to consideration of only one site (Mavericks) for tow-in surfing activity. No final recommendations were forwarded to the SAC.

For Information Only

The following protocols were presented to the working group for consideration at its last meeting. Though many of the protocols had been previously discussed by the working group, this final package was never considered or approved in group session due to announcements by individual group members that they could not support MPWC operations at Mavericks. This information has been included at the request of SAC members to provide an example of criteria considered by the group.

Minimum guidelines for the limited permitting of individuals to conduct MPWC tow-in operations at Mavericks during very high surf periods:

- A limited entry, special use permit system (fee included). Permits will be issued to not more than 20 teams (each team must have 2-3 members and only 1 MPWC) on a first-come basis. Permit fees will be used to offset monitoring and enforcement costs.
- Permit fees will be assessed in amounts sufficient to present a zero net cost to the government for administering this program. Costs include (but are not limited to) training, training materials, permitting, decals, education materials, monitoring and enforcement.
- Permits will be issued only for the purpose of conducting surfing activities.

- Permitted access to Mavericks will only be authorized when the official reported swell height at NOAA National Data Buoy #46012 (Half Moon Bay buoy) reaches 20 feet or greater.
- Maximum number of MPWC allowed on-site at Mavericks is 20 craft at any time.
- Monitoring and enforcement will be required for 8-10 hours/day during high surf advisory days (approximately 5 - 15 per year) to assure compliance with the permit program.
- General permit conditions
- Seasonal restrictions
- Minimal sea state and tide level requirements
- Proof of MPWC training certification (classroom)
- Proof of insurance and required minimum coverage limits for environmental damage
- MPWC must tow a sled
- Permit holders cannot access the site on MBNMS authorized competition days
- Access limited to the period between official sunrise and 9:00 AM
- Access to and from Mavericks shall be along a defined route from the harbor entrance to the green USCG bell buoy “3”, then northward along the west side of Black Hand reef to the Mavericks wave break
- Authorized craft must remain south of the southern tip of Pillar Point and must be actively engaged in surfing activities at Mavericks or transiting to and from the Mavericks surfing site along the authorized access route
- MPWC operation is prohibited in the lagoon area between Pillar Point, Sail Rock, and the breakwater.
- Authorized craft must bear an official MBNMS decal on the hull as prescribed in the permit
- Permit holders must obey all State and Federal boating laws
- Permit holders must carry photo ID

A permit program for limited use of MPWC at Mavericks could be administered under existing special use permit authority provided in section 310 of the National Marine Sanctuaries Act.

Activity 3.4: Special Use Permit Program for Sponsored Tow-In Surfing Competitions at Mavericks (Pillar Point)

The working group did not reach consensus on minimum guidelines for the limited permitting of individuals to conduct MPWC tow-in operations at Mavericks as part of specified big-wave competition events. Guidelines and specific permitting conditions were discussed and included a limit on the number of sponsored competition events per year; issuance of permits to event sponsors, rather than participants; insurance requirements; post-event clean-up requirements; fee-based funding of enforcement monitoring, interpretive signage, and outreach materials related to the event; and inclusion of most terms and conditions developed for *Activity 3.3* above.

Staff Note: The following protocols were presented to the working group for consideration at its last meeting. The many of the protocols had been previously discussed by the working group, this final package was never considered approved in group session due to announcements by individual group members that they could not support MPWC operations at Mavericks. This information has been included at the request of SAC members to provide an example of criteria considered by the group.

The MBNMS will establish guidelines for the limited permitting of individuals to conduct MPWC tow-in operations at Mavericks as part of specified big-wave competition events. The guidelines will (at a minimum) include:

- A limit of no more than two sponsored competition events per year
- The event sponsor will register all teams and craft and apply for a single permit for the event for a specified day or high surf episode
- All general conditions specified in Activity 3.3 above would apply except that competition activities would be authorized for the entire day
- Access will only be permitted during high surf advisory periods declared by the National Weather Service, NOAA
- Maximum number of MPWC allowed on-site at Mavericks is 20 craft
- The event sponsor will purchase liability insurance with minimum coverage limits (to-be-determined) for environmental damage caused as a result of the sponsored event
- The event sponsor will be responsible for post-event cleanup of any spectator debris that can/does enter the ocean and for any collateral damage to the Sanctuary by event spectators
- Monitoring and enforcement will be required for 8-10 hours/day during competition days to assure compliance with permit program
- The event sponsor will pay to NOAA the total cost for enforcement monitoring, interpretive signage, and outreach materials related to the event

A permit program for limited use of MPWC at Mavericks could be administered under existing special use permit authority provided in section 310 of the National Marine Sanctuaries Act.

Strategy MPWC-4: Educational Outreach to MPWC Community

Issue Description

In order to notify MPWC users and the public of zone restrictions and use protocols, education and interpretive programs must be developed and implemented. Current Sanctuary education and outreach efforts include 1.) publication and distribution of a general brochure, which explains regulations, depicts zones, and describes potential environmental impacts of MPWC operations and tips for reducing or eliminating those impacts; 2.) signage at harbor launch ramps with information and maps depicting the MPWC zones and access routes; and, 3) occasional staff or enforcement contact with users to inform or remind them of Sanctuary regulations and zones.

Full Consensus

The working group reached consensus on *Activities 4.1* and *4.2* but omitted consideration of *Activities 4.3* and *4.4* because they were linked to the potential permitting of tow-in surfing at Mavericks, a proposed activity that failed to receive group consensus.

Group Discussion Summary

The group quickly reached consensus on two activities to develop educational and outreach plans and tools addressing MPWC operation within the MBNMS. The group decided not to consider two additional proposed activities (weather kiosk and MBNMS website weather hyperlink) designed to support permitted tow-in surfing at Mavericks, because the overall proposal failed to receive group consensus. Note: Weather kiosk development is recommended in another action plan.

Recommendation

Activity 4.1: Interpretive Materials (e.g. signs, brochures, videos)

The following actions will be taken to improve outreach materials:

- A. Amend the primary outreach brochure to describe the zoning system and how to use the buoy system to remain within the authorized zones
- B. Consider making brochures multi-lingual
- C. Create new MPWC instructional signs with MPWC regulations and information
- D. Ensure that a bold header identifies the signs clearly as regulatory signs
- E. Consider making signs bilingual (English/Spanish)
- F. Include a notice of penalties for violating MPWC regulations on signs
- G. Ensure that MPWC instructional signs are large and customized to local areas
- H. Replace instructional signs that are missing from launch ramp areas
- I. Place a special sign at Kirby Park notifying users that MPWC operation within Elkhorn Slough is prohibited
- J. Produce an interpretive video/DVD suitable for MPWC clubs and users, describing Sanctuary MPWC regulations and guidelines and proper riding etiquette

Status: Phase 1

Potential Partners: PWIA, AWA, Surfrider Foundation, SEA, Harbors, USCG, CDBW, RBOC, CBSOA, SOS, Bluewater Network, Peter Mel, Jeff Smith, GGNRA

Activity 4.2: Interpretive Methods (e.g. presentations, dock walkers, sign placement, information distribution)

The following actions will be taken to improve outreach:

- A. Conduct a needs assessment survey to determine the most effective method(s) of contacting MPWC users
- B. Review locations of instructional signs to assure they are in prominent locations at launch ramps
- C. Based on the results of the needs assessment, conduct targeted outreach to MPWC user groups, clubs, retailers, renters, repairers, etc.
- D. Coordinate with volunteer organizations and harbor masters to provide interpretive information to MPWC operators at launch ramps
- E. Add information on MBNMS MPWC regulations to the California Department of Boating and Waterways website

Status: Phase 1

Potential Partners: PWIA, AWA, Surfrider Foundation, SEA, Harbors, USCG, CDBW, RBOC, CBSOA, SOS, Bluewater Network, Peter Mel, Jeff Smith, GGNRA

Activity 4.3: Install a NOAA Weather Kiosk at Pillar Point Harbor Launch Ramp for Use By MPWC Operators, Surfers, Boaters, Fishermen, etc.

A weather kiosk should be placed at a prominent location for ready access by permitted MPWC operators to help determine if appropriate sea conditions exist for MPWC operation at Mavericks. The kiosk would additionally benefit other ocean users as well. The weather kiosk will include a touch screen computer system linked to real-time weather and oceanographic information from the National Weather Service and National Data Buoy Center.

Potential Partners: Pillar Point Harbor, Surfrider Foundation, PWIA, AWA, CDBW, USCG

Activity 4.4: Install A Link on the Front Page of the MBNMS Website for Instant Access to Real-Time Weather and Oceanographic Data from the National Weather Service and National Data Buoy Center

This aid would provide ready access by permitted MPWC tow-in operators to information that will help determine if appropriate sea conditions exist for MPWC operation at Mavericks. It should also provide useful information to other Sanctuary users.

Potential Partners: Surfrider Foundation, PWIA, AWA, CDBW, USCG

Strategy MPWC-5: Enforcement

Issue Description

Oversight and management of MPWC zones requires dedicated enforcement surveillance and rapid response to suspected violations. Harbor patrols and other harbor-based enforcement agencies are uniquely situated to perform this mission, but would require training and financial support. Harbor-based peace officers are familiar with MPWC use patterns in their areas, often receive initial complaint calls from the public, have immediate access to MPWC zones, and are most familiar with harbor areas and adjacent waters.

Full Consensus

The group quickly reached consensus on *Activities 5.1* and *5.2* but omitted consideration of *Activity 5.3* since it was linked to the potential permitting of tow-in surfing at Mavericks, a proposed activity that failed to receive group consensus.

Recommendations

Activity 5.1: Expanded Deputization of Local Peace Officers

The MBNMS will develop a plan for utilizing harbor police and other ocean-based law enforcement units to assist the Sanctuary in MPWC enforcement. The purpose for expanded deputization will be to increase surveillance patrols and enforcement personnel to monitor MPWC zones and harbor launch points. The MBNMS should consider creating an enforcement task force of marine enforcement agencies to coordinate support of Sanctuary enforcement goals.

Status: Phase 1

Potential Partners: NOAA OLE, USCG, CDPR, CDFG, CHP, Harbor Police, Sheriff Offices, PDs, CDBW

Activity 5.2: Commit Sufficient Enforcement Funding to Support Deputization Agreements with Harbors

NOAA should provide adequate funding to fully support *Activity 5.1* above and shall seek funding from both NOAA and non-NOAA sources (e.g. California Department of Boating and Waterways).

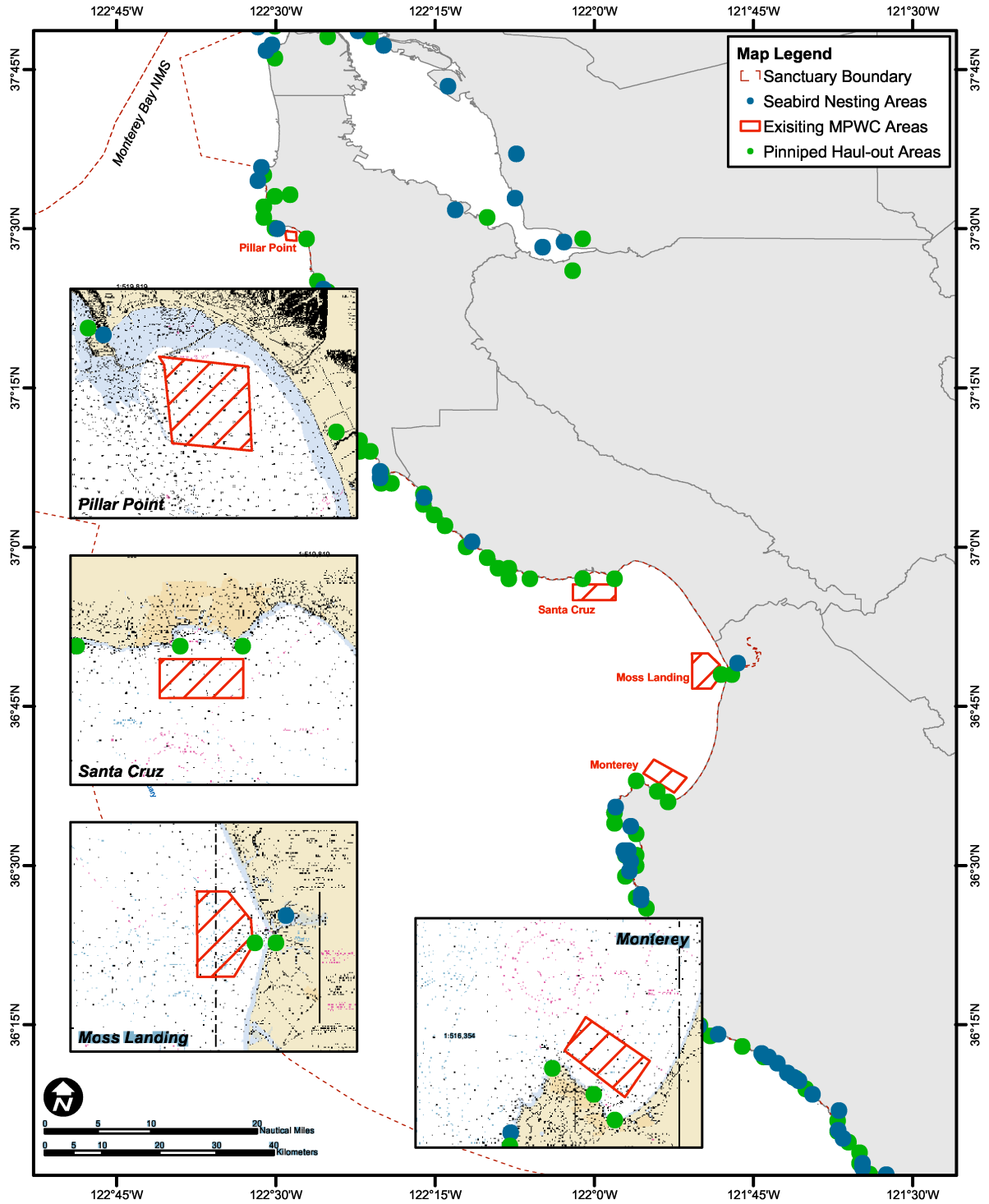
Potential Partners: NOAA OLE, USCG, CDPR, CDFG, CHP, Harbor Police, Sheriff Offices, PDs, CDBW

Activity 5.3: Permit Enforcement at Mavericks Using Permit Fee Funding

Fees collected for special use permits (authorizing MPWC access to Mavericks) will be used to pay for additional monitoring and enforcement of MPWC activity at Half Moon Bay and Pillar Point.

Potential Partners: Pillar Point Harbor, CDFG, CDPR

Figure MPWC 1. Existing MPWC Zones



Tidepool Protection Action Plan

Goal Statement

Evaluate and reduce visitor impacts to tidepools.

MBNMS Staff Contact

Holly Price Resource Protection Coordinator

MBNMS Staff

Huff McGonigal Environmental Policy Specialist

Dawn Hayes Education Coordinator

Andrew Devogelaere Research Coordinator

Steve Lonhart SIMoN Scientist

Liz Love Education Specialist

Working Group Members

Paul Reilly California Department of Fish and Game

Harriet Mitteldorf SAC-at large

Berkeley White Berkeley White

Ron Massengill SAC-at large

Art Seavey Monterey Abalone Co.

John Pearse UCSC

Robin Stierwalt-Booth Fitzgerald Marine Reserve

Fleur O'Neill Save Our Shores

Pete Raimondi UCSC

Milos Radakovich Landels Hill Big Creek Reserve

John O'Sullivan Monterey Bay Aquarium

Susan Goldbeck Tidepool Coalition

Marry Trotter Big Sur LUAC

Tim Olivas California Department of Fish and Game

Scott Kimura Tenera

Fiorenza Micheli Hopkins Marine Station

Background

Tidepools* and other components of rocky shores represent a species-rich habitat which attracts a wide array of visitors and collectors. In addition to the positive aspects of direct exposure to Sanctuary life comes the potential for various forms of human disturbance. The MBNMS currently lacks an overall strategy to address impacts to tidepools from human disturbance.

Although a comprehensive regional analysis of the locations and extent of tidepool impacts is lacking, public concerns have been raised about disturbance to tidepools in many different areas of the Sanctuary including Fitzgerald Marine Reserve, Pigeon Point, Bean Hollow, Santa Cruz, Monterey, Pacific Grove, Pebble Beach, Big Sur and Cambria. Concerns raised in areas of high visitor traffic include trampling of the resources, turnover of rocks, displacement of both living and nonliving resources, and collecting of intertidal species or shells that can provide habitat.

Visitor Impacts to Resources

Tenera Environmental (2002) provided a useful literature summary from studies outside the Sanctuary region outlining the types of visitor impacts to intertidal resources. Trampling is defined as when animals are crushed or dislodged or algae are damaged. Disturbance may also occur if animals or substrates are not returned to the same location. Collecting is defined as picking animals out of the intertidal area, an activity conducted by casual individual visitors, school groups, aquaria, biosupply companies and for consumption. The largest and most common organisms are most often collected since they are most easily found. In the Sanctuary region, species selectively harvested for consumption commonly include owl limpets, black turban snails, and others.

In addition to direct losses from disturbance and collecting, secondary changes may result from changes in distribution, prey availability, and competition. Under heavy use, patches of habitat become more frequently disturbed, allowing less time for recovery.

Within the Sanctuary region, several studies on human impacts have been conducted at Fitzgerald Marine Reserve in San Mateo County. Small areas of the reef that have been protected from human impact show increases in biodiversity, based on a monitoring program begun in 1994. Many typical intertidal biotas are underrepresented or absent from the unprotected part of Moss Beach Reef, the most heavily visited portion of the reserve. Also, invertebrate populations have been shown to increase during fall and winter when high tides and bad weather reduce visitation. In addition, studies have been conducted at Natural Bridges documenting visitor impacts.

Another source of visitor impacts to the reef is the discarding of trash, which can remain for extended periods of time and become wedged in the substrate. Various types of equipment for research, harvesting or recreational purposes, which are installed or left behind on the reef, may also raise public concerns. The level of impact from these sources is unknown.

Unfortunately, although there is a wealth of knowledge about tidepool life within the Sanctuary, there have not previously been studies that focused on evaluating the extent of human impacts at tidepool locations other than Fitzgerald and Natural Bridges.

In addition to visitor impacts from trampling, substrate displacement and collecting which will be addressed in this action plan, there are a variety of other types of human activities which can have negative impacts on tidepools and rocky shores, including coastal armoring, polluted runoff, landslide disposal, small boat groundings, and behavioral disturbance of marine mammals. These important issues are referenced below but strategies to address them are included in other sections of the Joint Management Plan Review.

Current MBNMS Efforts Related to Tidepools

Although the Sanctuary does not currently have a comprehensive regional program on tidepools, considerable staff time has been devoted to a range of individual tidepool projects in collaboration with a variety of partners. An understanding of these existing efforts provides a basis to build upon in the revised management plan.

MBNMS continues to work with various partners to produce interpretive signage to provide information about tidepools and tidepool etiquette aimed at reducing impacts to heavily visited locations. Completed signs are in place in Pacific Grove, and new ones are underway in San Mateo County and San Simeon/ Cambria region. To supplement the signage, staff assisted California State Parks in the production of a new video for school groups and teachers that focuses on tidepool etiquette, and will be working on the local distribution of that product. As part of the Sanctuary's new multicultural education program (MERITO), staff worked with the Monterey County Office of Migrant Education to provide guided intertidal field trips for Latino students, again emphasizing tidepool etiquette.

MBNMS has supported Bay Net in its efforts to develop a docent program that includes training volunteers to interpret at strategic tidepool locations along the Pacific Grove shoreline and elsewhere. Staff assisted in the development of a long-term intertidal monitoring program (LiMPETS) that provides education and training for high school students and other volunteers to collect intertidal data that can be used to detect changes in the ecosystem. Nine intertidal sites have been established within the MBNMS ranging from northern Santa Cruz County to San Simeon.

The Sanctuary has also compiled a detailed survey of the research and monitoring programs focused on rocky intertidal habitat within the Sanctuary (DeVogelaere et al., 1998). This provides basic information on tidepool resources, and also may serve as an initial estimate of locations of intertidal habitats that are accessible to visitors. Staff also collaborates with the Partnership for Interdisciplinary Studies of Coastal Oceans (PISCO), a consortium of academic scientists which has been conducting extensive monitoring of rocky intertidal habitats.

The Sanctuary participated in the Point Pinos Tidepool Task Force, a citizen-based group established several years ago in response to public concern about degradation of tidepool habitats in Pacific Grove. This group focused on improving public awareness about tidepool conservation and conducting research about the role of human impacts in changes that occur in rocky intertidal communities.

In collaboration with the Point Pinos Tidepool Task Force Research Committee, the Monterey Bay Sanctuary Foundation is overseeing a contract to evaluate visitor use patterns and resource impacts at Point Pinos. This study is evaluating locations, amounts and types of visitor uses, assessing documents and conducting interviews about historical patterns at the site. It also includes field monitoring of intertidal organisms to evaluate species abundance, distribution patterns, size-frequency and other factors at sites that differ in their levels of visitor use, in an attempt to distinguish visitor impacts from other factors that may influence tidepool life such as oceanographic temperature change. Sanctuary staff is also participating in a similar study of tidepool impacts which is beginning at the Fitzgerald Marine Reserve under the direction of the San Mateo County Parks and Recreation Division. This study will build on initial work conducted by the Reserve to evaluate impacts of visitor use via use of control sites that limit access. At the southern boundary of the Sanctuary, Sanctuary Advisory Council member Ron Massengill and MBNMS staff are conducting initial efforts on both tidepool monitoring and educational outreach.

The Sanctuary is also involved with a variety of other programs which could potentially be further developed as partners in addressing tidepool impacts, such as Sanctuary Integrated Monitoring Network (SIMoN), a Sanctuary enforcement program conducted in collaboration with the state, and development of an interpretive Sanctuary Trail underway initially in Santa Cruz County.

Existing Regulatory Framework

The intertidal zone within the Sanctuary is governed by a complex array of multi-jurisdictional laws and regulations. A brief summary is provided below, with links to more detailed descriptions.

California Fish and Game Code 8500 restricts the taking of mollusks, crustaceans, or other invertebrates for commercial purposes by any person in any tidal area without a valid tidal invertebrate permit. This restriction covers tide flats or other areas between the high tide mark and 1,000 feet beyond the low tidemark.

For non-commercial collection, a more complex set of constraints is outlined in Title 14 §29.05 of the California Code of Regulations (CCR). In general, tidal invertebrates may not be taken in any tidepool or other areas between the high tide mark and 1000 feet seaward and lateral to the low tide mark. However, exceptions are made for abalone, limpets, moon snails, turban snails, chiones, clams, cockles, mussels, rock scallops, native oysters, octopuses, squid, crabs, lobsters, shrimp, sand dollars, sea urchins and worms, all of which may be taken, unless prohibited by additional restrictions imposed in a designated protected area or special closure (see below). For non-commercial collection, the bag limit on all invertebrates for which take is authorized is 35 specimens without a permit, unless the CCR establishes a different specific bag limit for that species. A valid fishing license is required for collection, except for collection of algae, for which there is a 10 pound bag limit with no license required. The full text of the Fish and Game Code and CCR for commercial and non-commercial collection, including various exemptions, can be found at http://www.dfg.ca.gov/fg_comm/regs.html.

In certain locations within the Sanctuary there is an additional layer of regulation imposed by virtue of its state or local designation as a protected area. There is a panoply of these small protected areas within the MBNMS including state beaches, state parks, state ecological reserves, state marine reserves, state fish refuges, and city marine refuges. These designations restrict the take and disturbance of the intertidal zone to varying degrees, but generally afford tidepool habitats and organisms greater protection from both commercial and non-commercial impacts. Some allow the take of specified plants and invertebrates while others may prohibit both take and disturbance. A comprehensive list of these sites and their associated regulations is available at <http://montereybay.nos.noaa.gov/research/techreports/marinezones/>.

The Sanctuary itself prohibits the alteration of the seabed without a permit <http://montereybay.nos.noaa.gov/resourcepro/prohibitions.html>. However this regulation has generally been applied to tidepool visitation only if rocks are being removed from the site. MBNMS is a partner with other agencies who directly regulate collecting of intertidal organisms in their efforts to prevent adverse impact to the intertidal zone.

Enforcement of collecting regulations is an ongoing challenge given the limited number of wardens available. Currently, only four CDFG wardens cover the entire Sanctuary coastline, and are responsible for enforcing a wide range of regulations beyond those covering tidepools. Other enforcement resources include Department of Parks and Recreation rangers, city police departments, and the Sanctuary's enforcement officer, all of which are stretched thin by an array of duties and geographic needs unrelated to tidepools.

Plan Components

Despite the initial efforts outlined above, most tidepool areas of the Sanctuary do not have significant monitoring and enforcement, signage or educational outreach strategies to minimize human impacts. In addition, there has not been a regional effort to assess usage and potential impacts and to prioritize sites that need additional attention. Working with the MBNMS Tidepool Workgroup, MBNMS developed a framework to collaborate with agencies and local communities to more thoroughly evaluate the issue and develop guidelines and programs for comprehensive education, enforcement, monitoring and management of the region's tidepools. Strategies involve recommendations for coordination with actions by a range of players in addition to actions that should be undertaken by the Sanctuary itself.

Strategy TP-1: Further Evaluation of the Problem

Activity 1.1: Conduct a Regional Identification and Prioritization of Tidepool Locations

Consider those areas subject to existing and potential damage, natural resources, presence of unique species assemblages, and heavily used access points (already initiated by workgroup).

Continue refinement of workgroup’s geographic matrix characterizing the region’s tidepools, drawing on expert and public input, and add quantitative data where possible
Conduct a rapid assessment of information in the matrix to provide a groundtruthed survey of identified sites

Status: Phase 1

Activity 1.2: Identify Types and Extent of Impacts to Tidepools

Assess and prioritize types and extent of impacts including collecting, trampling, and other disturbances from people, drawing primarily on existing studies.

Status: Phase 1

Activity 1.3: Monitor to Understand Natural Versus Human-Caused Changes

Include adequate tidepool sites which are not accessible for use as a control to distinguish impacts. (including continuation of PISCO, LIMPETS, and Fitzgerald projects)

Status: Phase 1-Continue existing studies, Phase 3-Initiate new studies

Activity 1.4: Improve Data Collection and Database Coordination Among Tidepool Research and Monitoring Projects

This activity will facilitate data comparisons over time to compare impacted and non-impacted sites.

Status: Phase 1

Activity 1.5: Ensure Researchers Understand Key Priorities and Information Needs of Managers

Improve packaging and distribution of existing research, and make it available to managers and the public.

Status: Phase 1

Activity 1.6: Compile Historical Knowledge About Key Locations

Include community-based and anecdotal information and analysis of museum specimens. This information can be used to raise public awareness.

Status: Phase 2

Activity 1.7: Conduct an Evaluation of Visitors at Representative Sites

This evaluation should include where they come from, what they are doing at the tidepools, frequency and timing of their visits, and their level of awareness of tidepool etiquette. Include evaluations of pre-visit locations such as the Monterey Bay Aquarium and the Seymour Center.

Status: Phase 1

Activity 1.8: Assess Potential Impacts of Restricted Use Compared to Unrestricted Use

Shifting patterns of use at one site impacts other locations where uses are unrestricted.

Status: Phase 3

Potential Partners (for all activities in this strategy): JMPR Tidepool workgroup, UCSC, PISCO, LML, Monterey Bay Aquarium, Hopkins Marine Station, DFG, State Parks, trained volunteers and interns, cities, counties

Strategy TP-2: Education and Outreach

Activity 2.1: Develop Appropriate Education and Outreach

This effort should target the general public, schools, collectors/researchers and culturally diverse groups.

Status: Phase 1

Activity 2.2: Develop and Disseminate Readily Understandable Information about Regulations

Existing regulations and multiple agency jurisdictions are complex and may be difficult to understand. Develop materials, which clearly explain regulations. Ensure visitors understand it is their responsibility to know these regulations.

Activity 2.3: Strengthen Education about Tidepool Etiquette

This should include impacts from human uses along with general interpretive information.

Activity 2.4: Establish a Tidepool Docent Program

Create an on-site outreach program as part of an MBNMS Naturalist Corps to address lower-level infractions during peak visitation hours. Develop links with BAYNET and other volunteer programs.

Status: Phase 1

Activity 2.5: Consider Potential for Hands-on Exhibits or Live Display Tables

Place exhibits at selected tidepool sites or visitor centers, which could reduce the need for hands-on activities in the tidepools themselves.

Status: Phase 3

Activity 2.6: Develop Pre-Visit Education about Tidepool Etiquette

These programs should be established at key visitor locations such as aquaria which often inspire subsequent field visits.

Status: Phase 1

Activity 2.7: Identify Partners for Education and Outreach

Establish an ongoing framework for joint education and outreach efforts.

Status: Phase 1

Potential Partners (for all activities in this strategy): Monterey Bay Aquarium, BAYNET, SOS, Fitzgerald, Seymour Center, State Parks, schools, science camps, visitor centers

Strategy TP-3: Strengthen Enforcement

Activity 3.1: Improve Enforcement of Existing Regulations

Fund more officers/wardens and patrol hours and devote more attention to issue. Pursue joint federal-state funding of officers.

Status: Phase 1

Activity 3.2: Utilize Enforcement to Focus on Higher-level Violations

Enforcement for higher-level violations is required at any time. Additionally, there is a need to provide coverage for off-peak hours when these larger incidences often occur.

Status: Phase 1

Activity 3.3: Improve Interagency Coordination

Leverage field efforts, including MBNMS, CDFG, State Parks and local police. Provide training to municipal enforcement officers.

Status: Phase 1

Activity 3.4: Define a System of Referrals from Docents to Enforcement Officers

Define communication infrastructure needed to quickly contact enforcement officers
Develop guidance on when to call in enforcement
Develop coordinated training with enforcement personnel and docents on how to effectively address issue

Status: Phase 1

Activity 3.8: Promote a Call-in System to Report Incidents

Develop the infrastructure for a system that allows the general public to report incidents for enforcement follow up. This should build on the CalTip system. Include coordination with SOS Sanctuary Watch.

Status: Phase 1

Potential Partners(for all activities in this strategy): CDFG, State Parks, counties, cities

Strategy TP-4: Improve Tracking and Evaluation of Take

Activity 4.1: Develop Information to Estimate Legal and Illegal Recreational and Scientific Take

Status: Phase 1

Activity 4.2: Improve Tracking of Use Under State Collection Permit System

Activity 4.3: Develop Take Information Using CDFG Citation Data Base

Evaluate utility of the database as a tracking tool.

Activity 4.4: Evaluate Locations of MBNMS Research Permits

Evaluate take and other associated data available at the permit locations.

Activity 4.5: Improve Consistency Between Existing Federal, State and Local Data Sources

Facilitate integration and comparison of data (e.g., terminology and categories of invertebrate life used on forms).

Status: Phase 1

Activity 4.6: Work with Existing and Potential Permittees

Enhance their knowledge of the permit process, including when permits are required, reporting needed, nontransferability of permits, etc.

Activity 4.7: Include Information on the Permits Needed from Multiple Agencies on Agency Websites

Status: Phase 1

Potential Partners (for all activities in this strategy): CDFG, State Parks, student interns, Monterey Bay Aquarium

Strategy TP-5: Consider Limitation on Use in Selected Locations

Evaluate alternative management options at locations where education and enforcement are unlikely to be sufficient:

Activity 5.1: Develop Criteria for Determining Limited Use

Examples include high visitation.

Status: Phase 1

Activity 5.2: Rank Sites According to the Criteria Developed in Activity 5.1

Information gathered under Strategy TP-1 can also be used in this process.

Status: Phase 1

Activity 5.3: Partner with Agencies with Jurisdictions at Identified Sites

Assess and develop feasible site-specific management alternatives, including consideration of:

- A. Reservation systems at key sites, including identification of carrying capacity and setting of caps on allowable numbers of visitors for locations with limited access
- B. Temporary closures at selected sites, or roping off of particularly sensitive areas within a site
- C. Restriction or redirection of coastal access via recommendations to CCC, State Parks or other agencies, including potential relocation of parking lots and access paths
- D. Consideration of tidepool state marine reserves in MLPA process, building on initial evaluations in workgroup's tidepool geographic matrix 1
- E. Identification of alternative tidepool locations or visitation times to redirect the public if closures or visitation caps are recommended at key sites, and development of education and enforcement at those alternative sites as well
- F. Redirecting visitors or school groups to sites other than tidepools-e.g. Elkhorn Slough, sandy beach, etc.

Status: Phase 2

Potential Partners (for all activities in this strategy): JMPR Tidepool workgroup, CDFG, State Parks, local jurisdictions

Strategy TP-6: Evaluate Effectiveness of Management Efforts

Activity 6.1: Develop System to Evaluate Success

Focus on selected examples of new education and management efforts, including initial baseline and controls.

Activity 6.2: Develop Two Levels of Evaluation of Management Efforts

- A. Evaluate the effects on changing human behavior
- B. Evaluate the effects on biological resources

Activity 6.3: Utilize Adaptive Management

Revise and improve strategies as effectiveness information improves and cost/benefit information becomes available.

Status: Phase 1-for continuing existing studies (e.g., Fitzgerald), Phase 3-for new studies

Potential Partners (for all activities in this strategy): JMPR Tidepool workgroup, CDFG, State Parks, local jurisdictions

Strategy TP-7: Identify Implementation Opportunities

Activity 7.1: Increase Multiagency Funding and Joint Staffing to Implement Program

Status: Phase 1

Activity 7.2: Develop Voluntary Contributions

- A. Consider developing an Adopt a Tidepool program
- B. Consider “parking meter” style donation systems at tidepool location
- C. Generate support from local businesses

Status: Phase 2

Activity 7.3: Pursue Grants to Fund Major Efforts

Status: Phase 1

Potential Partners (for all activities in this strategy): CDFG, State Parks, local jurisdictions, Monterey Bay Aquarium, local businesses

Strategy TP-8: Other Human Activities

Activity 8.1: Address Other Types of Human Activities

Focus on human activities, which impact tidepools and rocky shores. Consider strategies included in other JMPR action plans.

- A. Evaluate impacts of coastal armoring to ensure that armoring such as rip rap does not harm sensitive tidepool locations
- B. Reduce polluted runoff from agricultural lands, urban areas and parking lots onto sensitive tidepool locations
- C. Reduce spills of sewage and oil or discharge of marine debris which can end up in tidepools
- D. Review oil spill contingency plans to evaluate adequacy of spill clean up recommendations for rocky intertidal locations and ensure that methodology that will not do further damage
- E. Reduce small boat groundings which can crush rocky intertidal life, and develop recovery programs or damage fees to be used for tidepool efforts when damage occurs
- F. Reduce impacts from landslide disposal activities onto sensitive tidepool locations
- G. Reduce visitor harassment of marine mammals which haul out on or near rocky intertidal locations

Status: Phase 1

Potential Partners: Other JMPR workgroups and partners

Citations

DeVogelaere, A.P., M. Jacobi, R. Walder, M. Foster. 1999. A Summary of Rocky Shore Monitoring Projects in the Monterey Bay National Marine Sanctuary. Final Report to the California Urban Environmental Research and Education Center. No. 51-33-017-009.

Tenera Environmental, 2002. Proposal to Develop and Implement a Resource Assessment Project. Fitzgerald Marine Reserve. For San Mateo County Parks and Recreation.

* Although the term tidepools is used throughout this document, the work group intends this plan to refer to rocky intertidal habitats that are either