



## **PROGRAM AREA ACTION PLANS**

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# **GFNMS MANAGEMENT PLAN**

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- I. Education and Outreach**
- II. Conservation Science**
- III. Resource Protection**
- IV. Administration**





PROGRAM AREA  
**EDUCATION AND OUTREACH  
ACTION PLAN**

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**PROGRAM STATEMENT**

Gulf of the Farallones National Marine Sanctuary (GFNMS) requires a long-term strategy to fulfill the education vision of the sanctuary, which is: “to educate and engage residents and visitors in the Gulf of the Farallones National Marine Sanctuary watersheds about their connection to the sanctuary and to develop a sense of personal responsibility to protect the marine environment.”

**PROGRAM DESCRIPTION**

Education programs are designed to enhance public awareness, understanding and appreciation of the sanctuary and its resources, and build stewards to take on the responsibility of protecting these special places. The development of effective and coordinated education programs is a priority for all national marine sanctuaries. GFNMS has developed a long-term education strategy to raise the public’s awareness of the local and regional marine environment and how they can become involved in the sanctuaries. These education programs complement the sanctuary’s broad-based community outreach efforts by focusing on targeted audiences such as students, teachers, and summer camp programs for youths and multicultural audiences. GFNMS and Cordell Bank National Marine Sanctuary (CBNMS) will collaborate to service common audiences.

The Farallones Marine Sanctuary Association (FMSA) works collaboratively with GFNMS to implement education, interpretation, and monitoring programs. GFNMS, in cooperation with FMSA, sponsors student summits, lectures, teacher trainings, summer camps, and other education programs. FMSA and GFNMS are developing and implementing a Coastal Ecosystem Education Program for high school students and multicultural programs with the San Francisco Recreation and Parks Department. GFNMS will expand its partnerships and develop additional working relationships with other government agencies, institutions, and organizations.

GFNMS uses education as a resource management tool to address specific priority ecosystem protection issues identified during the management plan review process. Education is essential to achieving many of the sanctuary’s management objectives. In addition, education is used to both complement and promote other sanctuary programs such as research, monitoring, and enforcement by communicating information about these programs.

## **EDUCATION AND OUTREACH GOALS**

1. Use education as a management tool to help protect the sanctuary's habitats, wildlife and cultural resources.
2. Ensure that education complements and promotes other sanctuary programs such as research, monitoring, enforcement and resource protection.
3. Continually reach broader audiences to create an ocean literate, informed and connected public.

## **EDUCATION AND OUTREACH OBJECTIVES**

1. Structure programs to educate along an environmental literacy continuum including developing awareness, building a knowledge base, changing behavior, and building stewardship.
2. Increase communication and coordination among sanctuary programs and partners.
3. Develop programs to target content builders, user/impact groups, influencers, and decision makers.
4. Target diverse audiences including various multicultural, socioeconomic, age, and gender groups.

## **EDUCATION AND OUTREACH ACTION PLAN**

**SCHOOL PROGRAMS - To connect the next generation of scientists, managers, educators and leaders with the ocean's influence on them and their influence on the ocean**

**STRATEGY ED-1: *Educate K-8 students about the sanctuary through visitor center, classroom, and field activities.***

**Activity 1.1** Update K-8 visitor center programs to align with state and national science standards. Expand to include pre- and post-visit activities, lending kits, and presentations. Develop activities that incorporate emerging marine issues and correlate to school curricula.

- A. Develop theme-based programs for each grade level that correlate to ocean literacy principles and science standards.
- B. Develop and distribute materials, such as lending trunks, which include activities and fact sheets on themes that complement the Coastal Ecosystem Curriculum for use before and after group visits to the visitor center.
- C. Develop outreach programs targeting a diverse cross section of elementary schools. These programs will incorporate curricula and teachers' needs as well as the potential use for volunteers.

**Potential Partners:** FMSA

**Products:** Curriculum, lending trunks, elementary school outreach plan

**Complementary Strategies:** GFNMS Final Management Plan (FMP), Education, STRATEGY ED-5, STRATEGY ED-9, STRATEGY ED-10, STRATEGY ED-11

**STRATEGY ED-2: *Educate high school students and teachers about the sanctuary through classroom and field activities.***

**Activity 2.1** Expand Coastal Ecosystem Education Program to a four-tiered program including curriculum, student monitoring, stewardship projects, and teacher professional development.

- A. Continue high school sandy beach monitoring program; continue exploration of demoic acid and other chemical levels in sand crabs as a water quality indicator.
- B. Expand high school program to include a stewardship component in which students volunteer for the sanctuary as a part of Education STRATEGY ED-5.
- C. Expand high school program to incorporate the rocky intertidal habitat. Standardize intertidal monitoring protocols by modifying current protocol to match Long-term Monitoring Program and Experiential Training for Students (LiMPETS) protocols.
- D. Develop a water quality and/or introduced species component, in collaboration with other West Coast sanctuaries, and include curricula and monitoring.
- E. Increase enrollment to reach a broader, more diverse audience. Target San Francisco Unified School District.

**Potential Partners:** FMSA

**Products:** Curriculum, website, database, workshops, outreach materials, slideshows, teacher lending kits

**Complementary Strategies:** GFNMS FMP, Education, STRATEGY ED-4, STRATEGY ED-11, STRATEGY ED-12; Water Quality, STRATEGY WQ-2; Introduced Species, STRATEGY IS-3, STRATEGY IS-9

**STRATEGY ED-3: *Educate culturally diverse inner city children about the sanctuary through summer camp experiences that are highly experiential and field based.***

**Activity 3.1** Expand Sanctuary Explorers Camp to reach a broader audience.

- A. Increase capacity and duration of the camp program. Incrementally expand camp to six weeks with simultaneous sessions to reach a broader audience.
- B. Adapt curriculum to increase stewardship ethic.

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- C. Include high school Coastal Ecosystem Education Program students as camp counselors.
- D. Incorporate Crissy Field Center summer program into Sanctuary Explorers camp and vice versa.

**Potential Partners:** FMSA, Crissy Field Center, San Francisco Recreation and Parks Department

**Products:** Curriculum, outreach materials

**Complementary Strategies:** GFNMS FMP, Education, STRATEGY ED-5

***STRATEGY ED-4: Educate teachers about the resources and programs of the sanctuary by providing professional development programs.***

**Activity 4.1** As a component of the Coastal Ecosystem Education Program, develop a set of professional development programs for teachers.

- A. Invite teachers to biannual research symposium to learn about sanctuary research activities.
- B. Participate in local, regional and national teacher development venues. Develop a series of K-12 teacher workshops that provide teachers with classroom activities and introduce them to sanctuary programs. Possible venues include: The Presidio Teachers Night; County Math and Science Council conferences; CSTA (California Science Teachers Association); NSTA (National Science Teachers Association); NMEA (National Marine Educators Association); NAEE (National Association of Environmental Education); NAI (National Association of Interpretation).
- C. Use volunteers to maintain GFNMS resource center and make accessible to sanctuary constituents such as teachers, volunteers, students, staff, and partners. Resource center contents include classroom lending kits, marine-related books, slide shows, videos, and research library. Develop marketing plan and check-out system.

**Potential Partners:** FMSA, CBNMS, teachers, local research institutions, Marine Activities, Resources, and Education (MARE), other Bay Area marine science education organizations, Bay Area Science Alliance (BASA), Southwest Marine and Aquatic Educator's Association (SWMEA), Environmental Education Council of Marin (EECOM), Bay Area schools

**Products:** research symposium proceedings, student posters; Bay Area science education presentation, handouts; resource center, check out and tracking system

**Complementary Strategies:** GFNMS FMP, Conservation Science, Strategy CS-3

**STEWARDSHIP – To involve the community in understanding their relationship to the ocean and in caring for its future**

**STRATEGY ED-5: *Provide stewardship opportunities for high school students.***

**Activity 5.1** Develop GFNMS high school internship program.

- A. Recruit students in grades 10-12 from the high school Coastal Ecosystem Education Program and other high schools to intern for summer camp, the visitor center, field research, the Sanctuary Naturalist program, and other opportunities.

**Potential Partners:** FMSA

**Products:** Training materials

**Complementary Strategies:** GFNMS FMP, Education, STRATEGY ED-2, STRATEGY ED-7

**STRATEGY ED-6: *Create stewards of the GFNMS by engaging middle and high school students in a large-scale, long-term monitoring project.***

**Activity 6.1** Participate in LiMPETS, a collaborative program of the West Coast sanctuaries to work with teachers and students to learn how to collect long-term monitoring data while increasing awareness of the sanctuaries.

- A. Implement teacher workshops. Collaborate with Cordell Bank and Monterey Bay National Marine Sanctuaries.
- B. Maintain network of teachers and support their monitoring efforts.
- C. Maintain online databases.
- D. Expand monitoring program to include other key species and/or habitats.

**Potential Partners:** CBNMS, Olympic Coast National Marine Sanctuary (OCNMS), MBNMS, Channel Islands National Marine Sanctuary (CINMS), FMSA, University of California Santa Cruz (UCSC), Bodega Marine Laboratory (BML)

**Products:** Website, training workshops, databases, reports, training manuals, teacher kits, curriculum, logos

**Complementary Strategies:** GFNMS FMP, Education, STRATEGY ED-2; Introduced Species, STRATEGY IS-3, STRATEGY IS-9; Water Quality, STRATEGY WQ-2; MBNMS FMP, Tidepool Protection, STRATEGY TP-1

**VOLUNTEER PROGRAMS – To offer experiences to inspire an ocean conservation ethic**

**STRATEGY ED-7:** *Expand the reach of GFNMS education and outreach programs by expanding Sanctuary Naturalist Corps program to deploy trained volunteers to educate about the sanctuary at various events and locations.*

**Activity 7.1** Under the Sanctuary Naturalist Corps, recruit, train, and manage a diverse team of volunteers to engage, educate, and outreach about the sanctuary at visitor center, summer camp, in the field at high use areas, schools, and outreach events (lectures, fairs).

- A. Reassess goals and accomplishments of the Sanctuary Education Awareness and Long-term Stewardship (SEALS) volunteer program and modify as appropriate for current management needs.
- B. Develop program for training volunteer naturalists to lead sanctuary programs at the visitor center and schools.
- C. Develop a Rocky Intertidal Docents program to interpret intertidal habitat, reduce trampling, and to teach responsible wildlife viewing techniques.
- D. Develop a speakers' bureau to provide speakers for schools and community groups.
- E. Develop program for training volunteers to represent the sanctuary at outreach fairs and events.
- F. Train staff and docents to work successfully with multicultural and other diverse audiences.

**Potential Partners:** CBNMS, FMSA

**Products:** Outreach materials, training materials, website, slideshows, brochure of volunteer opportunities at GFNMS

**Complementary Strategies:** GFNMS FMP, Introduced Species, STRATEGY IS-2, STRATEGY IS-3, STRATEGY IS-5; Education, STRATEGY ED-5; CBNMS FMP, Education, STRATEGY ED-2; MBNMS FMP, Operations and Administration, STRATEGY OA-2, STRATEGY OA-4; Beach Closures, STRATEGY BC-2; Tidepool Protection, STRATEGY TP-2

**Activity 7.2** Develop GFNMS naturalist certification program to train volunteers and professional naturalists about the sanctuary and to present basic sanctuary information.

- A. Develop plan to train professional naturalists on sanctuary-specific information and certify them as GFNMS Certified Naturalists.
- B. Develop plan to train and certify volunteers and staff of other marine interpretation organizations as GFNMS Certified Naturalists.

**Potential Partners:** CBNMS, FMSA, other marine interpretation organizations (Point Reyes National Seashore [PRNS], Golden Gate National Recreation Area



[GGNRA], Pacifica Chamber of Commerce Visitor Center, Audubon Canyon Ranch [ACR], Stewards of the Coast and Redwoods)

**PUBLIC PROGRAMS – To instill greater public understanding and appreciation of the sanctuary and our dependence upon a healthy ocean ecosystem**

**STRATEGY ED-8: *Increase awareness and knowledge of the sanctuary through a lecture series.***

**Activity 8.1** Raise the profile of and expand the GFNMS lecture series to target new audiences and increase attendance.

- A. Increase collaboration with partners.
- B. Increase effective use of media and press.
- C. Hold lectures in inland communities and diverse communities not already reached (i.e., East Bay, South Bay).
- D. Investigate sponsorship.

**Potential Partners:** FMSA, California Academy of Sciences (CAS), Randall Museum, MBNMS, CBNMS

**Products:** Outreach materials, website

**Complementary Strategies:** GFNMS FMP, CBNMS FMP, Education, STRATEGY ED-6; MBNMS FMP, Sanctuary Integrated Monitoring Network (SIMoN), STRATEGY SI-3

**STRATEGY ED-9: *Increase awareness and build knowledge of the sanctuary through educational programs and exhibits at the visitor center.***

**Activity 9.1** Maintain engaging educational exhibits and activities at the GFNMS Crissy Field visitor center.

- A. Improve and expand visitor center exhibits. This will include renovating existing exhibits and creating new exhibits and activities on sanctuary cultural resources, habitats and wildlife, and ecosystem protection.
- B. Develop scheduled drop-in programs such as “Creature Feature” to attract new and return visitors. These programs will be scheduled during high visitation periods (summer, holidays).

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- C. Increase attendance at the visitor center by marketing its programs and services. Cross market programs with Crissy Field Environmental Center and coordinate scheduling of drop in visitor activities.

**Potential Partners:** FMSA, Aquarium of the Bay, Crissy Field Environmental Center, CBNMS, MBNMS, PRNS

**Products:** Exhibits, touch tanks, outreach materials

**Complementary Strategies:** GFNMS FMP, Education, STRATEGY ED-1, STRATEGY ED-11

**STRATEGY ED-10:** *Increase awareness of the sanctuary and reach a large audience through production and distribution of videos on the sanctuary and its resources.*

**Activity 10.1** Complete production of a general video and distribute to appropriate audiences.

- A. Finalize script(s) and explore possibility of generating two cuts—one targeted to a general audience (8th grade and above), and one for children (7th grade and below).
- B. Develop distribution and marketing plan to reach desired audiences such as environmental education centers and county offices of education.

**Potential Partners:** FMSA, California Academy of Sciences, Aquarium of the Bay

**Products:** Video, marketing materials

**Complementary Strategies:** GFNMS FMP, Education, STRATEGY ED-1, STRATEGY ED-7

**STRATEGY ED-11:** *Increase awareness of GFNMS by using effective media and marketing techniques.*

**Activity 11.1** Implement awareness campaign to raise the profile and recognition of the GFNMS.

- A. Internally develop new image, messages, and target audiences. Target wide and diverse audiences. Designate a media/public affairs point of contact.
- B. Utilize marketing in television, radio, and print media.
- C. Establish relationships with key local reporters (collaboratively with MBNMS and CBNMS, where media markets overlap) and develop pitches for press releases so that media will write articles.
- D. Identify key publications for sanctuary articles.
- E. Develop media plan and release schedule.

- F. Ensure logo and web site are on all publications and printed materials.
- G. Develop shared outreach materials/products/programs with CBNMS and MBNMS based on established priorities that inspire stewardship.

**Potential Partners:** FMSA, Sanctuary Advisory Council, Oceanic Society, PRNSA, city visitor centers, chambers of commerce, Convention Bureau, explore possibility of partnering with TV, radio, print media

**Products:** Partner package of brochures, public service announcements, press releases, logo wear, press kit, ad campaigns, update sanctuary brochure

**Complementary Strategies:** GFNMS FMP, Water Quality, STRATEGY WQ-1; Wildlife Disturbance, STRATEGY WD-6, STRATEGY WD-7; Introduced Species, STRATEGY IS-9; Impacts from Vessel Spills, STRATEGY VS-13; MBNMS FMP, Operations and Administration, STRATEGY OA-4; CBNMS FMP, Education, STRATEGY ED-3.3

**Activity 11.2** Increase reach and success of all sanctuary programs by increasing distribution of GFNMS education and outreach messages through other environmental education groups.

- A. Increase GFNMS brochure and flyer distribution list to include local visitor centers and public information kiosks, education libraries and teacher resource venues, and specific groups including: Students and Teachers Restoring a Watershed (STRAW), Marine Activities, Resources, and Education (MARE), Point Reyes National Seashore Association (PRNSA), Point Reyes National Seashore (PRNS) Life Boat Station, The Marine Mammal Center (TMMC) Whale Bus, Crissy Field Environmental Center, Headlands Institute, GGNRA North District, and the Headlands YMCA.
- B. Work individually with partners (including those listed above) to incorporate sanctuary messages into their materials/programs and vice versa. Prioritize organizations and aim for two collaborations per year.

**Potential Partners:** See above, CBNMS, MBNMS

**Products:** Outreach materials

**Activity 11.3** Increase reach and success of all sanctuary programs by effectively marketing, distributing, and evaluating all sanctuary programs and products.

- A. Develop strategy for marketing, distributing, and evaluating existing and new programs and products.

**Potential Partners:** FMSA, Sanctuary Advisory Council, partners for each project

**Products:** Marketing and evaluation materials, program reports

**STRATEGY ED-12: *Increase audience by building a larger visitor center with increased exhibits, programs, and opportunities to learn about and support GFNMS.***

**Activity 12.1** Create a new visitor center that showcases the National Marine Sanctuary Program (NMSP) with exhibits, lecture hall, and classroom/lab facilities, providing a gateway to the GFNMS and beyond. The center will be a destination for greater ocean literacy and community stewardship in the 21<sup>st</sup> century.

- A. Develop a plan to expand current visitor center by constructing a new Ocean Exploration Center. Special features of the center might include interactive programs, permanent exhibits, traveling exhibits, institutes, lecture series, daily programs, and a telepresence center.
- B. Develop telepresence to bring wildlife at Southeast Farallon Island to the visitor center by live camera uplink. Incorporate outreach into Coastal Ecosystem Education Program and utilize facilities at the Ocean Exploration Center.

**Potential Partners:** FMSA, The Presidio Trust, CAS, National Park Service (NPS), California Department of Fish and Game (CDFG), SF Bay Conservation and Development Commission, Ocean Conservancy, PRBO Conservation Science (Point Reyes Bird Observatory) (PRBO), United States Fish and Wildlife Service (USFWS)

**Products:** Visitor center (Ocean Exploration Center), exhibits, programs, telepresence

**STRATEGY ED-13: *Increase awareness of the sanctuary through interpretive signage and exhibits at strategic locations.***

**Activity 13.1** Develop a coordinated network of signs and exhibits throughout the sanctuary.

- A. Install and maintain interpretive signs at strategic locations along the coast including sites of high traffic and high educational value.
- B. Incorporate sanctuary exhibits into visitor centers and museums along the coast.
- C. Develop a sanctuary multi-use and/or vehicular trail along the coast linking signs, wayside exhibits, museum exhibits, and interactive kiosks.
- D. Coordinate and collaborate with CBNMS and MBNMS on sanctuary-sponsored signage and visitor center displays along the coast.

**Potential Partners:** FMR, MBNMS, NPS, state parks, PRNS, county Parks, California Coastal Trail, Green Belt Alliance, Coastal Conservancy, Oakland Museum, BML, Maritime Museum, Aquarium of the Bay, California Academy of Science, The Bay Model

**Products:** Signage, brochures, trail map, exhibits, kiosks, outreach materials

**Complementary Strategies:** GFNMS FMP, Wildlife Disturbance, STRATEGY WD-7; Administration, STRATEGY AD-1; MBNMS FMP, Interpretive Facilities, STRATEGY IF-2; CBNMS FMP, Education, STRATEGY ED-5

**STRATEGY ED-14:** *Outreach to residents and visitors in inland areas of the GFNMS watersheds and educate them about their connection with the sanctuary.*

**Activity 14.1** Develop a traveling exhibit on sanctuary watersheds to bring the sanctuary to inland communities.

- A. Develop storyboard and exhibit plan featuring the connection between inhabitants of watersheds and the GFNMS. Contact potential venues for guidance on sizes and content (including curriculum needs). Potential venues include schools, libraries, and community locations in the Bay Area and Central Valley.
- B. Develop curriculum and/or activities related to exhibit and link to Coastal Ecosystem Education Programs water quality unit.
- C. Build and circulate exhibit and curriculum around the Bay Area. Particular focus may be placed on the exhibit during Oceans week.

**Potential Partners:** Libraries, community centers, schools, local museums

**Products:** Exhibit, activities/curriculum

**Complementary Strategies:** GFNMS FMP, Education, STRATEGY ED-2; MBNMS FMP, Fishing Related Education and Research, FRER-7

## **ISSUE SPECIFIC EDUCATION STRATEGIES**

*Note: These strategies are cross-referenced from the issue-based action plans to show the entire suite of Education and Outreach strategies to be implemented by Education and Outreach sanctuary staff.*

## **WATER QUALITY STRATEGIES**

**STRATEGY WQ-2:** *Address sources of anthropogenic pathogens and pollutants from recreational and commercial boating activities and marinas.*

*For the full strategy text, please see page 55.*

**STRATEGY WQ-9:** *Educate local decision makers on land-based water quality impacts in the sanctuary.*

*For the full strategy text, please see page 61.*

## **WILDLIFE DISTURBANCE STRATEGIES**

**STRATEGY WD-2:** *Through the use of volunteer monitoring programs, observe and record impacts from human activities on marine life and key habitats such as the rocky intertidal.*

*For the full strategy text, please see page 75.*

**STRATEGY WD-4: *Through interpretive enforcement and law enforcement efforts, address human behavior that may adversely impact wildlife.***

*For the full strategy text, please see page 77.*

**STRATEGY WD-5: *Develop wildlife viewing guidelines to reduce disturbance to wildlife from human interactions.***

*For the full strategy text, please see page 79*

**STRATEGY WD-6: *Maximize media venues to augment directed outreach efforts and increase public awareness of wildlife disturbance issues.***

*For the full strategy text, please see page 80.*

## **INTRODUCED SPECIES STRATEGIES**

**STRATEGY IS-5: *Develop a volunteer-based outreach and monitoring program to improve early detection of introduced species.***

*For the full strategy text, please see page 96.*

**STRATEGY IS-9: *Through outreach efforts, inform targeted audiences and industry about pathways through which introduced species may enter the sanctuary and educate those targeted audiences on prevention methods.***

*For the full strategy text, please see page 99*

## **IMPACTS FROM FISHING ACTIVITIES STRATEGIES**

**STRATEGY FA-5: *Bring public awareness to the value and importance of the historical and cultural significance of maritime communities and their relationship and reliance on healthy sanctuary waters.***

*For the full strategy text, please see page 111.*

## **VESSEL SPILLS STRATEGIES**

**STRATEGY VS-9: *Outreach to mariners to increase stewardship of the sanctuary, including voluntary compliance with Vessel Traffic System (VTS) and sanctuary regulations.***

*For the full strategy text, please see page 134.*

GFNMS EDUCATION AND OUTREACH

## Timeline

Education and Outreach Strategy	Year 1	Year 2	Year 3	Year 4	Year 5
STRATEGY ED-1: Educate K-8 students about the sanctuary through visitor center, classroom, and field activities.	—————▶				
STRATEGY ED-2: Educate high school students and teachers about the sanctuary through classroom and field activities.	—————▶				
STRATEGY ED-3: Educate diverse inner city children about the sanctuary through summer camp experiences.	—————▶				
STRATEGY ED-4: Educate teachers about the resources and programs of the sanctuary.	—————▶				
STRATEGY ED-5: Develop high school internship program for high school students.	.....▶				
STRATEGY ED-6: Create stewards of the GFNMS by engaging middle and high school students in LiMPETS.	—————▶				
STRATEGY ED-7: Expand the reach of GFNMS education and outreach by expanding Sanctuary Naturalist Corps program.	—————▶				
Action 7.1 A SEALS program	—————◆				
Action 7.1 B Volunteer Naturalist Training Program	.....▶				
Action 7.1 C Rocky intertidal roving docents	.....▶				
Action 7.1 D Speakers' bureau	.....▶				
Action 7.1 E Outreach fair volunteers	—————▶				
Action 7.1 F Diversity training for staff and volunteers	—————▶				
STRATEGY ED-8: Increase awareness and knowledge of the sanctuary through a lecture series.	—————▶				
STRATEGY ED-9: Increase awareness and build knowledge of the sanctuary through visitor center.	—————▶				
STRATEGY ED-10: Increase awareness of the sanctuary through production and distribution of videos on the sanctuary and its resources.	—————▶				
STRATEGY ED-11: Increase awareness of GFNMS by using effective media and advertising techniques.	—————▶				
STRATEGY ED-12: Increase audience by building a larger visitor center.	.....▶				
STRATEGY ED-13: Increase awareness of the sanctuary through interpretive signage and exhibits at strategic locations.	—————▶				
STRATEGY ED-14: Outreach to inland areas of the GFNMS watersheds about connection with sanctuary.	.....▶				

**Legend:**

- ▶    **Ongoing Activity**
- .....▶      **Planning Stage**
- ◆    **Completed Activity**

GFNMS EDUCATION AND OUTREACH

**Budget**

Strategy	Estimated Annual Cost (1000's)*					Total Est. 5-Year Cost (1000's)
	YR 1	YR 2	YR 3	YR 4	YR 5	
<b>STRATEGY ED-1: Educate K-8 students about the sanctuary through visitor center, classroom, and field activities</b>	\$136	\$136	\$143	\$1143	\$143	\$700
<b>STRATEGY ED-2: Educate high school students and teachers about the sanctuary through classroom and field activities</b>	\$148	\$155	\$154	\$164	\$168	\$788
<b>STRATEGY ED-3: Educate culturally diverse inner city children about the sanctuary through summer camp experiences</b>	\$16	\$16	\$21	\$21	\$31	\$106
<b>STRATEGY ED-4: Educate teachers about the resources and programs of the sanctuary</b>	\$4	\$4	\$6	\$13	\$8	\$34
<b>STRATEGY ED-5: Develop high school internship program for high school students</b>	\$1	\$1	\$1	\$1	\$18	\$21
<b>STRATEGY ED-6: Create stewards of the GFNMS by engaging middle and high school students in LiMPETS</b>	\$8	\$8	\$8	\$10	\$10	\$43
<b>STRATEGY ED-7: Sanctuary Naturalist Corps program</b>	\$0	\$0	\$0	\$0	\$0	\$0
<b>ACTIVITY 7.1A: SEALS program</b>	\$11	\$0	\$0	\$0	\$0	\$11
<b>ACTIVITY 7.1B: Volunteer naturalist training program</b>	\$130	\$138	\$145	\$149	\$153	\$714
<b>ACTIVITY 7.1C: Rocky intertidal roving docents</b>	\$123	\$13	\$10	\$10	\$10	\$165
<b>ACTIVITY 7.1D: Speakers' bureau</b>	\$0	\$0	\$0	\$0	\$6	\$6
<b>ACTIVITY 7.1E: Outreach fair volunteers</b>	\$46	\$34	\$34	\$34	\$34	\$181
<b>ACTIVITY 7.1F: Diversity training for staff &amp; docents</b>	\$6	\$6	\$6	\$6	\$6	\$31



*Education and Outreach Action Plan  
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Strategy	Estimated Annual Cost (1000's)*					Total Est. 5-Year Cost (1000's)
	YR 1	YR 2	YR 3	YR 4	YR 5	
<b>STRATEGY ED-8: Sanctuary lecture series</b>	\$18	\$14	\$14	\$14	\$14	\$73
<b>STRATEGY ED-9: Educational programs and exhibits at the visitor center</b>	\$131	\$94	\$100	\$170	\$95	\$590
<b>STRATEGY ED-10: Production and distribution of videos on the sanctuary</b>	\$15	\$0	\$0	\$0	\$0	\$17
<b>STRATEGY ED-11: Use effective media and marketing techniques</b>	\$89	\$55	\$38	\$38	\$38	\$257
<b>STRATEGY ED-12: Increase audience by building a larger visitor center</b>	\$213	\$213	\$400	\$663	\$538	\$2025
<b>STRATEGY ED-13: Interpretive signage and exhibits at strategic locations</b>	\$144	\$144	\$144	\$144	\$144	\$719
<b>STRATEGY ED-14: Outreach to inland watersheds about connection with the sanctuary</b>	\$0	\$0	\$0	\$0	\$79	\$79
<b>Total Estimated Annual Cost</b>	\$1,237	\$1,029	\$1,223	\$1,578	\$1,492	\$6,559
The sanctuary's base budget is available each year from appropriated funds.						
There is both availability of and opportunity to receive additional funding from appropriated funds.						
The estimates do not take into account increasing personnel costs each year or inflation.						
The estimates do not take into account unexpected events or emergencies or unforeseen projects.						

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GFNMS EDUCATION AND OUTREACH

**Performance Measures**

Strategy Title(s)	Performance Goal	Desired Outcome (Objective)	Outcome Measure	How Measured	Who Measures	Output Measure
<p>STRATEGY ED-1: Educate K-8 students about the sanctuary.</p> <p>STRATEGY ED-2: Educate high school students about the sanctuary.</p> <p>STRATEGY ED-3: Educate diverse inner city children about the sanctuary.</p> <p>STRATEGY ED-4: Educate teachers about the sanctuary.</p>	Use education as a tool to help protect the sanctuary's resources.	<p>1) Structure programs to educate along an environmental literacy continuum including developing awareness, building a knowledge base, changing behavior, and building stewardship.</p> <p>2) To target diverse audiences including various multicultural, socio-economic, age, and gender groups.</p>	Increase number and diversity of students and teachers exposed to messages about the sanctuary in an effort to increase awareness about sanctuary resources and issues.	<p>1) Track numbers of children reached in K-8 programs.</p> <p>2) Track number of youth reached in high school programs.</p> <p>3) Track number of children reached through summer camp program. 4) Evaluate increase in students' knowledge about the sanctuary.</p>	Sanctuary Superintendent, Education Coordinator, FMSA	<p>1) K-8 program and resources, elementary school outreach plan</p> <p>2) High school curriculum, website, database, workshops, outreach materials, slide shows, teacher lending kits</p> <p>3) Summer camp curriculum</p> <p>4) Assessment and evaluation</p>
<p>STRATEGY ED-5: Provide stewardship opportunities for high school students.</p> <p>STRATEGY ED-6: Create stewards by engaging middle and high school students in monitoring.</p>	Use education as a tool to help protect the sanctuary's resources.	Structure programs to educate along an environmental literacy continuum including developing awareness, building a knowledge base, changing behavior, and building stewardship.	Increase in effectiveness of high school education programs whereby the literacy continuum is fully realized from awareness building to stewardship building.	<p>1) Track increase in number of high school students participating in internship program.</p> <p>2) Track increase in number of high school students participating in high school monitoring programs.</p> <p>3) Track student-directed stewardship projects implemented.</p>	Sanctuary Superintendent, Education Coordinator, FMSA	<p>1) Formal framework for internship program including training materials, and evaluation standards 2) Case studies of student-directed stewardship projects</p>

**Education and Outreach Action Plan  
GFNMS Management Plan**

<b>Strategy Title(s)</b>	<b>Performance Goal</b>	<b>Desired Outcome (Objective)</b>	<b>Outcome Measure</b>	<b>How Measured</b>	<b>Who Measures</b>	<b>Output Measure</b>
STRATEGY ED-7: Expand the reach of GFNMS education and outreach by creating Sanctuary Naturalist Corps.	Continually reach broader audiences to create an informed and connected public.	Target diverse audiences including various multicultural, socioeconomic, age and gender groups.	Expand outreach programs throughout region, through diverse venues, to increase the general public's awareness about the sanctuary, and increase sanctuary stewardship.	1) Increase in number and diversity of volunteers trained through the Sanctuary Naturalist Corps and actively participating in outreach, monitoring, and restoration efforts (in hours). 2) Measurable increase in types and locations of venues used for delivering sanctuary messages.	Sanctuary Superintendent, Education Coordinator, FMSA	1) Training manual and program for volunteers 2) Outreach materials to be disseminated to public
STRATEGY ED-8: Increase awareness through a lecture series. STRATEGY ED-9: Increase awareness through educational programs and exhibits at the visitor center STRATEGY ED-10: Increase awareness through video. STRATEGY ED-11: Increase awareness through effective media and marketing. STRATEGY ED-12: Increase audience by building larger visitor center. STRATEGY ED-13: Increase awareness through interpretive signage and exhibits.	a) Continually reach broader audiences to create an informed and connected public. b) Ensure education complements and promotes other sanctuary programs such as research, monitoring and resource protection.	a) Target diverse audiences including various multicultural, socioeconomic, age and gender groups. b) To develop programs to target content builders, user/impact groups, influencers, and decision makers.	Target new audiences and increase participation in sanctuary programs in order to raise the profile and recognition of GFNMS within the broader region.	Increase the reach and success of all sanctuary programs by developing an overall marketing strategy, distribution plan, and evaluation of all sanctuary products and programs. Marketing plan directed at: 1) increasing number of tools used to reach different audiences and interest groups. 2) increasing attendance in sanctuary programs 3) increasing press coverage of the sanctuary.	Sanctuary Superintendent, Education Coordinator, FMSA	1) Outreach materials 2) Exhibits, touch tank 3) Video, marketing materials 4) Public service announcements, press releases, ad campaign, outreach materials





PROGRAM AREA  
**CONSERVATION SCIENCE  
ACTION PLAN**

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## **PROGRAM STATEMENT**

Characterization, monitoring, and research assist in the protection of sanctuary wildlife and habitats by increasing the understanding of ecosystem structure and function; detecting environmental problems; tracking ecosystem health and trends of the various habitats and natural resources in the sanctuary; and contributing to solutions to management issues throughout the Gulf of the Farallones National Marine Sanctuary (GFNMS). An updated long-term conservation science plan has been developed to coordinate current and future habitat characterization, ecosystem monitoring, and research efforts. The following three specific areas are the focus of the conservation science plan: (1) baseline and characterization studies for populations and habitats whose presence were critical in the sanctuary's designation, yet whose distributions and other basic characteristics remain poorly understood; (2) directed monitoring studies focusing on indicator species and representative habitats and undertaken jointly with other sanctuaries, research institutions and agencies; and (3) analytical studies aimed at determining the cause of a condition or impacts and predictive studies to understand trends and variability (e.g., in a specific population).

## **PROGRAM DESCRIPTION**

GFNMS is a complex region with high biological diversity; nationally significant wildlife breeding and feeding areas; significant commercial and recreational fishing; estuarine habitats; numerous federally, state, and locally protected marine and estuarine waters; and watershed influences and impacts from the 8 million San Francisco Bay Area residents. Conservation science will help solve specific management problems, enhance resource protection efforts, and assist in bringing scientific information to the general public. The conservation science program will ensure that science activities address management issues and are effectively integrated into the administration, management, education, outreach and resource protection programs of the sanctuary.

## **CONSERVATION SCIENCE GOALS**

1. Increase our knowledge and understanding of the estuarine, nearshore, and offshore ecosystems in GFNMS.
2. Develop monitoring programs to understand long-term status and trends, detect emerging issues, and guide management decisions.

3. Develop research programs to identify and address specific management issues and assess effectiveness of management solutions.

## **CONSERVATION SCIENCE OBJECTIVES**

1. Assess the sanctuary's information base to identify gaps in knowledge that can affect our ability to manage the area.
2. Conduct studies of species or marine communities to identify wildlife and habitats most at risk or in need of management attention.
3. Promote the sanctuary as a site for ecosystem-based management research by providing financial and logistical support for scientific investigations that address critical marine ecosystem protection issues.
4. Design research and monitoring projects that are responsive to management concerns and contribute to improved management of the sanctuary.
5. Make effective use of research and monitoring results by incorporating them into education and resource protection programs.
6. Encourage information exchange and cooperation among all organizations and agencies undertaking ecosystem-based research in the sanctuaries to promote more timely and informed management.

## ***CURRENT CONSERVATION SCIENCE PROGRAM***

The sanctuary's conservation science program consists of several ecosystem monitoring projects, issue specific research projects, and habitat characterization projects. The monitoring programs, Sanctuary Ecosystem Assessment Surveys (SEA Surveys), are a compilation of GFNMS programs that provide biological observations and habitat characterization for the Gulf of the Farallones region. SEA Surveys include several long-term monitoring programs such as Beach Watch, SEA Surveys – Pelagic Habitat, and Rocky Intertidal Monitoring. SEA Surveys will also include future monitoring and exploration programs such as invasive species detection, restoration, and monitoring; estuarine monitoring; water quality monitoring through assessment of indicator species for ecosystem health; and the status and trends of species populations and ranges in the Gulf of the Farallones as indicators of impacts from global climate change.

Dedicated research projects in the past have included efforts to assess wildlife disturbance levels from permitted overflights and advise management on the effectiveness of special conditions required in sanctuary permits. Another example of a past dedicated research project is the assessment of human activities upon three harbor seal haul-outs. This six-year project, called Sanctuary Education, Awareness and Long-term Stewardship (SEALS), categorized and quantified human activities near the seal haul-outs and provided recommendations for approach distances. This information was later incorporated into various outreach products and docent programs, aided National Marine Fisheries Service investigating violations to the Marine Mammal Protection Act, and informed US Fish and Wildlife Service during development of new

refuge boundaries and regulations. Past habitat characterization efforts included the production of the Biogeographic Atlas, a compilation of maps and analyses to identify areas of highest ecological importance in sanctuary offshore areas, side-scan sonar mapping and video-documentation of benthic resources around the South Farallon Islands, Fanny Shoal, and Drakes Bay, and characterization of oceanographic features through the use of thermistor arrays.

Since 1997, Gulf of the Farallones has conducted Sanctuary Ecosystem Assessment Surveys-Pelagic Habitat (SEA Surveys-Pelagic Habitat). This long-term study focuses on krill, a critical building block in the food chain for this area. Through the use of acoustics and sampling, krill and juvenile and schooling fish are located and identified. The parameters influencing their distribution in the water column are investigated. These data are analyzed along with oceanographic parameters, chlorophyll, seabird, and marine mammal sightings to better understand the causes and dynamics of marine life concentrations in particular areas of the sanctuary.

SEA Surveys—Beach Watch volunteers have been monitoring coastal marine life (alive and dead) and human activities along the sanctuary shoreline continuously since 1993. Beach Watch collects baseline data on sanctuary wildlife and maintains a long-term database used by the sanctuary and other natural resource management agencies to answer management questions.

SEA Surveys—rocky intertidal program monitors species abundance and distribution within several locations throughout the sanctuary, and spatial-temporal changes within the rocky intertidal habitat.

Information and products from current and future science programs contribute to the understanding of sanctuary wildlife and habitats and how they are influenced by anthropogenic stressors such as oil pollution, climate change, noise, marine debris, and extraction. Science products also help to predict or model changes from natural phenomenon and human-induced stressors. Information from the Conservation Science program also contributes to outreach and educational materials used in handouts, classroom assignments and web-based products.

## **CONSERVATION SCIENCE STRATEGIES**

**STRATEGY CS-1: *Maintain the Beach Watch program to monitor marine life and human activities on sanctuary beaches, and provide baseline information, and identify ecosystem changes to assist sanctuary management decisions.***

**Activity 1.1** As a part of the Sanctuary Naturalist Corps, maintain Beach Watch volunteer monitoring program to gather baseline information about the resources of the sanctuary.

- A. Beach Watch is a long-term shoreline monitoring program. The Beach Watch program primarily assesses coastal birds, marine mammals, human activities, and oil pollution. The program goals are to: 1) educate the public about the coastal environment; 2) educate the public that they can make a difference in protecting their beaches; 3) assist the Sanctuary in the early detection of natural and human-caused environmental perturbations such as warm or cold water events and oil spills; 4) provide a baseline of information on the average presence of live and

beachcast marine organisms; and 5) develop a network of local experts who can document and discuss the natural changes a specific beach will undergo over a period of several years. Beach Watch and similar west coast sanctuary monitoring programs will be integrated to produce data sets for tracking the health and status of west coast seabird and marine mammal populations.

**Potential Partners:** Beach COMBERS at MBNMS, COASST at OCNMS, CFMP Data Rescue program, NMFS-Marine Mammal Stranding Network

**Complementary Strategies:** Introduced Species Action STRATEGY IS-1, Wildlife Disturbance Action STRATEGY WD-4, Conservation Science STRATEGY CS-4, CS-5, CS-6, Cross-cutting Ecosystem Monitoring Action STRATEGY XEM-1, XEM-2, XEM-3, Northern Management Area Science Action STRATEGIES XNRM-1, XNRM-2, XNRM-3, XNRM-4, XNRM-5

- B. Revise beached bird book to support the efforts of Beach Watch, Support BeachCOMBERS in MBNMS and COASST volunteers in OCNMS by making available the most current information on identification and demographic information of beached birds and mammals.
- C. Integrate Beach Watch data with other biological and physical monitoring data sets such as SEA Surveys-Pelagic Habitat data sets, SEA Stations, SEAS rocky intertidal monitoring, and future monitoring programs (introduced species and water quality). Develop an online data entry system using data structures compatible with other sanctuary shoreline monitoring programs. Make data applicable to and posted on the Sanctuaries Hazardous Incident Emergency Logistics Database System (SHIELDS). Data should be available for access by staff during emergency response.
- D. Integrate Beach Watch data with regional and national Integrated Ocean Observation Efforts (IOOS) and Central and Northern California Ocean Observation System as well as West Coast Regional Monitoring Program and United States Fish and Wildlife Service (USFWS) seabird populations assessment, and harmful algal bloom events.
- E. Upgrade Beach Watch data management and availability by posting data sets on local and regional web sites such as Center for Integrated Marine Technologies (CIMT), (CICORE), the national data base for the Marine Mammal Stranding Network, and the Sanctuary Integrated Monitoring Network (SIMoN).

Improve efficiency of data collection through the use of personal digital assistants (PDA), digital imagery, and other electronic information gathering tools. Tools and programs shall be compatible with those used by other shoreline monitoring programs, emergency response and damage assessment, National Marine Fisheries Service and US Fish and Wildlife Service.



- F. Beach Watch data sets should include reports of incidents and violations documented during Beach Watch surveys.

**Potential Partners:** Farallones Marine Sanctuary Association (FMSA), state parks, Office of Spill Prevention and Response (OSPR), Fitzgerald Marine Reserve (FMR), USFWS, California Department of Fish and Game (CDFG), Monterey Bay National Marine Sanctuary (MBNMS), Moss Landing Marine Laboratories, Olympic Coast National Marine Sanctuary, University of Washington, National Oceanographic Data Center (NODC), Central Observation and Seabird Survey Team (COASST), National Marine Sanctuary Program (NMSP)-SHIELDS, National Marine Fisheries Service (NMFS)

**Products:** Beach Watch Annual Report, collaborative research papers, National Resource Damage Assessment and Restoration (NRDA) data, Web-based database and maps.

**Complementary Strategies:** GFNMS Final management Plan (FMP), Vessel Spills, STRATEGY VS-5, VS-6, STRATEGY VS-8; Introduced Species, STRATEGY IS-1; Impacts from Fishing Activities, STRATEGY FA-1, Water Quality STRATEGY WQ-2, 8, Impacts from Vessel Spills STRATEGY VS-6, Wildlife Disturbance STRATEGY WD- 1, WD-2, WD-3, WD-4 WD-5, Resource Protection STRATEGY RP-7, RP-8, Conservation Science Action STRATEGY CS-4, CS-5, CS-6, Cross-cutting Ecosystem Monitoring Action STRATEGY XEM-1, XEM-2, XEM-3, XEM-4, Northern Management Area Science Action STRATEGIES XNRM-1, XNRM-2, XNRM-3, XNRM-4, XNRM-5

**STRATEGY CS-2:** Conduct research as needed, to guide permit conditions.

**Activity 2.1** Conduct research to guide permit conditions for new white shark viewing and assess effectiveness of new regulations. Following promulgation of new regulations restricting boater interactions with white sharks, conduct research to determine appropriate permit conditions and effectiveness of new regulations in reducing disturbance to white sharks.

- A. Develop and implement a white shark behavioral study to assess the impacts of motorized vessels in the vicinity of feeding and milling sharks. Study will assess shark behavior in relation to numbers of vessels and approach distances during various shark predator-prey interactions. Study analysis shall be targeted to recommend acceptable number of vessels, vessel size(s), and approach distances. Study will be conducted August through January during the seasonal migration of sharks to the Farallon Islands.
- B. Periodically review effectiveness of special permit conditions and revise as appropriate.

**Potential Partners:** PRBO Conservation Science, USFWS

**STRATEGY CS-3: *Host a biennial research workshop to facilitate information exchange in the GFNMS.***

**Activity 3.1** Every other year, the sanctuary will continue to host a conservation science workshop with local researchers and educators to highlight science in and around the sanctuary.

- A. Host workshop every other year. Workshop proceedings will include oral presentations, poster sessions, and publication of proceedings and abstracts.
- B. Compile a comprehensive list of research being conducted in and around GFNMS. Produce map of sampling locations and study areas.
- C. Educate research community how to post monitoring program descriptions and findings on to GFNMS SIMoN, OceanObs, SEAMAP, CICORE and other appropriate web sites.

**Potential Partners:** Cordell Bank National Marine Sanctuary (CBNMS), FMSA, MBNMS-Sanctuary Integrated Monitoring Network (SIMoN), San Francisco State University (SFSU), Duke University, UC Davis, Bodega Marine Laboratory

**Products:** Workshop proceedings, website, SIMoN listing

**Complementary Strategies:** Impacts for Fishing Activities STRATEGY FA-1 Activity 1.2, Conservation Science Action STRATEGY CS-5, CS-6, Cross-cutting Ecosystem Monitoring Action STRATEGY XEM-2, Northern Management Area Science Action STRATEGIES XNRM-1, XNRM-2, XNRM-5

**STRATEGY CS-4: *Develop and implement sanctuary ecosystem assessment and monitoring programs, and integrate with regional ocean observation programs along the west coast and the sanctuary program's System Wide Monitoring guidelines.***

**Activity 4.1** Expand Sanctuary Ecosystem Monitoring Surveys-Pelagic Habitat (SEA Surveys, formerly known as Ecosystem Dynamics Study-EDS).

- A. Conduct long-term monitoring of the macrovertebrates of the sanctuary, seabirds, marine mammals, and sea turtles and their prey species. Monitor the abundance and distribution of species impacted by chronic and acute oil pollution, such as seabirds, marine mammals, and sea turtles, and their trophic relationship and the population dynamics of euphausiid shrimp or krill.
- B. Investigate the relationship between hydrographic conditions, physical features and the distribution and abundance of marine organisms in the vicinity of the Gulf of the Farallones region and the coastal and pelagic region west of Sonoma County.
- C. Link local abundance and distribution data sets with associated habitats, oceanographic features, and occurrence and distribution of human activities, such as vessel activities.

- D. Monitor phytoplankton for detection of harmful algal blooms.
- E. Identify and map specific and trend information for identification of areas of ecological significance and changes of ranges as potential indicators of global warming.

**Potential Partners:** Cordell Bank National Marine Sanctuary (CBNMS), FMSA, MBNMS-Sanctuary Integrated Monitoring Network (SIMoN), San Francisco State University (SFSU), Duke University, PRBO,

**Complementary Strategies:** Water Quality STRATEGY WQ-2 Introduced Species STRATEGY IS-1, IS-2, Impacts from Vessel Spills VS-3, VS-5, VS-6, Wildlife Disturbance STRATEGY WD-2, WD-3, WD-4, WD-7, Conservation Science Action STRATEGY CS-1, CS-2, CS-3, CS-5, CS-6, Cross-cutting Ecosystem Monitoring Action STRATEGY XEM-1, XEM-2, XEM-3, Northern Management Area Science Action STRATEGIES XNRM-1, XNRM-2, XNRM-5

**Activity 4.2** Expand sanctuary's Rocky Intertidal Monitoring Program. The rocky intertidal habitat of the sanctuary is limited to outer coast and island shorelines. Only a small portion, less than 25 percent of the outer coast are rocky intertidal habitat. This habitat is subjected to extraction, trampling impacts from humans and wildlife, smothering and scouring from natural and human-induced erosion factors, permanent destruction from vessel groundings, loss of acreage from non-native species, and impacts from pollutants such as urban run-off and vessel spills. Restoration of the rocky intertidal habitat is difficult and time-consuming, with projects often taking from seven to ten years.

- A. Continue monitoring of the rocky intertidal areas of the Farallon Islands and re-establish long-term monitoring of six mainland monitoring sites: Bodega Head, Pinnacle Rock, Estero Americano, Duxbury Reef, Slide Ranch, Bean Hollow and Pigeon Point. The objectives are to: 1) establish non-destructive, permanent sampling transects, quadrats and density plots within the intertidal areas of the GFNMS; 2) determine native and introduced species inventory in the intertidal communities; 3) determine primary and secondary cover in established quadrats; 4) determine percent cover of sessile organisms; 5) determine density of macroinvertebrates susceptible to oil spill damage; 6) photo-document, collect and archive voucher specimens from the intertidal areas for future reference. Through regular assessment (monitoring) of the condition and health of this sensitive habitat, sanctuary staff can detect acute changes and long-term trends. Monitoring information can also indicate if a management action is effective and having positive results.
- B. Integrate monitoring protocols and data sets with CeNCOOS, West Coast Observations – Sanctuary Ecosystem Assessment Stations, Minerals Management Service, Multi-agency Rocky Intertidal Network (MARINE), Partnership for Interdisciplinary Studies of Coastal Oceans (PISCO), and the National Park Service. Provide data sets and integrated analyses to the State's Marine Life Protection Act Initiative, marine protected areas.

- C. Provide species inventory updates and integrate with introduced species detection programs.

**Potential Partners:** CeNCOOS, CDFG-MLPA program, MBNMS, OCNMS, CINMS, PISCO, NPS, MMS MARINE, OCNMS, Department of Public Health HAB monitoring, UC Davis, IGERT Internship.

**Complementary Strategies:** Introduced Species STRATEGY IS-1, IS-3, IS-5, Wildlife Disturbance STRATEGY WD-2, WD-3, WD-4, Conservation Science Action STRATEGY CS-1, CS-2, CS-3, CS-5, CS-6, Cross-cutting Ecosystem Monitoring Action STRATEGY XEM-1, XEM-2, Northern Management Area Science Action STRATEGIES XNRM-1, XNRM-2, XNRM-4, XNRM-5

**Activity 4.3** Long-term monitoring of sanctuary physical/oceanographic processes

- A. Expand West Coast Obs-Sanctuary Ecosystem Assessment Stations (SEA Stations). SEA Stations are nearshore and near-island buoy-instrumentation, customized for particular locations. SEA Stations measure environmental events that affect marine life. The stations measure physical processes that affect distribution, settlement, growth and reproduction of marine life. Arrays have been placed at areas of water mass convergence, areas of strong upwelling influence and high productivity, and also near rocky intertidal monitoring sites. Interannual and shorter-term upwelling and relaxation events have been shown to drive recruitment and movement of certain fish species. It is also likely that these events affect other wildlife, including keystone species. The GFNMS has three arrays that continuously measure water column temperature, providing information necessary to understand and track water mass movements that affect recruitment of key species to coastal habitats. The stations are located at: Bodega Head, Southeast Farallon Island, and Pigeon Point. A fourth array shall be deployed at Double Point.
- B. Establish Cooperative Agreement with Bodega Bay Marine Lab for long-term maintenance and periodic replacement and upgrades to array hardware; data down loading and web posting; data interpretation and integration with biological assemblage data and ecological areas of significance.

**Potential Partners:** UC Bodega Marine Lab, PISCO, National Park Service, CBNMS, MBNMS, SFSU, CICORE, OCNMS, CINMS, CDFG-MLPA program,

**Complementary Strategies:** Impacts from Vessel Spills VS-2, VS-6, Conservation Science Action STRATEGY CS-1, CS-2, CS-3, CS-5, CS-6, Cross-cutting Ecosystem Monitoring Action STRATEGY XEM-1, XEM-2, XEM-3, Northern Management Area Science Action STRATEGIES XNRM-1, XNRM-2, XNRM-3, XNRM-5

**Activity 4.4** Conduct research and monitoring to assess effectiveness of new eelgrass bed protection zones. Following promulgation of new regulations restricting vessel anchoring in

eelgrass beds within Tomales Bay, conduct research to assess health of eelgrass beds to determine effectiveness of new regulations in reducing damage to eelgrass beds.

- A. Develop and implement an eelgrass status study to assess size, density, health, and species richness of eelgrass beds in Tomales Bay.
- B. Periodically review effectiveness of regulation. Assess size and location of management zones.

**Potential Partners:** Point Reyes National Seashore, California Department of Fish and Game, Tomales Bay Watershed Council

**Complementary Strategies:** Wildlife Disturbance STRATEGY WD-3, Introduced Species STRATEGY IS-2, Conservation Science Action STRATEGY CS-4, CS-5, CS-6

**STRATEGY CS-5: *Complete characterization of sanctuary biological and physical features.***

**Activity 5.1** Map sanctuary habitat types and bottom substrate. A habitat map will provide important baseline information for management including relative proportions of sanctuary habitats; the current state of sanctuary wildlife and habitats as a basis against which to measure future change; unique habitats; identify areas of ecological significance; and extent of damages from anthropogenic stressors.

**Activity 5.2** Identify and map seasonal and year round circulatory patterns for surface and subsurface currents. Relate circulatory patterns to abundance and distribution of flora and fauna. Characterizing and mapping local and regional circulatory patterns and influences is important because the Gulf of the Farallones is located in one of the world's four major upwelling systems. (The other three systems are located along the west coast of South America, Southwest Africa, and Northwest Africa.) The upwelling of nutrient-rich, deep ocean water supports a food-rich environment and promotes the growth of organisms at all levels of the marine food web. The interaction of major currents, wind, topography, and other factors create coastal upwelling in the spring and summer that influences the biological productivity of the sanctuary. This process drives the productivity of the area by bringing cool, nutrient-rich waters from deep offshore to the sunlit inshore surface. Upwelling increases the productivity of surface waters by supporting large plankton blooms, the basis for the abundance of marine life in the sanctuary.

**Activity 5.3** Characterize the soft and hard bottom epifaunal communities. Survey the surface biota and sediment characteristics, quantify estimates of abundance and distribution of epifauna, assess disturbance effects and marine debris, develop species list of invertebrates and epifaunal fish, and characterize cultural resources.

**Activity 5.4** Integrate characterization, mapping and monitoring programs with regional ocean observation programs along the west coast and incorporate the sanctuary program's System Wide Monitoring guidelines.

**Potential Partners:** UC Bodega Marine Lab, PISCO, National Park Service, CBNMS, MBNMS, SFSU, CICORE, OCNMS, CINMS, CDFG-MLPA program, State Coastal Conservancy

**Complementary Strategies:** Water Quality STRATEGY WQ-1, WQ-2, Introduced Species STRATEGY IS-1, 2, 3, 4, 5, Impacts from Vessel Spills VS-2, Wildlife Disturbance STRATEGY WD-2, WD-3, WD-7, Conservation Science Action STRATEGY CS-1, CS-2, CS-3, CS-4, CS-6, Cross-cutting Ecosystem Monitoring Action STRATEGY XEM-1, XEM-2, Northern Management Area Science Action STRATEGIES XNRM-1, XNRM-2, XNRM-3, XNRM-5

**Strategy CS-6: *Work with partners to integrate data integration and infrastructure for SEA Station and Survey programs.***

**Activity 6.1** SEA Station and Survey programs need to be fully integrated with other science programs on a regional basis and need to use new technologies to link data sets from local and regional ecosystem monitoring and characterization programs within the West Coast sanctuaries. As part of an effort to develop a west coast regional observation system to support system-wide monitoring in the five West Coast sanctuaries, the National Marine Sanctuaries Program (NMSP) will partner with researchers and the National Oceanographic Data Center (NODC) National Coastal Data Development Center (NCDDC) and will use new technologies for data and information management.

- A. Partner with local and regional researchers to develop complementary data collection methods and consistent data base structures to improve data exchange and data integration.
- B. Partner with the National Oceanographic Data Center (NODC) National Coastal Data Development Center (NCDDC) for data and information management support. Work with NCDDC to support NMSP efforts to build on SIMoN's existing structure to enhance data input and review, data management, analyses, reporting, archiving and dissemination functions in order to facilitate the use of the SIMoN framework by other sanctuaries. NCDDC will address requirements and needs for data rescue, metadata, federal compliance issues, and data accessibility and delivery. In addition, NCDDC will work with the NMSP to expand the use of the Sanctuary Integrated Monitoring Network (SIMoN) planned for the GFNMS in 2007.
- C. Develop the administrative infrastructure to identify and act on cross-boundary opportunities, collaborate with large-scale initiatives, and interpret the results for natural resource managers and public audiences across the region.
- D. Establish a regional monitoring coordination team. The regional monitoring team shall consist of the site's research coordinator and possibly additional science staff. The team will develop a regional science communication plan to improve coordination, evaluate effectiveness of monitoring programs, develop "state of the sanctuary" reports to help assess the health of the sanctuaries, and develop a regional ecosystem-based science

operating plan in collaboration with each other to meet site, regional and national monitoring needs.

- E. Increase the use of new technologies to enhance data collection, expedite data management, and improve data availability for outreach and ecosystem protection. The sanctuary will automate data collection for near-real time retrieval of uncorrected data by developing on-line data entry and data downloading, and building a multi-sanctuary “real-time” database. The data will be available through CICORE, SEAMAP, SIMoN and IMaST portals and should result in expedited project analyses and findings, the ability to post new findings on the web site, and integrate new findings into exhibits and classroom activities.
- F. Increase the use of the current reference library and integrate the library with the sanctuary’s education and lending library. Provide an on-line data catalog of resources available as reference materials and for lending.

**Potential Partners:** NODC, NCDDC, CeNCOOS, CDFG-MLPA program, NMFS-MMSN, NOAA Damage Assessment, Research and Restoration Programs, CBNMS, MBNMS, OCNMS, CINMS, PISCO, NPS, MMS MARINE, OCNMS, Department of Public Health HAB monitoring, UC Davis, Bodega Marine Lab, San Francisco State University, University of Washington, CICORE, Duke University SEAMAP, CICORE, SIMoN,

**Complementary Strategies:** Water Quality Action STRATEGY WQ-2, 8, Introduced Species Action STRATEGY IS-1, IS-2, Impacts from Vessel Spills VS-2, Wildlife Disturbance Action STRATEGY WD-2, WD-3, Conservation Science Action STRATEGY CS-1, CS-2, CS-3, CS-4, CS-5, Cross-cutting Ecosystem Monitoring Action STRATEGY XEM-1, XEM-2, XEM-3, XEM-4, Northern Management Area Science Action STRATEGIES XNRM-1, XNRM-2, XNRM-3, XNRM-4, XNRM-5

## **CROSS-CUTTING SCIENCE STRATEGIES**

**STRATEGY XEM-1:** *Coordinate Existing Targeted Monitoring Activities to Promote Greater Efficiency and Effectiveness.*

**Complementary Strategies:** Conservation Science Action STRATEGY CS-1, CS-4, CS-5, CS-6

**STRATEGY XEM-2:** *Coordinate and Implement Existing Regional Ecosystem Monitoring Activities.*

**Complementary Strategies:** Conservation Science Action STRATEGY CS-1, CS-4, CS-5, CS-6

**STRATEGY XEM-3:** *Establish a Joint Internal Monitoring Coordination Team.*

**Complementary Strategies:** Conservation Science Action STRATEGY CS-4, CS-5, CS-6

**STRATEGY XEM-4:** *Consider Establishing a Joint Research Activities Panel to Enhance Research and Monitoring Collaborations.*

**Complementary Strategies:** *Water Quality STRATEGY WQ-6:* Develop a standing water quality working group of the sanctuary advisory council, supported by sanctuary staff. *Ecosystem Protection STRATEGY EP-2:* Create a standing “Living Resource and Habitat Protection” working group to provide advice to the sanctuary on ecosystem protection issues. *Vessel Spills STRATEGY VS-12:* Create a standing vessel spills working group to advise the sanctuary on implementation of proposed action plans. *Northern Management Area Transition Action STRATEGY XNRM-3:* Collaborate on Sanctuary Advisory Committees and Working Groups on Research and Monitoring Issues Related to the NMA. Conservation Science Action STRATEGY CS-4, CS-5, CS-6

## **MBNMS NORTHERN MANAGEMENT AREA SCIENCE STRATEGIES**

**STRATEGY XNRM-1:** *Share Information.*

**Complementary Strategies:** Conservation Science Action STRATEGY CS-1, CS-4, CS-5, CS-6

**STRATEGY XNRM-2:** *Coordinate Research and Monitoring Information Dissemination.*

**Complementary Strategies:** Conservation Science Action STRATEGY CS-1, CS-3, CS-4, CS-5, CS-6

**STRATEGY XNRM-3:** *Collaborate on Sanctuary Advisory Committees and Working Groups on Research and Monitoring Issues Related to the NMA.*

**Complementary Strategies:** Conservation Science Action STRATEGY CS-1, CS-4, CS-5, CS-6, Cross-cutting Ecosystem Monitoring Action STRATEGY XEM-4

**STRATEGY XNRM-4:** *Collaborate on Volunteer Monitoring Efforts Related to the NMA*

**Complementary Strategies:** Conservation Science Action STRATEGY CS-1, CS-4, CS-6



**STRATEGY XNRM-5:** *Implement JMPR Site-Specific Research and Monitoring Activities in the NMA.*

**Complementary Strategies:** Conservation Science Action STRATEGY CS-1, CS-3, CS-4, CS-5, CS-6

## ISSUE SPECIFIC SCIENCE STRATEGIES

*Note: These strategies are cross-referenced from the issue-based action plans to show the entire suite of conservation science strategies to be implemented by conservation science sanctuary staff.*

## WATER QUALITY STRATEGIES

**STRATEGY WQ-8:** *Develop an annotated bibliography of water quality research and monitoring programs in and adjacent to the sanctuary to evaluate data and determine the overall water quality of the sanctuary's ecosystem.*

*For the full strategy text, please see page 60.*

## WILDLIFE DISTURBANCE STRATEGIES

**STRATEGY WD-1:** *Create easily accessible centralized Web-based spatial database to house information pertaining to wildlife disturbance.*

*For the full strategy text, please see page 75.*

**STRATEGY WD-2:** *Through the use of volunteer monitoring programs, observe and record impacts from human activities on marine resources and key habitats such as the rocky intertidal.*

*For the full strategy text, please see page 75.*

**STRATEGY WD-3:** *Coordinate with other agencies, institutions and programs to better understand and address anthropogenic noise, light, and visual impacts on wildlife from vessels and low flying aircraft. See WD-3.3*

*For the full strategy text, please see page 76.*

## INTRODUCED SPECIES STRATEGIES

**STRATEGY IS-1:** *Develop a native and introduced species inventory and database specifically for GFNMS and areas adjacent to the sanctuary.*

*For the full strategy text, please see page 92.*

**STRATEGY IS-2:** *In coordination with existing monitoring programs, develop a program to detect introduced species in estuarine environments of the sanctuary.*

*For the full strategy text, please see page 93.*

**STRATEGY IS-3:** *Develop a monitoring program to detect and monitor introduced species in the rocky intertidal areas of the sanctuary.*

*For the full strategy text, please see page 95.*

**STRATEGY IS-4:** *Develop a monitoring program to detect and monitor introduced species in the pelagic environment of the sanctuary.*

*For the full strategy text, please see page 96.*

**STRATEGY IS-5:** *Develop a monitoring program to improve early detection of introduced species.*

*For the full strategy text, please see page 96.*

## **IMPACTS FROM FISHING ACTIVITIES STRATEGIES**

**STRATEGY FA-1:** *Develop a resource characterization of the sanctuary to better understand types and distributions of habitats, species, and processes.*

*For the full strategy text, please see page 108.*

## **VESSEL SPILLS STRATEGIES**

**STRATEGY VS-2:** *Refine oceanographic data used in existing spill and drift model to increase accuracy of risk assessments.*

**STRATEGY VS-5:** *Track distribution and numbers of species of concern and habitats in relation to probable spill trajectories.*

*For the full strategy text, please see page 132*

**STRATEGY VS-8:** *Continue to improve integration of GFNMS Beach Watch and SEA Survey data into Area Contingency Plan.*

*For the full strategy text, please see page 134.*

GFNMS CONSERVATION SCIENCE

## Timeline

Conservation Science Strategy	Year 1	Year 2	Year 3	Year 4	Year 5
STRATEGY CS-1: Maintain Beach Watch program to monitor marine life and human activities on sanctuary beaches and provide baseline information to assist sanctuary management decisions.	—————▶				
STRATEGY CS-2: Conduct research to develop permit conditions for white shark viewing and to assess effectiveness of new regulations.	—————◆				
STRATEGY CS-3: Host a biennial research workshop to facilitate information exchange in the GFNMS.	————◆      ———◆      ———◆				
Strategy CS-4 <i>Develop and implement integrated sanctuary ecosystem assessment and monitoring programs</i>	—————▶				
STRATEGY CS-5 <i>Complete characterization of sanctuary biological and physical features.</i>	—————▶				
STRATEGY CS-6 <i>Develop functional integration and infrastructure for SEA Station and Survey programs</i>	—————▶				

**Legend:**

- ▶      **Ongoing Activity**
- .....▶      **Planning Stage**
- ◆      **Completed Activity**

GFNMS CONSERVATION SCIENCE

**Budget**

Strategy	Estimated Annual Cost (1000's)*					Total Est. 5-Year Cost (1000's)
	YR 1	YR 2	YR 3	YR 4	YR 5	
<b>STRATEGY CS-1: Maintain Beach Watch program</b>	\$207	\$230	\$214	\$218	\$256	\$1125
<b>STRATEGY CS-2: Conduct research to develop permit conditions for white shark viewing and to assess effectiveness of new regulations</b>	\$24	\$0	\$0	\$0	\$0	\$24
<b>STRATEGY CS-3: Host a biennial research workshop to facilitate information exchange in the GFNMS</b>	\$36	\$0	\$41	\$0	\$41	\$118
<b>Strategy CS-4 Develop and implement integrated sanctuary ecosystem assessment and monitoring programs</b>	\$568	\$596	\$624	\$652	\$680	\$3120
<b>STRATEGY CS-5 Complete characterization of sanctuary biological and physical features.</b>	\$536	\$199	\$205	\$350	\$210	\$1500
<b>STRATEGY CS-6 Develop functional integration and infrastructure for SEA Station and Survey programs</b>	\$332	\$276	\$290	\$305	\$320	\$1523
<b>Total Estimated Annual Cost</b>	\$1,703	\$1,301	\$1,374	\$1,525	\$1,507	\$7410

The sanctuary's base budget is available each year from appropriated funds.

There is availability and opportunity to receive additional funding from appropriated funds.

The estimates do take into account increasing personnel costs each year or inflation.

The estimates do not take into account unexpected events or emergencies or unforeseen projects.

GFNMS CONSERVATION SCIENCE

## Performance Measures

Strategy Title(s)	Performance Goal	Desired Outcome (Objective)	Outcome Measure	How Measured	Who Measures	Output Measure
STRATEGY CS-1: Maintain Beach Watch program to monitor marine life and human activities on sanctuary beaches.	Develop monitoring programs to establish baselines, understand long-term status and trends, detect emerging issues, and guide management decisions.	Design research and monitoring projects that are responsive to management concerns and contribute to improved management of the sanctuary.	Increase understanding of human-use activities and their impacts on sanctuary resources.	1) Complete baseline data set about the resources of the sanctuary. 2) Expand long-term data set. 3) Integrate data into SHIELDS online ArcView database to be used during emergency response.	Ecosystem Protection Coordinator and Research Coordinator	1) Beach Watch Annual Report 2) Collaborative research papers 3) NRDA data 4) Web-based database
STRATEGY CS-2: Conduct research to develop permit conditions for white shark viewing and to assess effectiveness of new regulations.	Develop monitoring programs to understand long-term status and trends, detect emerging issues, and guide management decisions.	Design research and monitoring projects that are responsive to management concerns and contribute to improved management of the sanctuary.	To determine appropriate permit conditions and effectiveness of new regulations.	1) Complete assessment of white shark behavior in relation to numbers of vessels, at approach distances, during various predator-prey interactions (short term). 2) Sufficient data to make recommendations.	Research Coordinator and Ecosystem Protection Coordinator	Report with recommendations

**Conservation Science Action Plan  
GFNMS Management Plan**

<b>Strategy Title(s)</b>	<b>Performance Goal</b>	<b>Desired Outcome (Objective)</b>	<b>Outcome Measure</b>	<b>How Measured</b>	<b>Who Measures</b>	<b>Output Measure</b>
STRATEGY CS-3: Host a biennial research workshop to facilitate information exchange in the GFNMS.	1) Increase our knowledge and understanding of the estuarine, nearshore and offshore ecosystems in GFNMS. 2) Develop monitoring programs to understand long-term status and trends, detect emerging issues, and guide management decisions. 3) Develop research programs to identify and address specific resource management issues and assess effectiveness of management solutions.	Encourage information exchange and cooperation among all organizations and agencies undertaking management related research in the sanctuaries to promote more timely and informed management.	1) To track data collected on sanctuary wildlife and habitats and qualities as a source of information for managing sanctuary resources. 2) Identify data gaps as they pertain to management needs.	Track increases in number and quality of monitoring and research projects in and around the sanctuary, and their relevance to sanctuary resources management issues.	Sanctuary Superintendent, Research Coordinator, Ecosystem Protection Coordinator	1) Workshop proceedings 2) Website 3) SIMoN listing
STRATEGY CS-4: Develop and implement integrated sanctuary ecosystem assessment and monitoring programs	Develop monitoring programs to establish baselines, understand long-term status and trends, detect emerging issues, and guide management decisions.	Design research and monitoring projects that are responsive to management concerns and contribute to improved management of the sanctuary.	Increase understanding of human-use activities and their impacts on sanctuary wildlife and habitats.	1) Complete baseline data set about the habitats and wildlife of the sanctuary. 2) Expand long-term data set. 3) Integrate data into SHIELDS online ArcView database to be used during emergency response.	Research Coordinator Resource Protection	1) SEAS Biennial Report 2) Rocky intertidal biennial report, 3) Collaborative research papers 4) NRDA data 5) Web-based database

<b>Strategy Title(s)</b>	<b>Performance Goal</b>	<b>Desired Outcome (Objective)</b>	<b>Outcome Measure</b>	<b>How Measured</b>	<b>Who Measures</b>	<b>Output Measure</b>
STRATEGY CS-5 Complete characterization of sanctuary biological and physical features.	Adequately characterize sanctuary resources to establish baselines, understand long-term status and trends, detect emerging issues, and guide management decisions.	Complete site characterization of all sanctuary habitats, key indicator species and oceanographic processes, and physical features of the sanctuary.	Increase understanding of sanctuary wildlife and habitats and physical processes and how the sanctuary effect population health	1) Complete baseline benthic surveys and maps 2) Update species inventory 3) Quantify species distribution 4) Quantify introduced species distribution	Research Coordinator Resource Protection	1) Benthic maps of areas of ecological significance, and species 2) inventory of native species, 3) inventory of introduced species
STRATEGY CS-6 Work with partners functional integration and infrastructure for SEA Station and Survey programs	Effective operations and increased public awareness and information exchange	Automate data collection procedures to expedite data exchange; data summaries and data interpretation on web sites	Increased access and distribution of data	Data are analyzed within one year of collection and summary is posted	Research Coordinator	1) Use of data logging and digital imagery; 2) Methods are used by multiple management and marine researchers; 3) DRAFT data sets are available for emergency response and damage assessment activities within three days of collection







PROGRAM AREA  
**RESOURCE PROTECTION  
ACTION PLAN**

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## **PROGRAM STATEMENT**

Consistent with the purposes and policies of the National Marine Sanctuaries Act (NMSA), NOAA uses an ecosystem approach to managing the marine areas of the sanctuaries. Gulf of the Farallones National Marine Sanctuary's (GFNMS) ecosystems include habitat structure, species assemblages, and ecological processes, as well as the many interactions with humans and their activities. GFNMS is developing a resource protection program to expressly maintain an ecosystem perspective while providing oversight in addressing the multitude of resource protection issues the sanctuary is currently facing, as well as anticipating and planning for new and emerging issues on the horizon.

## **PROGRAM DESCRIPTION**

Pursuant to the NMSA, GFNMS' role is protection of the area's natural resource and ecosystem values by protecting the biodiversity, productivity and aesthetic qualities of the marine environment of the Gulf of the Farallones through ecosystem-based management. There are many successful ecosystem-based management models for the terrestrial environment, but these models don't translate well in a fluid, three-dimensional marine environment which functions under a different spatial and temporal scale. As the sanctuary builds and implements this new management plan, the staff will continue to work with other agencies, stakeholders and national marine sanctuaries to build a more solid model for marine ecosystem management.

Throughout the public scoping process and the entire management plan review, the public and sanctuary advisory council expressed a deep and abiding concern for better, overall ecosystem protection through the use of conservation-based management tools. The suggestions were wide and varied, including the use of:

1. Ecosystem-based management;
2. Precautionary approach;
3. Adaptive management; and
4. Managing for sustainability.

The sanctuary staff examined both the theory and practice of applying different, conservation-based management tools to the building of the framework for this management plan. These

management tools all add greater value to ecosystem protection. Thus, GFNMS has incorporated these principles to strengthen the sanctuary's management plan.

## **RESOURCE PROTECTION GOAL**

Maintain and, where necessary, restore the natural biological and ecological processes in GFNMS by evaluating and addressing adverse impacts from human activities on sanctuary ecosystems.

## **RESOURCE PROTECTION OBJECTIVES**

1. Build a comprehensive and coordinated ecosystem protection plan to ensure protection for the habitats, wildlife, and qualities of GFNMS.
2. Continue to build on partnerships, collaborative efforts, and coordination with other agencies, institutions, and organizations, in taking a comprehensive and effective ecosystem protection approach.

## **RESOURCE PROTECTION ACTION PLAN**

### **NEW AND EMERGING ISSUES**

Although a wide range of issues have been included in the management plan action plans, many other issues are not addressed. These include: (1) issues which are currently considered to have relatively small impacts, but which may grow to have large impacts in the future; (2) activities which may be occurring in similar environments, but not actually in the sanctuary; and/or (3) activities that are based on new technology, and their potential impacts are not well understood. Emerging issues may include activities that are currently unforeseen, but may emerge in the future due to technological advances, changes in operations, changes in market demand, and increased pressures on the coast. The following strategies focus on the development of a framework to identify, prioritize, and address future ecosystem protection issues.

**STRATEGY RP-1:** *Establish a framework for identifying, tracking, and addressing emerging issues on a timely basis.*

**Activity 1.1** Develop an electronic Web-based cataloging system to capture information on new and emerging issues (including sources and references). This system should be easily accessible by sanctuary staff to add and access information.

- A. Information for this system should be gathered from (and be specific to relevant new and emerging issues in the marine environment):
  1. Interactions with other natural resource management agencies
  2. Meetings with GFNMS, Cordell Bank National Marine Sanctuary (CBNMS), and Monterey Bay National Marine Sanctuary (MBNMS) Advisory Councils
  3. Scientific and conservation workshops, conferences, and symposia

4. National Marine Sanctuary Program (NMSP) Daily News Clips
  5. NMSP situation reports
  6. News articles, news services
  7. NMSP Leadership Team calls and meetings
  8. NMSP National Coordinators meetings
- B. A staff person will be assigned to maintain the system and send out reminders to the staff to use the system.
- C. As highly relevant new and emerging issues surface, staff maintaining the system will send out electronic messaging to the staff to inform and exchange information.

**Activity 1.2** Establish an evaluation system for determining if the issue is relevant to the site and identify steps for addressing issues such as:

- A. General description and current status of activity.
- B. Who are the responsible parties or potential user groups involved in the activity?
- C. Have any precedents been set for this type of activity?
- D. Are any other sanctuaries addressing this issue?
- E. Are any other resource management agencies dealing with this issue? If so, how are they addressing the issue?
- F. What are the potential impacts to sanctuary resources?
- G. Might this activity be in violation of GFNMS' regulations?
- H. Are there activities with similar impacts already occurring in the sanctuary for which GFNMS makes an exception, either from a regulatory or permitting standpoint?
- I. If there are similar activities that the sanctuary is already allowing exception for or permitting, are the impacts from this activity less or greater than for the new or emerging issue?
- J. Would GFNMS' current permitting authority allow this activity to be permitted? Under which kind of permit?
- K. Are there other agencies GFNMS should be working with on this issue?
- L. Has NMSP headquarters been involved in addressing this issue?

- M. Does this issue warrant national policy development?
- N. What future implications might there be for other sites?
- O. What are the next steps for addressing this issue (propose regulatory action, develop working group, permit, education, research, etc.)?

**Potential Partners:** CBNMS, MBNMS, Channel Islands National Marine Sanctuary (CINMS), Olympic Coast National Marine Sanctuary (OCNMS), NMSP

**Products:** Electronic Web-based tracking system

**Complementary Strategies:** GFNMS Final management Plan (FMP), Resource Protection, STRATEGY RP-2, STRATEGY RP-3; CBNMS FMP, Administration, AD-7; MBNMS FMP, Emerging Issues, STRATEGY EP-1, STRATEGY EP-2

**STRATEGY RP-2:** *Develop a coordinated communication system among all national marine sanctuaries and other natural resource management agencies to stay informed about new and emerging issues, share information, and provide a forum for exchange and policy discussion.*

**Activity 2.1** The National Oceanic and Atmospheric Administration (NOAA), National Ocean Service (NOS), and the NMSP are addressing new and emerging issues in some capacity every day. Each of these divisions and offices comment on environmental documents from other agencies, provide comment on policy development from within NOAA, and consult on new and emerging issues either on the NMSP site level or from congressional inquiries. A well-organized and maintained electronic communication system would provide opportunity for the following:

- A. A system that flags new and emerging issues of interest and potential importance.
- B. An information source and record of position or policy from within NOAA.
- C. An information exchange forum (conference call/chat room) to share ideas and experiences.

**Activity 2.2** GFNMS will formalize a communication system and leverage opportunities with other natural resource management agencies to exchange ideas on new and emerging issues. Forums for information exchange include:

- A. California Coastal Zone Managers quarterly meetings.
- B. Annual Coastal Zone Managers meeting in Washington, D.C.
- C. Conferences and professional meetings.

**Potential Partners:** NMSP, CBNMS, MBNMS, CINMS, OCNMS, state and federal agencies

**Products:** Conference calls, chat room

**Complementary Strategies:** GFNMS FMP, Resource Protection, STRATEGY RP-1

**STRATEGY RP-3:** *As GFNMS' priorities shift, due to both availability of resources and priority of ecosystem protection issues, all current, new, and emerging issues need to be continually tracked and re-evaluated.*

**Activity 3.1** Due to the sheer number and range of resource management issues that surfaced during the Joint Management Plan Review (JMPR), only the highest priority issues can be addressed in the management plan. There are still many new and emerging issues that need to be tracked and addressed in some capacity over the next five years, including:

- A. Zonal Management  
Develop a resource protection plan (policy) to minimize user conflicts and provide special areas of protection for sensitive habitats, living resources, and other unique sanctuary features. Determine the value of using tools such as zoning (e.g., marine reserves, research reserves) to take a proactive approach and address specific resource management issues. This plan will be built in consideration of other management strategies, both temporary and permanent.
  
- B. Impacts from Sound  
GFNMS will take an active role in reviewing project proposals that have the potential to introduce harmful levels of sound into the sanctuary environment and will work with project proponents to mitigate impacts and protect sanctuary resources. Impacts on marine resources from noise are of increasing concern with over 6,000 container ships and bulk product carriers passing through the sanctuary on an annual basis; the use of seismic surveys for oil and gas exploration; identification of earthquake faults and activities; and the use of side scan sonar for research. Sound travels approximately five times faster in water than in air, with low frequency sounds traveling the farthest. Low frequency sounds (below 1,000 Hz) are generated by many human activities. Communication by many marine mammals and fish also falls within this range of frequency. Individually and cumulatively, the sound produced by these activities may have significant impacts on the living marine resources of the sanctuary. GFNMS would like to have a better understanding of the long-term and cumulative impacts on marine mammals, fishes and invertebrates.
  
- C. Marine Bioprospecting  
Marine bioprospecting is a new issue for GFNMS that has not been clearly defined, nor are the implications clearly understood. GFNMS needs to have a better understanding of the activities associated with, and potential impacts from, marine bioprospecting. The following questions need to be understood before GFNMS can develop a policy statement on marine bioprospecting in sanctuary waters:
  - 1. Does long term extraction threaten biological diversity on the genetic, taxonomic, or ecosystem level?

2. Can the target species be extracted on a sustainable basis, is it possible to determine a threshold?
  3. Who should have access to genetic resources?
  4. What is the best way to establish appropriate benefit sharing provisions for a public resource?
  5. Can a clear distinction be made between scientific research and commercial investigative activities?
- D. Aquaculture/Mariculture: Mariculture operations have been conducted in state-designated lease areas in Tomales Bay since sanctuary designation. These operations rear filter feeders and sessile species that extract ambient nutrients from the water column with no added chemical or feeds. GFNMS will take an active role in reviewing proposals and environmental assessments for expanded or new operations both within and adjacent to the sanctuary.
- E. Global Climate Change: GFNMS will seek to identify and address the effects global climate change will have on habitat, processes and wildlife, recognizing the region as an indicator for ecosystem health. The sanctuary will look toward managing ecosystems for resiliency, with a focus on increasing efforts to protect critical habitats that are identified as the most resilient and that face the greatest threat. GFNMS will work to foster awareness, promote action and advocate solutions to global climate change amongst government agencies, public organizations, private corporations and individuals in order to build ecosystem resilience and sustainability within the sanctuary. GFNMS will explore real global climate change solutions on a local, state and federal level through sustainable administrative facilities, partnerships, research collaborations, outreach and education and policy reform.

**Potential Partners:** NMSP, National Marine Fisheries Service (NMFS), Golden Gate National Recreation Area (GGNRA), sanctuary advisory council (SAC), CBNMS, MBNMS, CINMS, OCNMS, constituents

**Complementary Strategies:** GFNMS FMP, Resource Protection, STRATEGY RP-2

## **REGULATORY DEVELOPMENT**

One of the NMSA's purposes is to facilitate compatible use that is consistent with its primary purpose of ecosystem protection. To this end, each of the national marine sanctuaries has a discreet set of site-specific regulations or prohibitions (15 CFR § 922), and general policy under the NMSA (16 USC § 1431 et seq.).

**STRATEGY RP-4:** *GFNMS will develop a formalized program to consistently and continuously review and evaluate effectiveness of sanctuary regulations.*

**Activity 4.1** Evaluate the appropriateness and effectiveness of current sanctuary regulatory language (prohibitions) in addressing the priority ecosystem protection issues identified through the management plan review process.

- A. Interpret and develop site-specific regulations and amendments.
- B. Provide guidance and understanding of regulations in the NMSA.
- C. Ensure coordination and consistency with other natural resource management agencies regulations and permits.
- D. Track, review, and comment on environmental assessments and environmental impact statements (EIS).

**Potential Partners:** NMSP, General Council Ocean Service (GCOS), SAC, constituents

**Complementary Strategies:** GFNMS FMP, Resource Protection, STRATEGY RP-1, STRATEGY RP-2, STRATEGY RP-3, STRATEGY RP-5, STRATEGY RP-6

## PERMITTING

Generally, permit requests are for research or education purposes. The sanctuary evaluates these requests on a case-by-case basis in detail to determine if the activity is necessary to be conducted in the sanctuary and the extent of the activity's impacts on sanctuary resources or qualities.

**STRATEGY RP-5:** *Develop a formalized permit program as a mechanism to review requests to conduct prohibited activities within the sanctuary, and where possible permit these activities to be conducted in such a way to have negligible effects.*

**Activity 5.1** In order to understand, measure, and control prohibited activities within the sanctuary, and to minimize cumulative impacts from these activities, the permit program will continue to review projects by:

- A. Evaluating permit requests on a case-by-case basis.
- B. Developing permit requirements for applicants on procedures and operations to avoid or reduce impacts to sanctuary wildlife, habitats, or qualities.
- C. Tracking permitted activities to ensure compliance with permit conditions.
- D. Requiring applicants to provide the sanctuary with the data and findings gained through research conducted with research permits and submit findings on SIMoN.
- E. Ensure permits are issued in compliance with national policies, National Environmental Policy Act (NEPA), NMSA, Marine Mammal Protection Act (MMPA), and other environmental protection legislation.
- F. Review all proposed projects with respect to environmental consequences and the level of impact, individually or cumulatively, and make a determination if the

activity is excluded from the requirement to prepare an environmental assessment or environmental impact statement.

**Activity 5.2** Develop a national Web-based permit application and tracking program.

- A. Website will include a section for identified permitting agencies which applicants may consult. It is the applicants' responsibility to know the laws and be certain they have all of the required permits. The website will provide a venue to make it easier for the applicants to find the required permits.

**Activity 5.3** The Ecosystem Protection Coordinator will coordinate with other regulatory agencies issuing permits to ensure consistency with applicable laws.

- A. Coordinate with other regulatory agencies to ensure that other agency permits are consistent with the sanctuary's regulations. Inconsistencies may be rectified by incorporating or referencing the sanctuary's regulations.

**Activity 5.4** Conduct outreach about the sanctuary's permit process to help inform potential applicants and bring them into compliance with the sanctuary's permit process.

- A. Provide sufficient outreach to education and research institutions wishing to conduct prohibited activities within the sanctuary about the permit application process.
- B. Use the SAC as a link to educate the larger community on the sanctuary's permitting process.

**Potential Partners:** NMSP, GCOS, SAC

**Complementary Strategies:** GFNMS FMP, Resource Protection, STRATEGY RP-4, STRATEGY RP-6

## **PROTECTED RESOURCES ENFORCEMENT PLAN**

The objective of this program is to achieve ecosystem protection through compliance with sanctuary regulations and other applicable state and federal statutes. The mission of sanctuary enforcement is to ensure compliance with the NMSA (16 USC § 1431 et seq.) and applicable regulations of the sanctuary (15 CFR § 922). The approach to the enforcement program should be two-fold in nature: (1) the use of interpretive enforcement (such as public outreach) as a tool to inform and encourage voluntary compliance; and (2) the use of patrols and other traditional law enforcement methods to enforce regulations and investigate incidents or suspected prohibited activities. Together, these two programs should result in a regular and ongoing enforcement presence in sanctuary waters and compliance with sanctuary regulations.



**STRATEGY RP-6: *Strive to increase ecosystem protection through compliance with sanctuary regulations and other applicable state and federal statutes.***

**Activity 6.1** Ensure sufficient patrol presence in the sanctuary through the development of partnerships and interagency coordination.

- A. Develop enforcement priorities.
- B. Develop compliance priorities for permitted activities.
- C. Develop patrol schedules.
- D. Develop procedures for documenting violations, boarding procedures and other instructions specific to conduct of day-to-day enforcement.
- E. Develop partnerships with other federal, state and local enforcement agencies in order to provide a strong enforcement presence throughout the sanctuary.
- F. Facilitate communication among enforcement assets to ensure coordination.
- G. Promote training and, as appropriate, cross-deputize law enforcement agencies.
- H. Involve the United States Coast Guard (USCG) and the Civil Aeronautical Patrol (CAP) in presence and patrol in sanctuary waters.
- I. Train law enforcement personnel in interpretive enforcement.

**Activity 6.2** Use interpretive enforcement as a tool to inform and encourage voluntary compliance with sanctuary regulations. Interpretive enforcement may be used to affect behavior and change values as it is generally believed, that once informed, most individuals will choose to comply. Interpretive enforcement efforts will include:

- A. Train law enforcement entities to use interpretive enforcement.
- B. Integrate interpretive enforcement into coast-side signage throughout geographic range of sanctuary.
- C. Work with California Dept. of Motor Vehicles to include informational inserts in boat license renewal packets (to be coordinated with all California national marine sanctuaries).
- D. Give presentations to yacht clubs, the Coast Guard Auxiliary, and other appropriate groups.
- E. Provide follow-up letters to possible violators with “you may be in violation” notices that inform the boater about sanctuary regulations.

**Activity 6.3** Develop a volunteer-based interpretive enforcement program that will use education and outreach to affect behavior and values to achieve voluntary compliance with sanctuary regulations.

- A. Identify major user groups for targeted education and outreach efforts about sanctuary regulations.
- B. Conduct community outreach program to encourage compliance with sanctuary regulations and citizen involvement in reporting violations.
- C. Hold semiannual meetings and workshops to inform user groups and promote voluntary compliance and stewardship.
- D. Train volunteers in interpretive enforcement as a component of the Sanctuary Naturalist Corps.

**Activity 6.4** Develop enforcement tools to ensure effectiveness of the enforcement program.

- A. Provide assistance to General Counsel for Enforcement and Litigation (GCEL) on developing hierarchy of options for addressing minor violations including: warnings, fix-it tickets, and summary settlements/on the scene citations.
- B. Evaluate the effectiveness of technology for surveillance including satellite imagery, drones, wireless cameras and tracking systems.
- C. Provide technical assistance to GCEL on violation assessment.
- D. Comment on national penalty schedule.
- E. Coordinate with Office of Response and Restoration (ORR) on natural resource damage assessment. Secure and utilize reimbursable costs for response, National Resource Damage Assessment and Restoration (NRDA), and restoration funds.

**Potential Partners:** USCG, CAP, GCEL, GCOS, NOAA Enforcement, California Department of Fish and Game (CDFG)

**Complementary Strategies:** GFNMS FMP, Education and Outreach, STRATEGY ED-7; Resource Protection, STRATEGY RP-4, STRATEGY RP-5; Vessel Spills, STRATEGY VS-9

## **EMERGENCY RESPONSE**

Incidents within the sanctuary requiring an emergency response may have the potential to significantly impact sanctuary wildlife, habitat and cultural resources. Incident response may be to a recently occurring catastrophic event (e.g., plane crash or vessel grounding), or the delayed or persistent impacts from incidents that occurred years previously (e.g., dumpsites or historic shipwrecks).

**STRATEGY RP-7: *Review and revise the sanctuary's emergency response plan in order to be prepared to respond to an incident.***

**Activity 7.1** GFNMS will review and revise its emergency response plan, based on the Incident/Unified Command System (ICS) and the USCG's Area Contingency Plan (ACP), to respond to oil spills, hazardous material spills, grounded vessel or natural disasters. The response plan will also be reviewed, evaluated and updated on an annual basis. GFNMS' emergency response plan:

- A. Lays out emergency response notification (including all relevant agencies, user groups, and media) and preparation procedures.
- B. Identifies specific duties for sanctuary staff.
- C. Instructs all sanctuary staff to be trained on an ongoing basis with regular updates and refresher courses, and ready to respond in the case of an emergency. Staff training to include:
  - 1. Understanding ICS.
  - 2. Familiarization with the San Francisco Area Contingency Plan.
  - 3. Assigned emergency response duties.
  - 4. Taking part in emergency response drills.
  - 5. Developing resource damage assessment skills.

**Activity 7.2** Develop tools to ensure a coordinated and timely response to incidents.

- A. Establish a relationship and coordinate with ORR, Hazardous Materials Response Division (HAZMAT), NOAA's Regional Response Coordinator, and the NMSP.
- B. Identify resources at risk, potential high probability threats, available response and information assets, notification contracts, maps, coastal observation systems, and jurisdictional information. This information can be used in area contingency plans, area response plans, and Sanctuaries Hazardous Incident Emergency Logistics Database System (SHIELDS).
- C. Populate SHIELDS, a Web-based interface system that can be used on- and off-line to assist in incident response, facilitating the abilities of sanctuary staff to provide information to a unified command during an incident. Enhance SHIELDS to accept and provide near-real time data collected during response efforts.
- D. Participate in the Resources and Undersea Threats (RUST) database that catalogs submerged resources, threats, and hazards data.
- E. Develop contingency response fund for prompt removal or recovery of abandoned vessels.

**Activity 7.3** Assess levels of potential risk from activities in and adjacent to the sanctuary.

- A. Track distribution and numbers of sensitive species and habitats.
- B. Develop resources-at-risk model analysis for the sanctuary.
- C. Participate in regional response team to address risks to sanctuary resources.
- D. Based on risk assessment, develop outreach program targeting user groups.

**Potential Partners:** ORR, HAZMAT, NMSP

**Products:** SHIELDS, RUST

**Complementary Strategies:** GFNMS FMP, Resource Protection, STRATEGY RP-8; Vessel Spills, STRATEGY VS-2, STRATEGY VS-3, STRATEGY VS-4, STRATEGY VS-6, STRATEGY VS-7, STRATEGY VS-8, STRATEGY VS-9; CBNMS FMP, Administration, AD-7; MBNMS FMP, Introduced Species, STRATEGY IS-4, Operations and Administration, STRATEGY OA-4, Beach Closures, STRATEGY BC-9, Big Sur Coastal Ecosystem Plan, STRATEGY BCP-2

## **DAMAGE ASSESSMENT AND RESTORATION**

Section 312 of the NMSA authorizes NOAA to pursue civil actions to recover response costs and damages for incidents that injure, destroy, or cause the loss of sanctuary resources. Funds collected by NOAA under Section 312 are deposited in the Damage Assessment and Restoration Evolving Fund (DARRF). Section 312 requires that 20 percent of recovered damages, up to a maximum balance of \$750,000, be used to finance response actions and damage assessment. The remaining damages are to be spent, in priority order to: (1) restore, replace, or acquire the equivalent of the injured sanctuary resources; (2) manage and improve the affected sanctuary; and (3) manage and improve any other national marine sanctuary.

**STRATEGY RP-8:** *Formalize plan to respond to incidents that damage sanctuary ecosystems.*

**Activity 8.1** Coordinate with ORR to restore sanctuary wildlife and habitats.

- A. Work with other NOAA offices and agencies to assess natural resource damage and implement ecosystem restoration projects.
- B. Work with ORR on taking legal action as appropriate.
- C. Work with NOS scientists on developing a monitoring program to assess restoration effort effectiveness.

**Potential Partners:** ORR, United States Department of the Interior (DOI), CDFG-(Office of) Oil Spill Prevention and Response (OSPR), other resource trustee agencies

**Complementary Strategies:** GFNMS FMP, Resource Protection, STRATEGY RP-7; Vessel Spills, STRATEGY VS-6, STRATEGY VS-9

## **BOUNDARY MODIFICATIONS**

During the designation process for all national marine sanctuaries, a range of boundary options are proposed, and modified, before a final boundary is chosen. Sanctuaries are designed to protect areas of special significance. Areas of special significance may include unique natural resources and ecological qualities; biogeographic representation; threatened and/or endangered species; or important ecosystem structure features. In addition to protecting areas of special significance, boundaries alternatives take into consideration existing authorities; human-use activities; their impacts on the marine resources; and the added value of sanctuary designation in addressing these issues. These strategies provide the sanctuary with a framework to re-examine, evaluate, and, as appropriate, redefine a sanctuary's boundary based on new information. Areas to the north, south and west of the current GFNMS boundary will be considered.

### **STRATEGY RP-9: *Develop a framework for identifying and analyzing boundary alternatives.***

**Activity 9.1** Through an incremental process gather information, analyze data, and develop a recommendation on boundary options.

- A. Review and analyze the Biogeographic Assessment to make an initial determination if there are particular areas that require immediate attention.
- B. Identify additional data sets not provided by the Biogeographic Assessment that may be needed for further analysis. In particular, identify smaller scale features and refined spatial scales that were either not available, or not analyzed on a fine enough scale by the Biogeographic Assessment.
- C. Conduct a literature search (contract) to identify additional data sets (also see research recommendations).
- D. Identify sanctuary research needs (opportunistic and planned) to answer boundary questions. Data needs to be received by the sanctuary in a format that is usable for answering boundary questions.
- E. Assemble a working group with broad-based stakeholder representation and scientific expertise.
- F. Develop a framework for quantitative analysis and evaluation of data by working group.

- G. Working group should strive to come to consensus on building a recommendation(s) on boundary options.
- H. Working group to forward recommendation to sanctuary advisory council for its review and comments. Sanctuary advisory council then forwards its recommendations to the sanctuary Superintendent.

**Activity 9.2** Develop a framework to evaluate different boundary options. The following recommended criteria will be used:

A boundary change (based on this option) would:

- A. Provide additional comprehensive and coordinated conservation and management of this area.
- B. Ensure the maintenance of the area's natural ecosystem, including its contribution to biological productivity; maintenance of ecosystem structure; maintenance of ecologically or commercially important threatened or endangered species or species assemblages; maintenance of critical habitat of endangered species; and the biogeographic representation of the site.
- C. Increase protection, and where appropriate, restore natural habitats, populations, and ecological processes.
- D. Enhance public awareness, understanding, appreciation, participation, stewardship, and sustainable use of the marine environment, and the natural, historical, cultural, and archeological resources of the marine area.
- E. Enhance coordination of scientific research and long-term monitoring of the resources of the marine area.
- F. Facilitate to the extent compatible with the primary objective of resource protection, public and private uses of the resources of this marine area.

**Potential Partners:** SAC, NMSP, Special Projects Office (SPO), OE, Marine Conservation Biology Institute (MCBI), CBNMS, MBNMS, The National Centers for Coastal Ocean Science (NCCOS)

**Complementary Strategies:** GFNMS FMP, Conservation Science and Impacts from Fishing Activities, STRATEGY FA-1

## **COLLABORATIVE PLANNING AND MANAGEMENT**

Sanctuary program development and planning efforts provide an opportunity for public input in identifying and resolving ecosystem protection issues. These partnerships and public involvement are essential ingredients to successful resolutions and implementation of strategies.

**STRATEGY RP-10: *Continue to build partnerships and leverage opportunities for protecting sanctuary wildlife, habitats, qualities and cultural resources.***

**Activity 10.1** Coordinate development of collaborative processes.

- A. Identify appropriate partners for implementing the management plan.
- B. Coordinate with sanctuary advisory council on multi-stakeholder options for addressing ecosystem protection issues.
- C. Provide coordination, oversight and facilitation, as appropriate, to issue-specific committees addressing targeting issues.

**Activity 10.2** Coordinate with other agency management and restoration plans to enhance and protect the sanctuary.

- A. Coordinate with the National Park Service on the Giacomini Restoration Plan, Environmental Impact Statement and Environmental Impact Report
- B. Coordinate with the Farallon National Wildlife Refuge on the Coordinated Conservation Plan update.
- C. Take an active roll in reviewing project proposals, environmental impact statements and environmental impact reports as needed to protect and restore sanctuary biological and ecological processes.

**Potential Partners:** state and federal agencies, institutions, non-governmental organizations (NGOs)

**Complementary Strategies:** All strategies in Final management plan

## **RADIOACTIVE WASTE DUMP**

The area referred to as the "Farallon Islands Radioactive Waste Dump" (FIRWD) is where approximately 47,800 barrels of low-level radioactive waste were dumped between 1946 and 1970. Although the containers were to be dumped at three designated sites, they are actually strewn over an area of 540 square miles in depths ranging from 300 to more than 6,000 feet within GFNMS. Research results to date are inconclusive on the impacts on the marine ecosystem from radioactive leakage. Significant public fear and uncertainty about the contamination from leaking barrels continue, particularly since major commercial fishing, sport fishing and other recreational activities take place in the area in and above the dump site.

**STRATEGY RP-11: *Evaluate condition of, and actual impacts on sanctuary resources and qualities from the Farallon Islands radioactive waste dump.***

**Activity 11.1** Convene a group of agency scientists to evaluate status of radioactive waste dump and make recommendations on roles and responsibilities for addressing some of the issues associated with FIRWD.

**Resource Protection Action Plan**  
**GFNMS Management Plan**

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- A. Identify appropriate agency partners.
- B. Establish target date for the working group to come to conclusions and make recommendations on the status of the FIRWD.
- C. Inventory current research on the FIRWD and identify data gaps.
- D. Determine under whose mandate the issues/impacts will be addressed.

**Activity 11.2** Develop an outreach campaign to inform the public on the status and potential threats of the FIRWD.

- A. Establish stakeholder group to develop communication strategy. Clearly define the message to be communicated to the public about the status of the FIRWD, including actual or potential threats to the living marine resources and humans.
- B. Develop a communications plan to systematically educate the public and target audiences on a routine basis about the status of FIRWD.
- C. Develop a list of audiences, both targeted and general public, on which to focus outreach efforts.
- D. Update nautical charts to show known area with radioactive waste containers.
- E. Identify partners, such as other agencies or institutions, to help develop outreach materials and participate in outreach efforts.

**Potential Partners:** United States Geological Survey (USGS), Environmental Protection Agency (EPA), U.S. Navy, California Department of Transportation (CalTrans), California Department of Health, local non-governmental organizations (NGO's)/non-profits

**Products:** Communications plan, outreach materials, white paper

## **ECOSYSTEM RESTORATION**

In order to restore the natural biological and ecological processes of the sanctuary, it is critical to evaluate and address adverse impacts from human activities on sanctuary wildlife, habitats and qualities. Tomales Bay and Bolinas Lagoon are two places in the sanctuary have been identified as a priority for ecosystem restoration projects. Tomales Bay and Bolinas Lagoon have long been recognized as special places deserving a high level of protection by citizens and local, state and federal agencies. Both areas are significant biological communities that support a diversity of habitats, including eelgrass beds, intertidal sand and mud flats and salt and freshwater marshes. Thousands of species of birds, invertebrates and plants and numerous threatened and endangered species inhabit both of these estuarine ecosystems.



**STRATEGY RP-12:** *In cooperation and coordination with the other ten local, state and federal agencies, develop and implement a comprehensive plan to ensure the protection of water quality, wildlife, habitats and safety in Tomales Bay.*

**Activity 12.1** Develop vessel management guidelines to address moored vessels and moorings that may be impacting sensitive habitats. Ten local, state and federal agencies are collaborating on a plan for Tomales Bay that addresses vessel management, habitat, and water quality issues. GFNMS is taking a lead in proposing both programmatic and regulatory actions to address priority ecosystem protection issues that complement other agencies' actions, and is one of the agencies assisting in the development of a comprehensive plan for Tomales Bay.

- A. Control the number of moored vessels and/or moorings in Tomales Bay.
- B. Identify sensitive areas to be considered as no-mooring zones.
- C. Coordinate between agencies on developing an education program about impacts from moorings and vessel activities in Tomales Bay.

**Activity 12.2** Develop sewage waste disposal and facility guidelines for public and private boating facilities.

- A. Coordinate with existing public and private boating facility operators to develop sewage waste facilities. Agency coordination will include streamlining of permits and providing public funding for construction of sewage waste facilities.
- B. Require new facilities, or facilities with expansion plans, to provide sewage waste management facilities.
- C. Take regulatory action or develop voluntary guidelines to ensure that vessels that are occupied and moored within the Sanctuary have the capacity to manage on-board sewage waste during the extent of their day.
- D. Coordinate with other agencies on developing a targeted outreach program to educate boaters on proper management of sewage waste.
- E. Work with the San Francisco Bay Regional Water Quality Control Board on developing regional standards for sewage disposal facilities for Tomales Bay.

**Activity 12.3** Develop an enforcement plan to address derelict and abandoned vessels and moorings in Tomales Bay.

- A. Develop a plan for removal of derelict and abandoned vessels.
- B. Develop a plan for removal of moorings that are in violation of regulations and/or pose a threat to water quality, marine wildlife and natural benthic habitat, and/or safety of Tomales Bay.

- C. Take regulatory action or programmatic action to prevent placement of unapproved moorings.

**Activity 12.4** Address impacts to sensitive habitats from construction, modifications and additions to docks and piers in Tomales Bay.

- A. Take regulatory action to protect sensitive nearshore and estuarine habitats by preventing further expansion of docks and piers in Tomales Bay

**Potential Partners:** California State Lands Commission (CSLC), California Coastal Commission (CCC), Point Reyes National Seashore (PRNS), Golden Gate National Recreational Area (GGNRA), California State Parks (SP), San Francisco Bay Regional Water Quality Control Board (SFRWQCB), California Department of Boating and Waterways (CDBW), County of Marin, California Department of Public Health (CDPH), and California Department of Fish and Game (DFG).

**Complementary Strategies:** GFNMS FMP, Resource Protection, STRATEGY RP-4, RP-6, RP-10, Water Quality, WQ-1, WQ-2, WQ-3, WQ-6, WQ-9, Wildlife Disturbance, WD-4, Ecosystem Protection, EP-1, EP-3

**STRATEGY RP-13:** *Working in collaboration with federal, state and local agencies, and the local community, restore the natural ecological processes of Bolinas Lagoon.*

**Activity 13.1** Collaborate in the development and implementation of a comprehensive plan to examine actions that would reduce, and possibly reverse, sediment accumulation and habitat shifts caused by human impacts.

- A. Participate as a member of the Bolinas Lagoon Technical Advisory Committee.
- B. Establish a Bolinas Lagoon Working Group to develop a preferred approach to lagoon restoration.
- C. Develop and implement a marine debris removal plan.
- D. Work with partners to develop a joint restoration feasibility report and an Environmental Impact Statement.

**Potential Partners:** United States Army Corps of Engineers, County of Marin, Marin Open Space District, Bolinas Lagoon Technical Advisory Committee

**Complementary Strategies:** STRATEGY RP-4, RP-6, RP-10,

## **ISSUE SPECIFIC RESOURCE PROTECTION STRATEGIES**

*Note: These strategies are cross-referenced from the issue-based action plans to show the entire suite of resource protection strategies to be implemented by resource protection sanctuary staff.*

## WATER QUALITY STRATEGIES

**STRATEGY WQ-1:** *Develop an umbrella program to coordinate partnerships in implementing a comprehensive and integrated water quality monitoring program in order to track impacts on the estuarine and nearshore environment.*

*For the full strategy text, please see page 54.*

**STRATEGY WQ-2:** *Address sources of anthropogenic pathogens and pollutants from recreational and commercial boating activities and marinas.*

*For the full strategy text, please see page 55.*

**STRATEGY WQ-3:** *Coordinate with other agencies to address land-based discharges into the estuarine and nearshore areas of the sanctuary including Areas of Special Biological Significance and Critical Coastal Areas.*

*For the full strategy text, please see page 56.*

**STRATEGY WQ-4:** *Evaluate Areas of Special Biological Significance and make a determination whether to implement a no vessel discharge prohibition within these areas of concern.*

*For the full strategy text, please see page 58.*

**STRATEGY WQ-5:** *Ensure the continuation of the long-term data collection efforts under the Mussel Watch program.*

*For the full strategy text, please see page 59.*

**STRATEGY WQ-6:** *Develop a standing water quality working group supported by sanctuary staff.*

*For the full strategy text, please see page 59.*

**STRATEGY WQ-9:** *Educate local decision makers on land-based water quality impacts in the sanctuary.*

*For the full strategy text, please see page 61.*

## WILDLIFE DISTURBANCE STRATEGIES

**STRATEGY WD-4:** *Through interpretive enforcement and law enforcement efforts, address human behavior that may adversely impact wildlife.*

*For the full strategy text, please see page 77.*

**STRATEGY WD-7:** *Coordinate the Seabird Colony Protection Program by reducing and eliminating human disturbances at seabird breeding and roosting sites from Point Reyes to Point Sur.*

*For the full strategy text, please see page 85.*

## **INTRODUCED SPECIES STRATEGIES**

**STRATEGY IS-6:** *Develop partnerships with other agencies and organizations that are involved in issues related to introduced species to advise the sanctuary.*

*For the full strategy text, please see page 97.*

**STRATEGY IS-7:** *Have in place a rapid response plan and streamlined permit process in order to respond in a timely manner to necessary eradication or control efforts in the sanctuary.*

*For the full strategy text, please see page 98.*

**STRATEGY IS-8:** *Take regulatory action to control new introductions of introduced species.*

*For the full strategy text, please see page 99.*

## **IMPACTS FROM FISHING ACTIVITIES STRATEGIES**

**STRATEGY FA-2:** *Develop a socioeconomic profile of fishing activities and communities in and adjacent to the sanctuary.*

*For the full strategy text, please see page 109.*

**STRATEGY FA-3:** *Evaluate impacts from fishing activities on sanctuary resources.*

*For the full strategy text, please see page 109.*

**STRATEGY FA-4:** *Develop policy recommendations or management action(s) to address impacts from fishing activities on sanctuary resources.*

*For the full strategy text, please see page 110.*

**STRATEGY FA-6:** *Establish consistent and coordinated region-wide sanctuary representation at the Pacific Fisheries Management Council and Fish and Game Commission meetings.*

*For the full strategy text, please see page 112.*

**STRATEGY FA-7:** *Work with Cordell Bank and Monterey Bay national marine sanctuaries to address impacts on marine ecosystems in and around sanctuary waters from krill harvesting.*

*For the full strategy text, please see page 112.*

## **ECOSYSTEM PROTECTION STRATEGIES**

**STRATEGY EP-1:** *Develop a resource protection plan (policy) to minimize user conflicts and provide special areas of protection for sensitive habitats, living resources, and other unique sanctuary features.*

*For the full strategy text, please see page 113.*

**STRATEGY EP-2:** *Create a standing “Living Resource and Habitat Protection” working group to advise the sanctuary on ecosystem protection issues.*

*For the full strategy text, please see page 114.*

**STRATEGY EP-3: *Develop strategy to protect habitats that are known to be “special areas of concern.”***

*For the full strategy text, please see page 114.*

## **VESSEL SPILLS STRATEGIES**

**STRATEGY VS-1: *Expand Monterey Bay National Marine Sanctuary (MBNMS) drift analysis model to include Point Arena and Mendocino.***

*For the full strategy text, please see page 129.*

**STRATEGY VS-2: *Improve data used in existing spill and drift model to increase accuracy of risk assessments.***

*For the full strategy text, please see page 129.*

**STRATEGY VS-3: *Evaluate vessel activities in the GFNMS as a first step to assessing the risk of spills in the sanctuary.***

*For the full strategy text, please see page 130.*

**STRATEGY VS-4: *Evaluate recent vessel routing changes related to the MBNMS vessel traffic study.***

*For the full strategy text, please see page 132.*

**STRATEGY VS-5: *Track distribution and numbers of species of concern and habitats in relation to probable spill trajectories.***

*For the full strategy text, please see page 132.*

**STRATEGY VS-6: *Participate on regional response team to address risks to sanctuary resources.***

*For the full strategy text, please see page 133*

**STRATEGY VS-7: *Revise GFNMS in-house emergency response plan.***

*For the full strategy text, please see page 134.*

**STRATEGY VS-8: *Continue to improve integration of GFNMS Beach Watch and Ecosystem Dynamic Study (EDS) data into Area Contingency Plan.***

*For the full strategy text, please see page 134.*

**STRATEGY VS-10: *Increase regular communication between GFNMS and maritime trade industry.***

*For the full strategy text, please see page 135.*

**STRATEGY VS-11: *Select a sanctuary representative to participate in regional forums for addressing vessel traffic issues.***

*For the full strategy text, please see page 136.*

**STRATEGY VS-12: *Create a standing vessel spills working group to advise the sanctuary on implementation of proposed action plans.***

*For the full strategy text, please see page 136.*



GFNMS RESOURCE PROTECTION

## Timeline

Resource Protection Strategy	Year 1	Year 2	Year 3	Year 4	Year 5
STRATEGY RP-1: Establish a framework for identifying, tracking and addressing emerging issues.		.....	.....	—————	—————▶
STRATEGY RP-2: Develop coordinated communication system among all national marine sanctuaries and natural resource management agencies.			.....	—————	—————▶
STRATEGY RP-3: New and emerging issues need to be continually re-evaluated.	—————	—————	—————	—————	—————▶
STRATEGY RP-4: Evaluate the appropriateness and effectiveness of current sanctuary regulatory language (prohibitions).	—————	—————	◆		
STRATEGY RP-5: Develop a formalized permit program.	.....	.....	.....	—————	—————▶
STRATEGY RP-6: Achieve ecosystem protection through compliance with sanctuary regulations and other applicable state and federal statutes.	—————	—————	—————	—————	—————▶
STRATEGY RP-7: Review and revise the sanctuary’s emergency response plan.	—————	—————	—————	—————	—————▶
STRATEGY RP-8: Formalize plan to respond to incidents that damage sanctuary ecosystems.	.....	.....	.....	—————	—————▶
STRATEGY RP-9: Develop a framework for identifying and analyzing boundary options.				—————	—————▶
STRATEGY RP-10: Continue to culture partnerships and leverage opportunities for protecting sanctuary wildlife, habitats, qualities and cultural resources.	—————	—————	—————	—————	—————▶
STRATEGY RP-11: Evaluate condition of, and actual impacts from the radioactive waste dump.	.....	.....	.....	—————	—————▶◆
STRATEGY RP-12: Develop and implement a comprehensive plan to ensure the protection of water quality, wildlife, habitats and safety in Tomales Bay.	.....	.....	.....	—————	—————▶
STRATEGY RP-13: Develop and implement a comprehensive plan to restore the natural ecological processes of Bolinas Lagoon.	.....	.....	.....	—————	—————▶

**Legend:**

- ▶    **Ongoing Activity**
- .....▶    **Planning Stage**
- ◆    **Completed Activity**

GFNMS RESOURCE PROTECTION

**Budget**

Strategy	Estimated Annual Cost (1000's)*					Total Est. 5-Year Cost (1000's)
	YR 1	YR 2	YR 3	YR 4	YR 5	
<b>STRATEGY RP-1: Establish a framework for identifying, tracking, and addressing emerging issues on a timely basis</b>	\$10	\$10	\$10	\$10	\$10	\$50
<b>STRATEGY RP-2: Develop a coordinated communication system among all national marine sanctuaries and natural resource management agencies</b>	\$12	\$12	\$12	\$12	\$12	\$60
<b>STRATEGY RP-3: New and emerging issues need to be continually tracked and re-evaluated</b>	\$14	\$6	\$6	\$6	\$6	\$38
<b>STRATEGY RP-4: Evaluate the appropriateness effectiveness of current sanctuary regulatory language (prohibitions).</b>	\$5	\$5	\$5	\$5	\$5	\$25
<b>STRATEGY RP-5: Develop a formalized permit program</b>	\$23	\$23	\$23	\$23	\$23	\$115
<b>STRATEGY RP-6: Achieve ecosystem protection through compliance with sanctuary regulations and other applicable state and federal statutes</b>	\$57	\$57	\$57	\$57	\$57	\$285
<b>STRATEGY RP-7: Review and revise the sanctuary's emergency response plan</b>	\$17	\$7	\$7	\$7	\$7	\$45
<b>STRATEGY RP-8: Formalize plan to respond to incidents that damage sanctuary ecosystems</b>	\$16	\$6	\$6	\$6	\$6	\$40
<b>STRATEGY RP-9: Develop a framework for identifying and analyzing boundary alternatives</b>	\$0	\$0	\$10	\$5	\$5	\$20
<b>STRATEGY RP-10: Continue to culture partnerships and</b>	\$47	\$47	\$47	\$47	\$47	\$235



*Resource Protection Action Plan  
GFNMS Management Plan*

Strategy	Estimated Annual Cost (1000's)*					Total Est. 5-Year Cost (1000's)
	YR 1	YR 2	YR 3	YR 4	YR 5	
<b>leverage opportunities for protecting the sanctuary</b>						
<b>STRATEGY RP-11: Evaluate condition of, and actual impacts from the radioactive waste dump</b>	\$5	\$5	\$24	\$24	\$24	\$82
<b>STRATEGY RP-12: Develop a comprehensive plan to ensure the protection of water quality, wildlife, habitats and safety in Tomales Bay</b>	\$52	\$30	\$150	\$30	\$30	\$292
<b>STRATEGY RP-13: Develop a comprehensive plan to ensure the restoration of Bolinas Lagoon</b>	\$100	\$2,500	\$100	\$100	\$100	\$2,810
<b>Total Estimated Annual Cost</b>	\$268	\$2,708	\$457	\$332	\$332	\$4,097

The sanctuary's base budget is available each year from appropriated funds.

There is both availability of and opportunity to receive additional funding from appropriated funds.

The estimates do not take into account increasing personnel costs each year or inflation.

The estimates do not take into account unexpected events or emergencies or unforeseen projects.

**Resource Protection Action Plan  
GFNMS Management Plan**

GFNMS RESOURCE PROTECTION

**Performance Measures**

Strategy Title(s)	Performance Goal	Desired Outcome (Objective)	Outcome Measure	How Measured	Who Measures	Output Measure
STRATEGY RP-1: Establish framework for identifying, tracking and addressing emerging issues.	Maintain the natural biological and ecological processes in the GFNMS by evaluating and addressing adverse impacts from human activities on sanctuary resources and qualities.	Continue to build on partnerships; collaborative efforts; and coordination with other agencies, institutions and organizations to take a comprehensive and effective ecosystem protection approach.	Increase ability to take a proactive, rather than reactive approach to addressing issues, thus averting significant impacts on sanctuary resources.	1) Develop system to track and flag the most relevant new and emerging issues. 2) Take measures to evaluate, and address as appropriate, new and emerging issues that were identified through the JMPR process. 3) Establish communications system with other agencies and NMSs.	Sanctuary Superintendent, Ecosystem Protection Coordinator	Electronic Web-based tracking system
STRATEGY RP-7: Review and revise the sanctuary's emergency response plan, and be prepared to respond to an incident.	Maintain the natural biological and ecological processes in the GFNMS by evaluating and addressing adverse impacts from human activities on sanctuary resources and qualities.	Continue to build on partnerships; collaborative efforts; and coordination with other agencies, institutions and organizations to take a comprehensive and effective ecosystem protection approach.	Increase the sanctuary's ability to respond in a coordinated and timely manner to catastrophic events, and respond to delayed or persistent impacts to sanctuary resources from previous events.	Conduct regular emergency response drills to evaluate: 1) Emergency response notification system 2) Staff preparedness 3) Effectiveness of SHIELDS and RUST system tools 4) Effectiveness of Area Contingency Plan	Sanctuary Superintendent, Ecosystem Protection Coordinator, staff	1) Emergency response plan 2) SHIELDS 3) RUST
STRATEGY RP-8: Formalize framework for responding to damage to sanctuary resources and qualities from incidents.	Maintain the natural biological and ecological processes in the GFNMS by evaluating and addressing adverse impacts from human activities on sanctuary resources and qualities.	Build a comprehensive and coordinated Resource Protection plan to ensure protection for the resources and qualities of GFNMS.	Increase ability to assess natural resource damage and restore affected habitats and/or living resources.	Implement ecosystem restoration projects and monitor to assess restoration effort effectiveness.	Ecosystem Protection Coordinator, Research Coordinator	



PROGRAM AREA  
ADMINISTRATION  
**ACTION PLAN**

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## **PROGRAM STATEMENT**

In order for Gulf of the Farallones National Marine Sanctuary (GFNMS) to build a management plan that is effective in addressing the priority site-specific and cross-cutting resource management issues, as identified through the management plan review process, GFNMS will need to strengthen its infrastructure by adding staff and financial resources to its base budget. In addition to basic infrastructure needs, some administrative areas that will be addressed include: building partnerships; improving interagency coordination; and addressing regulatory and enforcement issues.

## **PROGRAM DESCRIPTION**

Since 1990, GFNMS has grown from a staff of three with a budget of under \$300,000, to a staff of fourteen and budget of \$1.5 million in 2008. Until 1998, GFNMS' office managed the GFNMS, Cordell Bank National Marine Sanctuary (CBNMS), and the northern portion of Monterey Bay National Marine Sanctuary (MBNMS).

The National Marine Sanctuary Program (NMSP) provides oversight and coordination among the thirteen national marine sanctuaries by developing a framework for resource management, and directing national program and policy development. The sanctuary superintendent oversees site-specific management functions including implementation of the management plan. The management plan makes use of two complementary and strategic tools for ecosystem management: (1) programs, or action plans, carried out through Conservation Science, Education, and Marine Resource Protection programs, and (2) regulations, for controlling or restricting human behavior that is not compatible with cultural resources and ecosystem protection. The sanctuary superintendent establishes who is responsible for implementing specific programs, provides an administrative framework to ensure that all cultural resources and ecosystem protection activities are coordinated, and provides and manages an appropriate infrastructure to meet the goals and objectives of the management plan. The sanctuary superintendent reports directly to the NMSP. In this capacity, the sanctuary superintendent represents the NMSP and is the primary spokesperson for GFNMS.

The NMSP and GFNMS are committed to coordinating with other federal, state, and local agencies in a continuous ecosystem management process. This process is designed to ensure the long-term protection of the unique cultural resources, habitats and wildlife of this region, while considering the demands of multi-use interests. Because of the complexity of managing the activities and protecting cultural resources, habitats and wildlife in the sanctuary, cooperative

efforts are necessary to effectively meet sanctuary goals. Overlapping jurisdictions, different agency mandates and limited resources necessitate the development of a management plan that brings together multiple institutions for the common purpose of ecosystem protection. Achieving the long- and short-term goals for this region requires the development of close and continuing partnerships.

## **ADMINISTRATIVE STRUCTURE**

All thirteen national marine sanctuaries are managed by the NMSP. The NMSP takes responsibility for ensuring that the management plan prepared for each sanctuary is coordinated and consistent with the National Marine Sanctuaries Act (NMSA). On an annual basis, the NMSP reviews and adjusts funding priorities and requirements to reflect ecosystem protection needs at each of the national marine sanctuaries. The NMSP and the site superintendent coordinate efforts to protect and manage sanctuary cultural resources habitats, and wildlife with other federal, state, regional and local agencies.

### **Sanctuary Superintendent**

The GFNMS superintendent recommends to the NMSP priorities for annual allocation of funds for site-specific resource and ecosystem protection needs. The superintendent reports to the NMSP on surveillance and enforcement activities, violations and emergencies, and program activities. The superintendent coordinates with the NMSP on evaluating, processing and issuing of permits; monitors and evaluates Conservation Science, Education, and Resource Protection programs; oversees staffing needs and requirements; coordinates on-site efforts of all parties involved in sanctuary activities including state, federal, regional and local agencies. Finally, the superintendent evaluates overall progress toward the resource and ecosystem protection objectives of the NMSP and prepares regular reports highlighting progress made in realizing these goals.

### **Sanctuary Staff**

Under the direction of the superintendent, the sanctuary staff is directly responsible for implementation of the management plan. Although each staff member is assigned to one of the program areas, collectively the staff is responsible for coordinating their efforts in addressing resource and ecosystem protection issues.

### **Sanctuary Advisory Council**

The sanctuary advisory council (SAC) has been structured in accordance with the NMSP guidelines and procedures. The sanctuary advisory council, with its expertise and broad based representation, offers advice to the sanctuary superintendent on resource and ecosystem protection management issues and decisions. Gulf of the Farallones National Marine Sanctuary Advisory Council representation includes eleven agency and stakeholder representatives and nine alternates. The council is representative of a broad based constituency to ensure that the superintendent has a diverse information base upon which to make management decisions.

## **IMPLEMENTATION OF THE MANAGEMENT PLAN**

Each of GFNMS' program areas (Education and Outreach, Conservation Science, and Resource Protection) has outlined action plans for implementing management plan strategies. These action plans are designed to directly address resource and ecosystem protection issues and guide management of GFNMS over the next five years.

Action plans are purposely designed with only preliminary implementation guidelines as their parameters may change in the future. The action plans presented in the management plan address current resource and ecosystem protection issues identified as priorities by the sanctuary during the management plan review process. The implementation of these action plans is highly dependent on available staffing and financial resource allocation.

Implementation of the new management plan will require: coordination within and between action plans; sharing of staff and financial resources between program areas; and cooperation and coordination among many federal, state and local government agencies, as well as private organizations and individuals.

GFNMS' administration provides an organized structure and support system for implementing management strategies while providing the flexibility and guidance necessary to address changing, new, and emerging resource management issues.

### **Implementation Costs**

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

In addition to calculating operating costs, GFNMS will perform an estimated cost analysis for carrying out each of the program areas. This analysis is necessary in order to secure appropriate and adequate funding for implementation of the management plan over the next five years.

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

## **OTHER MANAGEMENT TOOLS**

With limited staff and financial resources, partnerships are an integral part of successful resource and ecosystem protection of GFNMS. The Gulf of the Farallones sanctuary superintendent may draw from a selection of standard management tools to formalize relationships with other federal, state and local agencies or the private sector

### **Memorandum of Understanding (MOU) / Memorandum of Agreement (MOA)**

MOUs and MOAs establish a formal relationship between two or more entities for general purposes, or for a specific purpose or project, that is expected to continue for an extended period

of time. This mechanism cannot be used to transfer funds, but generally addresses commitment of resources.

### **Letter of Agreement/Letter of Understanding**

Letters of Agreement and/or Understanding are informal mechanisms used to establish a relationship between two or more entities, for a specific project or purpose, for a short period of time. This mechanism cannot be used to transfer funds.

### **Interagency Agreement**

An interagency agreement is used when one agency has expertise, equipment, and/or personnel to perform work more efficiently than another, and it is in the government's interest to do so. Generally, funds are transferred to the agency carrying out the work.

### **Cooperative Agreement**

Cooperative agreements provide funding to a non-federal entity for a project/product that benefits the public. Cooperative agreements are the primary mechanism used for financial assistance. The National Oceanic and Atmospheric Administration (NOAA) must serve as the program officer on the cooperative agreement with financial oversight maintained by the Grants Management Division.

### **Grants**

Grants provide funding to a non-federal entity for a project/product that benefits the public and in which NOAA does not need/want to have substantial involvement. A grant is considered one of the major kinds of financial assistance and must be awarded competitively or include a sole source justification. NOAA must serve as the program officer with financial oversight maintained by the Grants Management Division.

### **Contract**

A contract is a mechanism used by the federal government to procure goods and services. A contract must be awarded competitively or include a sole source justification. The program office has administrative oversight. During the term of the contract, financial oversight is maintained by the Finance Services Division.

## **JURISDICTIONAL SETTING**

### **FEDERAL AGENCIES**

#### **United States Coast Guard (USCG)**

The USCG holds broad responsibility for enforcing all federal laws throughout the sanctuary and assists NOAA in the enforcement of sanctuary regulations. USCG provides on-scene coordination with regional response center facilities under the National Contingency Plan for removal of oil and hazardous substances in the event of a spill that threatens sanctuary resource.

### **National Marine Fisheries Service (NMFS)**

The NMFS has responsibility under the Magnuson-Stevens Fishery Conservation Act (MSFCMA), for approving, implementing and enforcing fishery management plans (FMPs) prepared by regional fishery management councils to ensure protection of fishery resources in the Exclusive Economic Zone. NMFS also shares responsibility with the United States Fish and Wildlife Service (USFWS) for the implementation of the Marine Mammal Protection Act (MMPA) and the Endangered Species Act (ESA) to prevent taking of any endangered, threatened or otherwise depleted species.

### **Environmental Protection Agency (EPA)**

The EPA has regulatory responsibilities with regard to sewage outfalls (under the U. S. Clean Water Act [CWA]) via National Pollutant Discharge Elimination System (NPDES) Permits, and ocean dumping (under Title I of the Marine Protection, Research, and Sanctuaries Act) to protect water quality.

### **Farallon National Wildlife Refuge (FWS)**

The USFWS has responsibility for managing the Farallon National Wildlife Refuge. The refuge includes North, Middle, and Southeast Farallon Islands; Maintop Island; and Noonday Rock. The refuge is operated primarily as a migratory bird refuge to protect murre, auklets, guillemots, puffins, and other birds, and secondarily, to protect seal, sea lion, and other marine mammal assemblages.

### **Golden Gate National Recreation Area (GGNRA)**

The National Park Service (NPS) along with the California Department of Parks and Recreation (CDPR) are responsible for the management of the GGNRA. The GGNRA manages approximately 35,000 of the 79,626 acres within the GGNRA boundary, which includes lands in San Francisco, Marin, and San Mateo counties. Non-federal lands within the GGNRA boundary are managed by other public agencies such as the City and County of San Francisco, California Department of Parks and Recreation, and San Mateo County.

### **Point Reyes National Seashore (PRNS)**

The NPS is responsible for the management of the PRNS. PRNS includes the entire Point Reyes peninsula, with the exception of Inverness, Bolinas and Tomales Bay State Park. In addition, certain tide and submerged lands have been legislatively conveyed by the state to PRNS.

## **STATE AGENCIES**

### **California Coastal Commission**

The California Coastal Commission (CCC) was established under the California Coastal Act, which gives authority to the commission to establish policy for activities in state waters. In addition, seaward of state jurisdiction, federal development and activities directly affecting the

coastal zone must be conducted in a manner consistent with these policies to the maximum extent practicable.

### **California State Lands Commission (SLC)**

The California State Lands Commission (SLC) administers land including the beds of all waterways of the state below ordinary high water mark as well as tidelands (located between the mean high and low tide lines) and submerged lands (located below the mean low tide line and extending 3 nautical miles seaward). These sovereign state lands are held by the state “in trust” for the benefit of the public.

### **California Department of Fish and Game (CDFG)**

The CDFG regulates commercial fishing, including the taking of tidal invertebrates for commercial purposes, under a licensing system. CDFG also regulates sport fishing through license and bag limit systems. A sport fishing license is required for the taking and possession of fish for any non-commercial purpose. CDFG also leases state water bottoms for the purpose of mariculture.

## **ADMINISTRATION GOAL**

1. Build a comprehensive and coordinated administrative plan to provide support for the site in achieving the goals of the management plan, and increase protection for the resources, ecosystem and qualities of GFNMS.

## **ADMINISTRATION OBJECTIVES**

1. Develop an administrative framework to continuously evaluate, maintain, and expand, as necessary, programmatic and administrative operations.
2. Identify appropriate staffing, budget levels, and facility needs to support implementation of the management plan.
3. Continue to build on partnerships, collaborative efforts, and coordination with other agencies, institutions and organizations.

## **ADMINISTRATION ACTION PLAN**

### **OPERATIONS**

The GFNMS headquarters office and visitor center is located at Crissy Field in the Presidio of San Francisco, California. A satellite office is located in Half Moon Bay, California. In addition to these facilities, the sanctuary currently has within its possession various platforms to support an array of research and education program functions. In the future, other satellite offices and visitor centers will be located throughout the region to better serve the San Francisco Bay Area's 8 million population, and its visitors.



**STRATEGY AD-1: *New sanctuary facilities will be developed through various partnerships with both the public and private sector.***

**Activity 1.1** Build a world class icon for marine stewardship in San Francisco.

- A. Develop a long-range Facilities Master Plan to guide development of an iconic site for marine stewardship.
- B. Adopt the recommendations of the Golden Gate National Recreation Area's Fort Point Station Cultural Landscape Report.
- C. Rehabilitate the current main office space to accommodate additional staffing needs and allow for future growth.
- D. Sustainably design the facilities to follow LEED standards.
- E. Showcase sanctuary marine life and cultural heritage.
- F. Serve as a destination for greater ocean literacy.

**Activity 1.2** Continue to maintain the Crissy Field and Pacifica visitors centers.

**Activity 1.3** Increase the sanctuary staff's ability to access the marine waters of the sanctuary by expanding vessel capabilities and contracting more vessel time to support research and monitoring efforts. Currently, the sanctuary's research vessel *a regional asset called the FULMAR*, serves as a day-use platform supporting the three Central and Northern California sanctuary programs and partners.

**Activity 1.4** Complete priorities and implement a facilities plan for visitors centers and outreach venues. GFNMS has identified a number of outreach opportunities that cover the sanctuary's interpretive needs from both geographical and thematic points of view. The proposed plan covers a geographic area from San Mateo to Sonoma County, and includes shared signage with MBNMS and CBNMS. Outreach and interpretive exhibit venues being considered include:

- A. Bear Valley Visitors Center at Point Reyes National Seashore (PRNS) headquarters has offered space to GFNMS and CBNMS for its exhibit needs. The visitors center has 450,000 visitors per year from school children to local and recreational users.
- B. The PRNS lighthouse visitor center has space for a display about the national marine sanctuaries. GFNMS will partner with CBNMS to design an exhibit highlighting the natural history of the two sanctuaries.
- C. Bodega Marine Laboratory (BML) is the marine research arm of UC Davis (UCD), and the center of marine research on the north coast. GFNMS, in partnership with CBNMS, is proposing to update and expand its partnership with BML, including enhancing interpretive panels at the lab.

***Administration Action Plan***  
***GFNMS Management Plan***

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- D. Fort Ross State Park celebrates the Russian presence in northern California in the 19th century during the heyday of the Russian-American Company. It also tells the story of local Native American tribes who fished and hunted in the area. GFNMS and CBNMS are proposing to develop wayside signage themed on wildlife watching, including tide pool etiquette and marine mammal viewing.
- E. Bodega Head State Park is the best vantage for getting a perspective on GFNMS and CBNMS. This is a popular whale and sunset watching location. GFNMS and CBNMS propose to build a permanent whale watching station designed after one under construction at Beach 6, along the Olympic coastline.
- F. Maintain the three-paneled kiosk at Duxbury Reef that provide an interpretation of the intertidal habitats, intertidal etiquette and a description of the GFNMS.
- G. GFNMS will partner with PRNS to rehabilitate existing structures and dock at Sacramento Landing in Tomales Bay for visitor use, support research efforts and provide emergency services by maintaining a vessel at the dock.
- H. GFNMS will develop an exhibit in the Northern California Coast exhibit wing at the California Academy of Sciences (CAS). GFNMS has a rare opportunity to become the focal point of the “new” academy and install a permanent exhibit.
- I. GFNMS will build a premier ocean learning and experiential visitor center at its headquarters location. The visitor center will feature hands-on, interactive exhibits on the marine environment, maritime history features, and exhibits for the NMSP. It will also have a theater for films, lectures, telepresence and seminars, as well as classrooms, library, office space, and improved storage.
- J. GFNMS has received funding for a maritime exhibit at the Aquarium of the Bay. This exhibit will include an interactive kiosk for local weather and an indoor interactive screen linking to NOAA websites highlighting programs in San Francisco Bay and beyond.
- K. GFNMS and MBNMS will install interpretive displays in the Pigeon Point Lighthouse. These displays will highlight the maritime heritage of the area, including shipwrecks and lighthouse keepers. There will also be a panel on watchable wildlife.
- L. GFNMS will work with CBNMS to develop an exhibit and information kiosk for the Oakland Museum. The exhibit will feature CBNMS but will include information about GFNMS.
- M. GFNMS will develop interpretive signs at forty-seven possible locations throughout central and northern California. Much of the signage will be developed in coordination with Cordell Bank and/or Monterey Bay national marine sanctuaries.

**Activity 1.5** Improve, upgrade, maintain, and evolve the information technology infrastructure of the main office and satellite facilities. Continue to innovate technology through dedicated base funds, stable support staff, and strategic partnerships with Silicon Valley and other Bay area information technology leaders. The San Francisco Bay area is recognized as one of the most technologically advanced regions in the world. The GFNMS should tap into these local resources and creative thinking to evolve more efficient, creative, and engaging methods of protecting our marine resources.

**Activity 1.6** Partner with local research and academic institutions to develop facilities and infrastructure to support research and monitoring in the GFNMS.

- A. Partner with USFWS to upgrade the Southeast Farallon Island facility and add a field laboratory to support monitoring and research efforts on the Farallon Islands.
- B. Partner with Bodega Marine Laboratory to provide office and laboratory space to support sanctuary conservation science programs.
- C. Expand the Surface Current Mapping (CODAR) technology to the sanctuary.

## **STAFFING**

Under the direction of the sanctuary superintendent, the sanctuary staff is directly responsible for implementation of the management plan. Although each staff member is assigned to one of the four program areas or administration, collectively the staff is responsible for coordinating their efforts in addressing the priority resource and ecosystem protection issues identified in the management plan.

**STRATEGY AD-2:** *The primary focus of GFNMS is ecosystem protection. Basic staffing requirements must provide support for administration and the program areas of conservation science, education/outreach, and resource management.*

**Activity 2.1** Sanctuary staff skills should collectively represent expertise in policy, marine resource management, education, outreach, volunteer development, research, monitoring, geographic information systems (GIS), communications technology, and administration. The actual number and expertise of staff will depend on budget allocations and the operating priorities of GFNMS. In order to meet the objectives of this management plan, target staffing requirements have been laid out (see staffing chart). Administration will support the following:

- A. Building leadership in the field.
- B. Increasing professional exposure of the staff.

**Activity 2.2** Each staff member must exhibit general knowledge about all GFNMS program areas and the ability to effectively communicate with constituents, other professionals, and the community-at-large. In an effort to attract and maintain a consistent and high caliber staff base, the GFNMS Superintendent will allocate 1.5 percent of the base budget, to encourage staff participation in professional development such as:

- A. Continuous training
- B. Advancement opportunities
- C. Professional development and attendance at professional meetings and workshops
- D. Staff exchanges with other sanctuaries

**Activity 2.3** Collectively, the staff will function as a team supporting each program area, working towards the common goals and objectives of the management plan and increasing protection of sanctuary ecosystems and qualities. Through administration, the following support will be provided:

- A. Team building through on-site activities and off-site retreats.
- B. Define relationship and nature of interactions between staff and management.
- C. Clarify job and program area responsibilities.
- D. Support internal coordination between program areas.
- E. Implement a structured staff performance review process.
- F. Facilitate communication and coordination with other sanctuaries.
- G. Clarify relationship between partners and GFNMS.
- H. Provide oversight on achieving goals and objectives.

**Activity 2.4** Through the administrative framework, the sanctuary will work to create a positive working environment that encourages transparency, trust and accountability.

- A. Hold an all-hands sanctuary meeting with headquarters and site staff to learn other's expertise, and roles, exchange information, and engage in discussion of how to improve communication and productivity between sites and headquarters.
- B. Schedule staff retreats (see above).
- C. Develop clear channels of communication among all staff members, and within program teams.
- D. Hire consultant to assist the site in further developing a positive work environment that encourages trust and team building.
- E. Hold regular, well-planned staff meetings.
- F. Conduct regular meetings between program coordinators to ensure cross-program integration and support.

**Activity 2.5** Work towards developing a strong and favorable public identity.

- A. Develop site communications and media plan.
- B. Offer formal media training for site staff.
- C. Submit articles on a quarterly basis for NOAA publications (NOAA Report, Sanctuary Watch).
- D. Develop PowerPoint presentation for GFNMS and specific programs.
- E. Revamp and refine image library.
- F. Develop series of boilerplate press releases.
- G. Encourage headquarters to highlight GFNMS in press releases and publications.
- H. Improve educational and resource libraries to optimize their use.
- I. Participate in targeted conferences and outreach events.
- J. Improve GFNMS public and GFNMS SIMoN Web offerings.

## **PARTNERSHIPS**

With limited staff and financial resources, GFNMS relies on partnerships, outside funding sources and volunteers to assist in the implementation of the management plan. An integrated approach to ecosystem protection requires direct and broad-based participation in resource management by all parties who have a stake in the long-term health of the region.

**STRATEGY AD-3:** *With limited staff and financial resources, GFNMS will develop partnerships and identify outside funding sources and in-kind services to assist in the implementation of the management plan.*

**Activity 3.1** Continue to maintain and build on existing partnerships.

- A. Continue the Cooperative Agreement with the Farallones Marine Sanctuary Association (FMSA) to support GFNMS education and outreach programs and maintain visitor centers.
- B. Continue the Memorandum of Agreement with GGNRA for office space and services. Enter into a long-term occupancy agreement prior to initiating any major building rehabilitation projects.
- C. Revise the Memorandum of Agreement with PRNS for enforcement of sanctuary regulations.

- D. Develop a Memorandum of Agreement with PRNS to renovate the facility and dock at Sacramento Landing in Tomales Bay.
- E. Develop a Memorandum of Agreement with Bodega Marine Laboratory to coordinate on research and monitoring activities and education and outreach opportunities. Explore shared workspace at BML.

**Activity 3.2** Expand informal working relationship with NMFS and United States Geological Survey (USGS). Partnership activities include coordination on research projects, data analysis and cruise operations.

**STRATEGY AD-4:** *As the sanctuary advisory council matures and develops a strong voice within the community, its role in ecosystem protection should be more clearly defined. With experience, the sanctuary advisory council will develop, and can draw on, a historical framework for ongoing community-based decision making as they assume a leading role in providing advice to the sanctuary superintendent.*

**Activity 4.1** In consultation with the sanctuary advisory council, strengthen the structure of the sanctuary advisory council by: evaluating and amending as necessary the sanctuary advisory council charter; evaluating and developing organizational strategies to enhance the sanctuary advisory council's level of participation and effectiveness; evaluating and adjusting as necessary the representation of sanctuary advisory council membership; and providing support to help the advisory council develop a respected voice in the community.

**Activity 4.2** Identify the role of the sanctuary advisory council in addressing ecosystem protection issues by developing a process for assisting in the building of GFNMS policies and procedures.

**Activity 4.3** Provide support, resources, and guidance to help the sanctuary advisory council engage and educate the public about current, new, and emerging ecosystem protection issues in the sanctuary. Develop a strategy to increase public awareness of the advisory council as a way to increase public involvement.

**Activity 4.4** Sanctuary advisory council members will be asked to serve on various advisory council working groups. Working groups will be convened by the sanctuary advisory council to focus on specific issues and to allow for participation by additional stakeholders and community experts.

**Activity 4.5** Review the working group recommendations to add standing working groups and seats to the sanctuary advisory council.

## **INTERAGENCY COORDINATION**

The NMSP and GFNMS are committed to coordinating with other federal, state and local agencies in a continuous ecosystem management process. This process is designed to ensure the long-term protection of the unique ecosystems of this region, while considering the demands of multi-use interests. This requires the cooperation of many institutions that historically have not

focused on the same goals. Because of the complexity of managing the activities and cultural resources in the sanctuary, no single agency or institution can effectively meet all sanctuary goals. Overlapping jurisdictions, different agency mandates, and limited resources necessitate the development of a management plan that brings together multiple institutions for the common purpose of ecosystem protection. Achieving the long- and short-term goals for this region requires the development of a close and continuing partnership among all the agencies.

**STRATEGY AD-5:** *NOAA and GFNMS recognize all other authorities in and around sanctuary waters as important components of effective ecosystem protection. Therefore, GFNMS' regulations complement or supplement, but do not replace, existing authorities. To ensure coordination and cooperation with federal, state, and local jurisdictions within or adjacent to the sanctuary, GFNMS seeks to formalize intra- and interagency efforts.*

**Activity 5.1** GFNMS will engage other agencies in reviewing each other's actions, responding to environmental impact statements (EIS), and participating on sanctuary panels and working groups. Building agency relationships allows for: coordinating the development of policies at the federal, state and local level; the sharing of research and education resources; and the opportunity to work together to identify resource management issues.

**Activity 5.2** Formalize agreements with federal/state co-trustee managers signaling that the cooperative and integrated management approach established for GFNMS has been adopted by other agencies. To formally implement cooperative management of the sanctuary a number of separate types of agreements may be entered into, including: cooperative agreements, Memoranda of Understanding/Agreement, and consultation.

**Activity 5.3** GFNMS seeks to formalize agreements for the following programs: (1) Protected Resources Enforcement Plan (USCG, NMFS), and (2) Emergency Response Plan (local, state and federal emergency response agencies).

## **PLANNING AND EVALUATION**

Evaluating performance as part of the regular cycle of management is a relatively new concept for the NMSP. Periodic reviews have taken place over the course of the sanctuary program's existence, but a process for integrating a system for performance evaluation has not been implemented up to now. As a result, NMSP headquarters staff began working on models for integrating performance measurement into the management plan review process as well as for evaluating overall performance of the sanctuary program. The idea behind these models was simple, but implementing them has been challenging due to the inherent difficulties of performance measurement (developing quantifiable outcome-based targets, projecting outward for results, estimating needs, relying on outputs or products for results reporting, etc.). With the measures in this Final management plan, however, GFNMS is initiating the performance measurement process for the sanctuary and, therefore, beginning to establish a baseline of information that can be used by the NMSP to evaluate effectiveness of both the site and the sanctuary program over time.

## **DESCRIPTION OF PERFORMANCE EVALUATION**

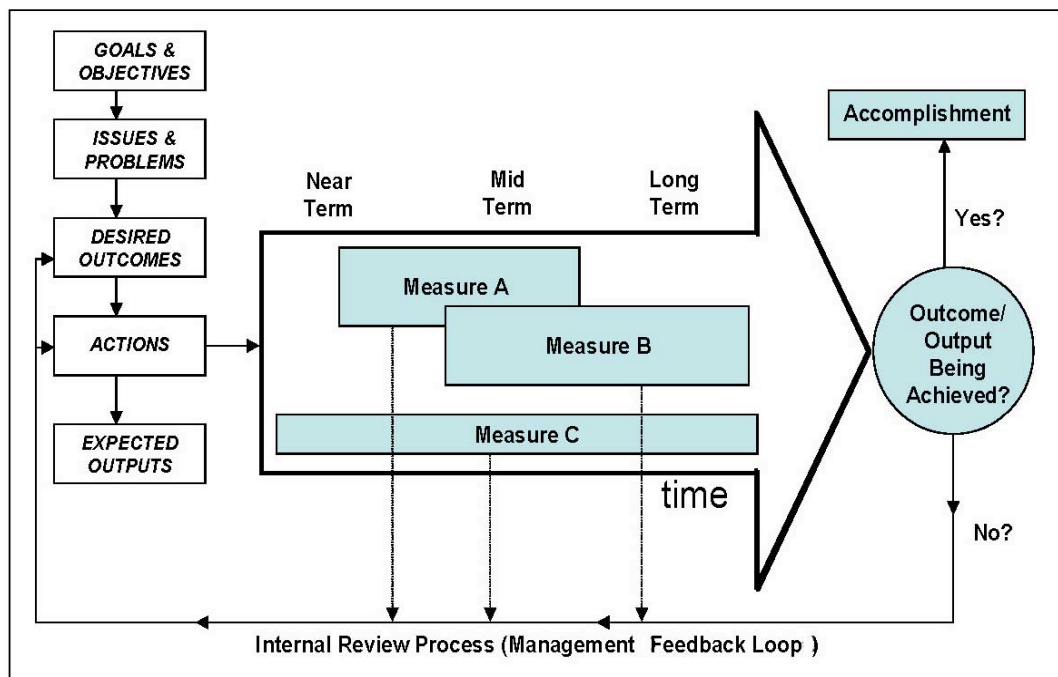
As part of an effort to improve overall management of sanctuaries, ongoing and routine performance evaluation is a priority for the NMSP. Both site-specific and programmatic efforts are underway to better understand the sanctuary program's ability to meet the objectives outlined in each of the action plans. Performance evaluation has many other benefits, including:

- Highlighting successful (or not so successful) efforts of site management;
- Keeping the public, congress, and other interested parties apprised of sanctuary effectiveness;
- Helping managers identify resource gaps so that they may better manage their sites;
- Improving accountability;
- Improving communication among sites, stakeholders and the general public;
- Fostering the development of clear, concise and, whenever possible, measurable outcomes;
- Providing a means for managers to comprehensively evaluate their sites in both the short- and long-term;
- Fostering an internal focus on problem-solving and improved performance;
- Providing additional support for the resource allocation process; and
- Motivating staff with clear policies and a focused direction.

Throughout the management plan review process, GFNMS staff worked towards developing performance measures for the action plans. The principal objective of these measures is to present a set of performance targets that demonstrate progress towards desired outcomes for each action plan. The NMSP Performance Evaluation Logic Model (below) depicts the basic idea behind this process, which will be implemented in all sanctuaries undergoing management plan review.



NMSP Performance Evaluation Logic Model



Priority resource management issues were identified during the management plan review process relative to GFNMS' goals and objectives. Staff developed desired outcomes (targets based on a desired change in the status quo of the ecosystem, such as the sanctuary's environmental condition or management capacities). Strategies (as identified in each of the action plans) are then grouped under the relevant outcomes. Expected outputs, or products, are also identified. Performance measures are then drafted, which identify the means by which the sanctuary will evaluate its progress towards achievement of the desired outcomes (based on goals and objectives). As represented by the large arrow in the model, measures were developed to provide information on results over time, from the near term (within one year, for example) to the long term (over the span of ten years or more, for example). As these measures are monitored over time, data are collected on progress towards the achievement of outcomes and the production of outputs. Outcomes that are being achieved and outputs that are being produced are reported as accomplishments. The inability to achieve outcomes or produce outputs is also reported, but as areas that are falling short of targets. In these areas, staff will work to identify the obstacles that are preventing management from reaching targets (represented in the model by the arrow that runs along the bottom of the graphic). This internal review is one of the primary benefits of the performance evaluation process as it provides an opportunity for staff to think carefully about why particular strategies in the management plan are not meeting stated targets and how they can be developed to do so.

The GFNMS Ecosystem Protection Implementation Plan matrixes (see Appendix I) are organized around the priority habitats identified in the management plan: estuarine, sandy shore, rocky shore, and open ocean. Each of the strategies in the management plan that address the priority issues (water quality, wildlife disturbance, introduced species, ecosystem protection, vessel spills) and program areas (education and outreach, conservation science, and resource

protection) will be implemented around improving protection of these environments. The Performance Measures matrixes are also organized to track the structure of the action plans in the management plan including: goals, objectives and outcomes.

The information produced by performance measures in sanctuary management plans will be used not only to improve the management of individual sanctuaries, but to inform the sanctuary program's performance evaluation through the NMSP Report Card.

The NMSP Report Card will use action-plan-specific performance information from the site management plans (along with information on headquarters-specific tasks) to evaluate the sanctuary program's performance in a wide variety of functional areas (such as education, research and monitoring, planning and policy, enforcement, and operations). Although this will be an internal process, results will be compiled, synthesized and then reported by the NMSP Director in a public document (such as the State of the Sanctuary Report).

#### **PERFORMANCE EVALUATION GOAL**

1. Ensure that GFNMS' management plan strategies are producing effective results in addressing the priority ecosystem protection issues identified in the management plan.

#### **PERFORMANCE EVALUATION OBJECTIVES**

1. GFNMS will continuously measure and evaluate the successes and challenges of the strategies put forth in the five-year management plan.
2. Based on the outcome of these evaluations, the sanctuary will modify existing programs and make recommendations for the future that best support the sanctuary's primary objective of ecosystem protection.

#### **PERFORMANCE EVALUATION STRATEGY**

**STRATEGY AD-6:** *Develop and make use of performance indicators to measure effectiveness of the management of the sanctuary as a whole, as well as to evaluate specific strategies within the management plan.*

**Activity 6.1:** GFNMS staff will conduct routine performance evaluations to collect and record data on sanctuary performance over time. Using this data, staff will determine the effectiveness of management plan strategies by (a) evaluating progress towards achievement of each action plan's desired outcomes and (b) assessing the role or added value of those outcomes in the overall accomplishment of site goals and objectives.

**Activity 6.2:** Results from performance monitoring will be collected, analyzed and used to populate and inform the NMSP Report Card and, when necessary, National Ocean Service (NOS) or NOAA-wide performance requirements. Performance data may also be presented in a site-specific annual report that would explain each measure, how it was evaluated, the site team that conducted the evaluation, and next steps. Based on this analysis, site staff, in cooperation with the advisory council, will identify accomplishments as well as work to determine those

management actions that need to be changed to better meet their stated targets. The targets themselves may also be analyzed to determine their validity (if, for instance, they are too ambitious or unrealistic given current site capacities).

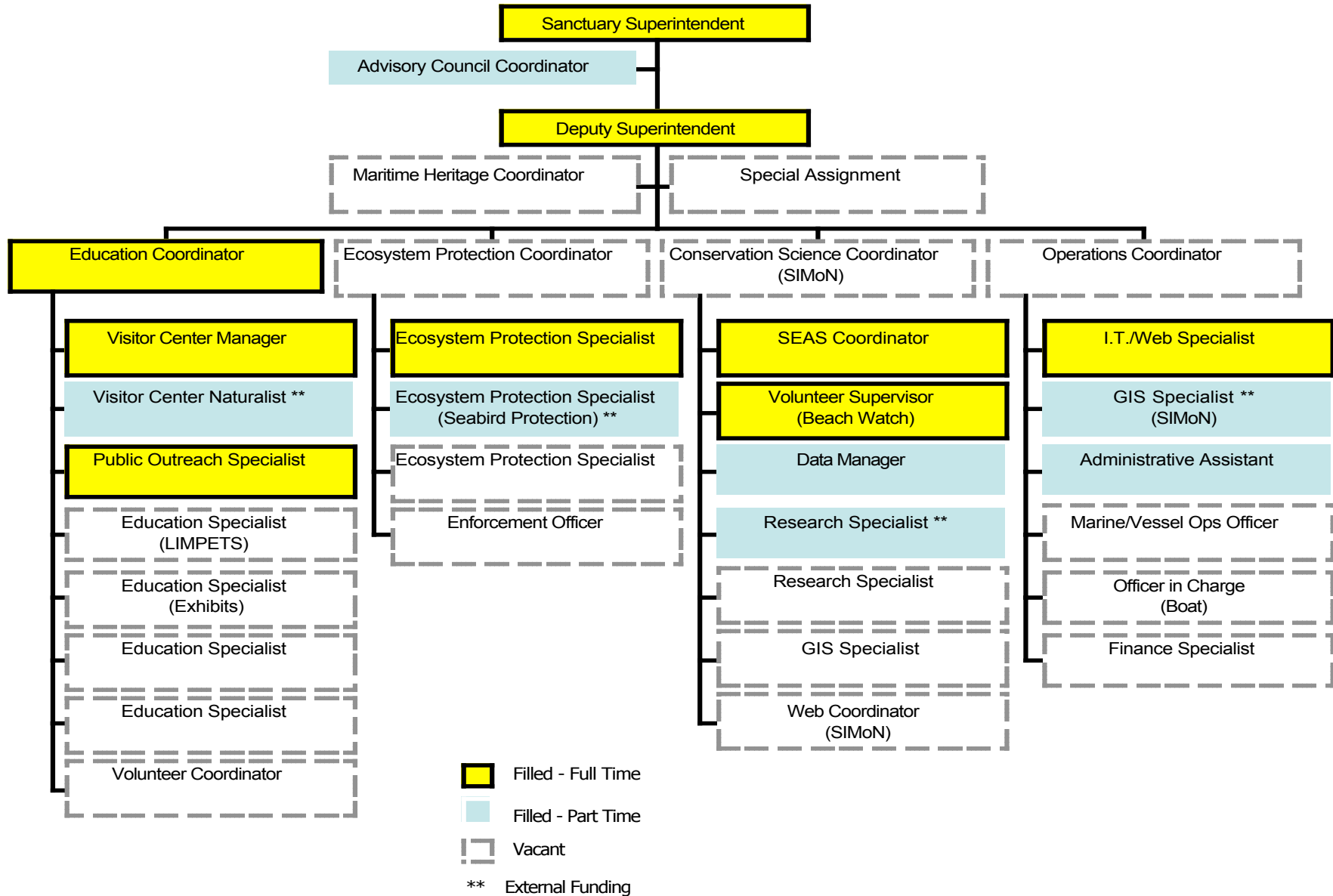
**Activity 6.3:** An annual assessment on the implementation of the GFNMS Management Plan will be conducted. This assessment will be conducted internally by GFNMS staff who will consider the progress and effectiveness of activities implemented over the previous year. In this activity, successes or weaknesses of specific activities will be determined. Activities deemed less than successful in achieving desired outcomes will be addressed to correct or improve the outcomes/outputs. Successful activities will be recognized with application of positive lessons learned to other programs.

**Activity 6.4:** As the NMSP continues to increase the rigor of its internal evaluation process, GFNMS will begin to increase the frequency with which partners collaboratively join with GFNMS in assessing the effectiveness of joint-management actions (those actions conducted primarily in partnership with others). Toward this end, regular evaluation of partner dependent strategies within this management plan is proposed.

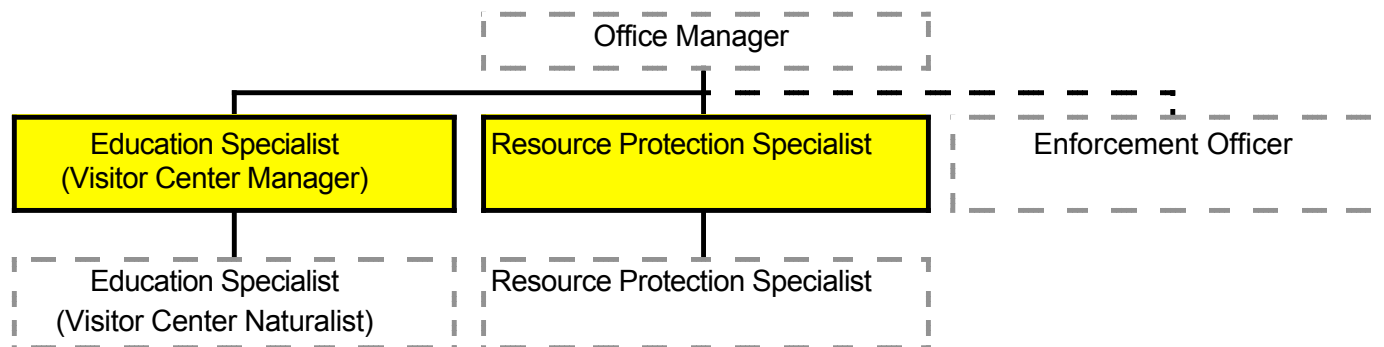
**Potential Partnerships:** NMSP, SAC, strategy partners

**Complementary Strategies:** All strategies

# Staffing Plan: GFNMS



## Staffing Plan: Northern Management Area



GFNMS ADMINISTRATION

**Timeline**

Administration Timeline	Year 1	Year 2	Year 3	Year 4	Year 5
STRATEGY AD-1: Facilities					→
STRATEGY AD-2: Staffing					→
STRATEGY AD-3: With limited staff and financial resources, GFNMS will need to develop partnerships.	.....				→
STRATEGY AD-4: Sanctuary advisory council					→
STRATEGY AD-5: Formalize intra- and interagency efforts.					→
STRATEGY AD-6: Develop and make use of performance indicators to measure performance of the management of the sanctuary.					→

**Legend:**

- Ongoing Activity
- .....→ Planning Stage
- ◆ Completed Activity

GFNMS ADMINISTRATION

## Budget

Strategy	Estimated Annual Cost (1000's)*					Total Est. 5-Year Cost (1000's)
	YR 1	YR 2	YR 3	YR 4	YR 5	
<b>STRATEGY AD-1: New sanctuary facilities will be developed</b>	\$101	\$3,181	\$3,181	\$3,181	\$231	\$9,875
<b>STRATEGY AD-2: Basic staffing requirements must provide support for administration and the program areas</b>	\$200	\$700	\$1000	\$1,250	\$1,450	\$4,600
<b>Action 2.3: Collectively, the staff will function as a team supporting each program area, working towards increasing protection of the sanctuary</b>	\$15	\$15	\$15	\$15	\$15	\$75
<b>Action 2.5: Work towards developing a strong and favorable public identity</b>	\$60	\$10	\$10	\$10	\$10	\$100
<b>STRATEGY AD-3: GFNMS will develop partnerships to assist in the implementation of the management plan</b>	\$36	\$36	\$36	\$36	\$36	\$180
<b>STRATEGY AD-4: The sanctuary advisory council will assume a leading role in providing advice to the sanctuary superintendent</b>	\$85	\$100	\$100	\$100	\$100	\$485
<b>STRATEGY AD-5: Formalize intra- and interagency efforts</b>	\$12	\$12	\$12	\$12	\$12	\$60
<b>STRATEGY AD-6: Develop and make use of performance indicators</b>	\$40	\$40	\$40	\$40	\$40	\$200
<b>Total Estimated Annual Cost</b>	<b>\$549</b>	<b>\$4094</b>	<b>\$4394</b>	<b>\$4644</b>	<b>\$1,894</b>	<b>\$15,575</b>

The sanctuary's base budget is available each year from appropriated funds.

There is both availability and opportunity to receive additional funding from appropriated funds.

The estimates do not take into account increasing personnel costs each year or inflation.

The estimates do not take into account unexpected events or emergencies or unforeseen projects.

