Oregon Ocean Policy Advisory Council
Draft Agenda*
May 7, 2015

*Please note that this agenda is an attempt to give notice of the intended sequence of events at the forum. Any updated draft agenda will be posted at www.oregon.gov/LCD/OPAC and www.oregonocean.info.

National Marine Sanctuary Public Forum
The Bandon Barn Community Center | 1200 11th St SW | Bandon, OR 97411

10:00 am — Welcome and Introductions – *Scott McMullen* (OPAC Chair)

10:15 am — Purpose of Forum – *David Allen* (Chair, Forum Planning Group): (1) to provide basic information about the NMS program, along with context as to definitions for different areas (*e.g.*, marine reserves, marine protected areas, marine sanctuaries); (2) to analyze the potential challenges and benefits of an Oregon national marine sanctuary; and (3) to explore questions being asked by coastal communities about national marine sanctuaries.

10:30 am — Governor's Office Welcome Address – *Gabriela Goldfarb*: Role of OPAC and the governor's office in the sanctuary nomination process in the state of Oregon.

10:45 am — NMS Program Overview – *Bill Douros* (NOAA Marine Sanctuary Program): Recap of the presentation given at the Oct. 16, 2014 OPAC meeting. (Additional information on the sanctuary nomination process can be found at www.nominate.noaa.gov.)

11:15 am — Questions from Audience – *Pat Corcoran* (Outreach Specialist, Oregon Sea Grant): Facilitator to take questions from the audience to help frame afternoon panel discussions.

11:45 am — Lunch Break

12:30 pm — Panel Discussions (*Pat Corcoran*, Facilitator): Panelists with experience with the NMS program in California and Washington state. Panel discussions centered on the following topics:

How do multiple uses exist or coexist in a national marine sanctuary?
(This topic can look into the designation plans of west coast sanctuaries, including the role of state and local governments in sanctuary management.)

How does the regulation and management of marine resources and uses change with the designation and implementation of a national marine sanctuary?
(This topic can look into the potential challenges in keeping fisheries management separate from sanctuary management.)

What are the economic impacts (positive, negative, or neutral), if any, of successfully nominating a site or designating and implementing a national marine sanctuary?

4:30 pm — Wrap-up – *Scott McMullen, David Allen*: Next steps; OPAC meeting the following day.

5:00 pm — Adjourn (food and beverage provided at the evening reception)

6-7:30 pm — Reception with Bill Douros and panelists hosted by the Port of Bandon and the South Coast Ports Coalition for OPAC members and the general public.

Oregon Ocean Policy Advisory Council
Draft Meeting Agenda*
May 8, 2015

*Please note that this agenda is an attempt to give notice of the intended sequence of events at the meeting. Time or topics may change up to the last minute. The Chair will try to make sure that there is an opportunity for public comment prior to OPAC making major policy decisions. The most recently updated draft agenda will be posted at www.oregon.gov/LCD/OPAC and www.oregonocean.info.

Regular OPAC Meeting
The Bandon Barn Community Center | 1200 11th St SW | Bandon, OR 97411

8:30 am	Member Introductions – *Scott McMullen* (OPAC Chair)
8:45 am	Review and Approval of Meeting Summary of Oct. 16, 2014 OPAC Meeting (15 min) – *Scott McMullen* (OPAC Chair), *Council Members*
9:00 am	Election of OPAC Officers (15 min) – Chair, Vice-Chair, and At-Large Executive Committee Member
9:15 am	Legislative Updates (60 min) – *Governor's Office & Agency Staff* (Shellfish Initiative, Ocean Acidification Taskforce, Ocean Energy, Ballast Water, Derelict Vessels)
10:15 am	Break (15 min)
10:30 am	Updates from the Governor's Office (15 min) – *Gabriela Goldfarb*
10:45 am	Updates on the Ocean Summit, Regional Planning Body, and the West Coast Governor's Alliance on Ocean Health (15 min) – *Gabriela Goldfarb*
11:00 am	Oregon Sea Grant Update (30 min) – *Shelby Walker* (STAC Chair)
11:30 am	Ocean Acidification Updates (30 min) – Topics of Interest (*Jack Barth, Caren Braby*)
12:00 pm	** Lunch Break (60 min) ** *Jack Barth & Bob Cowen* will provide a presentation on the Marine Studies Initiative at Oregon State University
1:00 pm	Public Comment (60 min) – *Scott McMullen* – will coordinate the public comment period
2:00 pm	OPAC discussion about the Marine Sanctuary Public Forum and the future role of OPAC
3:00 pm	Break (15 min)
3:15 pm	OPAC discussion on the Marine Sanctuary Issue (continued) and further discussion on the OPAC visioning exercise last discussed during the June 2014 meeting of the council
4:30 pm	Adjourn

** Provided only for OPAC Members and Staff. The public is welcome to bring a sack lunch if they desire.**

National Marine Sanctuary Public Forum
May 7, 2015 – Bandon, Oregon

Speaker Information and Online Links

OPAC: Link to Dec. 15, 2006 Status Report:
http://library.state.or.us/repository/2007/200701121129525/index.pdf

Morning Presenter:

William J. Douros currently serves as the West Coast Regional Director for the NOAA Office of National Marine Sanctuaries. In that role, he oversees the management of the five national marine sanctuaries designated on the west coast – Olympic Coast, Gulf of the Farallones, Cordell Bank, Monterey Bay, and Channel Islands. Prior to becoming the regional director in 2006, Bill was the superintendent of the Monterey Bay National Marine Sanctuary. Before joining NOAA in 1998, he was Deputy Director of the Santa Barbara County, California, Planning & Development Department where he was responsible for leading the division that regulated offshore oil and gas development projects in the county. From 2010 to 2012, Bill was the acting Deputy Director for the Office of National Marine Sanctuaries. The Office of National Marine Sanctuaries protects and manages 14 special marine areas, ensuring the sustainable use of the ecological and cultural resources of those special places, and conducts science and monitoring of sanctuary resources as well as critical education, outreach and volunteer programs at each national marine sanctuary.

Link: www.sanctuaries.noaa.gov

Afternoon Panelists:

Kathy Fosmark
Commercial Fisher, CA

Kathy Fosmark is part of a five-generation central coast of California fishing family, going back to her great-grandfather and including her husband and two sons. She fished with her father, Frank Martins, a highly respected highliner, for many years, and with her husband, Steve Fosmark. Along with fishing, she has a long history of involvement in fishery management; serving for years on the Pacific Fishery Management Council's Groundfish Advisory Panel, then was nominated by Governor Schwarzenegger and appointed by the US Secretary of Commerce to a seat on the Pacific Fishery Management Council, where she served for four years. Kathy is also a founding member and Co-Chair of the regional fishing organization, Alliance of Communities for Sustainable Fisheries (ACSF), a 501(c)(3) nonprofit, its mission statement being 'Connecting Fishermen with their Communities'. The ACSF has a board of directors made up of recreational and commercial fishing, and community representatives, from the six ports that fish in the waters of the Monterey Bay National Marine Sanctuary. One purpose of the ACSF has been to provide a unified voice for fishermen in relationship with the Sanctuary. Kathy has also served on the Sanctuary's Advisory Council for several years and is the current representative for commercial fishing. More information on the history and relationship between the Sanctuary and fishermen can be found under 'Reports' on the ACSF website.

Link: www.alliancefisheries.org

Monica Galligan
Lecturer, Economics and Policy, Monterey, CA

Monica Galligan is a faculty member in the Division of Science and Environmental Policy at California State University Monterey Bay, and an adjunct faculty member in the Graduate School of International Policy and Management at the Middlebury Institute of International Studies at Monterey. She teaches environmental economics, environmental policy, and geographic information systems. Monica received her Master of Science degree in Coastal and Watershed Science and Policy from CSUMB, and is a long-time volunteer at the Monterey Bay Aquarium. Her primary research experience is in the socioeconomics of commercial marine fisheries; she has worked with NOAA Fisheries, the California Department of Fish and Wildlife, and on collaborative projects with commercial fishermen on the central coast of California. Monica has presented research findings for the International Institute of Fisheries Economics and Trade, the North American Association of Fisheries Economists, and numerous scientific, community and educational organizations.

Phyllis Grifman
Associate Director of the USC Sea Grant Program, CA

Phyllis Grifman's background in marine and environmental policy informs her work administering the NOAA Sea Grant Program at the University of Southern California. As Associate Director of the USC Sea Grant Program, she manages the program's research, outreach and education portfolios, in addition to working with stakeholders at state, local and federal levels. Her responsibilities include developing programs and partnerships to foster connections between science and policy. Phyllis is Vice Chair of the Channel Islands National Marine Sanctuary Advisory Council and serves on the board of directors of the California Shore and Beach Preservation Association. She served on the Regional Stakeholder Working Group for the Southern California designation of marine protected areas under the California Marine Life Protection Act.

Jennifer Hennessey
Senior Ocean Planner, Washington Department of Ecology

Jennifer Hennessey is the ocean policy lead for Washington State's coastal program at the WA Department of Ecology. She is currently the lead managing the state's marine spatial planning effort, and assists the Governor's office in administering the Washington Coastal Marine Advisory Council and representing Washington in regional and national ocean activities and forums. She has partnered with the Olympic Coast National Marine Sanctuary on activities for many years and currently serves on the Sanctuary's Advisory Council. In her projects, Jennifer works with a variety of partners including local, state, tribal and federal governments, academic institutions and diverse range of stakeholders.

Links: www.msp.wa.gov; www.ecy.wa.gov/programs/sea/ocean/advisorycouncil.html

Samantha Murray
Consultant, Portland, OR

Samantha Murray is the founder of a conservation-based consulting company, where she works with clients on issues related to water quality, ocean acidification and climate change. Before starting her own business, Samantha was the Pacific Program Director with

Ocean Conservancy, where she collaborated for eight years with disparate interests to design and implement California's network of protected areas (MPAs), which now covers 16% of state waters. Most recently, she led efforts to ensure these MPAs were both fully appreciated by recreation and tourism audiences and adequately integrated into existing and future coastal and ocean management decisions. Samantha was also the Assistant Director of Conservation at the Audubon Society of Portland, where she helped launch a coalition to explore MPAs in Oregon. She has spoken at conferences around the world about best practices for MPA design and implementation, based on her experience in California and Oregon, and sits on the MPA Federal Advisory Council. Samantha is a diver, fisherwoman and surfer and holds a J.D. from Lewis and Clark Law School, where she was awarded a Certificate in Natural Resources and Environmental Law.

Kevin Ryan
Project Leader, USFWS (retired), WA Maritime National Wildlife Refuge Complex

Kevin Ryan graduated from Oregon State University with a Bachelor of Science degree in Wildlife Science in 1970 and spent the next two years in the US Army. His conservation career began when he was hired by the US Fish & Wildlife Service as a fishery biologist at Willow Beach National Fish Hatchery, Arizona. He then transferred to a fishery management biologist position at Pinetop, Arizona working on Tribal and military reservations in eastern Arizona. From fisheries Kevin transferred into the National Wildlife Refuge System where he had positions on refuges in Wyoming, Alaska, Idaho and Washington State. His last position was as Project Leader of the Washington Maritime National Wildlife Refuge Complex (Flattery Rocks NWR, Copalis NWR, Quilleute Needles NWR, Dungeness NWR, Protection Island NWR, and San Juan Island NWR). In that capacity, he interacted with the Olympic Coast National Marine Sanctuary on research, biological, and educational issues. Kevin served as an ex-officio member on the Sanctuary's Advisory Council. After 40 plus years, he retired from the US Fish & Wildlife Service in January 2013.

Steve Scheiblauer
Harbormaster, City of Monterey, CA

Steve Scheiblauer has managed Santa Cruz and Monterey harbors for over a 40-year period, and currently serves as Harbormaster for the City of Monterey. Steve is a member and past president of the California Harbormasters Association and a board member of CMANC – the California Marine Affairs and Navigation Conference – an organization of California ports, large and small, for federal issues. In the early 1990s, Steve was intensely involved in the community negotiation that led to the designation of Monterey Bay as a National Marine Sanctuary. He also represented coastal communities during California's process that created a network of over 130 marine protected areas. Steve has served on the Monterey Bay National Marine Sanctuary Advisory Council for many years. He advises the Monterey City Council and other agencies on marine sanctuary issues.

Jason Scorse
Associate Professor, Economics and Policy, Monterey, CA

Jason Scorse completed his Ph.D. in Agricultural and Natural Resource Economics at UC-Berkley in 2005 with a focus on environmental economics and policy, international development, and behavioral economics. Immediately upon graduation, he joined the faculty of the Middlebury Institute of International Studies at Monterey. Jason teaches

courses in environmental and natural resource economics, ocean and coastal economics, and sustainable development. In 2009 he was promoted to the Chair of the International Environmental Policy Program, and as of 2011 he is also the Director of the new Center for the Blue Economy, whose mission is to promote research, education, and data to value our oceans and coasts. He has consulted for major environmental organizations, and in 2010 his book, 'What Environmentalists Need to Know about Economics', was published by Palgrave-Macmillan. Jason also sits on the Monterey Bay National Marine Sanctuary Research Activities Panel and on the board of Save Our Shores.

Link: www.miis.edu/academics/faculty/jscorse

Amy Trainer
Executive Director, West Marin Environmental Action Committee, CA

Amy Trainer, J.D., has been an environmental leader for over 20 years. As a land use attorney in Kansas City, Missouri, she worked on major public-private partnerships to rebuild the city's urban core. She served as the first staff attorney at Friends of the San Juans in Washington State. Also in Washington, she represented the Makah Tribe of Neah Bay to create the nation's first Tribal Office of Marine Affairs and worked with the Tribe on the Olympic Coast National Marine Sanctuary's management plan update to protect the Tribe's fishing and treaty rights. In Colorado, she served as the executive director of the Orient Land Trust where she conserved hundreds of acres of ranch land and senior water rights. Amy has been the executive director of the Environmental Action Committee of West Marin since September 2010, where she protects coastal and ocean resources and has championed the protection of Drakes Estero, the West Coast's first marine wilderness area.

Links: www.eacmarin.org; www.marinmpawatch.org

Dan Wolford
Recreational Fisher, CA

Dan Wolford has been a recreational fisherman all his life, first in Oregon and for the past 30 years in California. Since retiring in 2001 as an aerospace systems engineering manager, he has been a volunteer advocate for recreational fishermen in support of science-based fisheries management; serving as the science director, and currently the president of the Coastside Fishing Club in Napa, California. In that capacity he has actively supported research into rockfish barotrauma survivability, and advocated for release strategies to improve survivability of regulatory discards, developed recreational groundfish catch estimation methodologies, and supported salmon net pen acclimation projects. Dan has worked with the California Department of Fish and Wildlife, and Commission, to create recreational seasons and regulations for salmon, sturgeon, and striped bass. He participated as a public member during the California Marine Life Protection Act Implementation program. He is an appointed at-large member to the Pacific Fishery Management Council, serving as its Chair for two years. Dan has served on the Council's Salmon Advisory Subpanel, and the ad hoc Salmon Amendment Team, and has worked with members of the Groundfish Management Team and Groundfish Advisory Subpanel.

Link: www.pcouncil.org/wp-content/uploads/PFMC-comment-letter-on-NMS-expansion.docx.pdf

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE
Office of National Marine Sanctuaries | West Coast Region
99 Pacific Street, Bldg 100, Suite F
Monterey, CA 93940

May 7, 2015

Scott McMullen, Chair
Oregon Ocean Policy Advisory Council
635 Capitol Street, NE, Ste 150
Salem, OR 97301

Dear Mr. McMullen:

Thank you for the opportunity to make a presentation at the National Marine Sanctuary Public Forum hosted by the Ocean Policy Advisory Council (OPAC) of Oregon on May 7, 2015. It will be a valuable opportunity to again brief OPAC members and the public about the purposes for and benefits from national marine sanctuaries and how the National Marine Sanctuary System contributes to healthy oceans and healthy economies.

In Oregon there has been a lot of discussion and at times misinformation about how national marine sanctuaries interact with fishing, harbors/marinas and businesses. To help inform OPAC members and the public, I am attaching three tables that summarize collaborations with fishermen, harbors and businesses within the five national marine sanctuaries of the west coast: Olympic Coast, Cordell Bank, Gulf of the Farallones, Monterey Bay, and Channel Islands.

I am also including fact sheets of the socio-economic value of the National Marine Sanctuary System, national marine sanctuaries of the west coast, and Thunder Bay National Marine Sanctuary, which offers an example of what a national marine sanctuary could mean to similar cities and rural communities along the Oregon Coast.

I have also included an article published by the Environmental Law Reporter entitled "The National Marine Sanctuary System: The Once and Future Promise of Comprehensive Ocean Governance." This article provides a comprehensive review of the National Marine Sanctuaries Act and how it compares to other federal and state authorities that govern ocean ecosystems and resources.

I am confident you will find all of this information educational to OPAC members and helpful in better understanding the comprehensive approaches used by national marine sanctuaries to manage and protect special places in the ocean and balance multiple uses, all while ensuring extensive public participation.

Sincerely,

William J. Douros
Regional Director

Attachments:

- Tables of Collaborations with Fishermen, Harbors, and Businesses
- Socio-economic fact sheets
- Environmental Law Reporter Article

Collaborations with ***Fishermen*** and West Coast National Marine Sanctuaries (completed, ongoing and planned)

Olympic Coast National Marine Sanctuary (OCNMS)		
Activity	**Description**	**Status**
OCNMS derelict fishing gear project	**With NOAA funding in 2005, OCNMS identified and removed derelict fishing gear in collaboration with the Makah Tribe.** • Makah helped identify potential hot spots of derelict fishing gear, conducted outreach to their fishermen, and trained Makah divers in removal techniques. • Ten crab pots, three gill nets, and one purse seine net were removed. • Project was conducted over 29 days of field operations including side scan sonar surveys, diver surveys, gear removal, underwater camera work, and mobilization and demobilization. • The project is featured in a segment of "America's Underwater Treasures," Jean Michel Cousteau's 2006 film on the national marine sanctuaries.	Project completed 2007
Olympic Coast derelict fishing gear projects	**OCNMS supported collaborative projects regarding removal of derelict fishing gear.** • OCNMS submitted a letter of support to NOAA's Marine Debris Program to fund a joint project of Quinault Nation's Natural Resources Department and The Nature Conservancy (TNC) to remove derelict crab gear. • The TNC/Quinault Nation project was funded for 2 years and initiated in fall 2014. The project targets crab gear on the water during a short fishery closure and supports capacity development within the Quinault Nation. • As Washington Department of Fish and Wildlife (WDFW) had an existing permit for same purpose, OCNMS facilitated TNC/Quinault coverage under WDFW's permit, expansion on the survey area beyond Quinault fishing grounds, and data sharing with WDFW (who did not have funding to do their own aerial surveys). • OCNMS provided a letter of support for a similar proposal for partnership between TNC and Quileute Tribe Natural Resources Department starting in 2015. This project covers the Quileute's usual and accustomed fishing grounds in OCNMS.	Ongoing
Port of Neah Bay Improvements	**OCNMS supported efforts by the Makah Tribe to replace a commercial fishing pier in Port of Neah Bay.** • In 2013, OCNMS wrote a support letter focusing on the economic necessity of the pier to the tribe, other commercial fishing interests, and oil spill response community, and the need to replace it. • The project did not receive the requested funding, however reconstruction of the dock was completed with alternative funding.	Dock completed
Buoy placement for Ocean Noise Reference Station Network	**In January-March 2014, OCNMS held extensive consultations with various tribal and non-tribal fishermen sectors to identify the location for a buoy installation for the Ocean Noise Reference Station Network.** • Meetings were held with tribal fishery managers, and tribal and non-tribal commercial gear sectors to identify for a 2-year deployment period the location for a buoy that will monitor ocean noise and minimize the risk of negative interactions with commercial fisheries.. • Discussions were supported by Oregon Fishermen's Cable Committee and Oregon Sea Grant. • Science needs for siting of the ocean noise monitoring buoy were overlaid with fishing activity maps and industry guidance to select a potentially secure location for installation.	Completed September 2014

Collaborations with ***Fishermen*** and West Coast National Marine Sanctuaries
(completed, ongoing and planned)

Olympic Coast National Marine Sanctuary (OCNMS) - continued		
Activity	**Description**	**Status**
OCNMS oceanographic monitoring program	**OCNMS seasonally deploys nearshore moorings to record oceanographic conditions important to commercial fishermen.** • The moorings record temperature profiles, dissolved oxygen (DO), and proxies for ocean acidification. • This information is summarized and made available via OCNMS and NANOOS web sites. • Mooring locations and info on their function is relayed to the fishing community every year. • When low DO levels are detected with the oceanographic sensors, OCNMS maps the extent of the hypoxic area and notifies resource agencies and fishermen. • OCNMS also established immediate protocols for boat-based monitoring of low DO if fish/shellfish die-offs are detected along beaches, and/or reported by fishermen at sea.	Ongoing monitoring efforts from May to Sept.
Buoy placement for Orca Whale Critical Habitat Studies	**OCNMS coordinated consultations with tribal and non-tribal commercial fisheries representatives to determine locations for deployment of acoustic recording moorings to define critical habitat for orca whales.** • Optimal locations for mooring placement had minimal potential for interaction with commercial fishing gear, while meeting the science needs for this research. OCNMS provided the chief scientist (at NOAA Fisheries) with fishing intensity maps, and preliminary mooring locations were identified based on science needs. • OCNMS facilitated consultations with various fishing sectors, assisted with mooring site evaluations (e.g., seafloor stability), and brokered a mutually-agreeable set of mooring locations. • In fall 2014, 7 acoustic moorings were installed in OCNMS, helping to characterize orca whale distributions and inform critical habitat designations.	Ongoing project through 2015, longer if funding extended
Collaborative Habitat Framework	**OCNMS provides data on sensitive habitats and proposed conservation measures for Groundfish Essential Fish Habitat.** • OCNMS staff participated as a technical member of the Pacific Fishery Management Council's (PFMC's) Essential Fish Habitat (EFH) Review Committee to identify needs for modifying groundfish EFH. • OCNMS worked with WDFW to develop a proposal to modify Olympic 2 Conservation Areas within the sanctuary. • OCNMS consulted with Makah Tribe, and after reviewing their concerns, elected to voluntarily withdraw the proposal and instead focus on working collaboratively with the four coastal treaty tribes to build a comprehensive assessment of all habitats within OCNMS.	Under development
Advisory Council	**Fishermen have representation on OCNMS Advisory Council.** • Since the creation of Olympic Coast Sanctuary Advisory Council in 1999, OCNMS has had a commercial fishing seat which includes both a primary and alternate representative. The current fishing seat also chairs the PFMC Habitat Committee, allowing interactions and early identification of issues of mutual concern to both councils.	Ongoing

Collaborations with ***Fishermen*** and West Coast National Marine Sanctuaries
(completed, ongoing and planned)

Cordell Bank National Marine Sanctuary (CBNMS)		
Activity	**Description**	**Status**
Exempted Fisheries Permit for yellowtail rockfish	**CBNMS collaborated with the San Francisco Community Fishermen's Association, and supported their proposal to the PFMC for testing hook and line fishing for rockfish under an Exempted Fisheries Permit (EFP).** • The 2012 proposal requested access to fishing grounds within the Rockfish Conservation Areas (RCAs) in GFNMS and CBNMS using vertical hook and line gear, targeting yellowtail rockfish. Yellowtail are a schooling mid-water fish with healthy populations that can be caught in shallower water, while minimizing bycatch of overfished species that occur in deeper water. • The EFP includes a monitoring program (using independent observers) to evaluate the success of the program in its ability to be species-selective. • CBNMS science staff provided information (maps and coordinates) to fishermen on coral cover and bathymetry in the sanctuaries and advocated for areas to be avoided to protect shallow pinnacles while still promoting fishing in the sanctuary. • CBNMS worked with fishermen and NMFS to develop depth restrictions and gear modifications that would allow access to mid-water fish and not impact the coral/sponge community on the reef top. • CBNMS staff provided maps and coordinates to Vessel Management Service (VMS) and fishermen so that VMS could monitor traffic in the sanctuaries to ensure vessels are staying out of the areas to be avoided. • A year into implementation of the EFP, CBNMS collaborated with fishermen and VMS to modify boundaries to improve access to certain areas in the sanctuary while still protecting sanctuary sensitive habitats. • The collaboration allows commercial fishermen access to historical fishing grounds and targets healthy rockfish populations while protecting overfished rockfish species and sensitive habitat in the sanctuaries. Sanctuaries also promote the mission of the San Francisco fishermen's co-operative of selling sustainable, locally caught seafood.	Ongoing
Bodega Bay Fishermen's Festival	**Since 2002, CBNMS and GFNMS education staff participate in annual Bodega Bay Fishermen's Festival.** • National marine sanctuary's staff set up a booth with sanctuary information, including distribution of tide books containing education messages about the sanctuaries, and talk with fishermen about current events and issues affecting the local fishing community. • Over 1000 people per year are contacted within the two day event. • In 2014 and 2015 the Cordell Marine Sanctuary Foundation also assisted with this event.	Ongoing (occurs every April)
Video panel at Oakland Museum of California	**CBNMS produced a short documentary film featuring local commercial fisherman that is shown at the Cordell Bank exhibit at the Oakland Museum of California.** • The Cordell Bank exhibit was opened on June 1, 2013. Sanctuary and museum staff worked with local fishermen to highlight their careers and stories about living on the ocean.	Permanent exhibit
Consultation with fishermen	**CBNMS consulted with Pacific Coast Federation of Fishermen's Association (PCFFA)** • Prior to placing an oceanographic buoy offshore in 2007, CBNMS consulted with salmon and crab fishermen from different ports to ensure that buoy placement did not interfere with fishing activities.	Completed

Cordell Bank National Marine Sanctuary (CBNMS) - continued		
Activity	**Description**	**Status**
Recreational anglers survey in RCAs	**CBNMS partnered with CA Sea Grant, NMFS, and CDFW to sample within the recreational RCAs in CBNMS, GFNMS, and MBNMS in locations that had been closed to all bottom fishing for 10 years.** • Since 2002, fishing for rockfish using bottom contact gear in the RCAs has been prohibited to reduce bycatch of overfished stocks such as yelloweye, canary, cowcod, and dark-blotched rockfish. • Research objectives for the two-year study were to evaluate the impacts of the RCA by 1) comparing for two sampling periods (before and after RCA implementation) the catch rates, species composition, and size of fish caught in recreational RCAs; and 2) sample females to better understand reproduction in rockfish. • CBNMS collaborated with charter boat captains from Half Moon Bay, San Francisco Bay and Bodega Bay, and volunteer anglers to sample rockfish using hook-and-line fishing gear to re-sample sites fished in 1987 to 1998. • Sampling data are currently being analyzed and the final report is expected out in the fall of 2015. • CBNMS co-authored the proposal for the research which was funded by the Collaborative Fisheries Research West, the Ocean Protection Council, and CA Sea Grant.	Completed (final report due out in Fall 2015)
Lost fishing gear/marine debris recovery	**In 2008, CBNMS staff removed derelict fishing gear from Cordell Bank using a Remotely Operated Vehicle (ROV).** • The project began in 2002, when derelict fishing gear was observed on 90% of the research transects conducted across the rocky habitats on Cordell Bank. Abandoned long lines, gill nets, crab traps and trawl gear were entangled on the Bank with some extending into the water column. • In 2006 CBNMS staff dedicated a research cruise to test methods of removing derelict fishing gear from the seafloor using the sanctuaries' ROV. • Methods developed by CBNMS were later applied to other locations on the California coast with the help of CBNMS staff and commercial fisherman.	Completed
Dissolved Oxygen monitoring	**CBNMS has deployed seasonally mooring since 2014 to record oceanographic conditions important to commercial fishermen.** • Instruments on mooring record temperature and dissolved oxygen (DO) within CBNMS. • This information is summarized and made available via UC California Davis Bodega Marine Laboratory (BML) website. • Hypoxic DO levels were detected during two events in the summer of 2014.	Ongoing monitoring efforts from May to Oct.
Advisory Council	**Fishermen have representation on the CBNMS Advisory Council.** • The Sanctuary's Advisory Council has had a fisherman representing the commercial and recreational fishing interests since its creation in 2001.	Ongoing

Collaborations with ***Fishermen*** and West Coast National Marine Sanctuaries
(completed, ongoing and planned)

Gulf of the Farallones National Marine Sanctuary (GFNMS)		
Activity	**Description**	**Status**
Fishermen in the Classroom	**Local fishermen visit classrooms to interpret life at sea, the history of fishing in our local communities, and current fishing activities in the sanctuary.** • Fishermen present their maritime history and culture to classrooms so that students can learn about the marine environment as well as the human dimensions of marine resource use and its management. • GFNMS has employed two fishermen with a stipend of $150 each for the first class and $100 for each additional class. • In 2012 - 2013 Fisherman in the Classroom teamed up with local fishermen to deliver programs to 400 students and their teachers in grades 6-12. The teaching team presented fishing gear, video, stories, recipes and activities to highlight the rich maritime fishing culture of the Central California Coast.	Ongoing since 2008
Fishermen signage program at Pillar Point Harbor	**GFNMS partners with Pillar Point Harbor to create a series of signs displayed at the harbor.** • The series of signs includes profiles of the fisheries that originate from the harbor and profiles of the fishermen who catch the fish. • A local fisherman has been a member of the planning and design team. Fishermen contributed funds towards the fabrication of the signs. • Seven signs have been installed on the main promenade at Pillar Point Harbor.	Ongoing; ~15 year project
"Fisheries in the Sanctuary" Exhibit	**San Francisco Visitor Center hosts a permanent exhibit featuring local fisheries and fishermen working in GFNMS.** • Exhibit includes a display on the locally caught species and gear used to catch them as well as a profile of a local fisherman.	Permanent exhibit in place
Pacific Coast Federation of Fishermen's (PCFFA) board meetings	**Starting in 1998 GFNMS Superintendent attends periodic Pacific Coast Federation of Fishermen's Associations (PCFFA) Board meetings to provide briefings on current GFNMS activities (e.g., GFNMS programs and marine debris proposals).** • Attending these board meetings on PCFFA's schedule has created a positive dialogue with, and built credibility and trust for GFNMS staff among local fishermen.	Ongoing; attendance is subject dependent
Bodega Bay Fishermen's Festival	**Since 2002, CBNMS and GFNMS education staff participate in annual Bodega Bay Fishermen's festival.** • National marine sanctuary's staff set up a booth with sanctuary information, including distribution of tide books containing education messages about the sanctuaries and talk with fishermen about current events and issues affecting the local fishing community. • Over 1000 people per year are contacted within the two day event.	Ongoing (occurs every April)
Meet the Fishermen program	**GFNMS led a kayak excursion around Pillar Point Harbor to visit fishing boats.** • In 2007 GFNMS staff and members of the public paddled from fishing boat to fishing boat to meet their local fishermen as part of the sanctuary's annual lecture series and field adventure program. • Thirty members of the public participated in the program. • Funding allowed, GFNMS would like to resume this program as part of the Half Moon Bay Visitor Center program offerings.	Completed

Collaborations with ***Fishermen*** and West Coast National Marine Sanctuaries
(completed, ongoing and planned)

Gulf of the Farallones National Marine Sanctuary (GFNMS) - continued		
Activity	**Description**	**Status**
Maritime Heritage lecture series: Local Seafood lecture	**GFNMS presented a lecture series on three eras of fishing and fisheries in the GFNMS region reaching audiences of over 100 attendees.** • In 2008 the GFNMS education team developed a lecture series using stories shared by fishermen from Half Moon Bay. • The event was very popular; future lecture series are being planned as part of the programming for the Half Moon Bay Visitor Center.	Completed in 2010
Maritime Heritage Abalone Soirée	**GFNMS presented an Abalone Soirée with a Maritime Historian, Abalone "Farmers", Artists, Scientists and Chefs reaching an audience of over 150 attendees.** • In 2013 the GFNMS education team developed the Abalone Soirée which included Abalone "Farmers" from Pillar Point Harbor, local maritime historians, chefs, artists and scientists. • The event was sold out; future sanctuary Soirées are being planned as part of the programming for the Half Moon Bay Visitor Center.	Completed 2013
Improving coordination	**Fishermen request GFNMS office and Visitor Center to be located at Pillar Point Harbor to increase access of fishermen to GFNMS staff.** • GFNMS staff evaluated relocation of the Half Moon Bay office to Pillar Point Harbor to, among many benefits, improve interaction with the fishing community. • The fishing community would like to work with GFNMS to design programs for the Visitor Center including a lecture series on the history of the local fishing community, what's local and sustainable, and how to prepare local and sustainably caught fish. • GFNMS facilitated a Working Group (WG) to develop recommendations for a Half Moon Bay Visitor Center. The WG, of which commercial fishermen were members, recommended "coastal sustainability and communities" as one of the themes for the Half Moon Bay Visitor Center. Fishing is an integral part of that theme. Staff presented the Pillar Point Office and Visitor Center concept to the Pillar Point Harbor Commission on November 4, 2009 and the concept was well received. • The Commercial Fisheries representative on the GFNMS Advisory Council introduced a resolution, which was subsequently unanimously supported, to include fisheries in maritime heritage exhibits and education programs of the proposed Visitor Center. • No action has been taken due to a lack of funds within ONMS budget.	WG completed; coordination is ongoing; new exhibits will be developed as budget allows
Awards	**Lifetime Achievement Award** • Zeke Grader, Executive Director of the Pacific Coast Federation of Fishermen's Association and Institute for Fisheries Resources received the GFNMS 2015 Lifetime Achievement Award for his lifetime of work to protect water quality, promote sustainable fishing practices, and protect fish habitat.	Completed

Gulf of the Farallones National Marine Sanctuary (GFNMS) - continued		
Activity	**Description**	**Status**
San Francisco Fishermen's swap meet	**In 2005, staff hosted a booth at the annual Fishermen's Swap Meet, a Bay Area gear exchange for commercial fishermen** • An effective event to meet and speak with fishermen regarding national marine sanctuaries.	Completed
Reducing Marine Debris	**Support and Partnership with SeaDoc Society on Crab Pot removal** • This project aims to collaboratively work with Dungeness crab fishermen in California to recover lost and abandoned crab pots specifically in the sanctuary. • GFNMS has requested that SeaDoc attend a Sanctuary Advisory Council meeting to discuss how commercial fishermen can lead lost gear recovery work on the water. GFNMS plans to assist SeaDoc Society with connecting with local fishermen and fisheries enforcement officers to ensure a coordinated roll-out of this project in 2015.	2015 – through August 2016
Advisory Council	**Fishermen have representation on the GFNMS Advisory Council.** • During the creation of the Gulf of the Farallones Advisory Council in 2002, a seat for maritime activities/commercial was created to represent commercial fishing interests.	Ongoing

Collaborations with ***Fishermen*** and West Coast National Marine Sanctuaries
(completed, ongoing and planned)

Monterey Bay National Marine Sanctuary (MBNMS)		
Activity	**Description**	**Status**
Collaborative EFH proposal with fishermen & NGOs	**MBNMS submits a collaborative proposal to PFMC with trawl fishermen and conservation NGOs to modify groundfish EFH.** • In 2012 MBNMS led creation of the collaborative proposal, which requests additional protections to sensitive habitat, and re-opens fishing in historically trawled fishing grounds in EFH Conservation Areas within the sanctuary, • MBNMS brought all interests to the table and provided technical services by sharing newly acquired habitat data, analyses, maps with multiple data layers and negotiation skills that were essential for finding common agreement and support for the proposal. • As part of the project, voluntary management closures, where bottom trawling would be prohibited, were proposed by the fishermen as a pilot program. These voluntary measures would be evaluated and monitored by MBNMS in collaboration with the fishermen. • Due to the productive and trusted working relationship created during the proposal development, additional topics and projects are under discussion such as modifications to RCAs. • For more information see: http://montereybay.noaa.gov/resourcepro/ebmi/welcome.html.	Under review by PFMC
Community supported Fishery	**CA Sea Grant Fellow hosted by MBNMS developed and implemented a community supported fishery (CSF) for the Monterey Bay area.** • The CSF, created in 2012 and named Local Catch Monterey Bay (now known as 'Real Good Fish') provides weekly shares of high quality, local seafood directly from local fishermen to regional residents. • The web site (http://www.realgoodfish.com) includes seafood recipes, profiles of local fishermen, a member forum and more to connect consumers with high quality local food, healthy ecosystems, and local fishermen.	The CSF is now running as an independent business
Fishermen in the Classroom	**Local fishermen visited classrooms to interpret life at sea, the history of fishing in our local communities, and current fishing activities in the sanctuary.** • Fishermen presented their maritime history and culture to classrooms so that students could learn about the marine environment as well as the human dimensions of marine resource use and its management. • 12 commercial fishermen (paid $300/school) were recruited and trained to present to in K-12 grade classrooms. • From 2008 - 2013, 200 presentations were given reaching over 6,000 students.	Project completed in 2013
Voices of the Bay	**"Voices of the Bay" brought innovative curriculum on fisheries and fishermen's lives to the classroom.** • Fishermen provided key information during curriculum development at teacher workshops, on R/V FULMAR (the sanctuary research vessel) cruises, and field trips to local harbors. • The curriculum is composed of three modules 1) Balance in the Bay; 2) From Ocean to Tables; and 3) Capturing the Voices of the Bay. • The curriculum was piloted in five area high schools adjacent to the sanctuary and since 2009, was implemented by over 50 teachers in California high schools reaching over 1,700 students.	Project completed in 2013

Monterey Bay National Marine Sanctuary (MBNMS) - continued		
Activity	**Description**	**Status**
Collaborative research to remove fishing gear	**MBNMS conducted the 'Lost Fishing Gear Removal' project to remove marine hazards that entangle marine life.** • The 2009 – 2011project had two components 1) to reduce benthic and pelagic hazards to marine organisms posed by lost gear, and 2) provide outreach tools to assist in the location of lost gear via reports from divers, researchers, and fishermen. • Partners included UC Davis' SeaDoc Society CDFW; MARE, CSU Monterey Bay, and CBNMS. • Based on information from NMFS and fishermen, gear was removed using a remotely operated vehicle (ROV) from several high priority sites, such as at Portuguese Ledge State Marine Conservation Area. • Operations were conducted aboard a local fishing vessel F/V DONNA KATHLEEN in 2009 - 2010. • Local fishermen heard about the removal efforts through local media, and contacted the F/V DONNA KATHLEEN to request assistance in finding recently lost fish traps. • Approximately 1,000 lbs. of lost fishing gear was removed from the sanctuary. Annual reports for the project are at http://montereybay.noaa.gov/resourcepro/resmanissues/lostgear.html	Project completed in 2011
Groundfish habitat recovery	**MBNMS collaborated with The Nature Conservancy to investigate impacts from trawling on soft bottom habitats.** • MBNMS staff participated with TNC's study off of Morro Bay, by developing outreach materials, reviewing of the research plan, and providing ship time on the R/V FULMAR. • The 2009-2012 research studied the impacts of modified groundfish trawling practices on soft sea-floor habitat and the time it takes for seafloor habitats to recover from trawling. • The project utilized trawl fishing vessels in Morro Bay to conduct the treatments and the R/V FULMAR to study trawl impacts and recovery rates. • The completed report can be found at: http://montereybay.noaa.gov/research/techreports/trlindholm2013.html	Project completed in 2012
Collaborative fishery project	**MBNMS collaborated with fishermen to understand more about impacts from the halibut hook and line fishery.** • The study provides a preliminary snapshot characterization of the California halibut fishery currently taking place in northern Monterey Bay with hook and line gear, focusing on costs and revenues to participating fishermen, spatial patterns in fishing effort, and incidental catch (i.e. bycatch). • The report, "A profile of the hook and line fishery for California halibut in Monterey Bay, California: learning from fishermen through collaborative research" is at http://montereybay.noaa.gov/research/techreports/trfrey2014.html	Study completed in 2011, and report published in 2014
Promotion of Sicilian fishing heritage	**The film "Il Mar di Joe/Sea of Joe" celebrates Italian fishermen in Monterey** • In 2009, MBNMS provided logistical support, including vessel time, interviews and footage for an Italian film director to create the film, "Il Mar di Joe/Sea of Joe," about the emigration of Italian fishermen to Monterey, California. • The film was funded and produced by Italian cultural organizations and agencies. • In 2009, MBNMS hosted the premiere screening of the film for the fishing and similar communities in Monterey; nearly 400 people attended that screening. • Among other honors, this film won the 2010 BLUE Film Festival award for Best Feature Monterey Bay.	Film celebrated in 2010

Monterey Bay National Marine Sanctuary (MBNMS) - continued		
Activity	**Description**	**Status**
Invite to ACSF board meetings	**Alliance of Communities for Sustainable Fisheries (ASCF) invites MBNMS to their board meetings.** • In order to improve communication and coordination among ACSF, MBNMS, and the Advisory Council, MBNMS leadership will attend ACSF board meetings. • In addition, when a fishing concern arises, MBNMS will strive to work with ACSF to address the concern.	Starting in 2014
Fishermen's Festivals	**MBNMS co-hosts the Fishermen's Festival with Monterey Harbor.** • MBNMS co-hosted with the Monterey Harbor two fishermen's festivals. MBNMS helped coordinate and plan the event. • Festivities included fishing boat tours and open house with local fishermen; fishing and ocean exhibits; fresh Monterey Bay seafood with celebrity chefs; special hands-on children's activities (arts and crafts, treasure hunt, fishing demonstrations); abalone farm tours; and history of fishing tours and activities at the Maritime Museum.	Conducted in 2004/05
Supporting local sustainable fishing initiatives	**MBNMS sends letters of support for proposals to improve and maintain an economically and ecologically sustainable fishing industry.** • MBNMS sent letters of support to OPC's California's Fisheries Challenge endorsing a package of proposals submitted by the City of Monterey (Harbors) and Alliance of Communities for Sustainable Fisheries Communities. • The package focused on four proposals: 1) A 'Buy Fresh, Buy Local' seafood campaign; 2) Development of a scientifically credible 'local sustainable fishery' certification; 3) A shared community assessment of the current and historical condition of commercial fishing in the region; and 4) Assistance for funding Exempted Fishing Permits that collect information on potentially less impactful fishing gear.	The proposals were not funded
Sanctuary Classic	**MBNMS is a strong supporter and an active partner of the annual 'Sanctuary Classic'(www.sanctuaryclassic.org).** • The Sanctuary Classic is a recreational fishing and photography tournament that began in 2012. Thousands of recreational fishermen participate in this event from across the country, including the central coast of California. • MBNMS supports the tournament by encouraging local recreational fishermen to participate and by helping the Sportfishing Conservancy to build local support. • Advisory Council members, including the Recreational Fishing seats, are helping to get the word out with banners and posters to all the fishing harbors and fishermen in MBNMS. • Promotion of the Sanctuary Classic creates a positive awareness of MBNMS within the recreational fishing community that the sanctuary is a place to enjoy fantastic fishing opportunities within healthy waters. • Promotion of the Sanctuary Classic event creates positive results for on-the-water business communities through increases in trips aboard sportfishing charter vessels and consumer shopping at local bait-and-tackle shops.	Ongoing
Poster on Salmonid Habitat	**MBNMS collaboratively develops and prints a poster on Salmonid life-history** • In 2001 MBNMS led this creative outreach effort to raise public and government agencies' awareness of the critical need to better preserve and protect salmonid habitat in central California. • The team developed a classroom curriculum and colorful poster on salmonid habitat and how to protect it. • Partners for this effort included NMFS, local NGOs, the Santa Cruz Resource Conservation District and Monterey Bay Sanctuary Foundation.	Completed; a few posters are still available

Monterey Bay National Marine Sanctuary (MBNMS) - continued		
Activity	**Description**	**Status**
R/V FULMAR Christening	**The sanctuary RESEARCH VESSEL FULMAR is christened by local Sicilian matriarch.** • Mrs. Anita Ferrante served as the matriarch for the R/V FULMAR during the vessel's official christening in 2006. • Mrs. Ferrante as a member of one of the most prominent Sicilian fishing families in Monterey participated and brought her long standing connections to the fishing community to the christening event.	Completed
Advisory Council	**Commercial and recreational fishermen have representation on the MBNMS Advisory Council.** • Since its establishment in 1994, the Sanctuary Advisory Council has had a commercial fishing seat. In approximately 2001, a separate fishing seat was added to the Sanctuary Advisory Council (in addition to the commercial fishing seat).	Ongoing

Collaborations with ***Fishermen*** and West Coast National Marine Sanctuaries
(completed, ongoing and planned)

Channel Islands National Marine Sanctuary (CINMS)		
Activity	**Description**	**Status**
Sanctuary Classic	**CINMS is a strong supporter and an active partner of the annual 'Sanctuary Classic'(www.sanctuaryclassic.org).** • The Sanctuary Classic is a recreational fishing and photography tournament that began in 2012. Thousands of recreational fishermen participate in this event from across the country, including the southern coast of California. • CINMS supports the tournament by encouraging local recreational fishermen to participate and by helping the Sportfishing Conservancy to build local support. • The Channel Islands National Marine Sanctuary Advisory Council wrote letters of support and provided helpful feedback to improve the tournament. • Advisory Council feedback also led to a successful 2013 workshop that focused on state-of-the-art gear and procedures for catch-and-release fishing. • Outreach on the tournament helped CINMS come out on top in both years as the sanctuary site that received the highest number of photo entries. • These efforts have helped show the local fishing community, the general public, and the media that CINMS is a place that is open to, supportive, and encouraging of fishing within the sanctuary.	Ongoing; working on outreach plans for 2014 tournament.
Santa Barbara Seafood Festival	**CINMS staff, volunteers, and Advisory Council members participate at the Santa Barbara Seafood Festival.** • Each year since 2002, the CINMS 'family' helps local fishermen with this Festival by working alongside local commercial fishermen to help prepare and serve their locally caught lobster, crab and fish.	Ongoing
Weather/ Informational Kiosks	**Touch screen kiosks installed at harbors providing weather data to boaters and fishermen.** • The first generation of CINMS/ONMS touch screen kiosks are installed at the fuel docks in Santa Barbara and Channel Islands Harbors, and still provide up to date online weather information for boaters and fishermen to check conditions before they head out to the Channel Islands. • These kiosks were developed with input and appreciation from the fishing community. • The weather kiosks have become part of the ONMS kiosk program, with eight now installed at different locations within Santa Barbara and Ventura counties. • The newest weather kiosks in the CINMS area are at the Channel Islands Boating Center.	Permanent installation
State Lobster Advisory Committee	**CINMS supports an ecologically and economically sustainable lobster fishery.** • CINMS represented federal interests on the California Dept. of Fish and Wildlife (CDFW) Lobster Advisory Committee (LAC). CDFW will package the LAC advice and drafted a Fishery Management Plan (FMP) for review and adoption by the California Fish and Game Commission in 2015 - 2016. • CINMS participation with the LAC was aligned with fishing interests, demonstrating that CINMS is not anti-fishing and that CINMS supports sound fishery management and science-based decision-making.	Advisory Committee phase concluded
Harbor signs	**Harbor signs designed and implemented by CINMS.** • In 2012 CINMS designed and led the implementation of commercial fishing signs that have been installed at Channel Islands Harbor next to the Commercial Fishing Loading Pier at the Marine Emporium Landing. • The signs promote awareness of the importance of commercial fishing to our local economy.	Permanent installation

Collaborations with ***Fishermen*** and West Coast National Marine Sanctuaries
(completed, ongoing and planned)

Channel Islands National Marine Sanctuary (CINMS) - continued		
Activity	**Description**	**Status**
Channel Islands Boating Center exhibit panels	**Panels of recreational and commercial fishing exhibited at the Channel Island Boating Center.** • In 2013 CINMS and ONMS staff designed and oversaw fabrication and installation of the exhibit panels, which are placed within the upstairs classroom areas at the new Channel Islands Boating Center. • The panels highlight fishing as a time-honored tradition and the role fishermen have in conserving the Channel Islands.	Permanent installation
Marine debris removal	**CINMS removes marine debris for several projects.** • Over the past several years, CINMS has worked on marine debris removal projects with the City of Santa Barbara (for periodic harbor clean-ups), the UC Davis' SeaDoc Society, and the Ocean Defenders Alliance (ODA). • Through the California Lost Fishing Gear Recovery Project, SeaDoc employs local fishermen to carry out the marine debris location and recovery operations. To date they have removed approximately 20,000 pounds of gear including: 2 siene nets; 2 drag nets; 166 lobster traps; 3 hoop nets; 1 fish stick; 17 crab traps; 1 squid net; 4203 feet of line; and 3610 pounds of miscellaneous gear. Recovered, functional gear is returned to the owners; the program is generally perceived as a win-win by the fishermen. • CINMS has provided salvage and recovery permits and support letters for the SeaDoc Society, who has received annual funding for marine debris removal. • The success of the California Lost Fishing Gear Recovery Project, particularly with regard to positive involvement by the commercial fishing community, has helped CINMS influence the manner in which the ODA is approaching this same type of work within the sanctuary.	Ongoing; CINMS continues to help with harbor seafloor cleanups, and supports requests for external funding
Ocean Acidification	**CINMS Advisory Council develops a comprehensive report on ocean acidification.** • Starting in 2008 the CINMS Advisory Council (AC) heeded warnings by commercial fisherman Bruce Steele (AC member) about the dangers of ocean acidification (OA) as something that could harm marine life and fisheries on large scales. With Steele's close involvement the Advisory Council went on to develop and endorse a comprehensive report on OA and become a leading community group voice on this topic. • Bruce Steele has also worked directly with CINMS education staff on OA outreach, participating in volunteer trainings in 2010, and with the Oceans for Life program in 2011 and 2013.	Ongoing since 2008.
State Red Abalone Advisory Group (RAAG)	**CINMS superintendent participates on a red abalone interagency and stakeholder workgroup.** • The workgroup developed advice and recommendations for the California Fish and Game Commission (FGC) regarding 1) TAC (total allowable catch) available off San Miguel Island; 2) How to best monitor red abalone population and density/abundance data for viable TAC; and 3) If a fishery were to proceed, how should it be managed (limited entry permit system, tagging system, enforcement). • CINMS participation in the RAAG benefited fishermen by helping to ensure a scientific basis for decisions; CINMS also worked directly with affected fishermen prior to recommendations being presented to the FGC in 2010.	Completed; however, FGC may hold additional discussions in the future.

Channel Islands National Marine Sanctuary (CINMS) - continued		
Activity	**Description**	**Status**
Socioeconomic monitoring	**CINMS demonstrates an ongoing commitment to socioeconomic monitoring and study of MPAs within the sanctuary**. • Through 2009, a regional Social Science Coordinator helped CINMS propose, develop and conduct social science surveys, and develop a social science plan for CINMS (see http://channelislands.noaa.gov/marineres/pdfs/ssp_8-29-07.pdf). This work earned trust and respect of local fishermen because it was conducted with patience, collaborative project planning, protection of personal information, and the sharing of results with fishermen. • Fishermen involved with this work recommend 1) using aggregate data of spatial fishing patterns from private recreational boaters (2006-2008 boater and web surveys) and 2) evaluating changes in charter fishing business patterns before and after marine reserves were designated within CINMS (current work in progress). • Also of interest to the fishing industry is the analysis of CINMS aerial data showing changes in boat distribution before and after MPA establishment (presented at 2008 Channel Islands MPA symposium). • The fishing community, both recreational and commercial, would like to see additional socio-economic monitoring projects pursued at CINMS, pursuant to the CINMS Social Science Plan. • Currently the HQ ONMS Economist has been updating data and conducting analyses, and in 2015 will release a report on the economic contributions of recreational fishing in the CINMS area, and the other California sanctuaries.	Ongoing
Collaborative Marine Research Project	**The Collaborative Marine Research Project fostered research collaboration among fishermen, scientists, and various agencies to obtain scientific data on issues of interest to fishermen and resource managers.** • From 2001 to 2005,fishermen joined CINMS, NMFS and others on a planning committee to help guide the program and select projects for funding. The program was envisioned to be funded by both ONMS and NMFS. • CINMS contributed funds in 2001 to help get the initiative off the ground and fund pilot projects conducted in 2001, 2002, 2004, and 2005 to support these additional collaborative research projects: o Marine Protected Area Benefits for Recreational Fishermen of Calico Bass (Fishing Partners: Joel Greenburg, Dan Fink, Ramona Lisa McFadyen, Tiffany Vague) o Variation in Larval Supply Inside and Outside Marine Protected Areas within the Channel Islands National Marine Sanctuary (Fishing Partners: Bruce Steele, Rick Gutierrez and Harry Liquornik) o Goleta Pier, A Platform for Education and Conservation. • Despite a lack of funding to continue this program, CINMS has assisted with other collaborative projects arranged at UCSB. For instance, CINMS joined in a collaborative monitoring study of spiny lobster within and outside Channel Islands marine protected areas.	Halted past Program. May resume when funding allows
Advisory Council membership	**Commercial and recreational fishermen have representation on the CINMS Advisory Council.** • Since its establishment in 1998, the Sanctuary Advisory Council has had commercial and recreational fishermen to represent the fishing interests (a commercial and recreational seat) of the sanctuary.	Ongoing; currently the activity level is low

Collaborations with ***Harbors*** and West Coast National Marine Sanctuaries
(completed, ongoing and planned)

Olympic Coast National Marine Sanctuary (OCNMS)		
Activity	**Description**	**Status**
Port of Neah Bay Improvements	**OCNMS supported efforts by the Makah Tribe to replace a commercial fishing pier** in Port of Neah Bay • In 2013, OCNMS wrote a support letter focusing on the economic necessity of the pier to the tribe, other commercial fishing interests, and oil spill response community, and the need to replace it. • The project did not receive the requested funding, however reconstruction of the dock was completed with alternative funding.	Dock completed
Port of Port Angeles partnership	**OCNMS-Feiro Marine Life Center: City of Port Angeles Partnership** • A partnership among OCNMS, Feiro Marine Life Center, and the City of Port Angeles has been investigating the potential for a Port Angeles Marine Campus to promote the goals of each organization and to promote marine-based education, research and stewardship on the Port Angeles waterfront. • The Port of Port Angeles has expressed their support for the project, is interested in partnering on environmental stewardship education, and will assist with providing economic data for facility planning.	Ongoing
Moorage Fees	**OCNMS contributes moorage fees.** • The Port of Port Angeles Boat Haven is the homeport of the R/V TATOOSH. OCNMS pays slip fees and utilities on the order of $4,000/year, with a total expenditure of $18,000 for 5 years of service. • OCNMS conducts field operations out of the Quileute Harbor Marina from May through October each year. OCNMS pays slip fees and utilities on the order of $500/year, with a total expenditure of $2,000 for 5 years of service.	Ongoing
Whale Trail Signs	**OCNMS collaborated with the Whale Trail to install informational marine mammal signs in Port Angeles Harbor.** • In 2013, OCNMS worked with The Whale Trail to install a series of informational signs about marine mammals at various locations along the outer coast and Strait of Juan de Fuca, including one location in Port Angeles harbor. • The signs describe marine mammals you can see from land (including harbors) with associated conservation messages to inspire appreciation and stewardship of whales and the ocean. • OCNMS continues to support expansion of additional Whale Trail signs in Washington State and into British Columbia, which may include additional locations within ports.	Completed, planning for additional sites

Collaborations with ***Harbors*** and West Coast National Marine Sanctuaries
(completed, ongoing and planned)

Cordell Bank National Marine Sanctuary (CBNMS)		
Activity	**Description**	**Status**
Spud Point Marina, Bodega Harbor	**CBNMS Partnership with Spud Point Marina** • Sanctuary signs installed at harbor describe unique aspects of Cordell Bank and Gulf of the Farallones national marine sanctuaries and how sanctuaries help protect these special areas. • CBNMS helped fund a separate enclosed bulletin board at the marina that displays NOAA and marina business information. • CBNMS staff members have a strong and positive working relationship with Marina staff. • The sanctuary R/V FULMAR stays at Spud Point Marina at least three times a year during research and monitoring cruises, leading to fees paid for slip usage, fuel, and purchase of supplies.	Ongoing since 2003
Bodega Bay Fishermen's Festival	**Since 2002, CBNMS and GFNMS education staff participates in annual Bodega Bay Fishermen's Festival.** • Since 2002 CBNMS and GFNMS (began in 2003) education staff participate in annual Bodega Bay Fishermen's Festival: sanctuary's staff set up a booth with sanctuary information, including distribution of tide books containing education messages about the sanctuaries, and talk with fishermen about current events and issues affecting the local fishing community. Over 1000 people per year are contacted within the two-day event. • In 2014 and 2015 the Cordell Marine Sanctuary Foundation also assisted with this event.	Ongoing (occurs every April)
Dock Use	**ONMS operates research vessels contributing to the local economy.** • The R/V FULMAR routinely stages projects out of Bodega Bay, Sausalito, San Francisco, and Pillar Point. • These vessels are professionally crewed by 4-5 local residents who reside in areas adjacent to the sanctuaries.	Ongoing
Advisory Council	**Harbors have representation on the CBNMS Advisory Council.** • The supervisor of Spud Point Marina in Bodega Bay is a member of the CBNMS Advisory Council. CBNMS also has a maritime activities seat on the Advisory Council held by and employee of a large shipping company.	Ongoing

Collaborations with ***Harbors*** and West Coast National Marine Sanctuaries
(completed, ongoing and planned)

Gulf of the Farallones National Marine Sanctuary (GFNMS)		
Activity	**Description**	**Status**
Fishermen signage program at Pillar Point Harbor	**GFNMS partners with Pillar Point Harbor to create a series of maritime heritage signs for the harbor.** • The series of signs includes profiles of the fisheries that originate from the harbor and profiles of the fishermen who catch the fish. • A local fisherman has been a member of the planning and design team. Fishermen contributed funds towards the fabrication of the signs. • Seven signs have been installed at the main dock and the Half Moon Bay Chamber of Commerce features this interpretive dock walk.	Fishermen signage program at Pillar Point Harbor
Regulatory signs at Pillar Point Harbor	**GFNMS installs various signs to inform boaters of GFNMS and state regulations at Pillar Point Harbor.** • In 2011 GFNMS installed at the harbor boat ramp signs depicting the locations of zones where motorized personal watercraft (i.e. jetskis) are allowed. • In 2014 another sign was installed at the boat ramp depicting locations of and regulations for the state implemented Special Closures and marine protected areas (MPAs) at Devil's Slide and Southeast Farallon Islands. The harbor built a roofed structure to hold the 2 signs. • GFNMS partnered with the Monterey Bay Sanctuary Foundation to place a sign kiosk at the Boat Ramp and another sign kiosk across from the Harbormasters office. The kiosks inform boaters and harbor visitors of Sanctuary regulations, the state implemented network of MPAs and how they can enjoy the harbor by boat or on foot. • GFNMS has installed a total of ten signs and a National Marine Sanctuary flag at Pillar Point Harbor.. • The website of Pillar Point Harbor features their harbor as the Gateway to National Marine Sanctuaries.	Ongoing
Spud Point Marina, Bodega Harbor	**GFNMS Partnership with Spud Point Marina** • Sanctuary signs installed at harbor describe unique aspects of Gulf of the Farallones and Cordell Bank national marine sanctuaries and how sanctuaries help protect these special areas. • Since 2003 GFNMS and CBNMS education staff participate in annual Bodega Bay Fishermen's Festival: sanctuary's staff set up a booth with Sanctuary information, including distribution of tide books containing education messages about the sanctuaries, and talk with fishermen about current events and issues affecting the local fishing community. Over 1000 people per year are contacted within the two-day event.	Ongoing
Sediment management	**Collaboration with Pillar Point Harbor to produce potential sediment management measures.** ● GFNMS staff are collaborating with Pillar Point Harbor on the Santa Cruz Regional Sediment Management team to develop a range of sediment management measures that address coastal erosion and sediment transport issues at Surfer's Beach and the San Mateo Coast.	Ongoing since 2013
Pillar Point Harbor Boat	**Annually lead a December kayak paddle to view the fishing boats lit up with holiday lights.** ● GFNMS staff have participated in Pillar Point Harbor Boat Lighting activities since 2012 by leading a December kayak	Ongoing

Lighting	paddle to see the fishing boats lit up and to discuss maritime heritage.	
Gulf of the Farallones National Marine Sanctuary (GFNMS)		
Activity	**Description**	**Status**
Excursions	**GFNMS leads wildlife tours that depart from Pillar Point Harbor** • In coordination with Pillar Point Harbor and businesses, GFNMS leads annual excursions, such as whale watching that also highlight fishing and maritime heritage.	Ongoing
Dock Use	**ONMS operates research vessels contributing to the local economy.** • The R/V FULMAR routinely stages projects out of Bodega Bay, Sausalito, San Francisco, and Pillar Point. • These vessels are professionally crewed by 4-5 local residents who reside in areas adjacent to the sanctuaries.	Ongoing
Advisory Council	**Harbors have representation on the GFNMS Advisory Council.** • Since the formation of the Advisory Council in 2001, GFNMS had a representative of the San Mateo Harbor District as a member representing Maritime Activities. The member retired in 2014.	2001-2014

Collaborations with ***Harbors*** and West Coast National Marine Sanctuaries
(completed, ongoing and planned)

Monterey Bay National Marine Sanctuary (MBNMS)		
Activity	**Description**	**Status**
Signage at Monterey, Moss Landing and Santa Cruz harbors	**MBNMS partners with harbors adjacent to the sanctuary to create a series of signs displayed at the harbor.** • MBNMS staff worked with the Monterey, Moss Landing and Santa Cruz harbors to design and install a series of signs about fishing and wildlife along the public trails adjacent to the harbors. A total of 15 signs have been installed at all three harbors. • In Monterey harbor, four regulatory and four interpretive signs of the sanctuary have been installed. Regulatory signs describe the motorized personal watercraft (i.e.jetski) zones and 10 tips for clean boating. The interpretive signs describe the abundant marine life in the Sanctuary including harbor seals, otters, and seabirds. • In Santa Cruz harbor one regulatory sign describes the motorized personal watercraft zones and three interpretive installations are displayed. The interpretive installations are part of the Sanctuary Scenic Trail. The Scenic Trail is planned to be a 50 mile network of bicycle and pedestrian trails along the Monterey bay that aims to serve transportation and recreation of walkers, joggers, bicyclists, families and people with mobility impairment. MBNMS contributed the interpretative elements of the sign, with the harbor contributing funds for construction and installation. • In Moss Landing, one sign depicts the motorized personal watercraft zones within MBNMS and two signs direct boaters to the pump-out stations, which provide guidance to boaters on best practices for disposing of oily bilge.	Permanent displays; installations have occurred at different times over the past five years
Vessel home port	**ONMS operates research vessels contributing to the local economy.** • Monterey Harbor is home port to the ONMS vessels R/V FULMAR and R4107. • The R/V FULMAR is shared by MBNMS, GFNMS, and CBNMS. Therefore the vessel routinely stages projects out of Bodega Bay, Sausalito, San Francisco, Half Moon Bay, Santa Cruz, Morro Bay, and Ventura harbors, in addition to its home port of Monterey. Expenditures at local marinas and business for yard work, repairs, supplies, fuel and away-from-home slip fees average $150,000 to $200,000 per year. • These vessels are professionally crewed by 4-5 local residents who reside in areas adjacent to the sanctuaries.	Ongoing
Construction and installation of pump-out facilities	**MBNMS facilitates the construction and installation of pump-out facilities in harbors and marinas adjacent to the Sanctuary.** • MBNMS is committed to improving water quality of the sanctuary through regulatory prohibitions on sewage discharges from vessels and land-based sources. To facilitate compliance with these regulations MBNMS has dedicated significant resources (funding and staff time) towards installation of pump-out stations and outreach strategies for water quality improvement. • MBNMS collaborated with Monterey, Moss Landing and Santa Cruz harbors and key partners Ecology Action and Save Our Shores, to secure a grant from the CA Integrated Waste Management Board to install bilge and crankcase oil pump-out stations for boaters to dispose of oily bilge. • Staff also led a successful outreach campaign to educate the boating community by designing, constructing and installing signs that provide 10 tips for Clean Boating.	Permanent facilities and displays

Monterey Bay National Marine Sanctuary (MBNMS) – continued		
Activity	**Description**	**Status**
Removal of invasive, *Undaria*, from Monterey harbor	**MBNMS partners with various harbors and marinas along the central coast to remove an invasive algal species.** • From 2003 to 2009, MBNMS staff have led and collaborated on a project to monitor and remove the non-native kelp *Undaria pinnatifida* from Monterey Harbor, Pillar Point Harbor, and San Francisco Marina. By the end of 2009, over 11,000 algal stipes have been removed from Monterey harbor. • While *Undaria* has recruited throughout the harbor, there is no evidence, to date, that it has spread outside of the harbor into Sanctuary habitats. • At the invitations of other harbors and marinas, MBNMS has discussed the removal effort and collaborated with harbormasters in Santa Barbara and San Francisco.	Ongoing
Monitoring the invasive bryozoan *Watersipora*	**MBNMS partners with Monterey Harbor staff to track the spread of an invasive bryozoan, *Watersipora subtorquata*, and to assess its potential ecological impact on fouling communities.** • Since 2010, MBNMS divers have been monitoring the spread and ecological impact of *Watersipora*, an invasive bryozoan, using fixed photo quadrats taken at monthly intervals. • Staff have collaborated with college level students to complete research theses examining the ecological impact of *Watersipora* on other fouling species and how native crabs may destroy *Watersipora* bryoliths.	Ongoing
Whale Fest	**MBNMS promotes whale watching at Whale Fest.** • MBNMS and the West Coast Regional Office collaborate closely with the Monterey Wharf Association to support its annual "Whale Fest" and to promote whale watching in the Sanctuary. • ONMS leadership and staff have participated in their lecture series and hosted an informational booth at the event to educate festival participates about the sanctuary. • In the past MBNMS co-authored a proposal sent to the Governor of California requesting the Governor proclaim Monterey Bay “"Whale Watching Capital of the World".	Annual event in January since 2009
Weather/ Informational Kiosk	**Touch screen kiosks installed at the Monterey Harbor office to inform boaters of weather and the Sanctuary.** • An informational touch-screen kiosk was installed in 2005, educating the harbor community and visitors about the weather, the sanctuary, and other pertinent information to boaters. • Additional kiosks are being designed to be installed at the Monterey harbor and Santa Cruz wharf.	Permanent display
Sanctuary events at Santa Cruz Wharf	**MBNMS collaborates and participates in celebrations at Santa Cruz harbor and wharf.** • MBNMS hosted a sanctuary booth with educational activities at the annual “Shark Festival and Sanctuary Celebration” at the Santa Cruz Wharf. • Local businesses and the harbor are main collaborators of the wharf celebrations. • In 2014, MBNMS helped to celebrate the harbor’s 50th anniversary and the Wharf’s 100 year celebration. The latter has been named the “Monterey Bay Sanctuary Celebration”	2005-2010; 2014
Wharf/harbor dive clean ups	**MBNMS participated in clean up the Monterey wharf.** • MBNMS participated in an annual Monterey wharf underwater clean up dives led by the harbor from 2004 to 2006. • This is now “Dive into Earth Day” and occurs annually on April 22nd.	2004-06

Monterey Bay National Marine Sanctuary (MBNMS) - continued		
Activity	**Description**	**Status**
Fishermen's Festivals	**MBNMS co-hosted the Fishermen's Festival with Monterey Harbor.** • MBNMS co-hosted with the Monterey Harbor two fishermen's festivals, by helping to coordinate and plan the event. • Festivities included fishing boat tours; an open house with local fishermen; fishing and ocean exhibits; fresh Monterey Bay seafood with celebrity chefs; special hands-on children's activities (arts and crafts, treasure hunt, fishing demonstrations); abalone farm tours; and tours of the fishing history and activities at the Maritime Museum.	Conducted in 2004/05
Sanctuary Classic	**Harbors and MBNMS collaborate to promote the annual 'Sanctuary Classic' (www.sanctuaryclassic.org)** • The Sanctuary Classic is a recreational fishing and photography tournament that began in 2012. Thousands of recreational fishermen participate in this event from across the country, including the central coast of California. • MBNMS and harbors are increasing public participation and consumer spending for the event by advertising with local constituents through social media, press releases, posting of large colorful banners at each harbor, and handing out brochures to the public.	Ongoing
Permitting of harbor dredge disposal	**MBMNS facilitates disposal of dredge materials from harbors adjacent to the sanctuary.** • MBNMS has permitted and approved the disposal of dredged material from Santa Cruz, Moss Landing, and Monterey Harbors into the sanctuary. • During the Sanctuary Management Plan Review Process of 2002, MBNMS convened a group of diverse stakeholders with opposing viewpoints to tackle in a collaborative, consensus-based process a myriad of contentious harbor and dredge disposal issues. Although routinely challenging, MBNMS staff were able to complete an Action Plan for dredge disposal and harbors as part of the new Management Plan that was met with unanimous agreement from participants, including harbors, environmental organizations, other state and federal agencies. This guiding Action Plan is continually used and referred to today by MBNMS staff and partners. • Also during the Management Plan Review Process, MBNMS staff collaborated with harbors and partner federal agencies to ensure that historic dredge disposal sites in Monterey, Santa Cruz and Moss Landing were effectively and clearly codified as 'approved sites'. • MBNMS staff coordinate with state, federal, and local regulatory agencies on an annual basis to streamline permitting and approvals of dredged disposal within the sanctuary. Using a rough estimate, approximately 7,000,000 cubic yards of material have been discharged since sanctuary designation, and a negligible amount (less than 2%) of proposed material was denied for discharge due to contamination levels, unsuitable grain size, or other environmental issues like turbidity or potential smothering of sensitive resources.	Ongoing

Monterey Bay National Marine Sanctuary (MBNMS) - continued		
Activity	**Description**	**Status**
Marinas and Boating Action Plan	**MBNMS uses education and training programs outlined in the Marinas and Boating Action to reduce harbor-generated pollution.** • MBNMS developed in 1997 with harbormasters, resource agencies and the boating community activities to reduce pollution from boating and harbor activities (e.g., solid waste and debris, oil and gas from motor operations). • Successful education and outreach programs (brochures, signs with maps, and presentations at yacht clubs) communicate to boaters the environmental and economic impact of polluting activities. • Collaborative efforts with the non-profit Save Our Shores (SOS) and the CA Integrated Waste Management Board are providing oil-absorbent pads to boaters for clean-up of small spills through the Dock Walkers program of SOS, as well as brochures and maps of local harbors with locations of pump-out facilities and clean boating tips.	Ongoing
Advisory Council membership	**Harbors have representation on the MBNMS Advisory Council.** • Since the formation of the Advisory Council in 1994, MBNMS has had a representative of the four harbors on the Advisory Council, including Monterey, Santa Cruz, Moss Landing and Pillar Point.	Ongoing

Collaborations with ***Harbors*** and West Coast National Marine Sanctuaries
(completed, ongoing and planned)

Channel Islands National Marine Sanctuary (CINMS)		
Activity	**Description**	**Status**
Sanctuary Classic	**CINMS is a strong supporter and an active partner of the annual 'Sanctuary Classic' (www.sanctuaryclassic.org).** • The Sanctuary Classic is a recreational fishing and photography tournament that began in 2012. Thousands of recreational fishermen participate in this event from across the country, including the southern coast of California. • The kick-off location for this tournament has been Sea Landing at Santa Barbara Harbor. • CINMS efforts to support and promote the tournament have helped draw people to go sportfishing, including from charter vessels at local harbors.	Ongoing; working on outreach plans for 2015 tournament.
Channel Islands Boating Center	**CINMS and ONMS collaborate to produce state of the art exhibits for the Channel Islands Boating Center.** • CINMS and ONMS worked closely with the Ventura County Harbor Department for 7 years to help complete the new 15,000 square foot Channel Islands Boating Center, which was opened in 2013 in Oxnard, CA. • ONMS contributed nearly $900,000 in funds plus immeasurable CINMS and ONMS staff time to design and fabricate extensive exhibit panels, interactive features, touch screen kiosks, and a spherical display within the center that highlight sanctuaries, boating and CINMS. • The new center advances the harbor's revitalization plans, and bolsters the sanctuary/harbor partnership.	Completed in 2013
Santa Barbara Harbor Cleanup	**CINMS staff, volunteers, and Advisory Council members participate in Operation Clean Sweep.** • Over the past several years, CINMS staff, volunteers and Advisory Council members have participated in Operation Clean Sweep at Santa Barbara Harbor. This event brings together divers and dockside volunteers each year to help clean up debris from the harbor seafloor; approximately 15.7 tons have been removed over eight events through 2014.	Ongoing; annual event
Harbor signs	**CINMS installs various signs at the Santa Barbara and Channel Islands Harbors to inform boaters.** • CINMS designed and led the implementation of commercial fishing signs that have been installed at Channel Islands Harbor next to the Commercial Fishing Loading Pier at Marine Emporium Landing. The signs promote awareness of the importance of commercial fishing to our local economy. • CINMS also designed and coordinated the initial installation of Channel Islands marine protected area (MPA) signs at all three local harbors: Santa Barbara, Ventura, and Channel Islands. In 2012 and 2015, CINMS also updated these signs by incorporating information for the network of MPAs along the mainland coast. • Since the mid-1990s CINMS has funded the design and construction of twelve signs, at an average cost of $3,000 each, for the harbors and marinas adjacent to the sanctuary.	Completed in 2012 and 2015; permanent displays
Weather/ Informational Kiosks	**Touch screen kiosks installed at harbors providing weather data to boaters and fishermen.** • CINMS/ONMS touch screen kiosks are installed at Santa Barbara, Ventura and Channel Islands Harbors, and provide up to date online weather information for boaters and fishermen to check conditions before they head out to the Channel Islands. • These kiosks were originally developed with input and appreciation from the fishing community. • The weather kiosks have become part of the ONMS kiosk program, with nine now installed at different locations within Santa Barbara and Ventura counties. • The newest weather kiosks in the CINMS area are at the Channel Islands Boating Center.	Permanent installation

Collaborations with ***Harbors*** and West Coast National Marine Sanctuaries
(completed, ongoing and planned)

Channel Islands National Marine Sanctuary (CINMS) – continued		
Activity	**Description**	**Status**
Vessel home port and office spaces	**CINMS collaborates on improving harbor infrastructure and contributes harbor fees.** • Santa Barbara Harbor is home port to the CINMS vessels R/V SHEARWATER, SHARK CAT and XANTU (no longer in use). In 2009 via a cooperative agreement grant to the National Marine Sanctuary Foundation, ONMS provided Santa Barbara Harbor with $100,000 for construction of a new end-tie slip that accommodates the SHEARWATER, includes slip fees through 2014, and provides the harbor room for another wide-berth vessel. • Since 2003 (arrival of the SHEARWATER), CINMS has paid Santa Barbara Harbor nearly $170,000 for slip fees for several vessels (R/V SHEARWATER, SHARK CAT and XANTU). Ongoing slip fees/utilities for two vessels are approximately $20,000/year. • Since 2003 CINMS has on an annual basis spent $40,000 to $150,000 at local boatyards for maintenance and repair work for the R/V SHEARWATER, and is a regular customer at local marine supply shops. • Santa Barbara Harbor was also home to the CINMS main headquarters office for nearly 20 years. Even after outgrowing this space and moving CINMS headquarters to UC Santa Barbara, CINMS continues to rent office space for storage and part time staffing to maintain direct connection with harbor constituents. • For many years CINMS has been an office space tenant at Channel Islands Harbor. Now CINMS maintains an office and part time staffing presence at the new Channel Islands Boating Center.	Ongoing
Santa Barbara Maritime Museum	**CINMS collaborates with the Santa Barbara Maritime Museum at the Santa Barbara Harbor.** • The Santa Barbara Maritime Museum is a very important visitor draw to the Sanctuary Barbara Harbor. • CINMS has invested significant resources (staff time, expertise, funding) to help the Maritime Museum continue to be a main attraction at the harbor, including a number of exhibits, design of, and information for the Museum's Outdoors Santa Barbara Visitor Center, and special events programming. • CINMS also commits significant staff time serving on the Museum's board.	Ongoing
Santa Barbara Seafood Festival	**CINMS staff, volunteers, and Advisory Council members participate at the Santa Barbara Seafood Festival.** • Each year since 2002, the CINMS 'community' helps local fishermen with this Festival by working alongside local commercial fishermen to help prepare and serve their locally caught lobster, crab and fish.	Ongoing
Marina Fest	**CINMS staff and volunteers participate at the Marina Fest.** • CINMS staff help with planning of this annual community event held at Channel Islands Harbor, showcasing boating, local restaurants, and related environmental causes. CINMS volunteers greet visitors at a sanctuary outreach booth.	Ongoing
Advisory Council membership	**Harbor representation on the CINMS Advisory Council.** • Since the formation of the Advisory Council in 1998, CINMS has had a representative on the council from the Channel Islands Harbor.	Ongoing

Collaborations with ***Businesses*** and West Coast National Marine Sanctuaries
(completed, ongoing and planned)

Olympic Coast National Marine Sanctuary (OCNMS)		
Activity	**Description**	**Status**
Advisory Council Working Group on Tourism	**OCNMS Advisory Council convened a Tourism Working Group.** • OCNMS convened a Tourism Working Group (WG) to make recommendations to the sanctuary superintendent on how to more closely work with the tourism industry on the Olympic Peninsula. The WG presented its top recommendations at a May 2014 Advisory Council meeting with the Advisory Council forwarding them to the sanctuary superintendent for consideration. The recommendations can be found at http://olympiccoast.noaa.gov/involved/sac/report_twg_recommendationreport_2014.pdf • A few of the top recommendations to OCNMS management are as follows: strengthen partnerships with other natural resource agencies to help develop and promote volunteer tourism; engage visitors in citizen science opportunities; increase the use of social media to attract visitors to nature-based activities and outreach opportunities. • OCNMS piloted a "Voluntourism" campaign for International Coastal Cleanup (ICC) in September 2014. Through social media, OCNMS worked with local businesses to offer discounts and incentives to volunteers participating in the event. Volunteer participation increased by more than 350%, from 140 volunteers in 2013 to 500 in 2014. OCNMS and local businesses will continue to promote voluntourism at upcoming annual ICC events.	Completed and ongoing
Small cruise ship industry	**OCNMS collaborates with the Port Angeles Regional Chamber of Commerce to support small cruise ships.** • OCNMS has been collaborating with the Port Angeles Regional Chamber of Commerce to provide educational programs for passengers of small cruise ships visiting Port Angeles harbor since 2013.	Ongoing
Ecotourism businesses	**OCNMS supplies nature-based tourism with educational materials.** • OCNMS has provided educational materials to nature-based tourism companies to help educate their clients about the 'Get Into Your Sanctuary Day'of 2014 and 2015. The theme for 2015 is "Healthy Ocean, Healthy You" featuring activities such as beach walks, yoga on the beach, sustainable seafood dining experiences, and presentations by marine experts.	Ongoing
Whale Trail	**OCNMS collaborated with the Whale Trail to install informational marine mammal signs at Port Angeles Harbor, Strait of Juan de Fuca Scenic Byway and Olympic National Park locations.** • In 2013, OCNMS worked with The Whale Trail to install a series of informational signs about marine mammals at various locations along the Olympic Coast and Strait of Juan de Fuca, including locations adjacent to Port Angeles harbor, Strait of Juan de Fuca Scenic Byway, Olympic National Park and Olympic Coast National Marine Sanctuary. • The Whale Trail offers expanded tourism opportunities for visitors to Washington, enriching the visitor experience and providing additional reasons for extending visits to the region. The Whale Trail is expanding to Oregon, California and British Columbia in 2015 and 2016. • The signs describe marine mammals you can see from land (including harbors) with associated conservation messages to inspire appreciation and stewardship of whales and the ocean.	Ongoing
Advisory Council	**Businesses have representation on the OCNMS Advisory Council.** OCNMS also has a seat on its Advisory Council for tourism/economic development to better connect with the business and tourism community.	Ongoing

Collaborations with ***Businesses*** and West Coast National Marine Sanctuaries
(completed, ongoing and planned)

Cordell Bank National Marine Sanctuary (CBNMS)		
Activity	**Description**	**Status**
Pacific Merchant Shipping Association	**CBNMS partners with Pacific Merchant Shipping Association to help reduce ship strikes on whales.** • National marine sanctuaries on the west coast have a mission to reduce the number of whale ship strikes in sanctuaries. • The vice-president of Pacific Merchant Shipping Association (PMSA), John Berge, has been a member of the CBNMS Advisory Council since August 2007. • Mr. Berge was helpful bringing appropriate industry representatives to the CBNMS and GFNMS Advisory Council Working Group on vessel strikes. • As a result of the partnership with PMSA, CBNMS and GFNMS have had a close working relationship with the shipping industry, which is also interested in reducing the risk of whale ship strikes. PMSA has been instrumental in connecting sanctuary management with several shipping lines and funded research and outreach on whale ship strikes. • PMSA assisted with the San Francisco Port Access Route Study by facilitating discussions with industry that gauged their ability and willingness to adjust vessel approaches to San Francisco ports that would reduce the risk of vessels striking whales in CBNMS, GFNMS and MBNMS. • PMSA facilitated placement of a NOAA biologist aboard American President Lines Ltd. (the world's seventh-largest container transportation and shipping company) and Matson Inc., based in Oakland California. The ride-along provided an opportunity to evaluate the potential of gathering sighting information of whales from commercial ships by crew. The data collected and experience have helped CBNMS and GFNMS better understand whale distribution and behavior, and better tailor outreach materials for ship crew on the look-out for whales. • PMSA is currently helping with disseminating information to the shipping industry regarding recommendations from GFNMS and CBNMS to seasonally reduce vessel speed when whales are present within the sanctuaries.	Ongoing since 2007
Conserve.IO and Apple	**CBNMS collaborates with computer technology firms Conserve.IO and Apple.** • CBNMS (with GFNMS and CINMS) have partnered with Conserve.IO since 2012 to refine a mobile app, called WhaleAlert 2.0 that allows the public to record and crowd source whale sighting information. This information is then available on a public access website displaying near real-time information on whale distribution and abundance in sanctuaries. • Apple offered to review the code of the app, and may potentially give the partnership space at the world wide developer's conference to promote the app. Apple may also potentially feature WhaleAlert 2.0 in a commercial.	Ongoing
Point Reyes Birding and Nature Festival	**CBNMS supports Point Reyes Birding and Nature Festival to draw tourists to the area.** • Since 2008 CBNMS has supported the Point Reyes Birding and Nature Festival - an annual event that brings visitors to western Marin County during the spring, which is typically the low season for tourism in this area. Hundreds of birding enthusiasts from around the Bay Area and across the country, including New York, Mississippi, Texas, Montana and Washington, have enjoyed the Point Reyes Birding and Nature Festival. • Hundreds of people attending the festival, patronize local businesses, stay in B&Bs and learn about the inspiring natural wonders of the Point Reyes area and the sanctuaries. • CBNMS staff present interpretive information and provide materials to festival participant's during offshore cruises and on nature walks to enhance the festival program for visitors.	Ongoing

Collaborations with ***Businesses*** and West Coast National Marine Sanctuaries
(completed, ongoing and planned)

Cordell Bank National Marine Sanctuary (CBNMS) – continued		
Activity	**Description**	**Status**
San Francisco International Ocean Film Festival	**CBNMS supports the San Francisco International Ocean Film Festival (SFIOFF).** • CBNMS has sponsored the student film competition at the SFIOFF annually since 2012. • SFIOFF attracts thousands of attendees from throughout the San Francisco Bay Area to view films on marine science, industry, sports and adventure. The films are intended to entertain, educate and inspire active participation in ocean conservation. • The SFIOFF traveling program has been exported to venues in Chile, Russia, Hong Kong, Singapore, Australia, Boulder, CO, Alpena, MI, and Laguna, CA.	Ongoing
KWMR	**CBNMS and local radio station KMWR collaborate to present Ocean Currents.** • For 10 years KWMR has been collaborating with the CBNMS education coordinator to host Ocean Currents, a radio show, where experts in the field talk about current research, management issues, natural history, and stewardship of the marine environment, especially in our national marine sanctuaries.	Ongoing
Oakland Museum of CA	**CBNMS funded the development of an exhibit at the Oakland Museum of CA** • With support from ONMS, CBNMS awarded $500K to the Oakland Museum of CA to create a permanent exhibit about CBNMS in the Natural Sciences Gallery. The museum serves as a community resource for education, lifelong learners and community events. • The sanctuary co-sponsors special events with the museum and has an agreement outlining the ongoing partnership to reach diverse audiences and inform them about the value of California's ocean and national marine sanctuaries.	Ongoing
Point Reyes National Seashore Association/Field Seminar	**CBNMS works in partnership with PRNSA to host a boat trip to the sanctuary annually** • CBNMS partially funds an annual wildlife watching boat trip to CBNMS with the Point Reyes National Seashore Association (PRNSA). • PRNSA hires a recreational fishing "party" boat and a naturalist to lead the boat trip. • Participants spend dollars at local businesses with overnight accommodations and local amenities around the seminar.	Ongoing

Collaborations with ***Businesses*** and West Coast National Marine Sanctuaries
(completed, ongoing and planned)

Gulf of the Farallones National Marine Sanctuary (GFNMS)		
Activity	**Description**	**Status**
Pacific Merchant Shipping Association	**GFNMS partners with Pacific Merchant Shipping Association to help reduce ship strikes on whales.** • National marine sanctuaries on the west coast have a mission to reduce the incidence of ship strikes in sanctuaries. • PMSA vice president John Berge was helpful with bringing appropriate industry representatives to the CBNMS and GFNMS Advisory Council Working Group on vessel strikes. • As a result of the partnership with PMSA, GFNMS and CBNMS have had a close working relationship with the shipping industry, which is also interested in reducing the risk of whale ship strikes. PMSA has been instrumental in connecting GFNMS with several shipping lines and funded research and outreach on whale ship strikes. • PMSA assisted with the San Francisco Port Access Route Study by facilitating discussions with industry that gauged their ability and willingness to adjust vessel approaches to San Francisco ports that would reduce the risk of vessels striking whales in GFNMS, CBNMS, and MBNMS. • PMSA facilitated placement of a NOAA biologist aboard American President Lines Ltd. (the world's seventh-largest container transportation and shipping company) and Matson Inc., based in Oakland California. The ride-along provided an opportunity to evaluate the potential of gathering sighting information of whales from commercial ships by crew. The data collected and experience have helped GFNMS and CBNMS better understand whale distribution and behavior, and better tailor outreach materials for ship crew on the look-out for whales. • PMSA is currently helping with disseminating information to the shipping industry regarding recommendations from GFNMS and CBNMS to seasonally reduce vessel speed when whales are present within the sanctuaries.	Ongoing since 2007
Conserve.IO and Apple	**GFNMS collaborates with computer technology firms Conserve.IO and Apple.** • GFNMS (with CBNMS and CINMS) have partnered with Conserve.IO since 2012 to refine a mobile app, called WhaleAlert 2.0 that allows the public to record and crowd source whale sighting information. This information is then available on a public access website displaying near real-time information on whale distribution and abundance in sanctuaries. • Apple offered to review the code of the app, and may potentially give the partnership space at the world wide developer's conference to promote the app. Apple may also potentially feature WhaleAlert 2.0 in a commercial.	Ongoing
San Francisco International Ocean Film Festival	**GFNMS is founding member of the San Francisco International Ocean Film Festival (SFIOFF).** • For 12 years GFNMS has facilitated ONMS participation in the SFIOFF, which showcases films produced by the sanctuaries and films about the sanctuaries. • SFIOFF attracts thousands of spectators from throughout the San Francisco Bay and Monterey Bay areas to view films on marine science, industry, sports and adventure. The films are intended to entertain, educate and inspire an active participation in ocean conservation. • During its traveling program global viewers are reached in Russia, Hong Kong, Singapore, Australia, Boulder, CO, Alpena, MI, and Laguna, CA. • GFNMS is working with the Film Festival to bring it to Point Arena, CA in the near future.	Ongoing since 2003

Collaborations with ***Businesses*** and West Coast National Marine Sanctuaries
(completed, ongoing and planned)

Gulf of the Farallones National Marine Sanctuary (GFNMS) – continued		
Activity	**Description**	**Status**
White Shark Tours	**GFNMS collaborates with white shark tour operators to convey conservation messages to tour passengers.** • Since 2009 GFNMS requires white shark tours that have a white shark attraction permit to participate in a white shark naturalist training course. • Naturalists learn from GFNMS staff about the sanctuary's ecosystem, cultural history, regulations, and the latest white shark research. Naturalists are required to convey 5 conservation messages to white shark tour passengers.	Ongoing
Recreation Vendors	**GFNMS collaborates with multiple recreation vendors to offer excursions of the sanctuary since 2004** • GFNMS education team develops 10-12 excursions a year for the public to experience their local national marine sanctuaries. Each excursion collaborates with a specific ecotourism recreational vendor to create the sanctuary experience, such as kayaking, paddle boarding, surfing, biking, boating, sailing, horseback riding, etc.	Ongoing
Whale Trail	**GFNMS collaborates with the Whale Trail to install informational marine mammal signs along the Sanctuary.** • In 2014, GFNMS, MBNMS and the West Coast Regional Office collaborated with The Whale Trail to expand the Whale Trail, a series of informational signs about marine mammal signs, from Washington to California. • The Whale Trail offers expanded tourism opportunities for visitors to central and northern California, enriching the visitor experience and providing additional reasons for extending visits to the region. • The signs describe marine mammals you can see from land (including harbors) with associated conservation messages to inspire appreciation and stewardship of whales and the ocean.	Ongoing
Chamber of Commerce	**GFNMS is member of the Half Moon Bay Coastside Chamber of Commerce.** • GFNMS works with the Half Moon Bay Coastside Chamber of Commerce to create a strong local economy. • Promotes recreation in the community through offering whale watch, kayak, and stand-up paddle boarding trips.	Ongoing
Whale Watch Tours	**GFNMS collaborates with whale watch operators.** • GFNMS began in 2012 to train naturalist of whale watch operators about the sanctuary so the naturalists may share the information with tourists and passengers. • GFNMS has distributed educational posters of the sanctuary and pinniped and cetacean species to whale watch operators for nearly two decades.	Ongoing

Collaborations with ***Businesses*** and West Coast National Marine Sanctuaries
(completed, ongoing and planned)

Monterey Bay National Marine Sanctuary (MBNMS)		
Activity	**Description**	**Status**
Government & Community Relations Coordinator	**A MBNMS staff member coordinates government and community relations** • MBNMS recognizes the importance of connecting with key constituents, and as a result has developed a staff position to strengthen and broaden support for ONMS goals and to promote value-added benefits of MBNMS to local businesses. This focused attention is directed at garnering support from local business and tourism entities, area municipalities, and the community-at-large, forming collaborative partnerships wherever possible. • An important aspect of the coordinators approach is to identify and develop strategies for local businesses and area events to cross-market their unique proximity to the national marine sanctuary for a value-added benefit to their customer base. Examples include sanctuary sponsored or generated social media, film events such as Ocean Frontiers and Blue Ocean Film Festivals, Grocery Store giving opportunities, recreational sporting events, such as races and triathlons, the 'Get Into Your Sanctuary Day,' as well as other area events. These cross-promotion benefits create additional exposure, interest, and goodwill for MBNMS and partnering businesses across a wider target audience. • The coordinator also serves as a liaison with many individual tourism businesses, chamber of commerce organizations, and business sub-groups to ensure visitors are familiar with the sanctuary and to develop collaborative marketing for the region. • MBNMS collaborates with on-the-water businesses to highlight the presence of the sanctuary during their whale watch, kayak safaris and other ocean cruises. Local whale watch businesses frequently advertise that their tours take place in the sanctuary via social media and web pages.	Ongoing
Your Sanctuary – Hospitality Segment	**MBNMS creates video and 'Hospitality Segments' for viewing on public access cable.** • MBNMS has been developing since 2012 entertaining and informational video programming named "Your Sanctuary" to inform media viewers about MBNMS. • The "Hospitality Segments" of Your Sanctuary highlight and promote local businesses.	Ongoing
Promotional videos and print material	**MBNMS has developed and distributed beautiful videos and print material free of charge** • MBNMS has developed beautiful promotional videos depicting on-the-water recreation opportunities within the sanctuary, and provided those materials to hotels and other tourism vendors to be shown, for example, on in-room hotel stations, hotel video kiosks, and local airports. • MBNMS also provides print materials, such as informational sanctuary brochures, to hotels for guest rooms, and for hotel use in their promotional materials.	Ongoing
Central Coast Tourism Council	**MBNMS represents national marine sanctuaries in California on the Central Coast Tourism Council.** • Recently, MBNMS joined the Central Coast Tourism Council and is participating in a campaign known as 'America's First Road Trip' to promote the presence of multiple national marine sanctuaries along the Pacific Coast Highway. • The Tourism Council added maps of the Central Coast national marine sanctuaries (CINMS and MBNMS) to their promotional materials.	Central Coast Tourism Council

Monterey Bay National Marine Sanctuary (MBNMS) - continued		
Activity	**Description**	**Status**
Whale Trail	**MBNMS collaborating with the Whale Trail to install informational marine mammal signs along the Sanctuary.** • In 2014, MBNMS, GFNMS and the West Coast Regional Office collaborated with The Whale Trail to expand the Whale Trail, a series of informational signs about marine mammal, from Washington to California. • The Whale Trail offers expanded tourism opportunities for visitors to central and northern California, enriching the visitor experience and providing additional reasons for extending visits to the region. • The signs describe marine mammals you can see from land (including harbors) with associated conservation messages to inspire appreciation and stewardship of whales and the ocean.	Ongoing
Recreation & Tourism Working Group	**MBNMS Advisory Council convenes a Tourism Working Group.** • The MBNMS Advisory Council convened a Tourism Working Group to harness the energy and enthusiasm of Sanctuary Advisory Council members representing key businesses and to help promote MBNMS. • The Tourism Working Group is poised to issue a regular newsletter rich with information on local events, news on wild life migrations, and opportunities to connect tourism, hoteliers, and recreation purveyors with MBNMS.	Ongoing
Sanctuary Classic	**MBNMS is a strong supporter and an active partner of the annual "Sanctuary Classic"(www.sanctuaryclassic.org).** • The Sanctuary Classic is a recreational fishing and photography tournament that began in 2012. Thousands of recreational fishermen participate in this event from across the country, including the central coast of California. • MBNMS supports and promotes recreational use of the sanctuary. One way this is accomplished is by promoting the fishing and photography contest using a variety of means such as: social media, print materials, websites, local media, posting banners at local harbors, engaging harbormasters, connecting with Sanctuary Advisory members who represent recreational fishing interests, and conducting outreach to the sport-fishing vessel companies. • The multi-pronged approach to promoting the Sanctuary Classic creates positive results for on-the-water business communities through increases in trips aboard sportfishing charter vessels and consumer shopping at local bait-and-tackle shops. • Promotion of the Sanctuary Classic also creates a positive awareness of MBNMS within the recreational fishing community that the sanctuary is a place to enjoy fantastic fishing opportunities within healthy waters.	Ongoing
Advisory Council	**Business/industry, tourism and recreation have representation on the MBNMS Advisory Council.** • Since its inception in 1994, the Sanctuary Advisory Council has had a business/industry seat as well as a separate tourism seat to represent the broad array of business interest adjacent to the sanctuary. Starting in 2013a separate recreation seat was created to better represent recreation purveyors and activities adjacent and within the sanctuary.	Ongoing

Collaborations with ***Businesses*** and West Coast National Marine Sanctuaries
(completed, ongoing and planned)

Channel Islands National Marine Sanctuary (CINMS)		
Activity	**Description**	**Status**
Channel Islands Naturalist Corps Program	**CINMS collaborates with the Channel Islands National Park to coordinate The Naturalist Corps.** • Since 2001, CINMS in partnership with the Channel Islands National Park have trained and scheduled 140 volunteers known as the Channel Islands Naturalist Corps. In 2014, these volunteers contributed over 35,000 hours of time. • Volunteers serve as naturalists on local commercial passenger vessels that offer marine excursions within the sanctuary and coastal waters, and represent the sanctuary and park at a variety of community outreach events. • Eight vessel operators have signed-on to participate in this win-win public/private program, receiving the services of these trained volunteers that help bring trips to life for passengers, and providing CINMS with an opportunity to reach thousands of visitors. • Another function of the Channel Islands Naturalist Corps is the "Adopt-A-Business" program. Volunteers supply 80 marine and waterfront businesses with CINMS educational materials, including the "Protecting Your Channel Islands" brochure and various posters.	Ongoing
SAC Marketing Subcommittee	**The CINMS Advisory Council convenes in 2013 and 2014 a Marketing Subcommittee to develop advice on how to boost the visibility of CINMS and enhance its marketability within the local tourism economy.** • Initial recommendations from the group were provided to the CINMS superintendent in March 2014 and include several ideas aimed at bringing CINMS together with local businesses for mutually beneficial purposes, including: cross-marketing on social media platforms; "familiarization tours" of the sanctuary for tourism and concierge professionals; sanctuary product merchandising; sanctuary educational events/lectures paired up with local businesses, and more. • Staff have made progress with implementation some of the recommendations. • CINMS also has a business and tourism seat on their Advisory Council to better connect with the business community.	Ongoing
Visit Santa Barbara	**CINMS is member of the visitor services organization 'Visit Santa Barbara'.** • In 2013 CINMS held meetings with leadership from, and later became members of, a premier professional tourism and visitor services organization called 'Visit Santa Barbara'. • CINMS is taking advantage of the marketing expertise, connections, and communication networks to enhance CINMS' ability to not only reach visitors to the area, but to explore potential collaborative arrangements with local businesses operating with the tourism sector.	Ongoing since 2013
Citrix Online	**CINMS collaborates with Citrix Online to produce a mobile app for exploring tide pools.** • In 2011 Citrix Online worked with CINMS staff and UCSB partners to develop an 'Exploring California Tide pools' mobile app that incorporates photos and species descriptions.	Completed
Conserve.IO and Apple	**CINMS collaborates with computer technology firms Conserve.IO and Apple.** • CINMS (with CBNMS and GFNMS) have partnered with Conserve.IO since 2012 to refine a mobile app, called WhaleAlert 2.0 that allows the public to record and crowd source whale sighting information. • Apple offered to review the code of the app, and may potentially give the partnership space at the world wide developer's conference to promote the app. Apple may also potentially feature WhaleAlert 2.0 in a commercial.	Ongoing

Channel Islands National Marine Sanctuary (CINMS) – continued		
Activity	**Description**	**Status**
Collaborations with unmanned and automated vehicle technology firms	**CINMS collaborates with Unmanned Aerial System companies.** • The civilian use of Unmanned Aerial System (UAS) technologies developed by companies in the private sector, such as Aerovironment, is being pioneered within NOAA. The NOAA UAS Program has provided valuable input and product feedback to several UAS manufacturers about the needs and requirements of scientific customers. ONMS/CINMS is helping to support this effort through staffing, operational support (vessels), and serving as focal places to test scientific missions. • To that end, a 'Center for Excellence in Unmanned Technologies' at CINMS is establishing collaborative projects with private industry. The Center is an operational hub designed to engage in rigorous testing and evaluation of UAS, Autonomous Underwater Vehicles (AUV), and Unmanned Surface Vehicles (USV) for research and management requirements at national marine sanctuaries, and to develop the necessary procedures and protocols for successful operations.	Ongoing
Ocean For Life	**Santa Barbara serves as host site for 'Ocean for Life' in 2011 and 2013.** • In 2011 and 2013 CINMS was the host site for the Ocean for Life field studies program. • Hundreds of thousands of dollars were raised to support bringing high school students from Middle-Eastern countries and across the U.S. to the area for two weeks of educational programming experiences. • Funds were spent throughout the sanctuary business community on services such as lodging, meals, catering, bus and vessel transportation, kayaking, and more, not to mention a few shopping sprees by students and chaperones. • Small business partners of CINMS have expressed appreciation for how well-run the program has been, how it helps them showcase the best of what they have to offer, and how funds are spent locally.	Not currently active but may repeat
Pacific Merchant Shipping Association, and Shipping Industry	**CINMS partners with Pacific Merchant Shipping Association to help improve management of shipping.** • PMSA leadership in southern California (TL Garrett) has been working with CINMS staff for several years to help address issues such as ship strikes on whales. • PMSA has been instrumental in connecting CINMS with several shipping lines and has funded research and outreach on whale ship strikes. • PMSA supported and several shipping lines participated in a trial program in 2014 to incentivize ship speed reductions (12 knots or less) in the Santa Barbara Channel. The program was a success. As ships reduce speed, not only are whales better protected but significant amounts of air pollution are avoided. Santa Barbara County land-based businesses are subjected to stringent regulations and restrictions on emissions of nitrogen oxides because of the county's inability to directly regulate these emissions from passing ships (the top source). • PMSA is a member of the CINMS advisory council's Marine Shipping Working Group, convened in February 2015 and charged with developing recommendations to address various shipping issues (e.g. whale strikes, navigation safety, air pollution)	Ongoing since 2007
Advisory Council	**Business and tourism have representation on the CINMS Advisory Council.** • CINMS also has a business and tourism seat on their Advisory Council to better connect with the business community.	Ongoing

Office of National Marine Sanctuaries
National Oceanic and Atmospheric Administration

National Marine Sanctuaries Socioeconomics Factsheet

Photo: Claire Fackler

Onlookers admire the view from Inspiration Point, Channel Islands National Marine Sanctuary.

Photo: Paige Gill

Recreational fishers enjoy the waters of Florida Keys National Marine Sanctuary.

Sanctuaries support approximately 50,000 jobs in diverse activities ranging from fishing and diving to research and hospitality.

National marine sanctuaries are centers for strong local economies and have economic value reaching far beyond the water

•From restaurants and hotels, to aquariums and kayak operators, the success of many businesses, millions of dollars in sales and thousands of jobs, directly depend on thriving national marine sanctuaries.

•Across all national marine sanctuaries, about $4 billion annually is generated in local coastal and ocean dependent economies from diverse activities like commercial fishing, research and recreation-tourist activities.

•According to a 2005 study[1], counties surrounding Thunder Bay National Marine Sanctuary garner $100 million in sales associated with sanctuary activities, $39.1 million in personal income to residents, $59.1 million in value added and 1,704 jobs.

•Between 2000 and 2003, there were, on average, 473 commercial fishing operations and one kelp harvester in Channel Islands National Marine Sanctuary. The value of harvest/landings was $29.6 million; with multiplier impacts, this value translates to almost $88 million in income, which supported 2,000 jobs in seven California counties.

•Between 1981 and 2003, the seven most important fisheries in the Gulf of the Farallones and Cordell Bank national marine sanctuaries yielded landings worth more than $31 million per year, accounting for 92 percent of landings and revenues in the Northern California ports.

•From 2007 to 2008, more than 400,000 visitors and residents of the Florida Keys engaged in over 2 million person-days of recreational sports fishing. These recreational fishers spent $274 million in Monroe County/Florida Keys, approximately $107.6 million of which was directly spent on fishing items.

•A study[2] completed in 2000 estimated that Massachusetts alone accounted for nearly 80 percent of New England whale watching tour totals, generating $31.3 million; virtually all of Massachusetts whale watching occurs in Stellwagen Bank National Marine Sanctuary.

[1]Ehler, Rod and Jordan Parrillo. Northeast Michigan Integrated Assessment Final Report: Socioeconomic Assessment. NOAA and Michigan Sea Grant. 2009.

[2]Hoagland, Porter and Andrew E. Meeks. The Demand for Whalewatching at Stellwagen Bank National Marine Sanctuary. Marine Policy Center, Woods Hole Oceanographic Institution. 2000.

Photo: Kaile Tsapis

A juvenile male manta ray inspires a diver in Flower Garden Banks National Marine Sanctuary.

Photo: Kip Evans

Windsurfers ride winds and waves in Monterey Bay National Marine Sanctuary.

Photo: Glenn Allen

Commercial fishers pause at sunset in Channel Islands National Marine Sanctuary.

Photo: Gulf of the Farallones National Marine Sanctuary

Sailors take to the seas in Gulf of the Farallones National Marine Sanctuary.

•Between 2007-2008, approximately 739,000 visitors and residents participated in 2.8 million days of diving in the Florida Keys; $54 million was spent at diving/snorkeling operations. Moreover, divers spent a total of $470 million in Monroe County, Florida Keys, supporting more than 7,500 jobs.

•Monterey Bay National Marine Sanctuary provides opportunities for approximately 25 marine science facilities; these facilities employed almost 2,000 people in 2004 with a combined budget of over $200 million.

•The total benefits of coral reefs to American Samoa residents and visitors are estimated to be worth around $5 million per year.

•In the Pacific Northwest, Treaty Tribes are connected economically, culturally and spiritually to natural resources found on their reserved lands and within their usual and accustomed hunting, fishing and gathering areas; Olympic Coast National Marine Sanctuary is helping preserve resources critical for sustaining these ocean-dependant livelihoods that have existed along this coast for thousands of years.

National marine sanctuaries continue to build stronger communities, support local economies and maintain coastal cultures - true American treasures. We are committed to supporting lives and livelihoods across the nation and in sanctuary communities through socioeconomic research to better understand the economic and social drivers of sanctuary resources and improve management practices.

"I believe national marine sanctuaries are an essential part of the ocean infrastructure, and one of our best hopes of making sure the ocean economy we have grown to depend on is sustainable and productive for generations to come."

– Dr. Linwood Pendleton

Acting Chief Economist, National Oceanic and Atmospheric Administration

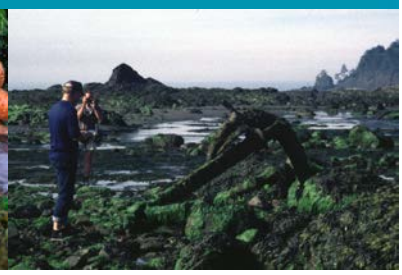
For more information on our socioeconomic studies visit the URL below.

http://sanctuaries.noaa.gov/science/socioeconomic

National Marine Sanctuaries
National Oceanic and Atmospheric Administration

Olympic Coast National Marine Sanctuary Socioeconomics Factsheet



Olympic Coast National Marine Sanctuary provides an economic foundation for local communities and has economic value reaching deep into Washington State's economy.

- Commercial fishing off Washington's coast generated nearly $150 million in personal income, comprising over 60 percent of the harvest value of all commercial fisheries in Washington (data from 2006). In 2009, there were over 3,000 commercial fishing trips and approximately 11,000 recreational fishing trips in Olympic Coast National Marine Sanctuary.
- Each year, over 10,000 large commercial vessels pass through Olympic Coast National Marine Sanctuary. Supported by sanctuary monitoring, compliance with a voluntary Area-to-be-Avoided is nearly 100 percent, reducing the risk of devastating impacts from an oil spill to the local, marine-based economy.
- In the Pacific Northwest, American Indian Treaty Tribes are economically, culturally and spiritually connected to natural resources found on their reserved lands and within their usual and accustomed hunting, fishing and gathering areas. Olympic Coast National Marine Sanctuary is helping preserve resources critical for sustaining the ocean dependant livelihoods of these indigenous communities.

Olympic Coast National Marine Sanctuary is a key partner in public outreach that enhances the economy of the area and improves the quality of visitor experiences.

-Meredith Parker
General Manager,
The Makah Tribe

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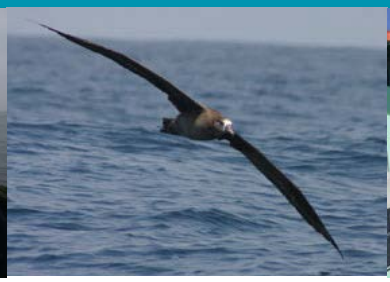
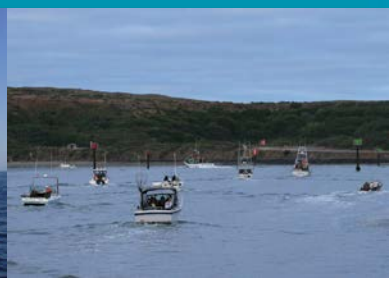
Cordell Bank National Marine Sanctuary Socioeconomics Factsheet



Cordell Bank National Marine Sanctuary supports vibrant local economies by protecting important ocean habitat.

- Cordell Bank National Marine Sanctuary is located 50 miles northwest of the San Francisco Bay area and its eight million residents. This area is among the top tourist destinations in the world and the healthy coastal environment is a major attraction for visitors and locals. Recreational and commercial activities contribute to the socioeconomic value of this region.

- Primary activities in Cordell Bank National Marine Sanctuary include commercial and recreational fishing, wildlife viewing, research and education. All commercial vessel traffic using the northern shipping lane of San Francisco Bay passes through sanctuary waters.

- In 2013, the California Fish Harvester Model was used to estimate the economic impact of commercial fishing operations on a seven-county area. According to the three-year average (measured in 2013 dollars, for years 2010-2012), 49 commercial fishing operations earned almost $993 thousand in harvest revenue from catch in the sanctuary. This revenue generated almost $1.67 million in total output/sales, approximately $1 million in value-added, $929 thousand in total income, and 48 full-time and part-time jobs. If wholesaling, processing, retail and restaurant sector impacts were included, past studies suggest the total impacts could be two to three times higher.

I've participated in the research and educational activities at the Cordell Bank [National Marine Sanctuary]- from bird and whale watching expeditions to the scientific research of non-profits - and I'm always amazed to see the staff and resources devoted to these projects. In addition to these "cottage industries" that are directly stimulated by the sanctuary, are the local recreational and commercial fishing activities and environmental tourism. All these depend on the healthy oceans that the sanctuary protects at Cordell Bank.

– George Clyde

Local resident and member, Cordell Bank Sanctuary Advisory Council

National Marine Sanctuaries
National Oceanic and Atmospheric Administration

Gulf of the Farallones National Marine Sanctuary Socioeconomics Factsheet




Gulf of the Farallones National Marine Sanctuary protects biologically diverse and productive marine and coastal habitats that support healthy local economies.

- Gulf of the Farallones National Marine Sanctuary is an example of a large, biologically diverse and productive set of marine and coastal habitats in close proximity to an expansive urban population- about 9 million people live within 100 miles of its shoreline.
- In 2013, the California Fish Harvester Model was used to estimate the economic impact of commercial fishing operations on a ten-county area. According to the three-year average (measured in 2013 dollars, for years 2010-2012), 212 commercial fishing operations earned approximately $15 million in harvest revenue from catch in the sanctuary. This revenue generated nearly $25 million in total output/sales, more than $16 million in value-added, a total income exceeding $15 million, and 291 full-time and part-time jobs. If wholesaling, processing, retail and restaurant sector impacts were included, past studies suggest the total impacts could be two to three times higher.
- Three major shipping lanes converge in the sanctuary just west of the Golden Gate Bridge at the entrance to San Francisco Bay. The volume of traffic in and out of San Francisco Bay is large, with 6,000 large vessel arrivals and departures annually.
- A recent economic impact study of Point Reyes National Seashore, a national park along the shores of Gulf of the Farallones National Marine Sanctuary, found that Point Reyes generated a total of $71.8 million in direct, indirect and induced impacts in Marin and Sonoma counties and accounted for 850 jobs in 2005. Approximately 2 million people visited Point Reyes in 2005, with the coasts and ocean – protected by the sanctuary – a big draw.

Gulf of the Farallones National Marine Sanctuary is one of the earth's most unique ecosystems. We are incredibly blessed to not only live next door to this ocean treasure, but to run a business whose success hinges on a healthy and well protected sanctuary.

- Captain Joe Nazar

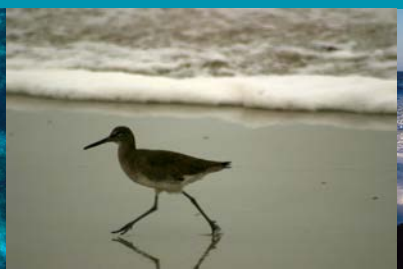
Owner,
San Francisco Whale Tours
Pier 39, San Francisco

sanctuaries.noaa.gov/science/socioeconomic

National Marine Sanctuaries
National Oceanic and Atmospheric Administration

Monterey Bay National Marine Sanctuary Socioeconomics Factsheet






Monterey Bay National Marine Sanctuary protects resources that have defined the regional economy and maintain coastal livelihoods.

- In 2013, the California Fish Harvester Model was used to estimate the economic impact of commercial fishing operations on a twelve-county area. According to the three-year average (measured in 2013 dollars, for years 2010-2012), 491 commercial fishing operations earned almost $26 million in harvest revenue from catch in the sanctuary. This revenue generated more than $42 million in total output/sales, nearly $29 million in value-added, almost $26 million in total income, and 843 full-time and part-time jobs. If wholesaling, processing, retail and restaurant sector impacts were included, past studies suggest the total impacts could be two to three times higher.
- Travel and tourism is one of the most significant industries in the California Central Coast, with a total travel-spending revenue in 2003 of $5.9 billion ($7 billion adjusted for 2010 dollars) for the five counties adjacent to the sanctuary. Much of this tourism is focused on the coast and ocean protected by the sanctuary.
- As part of the “Serengeti of the Sea,” the sanctuary is internationally recognized for its wildlife viewing, with tens of thousands visiting annually for world class whale watching, scuba diving and film making.
- Monterey Bay supports biological and oceanographic features that make it a critical zone for research. Approximately 25 marine science facilities associated with the sanctuary employed almost 2,000 people in 2004 with a combined budget of over $200 million.
- The sanctuary’s ecosystem also supports educational institutions such as the Monterey Bay Aquarium, an organization whose mission is to inspire conservation of the ocean and coastal environments. In 2009, the aquarium hosted almost 2 million visitors and generated about $71 million in direct revenue.

For the four million annual visitors to Cannery Row, the health and beauty of Monterey Bay National Marine Sanctuary is priceless. We simply would not have the vibrant economy and visitor experience we currently enjoy were it not for a clean and accessible marine environment. The hotels, restaurants, shops, and other vendors along Cannery Row understand and appreciate this connection.

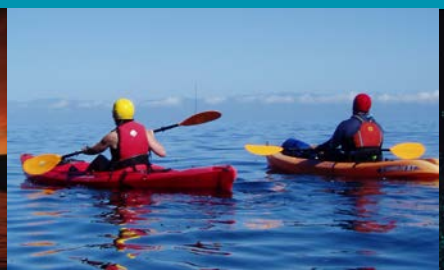
– Ted Balestreri

President and CEO
Cannery Row Company
Monterey, California

sanctuaries.noaa.gov/science/socioeconomic

National Marine Sanctuaries
National Oceanic and Atmospheric Administration

Channel Islands National Marine Sanctuary Socioeconomics Factsheet

Channel Islands National Marine Sanctuary is a center of diverse economic activity and is an integral part of local coastal economies.

The Channel Islands support a relatively large and undisturbed natural setting that lies less than 150 miles from the homes of more than 17 million people in southern California. As such, they form the basis of various economic activities including private recreation, commercial tourism, commercial fishing and research. Commercial fishing and recreation-tourism alone generated an estimated $207 million (2011 dollars) in seven counties during 2002, supporting 3,300 jobs.

In 2013, the California Fish Harvester Model was used to estimate the economic impact of commercial fishing operations on a five-county area. According to the three-year average (measured in 2013 dollars, for years 2010-2012), 248 commercial fishing operations earned more than $27 million in harvest revenue from catch in the sanctuary. This revenue generated almost $45 million in total output/sales, nearly $31 million in value-added, almost $28 million in total income, and 659 full-time and part-time jobs. If wholesaling, processing, retail and restaurant sector impacts were included, past studies suggest the total impacts could be two to three times higher.

The research, outreach and education provided by the dedicated employees and volunteers of Channel Islands National Marine Sanctuary help to put our business on the map. [B]usinesses like ours reap direct and indirect economic benefits from the presence of Channel Islands Marine Sanctuary worth millions of dollars for our local economy.

– Captain Alex Brodie

Fleet Manager, Island Packers
Ventura, California

365,000 person-days of recreational fishing in Channel Islands National Marine Sanctuary generated sales of almost $40 million in 1999, which supported 928 jobs in adjacent communities.

For-hire businesses provide opportunities to explore the scenic and productive waters of Channel Islands National Marine Sanctuary. In 1999, eight operators provided more than 4,000 person-days of sailing in the sanctuary and four businesses accommodated more than 1,200 person-days of sanctuary kayaking/sightseeing. These operators received about $390,000 in revenue; when total passenger spending in the local economy is counted, this translates to approximately $1 million in spending, which supported 28 jobs.

Kelp beds and coral reefs make Channel Islands National Marine Sanctuary an attractive diving location. In 1999, non-consumptive diving resulted in an estimated $685,000 in revenue.

Whale watching data from 1999 show the Channel Islands accounted for almost 26,000 person-days of related activity and about $1.5 million in revenue to local operators. When total passenger spending is counted in the local economy, approximately $4.3 million in spending was generated, which supported 119 jobs.

National Marine Sanctuaries
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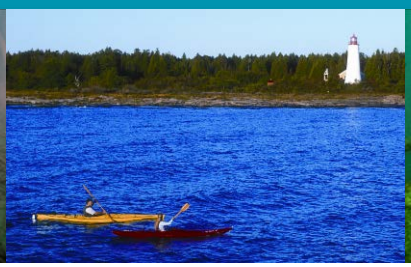
Thunder Bay National Marine Sanctuary Socioeconomics Factsheet

Thunder Bay National Marine Sanctuary's value extends beyond the water as a regional economic engine.

- According to a regional 2005 study on total visitor spending, Thunder Bay National Marine Sanctuary impacts $92 million in sales, $35.8 million in personal income to residents, $51.3 million in value added and 1,704 jobs.
- Sanctuary staff work with local officials to recruit new businesses, as well as to expand existing operations. In the summer of 2011, Alpena Shipwreck Tours began glass-bottomed boat tours in the sanctuary. The company invested $800,000+ in the 65' glass-bottomed vessel. The sanctuary has also worked with local groups to recruit and promote new outfitters, kayak tours, bike rentals, dive shops and charters.
- The visitor center for Thunder Bay National Marine Sanctuary - Great Lakes Maritime Heritage Center - is a major tourist destination for the region, hosting approximately 60,000 visitors annually. The population of Alpena itself is only 11,000.
- Thunder Bay National Marine Sanctuary integrates the needs of local businesses through the Sanctuary Advisory Council. Dive charter operators, dive store owners, charter fishing representatives, the community's small business representative and local government representatives, in addition to the tourism and economic development sectors, all have seats on this council.
- The Thunder Bay Maritime Festival is an annual, day-long event drawing over 10,000 to Alpena and the sanctuary. The festival is free to the public and includes tours tall ships, research vessels and fishing boats docked along the Great Lakes Maritime Heritage Trail.
- The sanctuary (and the Great Lakes Maritime Heritage Center) is a hub for NOAA and other research conducted in Lake Huron. Researchers from around the country travel to Alpena to conduct field studies in the area. One such group, the Nobel Odyssey Foundation, spends in excess of $25,000 in supplies, services and groceries for each of their annual, 10-day operations in Alpena.

Today, the sanctuary facility is an anchor for downtown Alpena that attracts tens of thousands of visitors, in addition to bringing our hidden underwater heritage to the attention of local residents. The transformation of this former industrial property has helped begin a shift from an industrial community – reliant on our deepwater port and the industry that surrounds it – to a more stable, diversified economy, bringing a sense of optimism for the future.

– Carol Shafto, Mayor

Alpena, Michigan

2010

The National Marine Sanctuary System: The Once and Future Promise of Comprehensive Ocean Governance

by Jason Patlis, Donald Baur, Tom Lindley, Alan Murphy, and Priscilla Hampton

Jason Patlis is President and CEO of the National Marine Sanctuary Foundation. Donald Baur, Priscilla Hampton, Tom Lindley, and Alan Murphy are attorneys with the Environment, Energy, and Resources practice at Perkins Coie LLP in the Washington, D.C., Portland, Oregon, and San Francisco, California, offices.

Summary

Despite repeated recommendations for improved ocean governance, little has happened legislatively to update federal ocean protection. But administratively, NOAA has advanced a number of rulemakings to expand the size of existing national marine sanctuaries, and has finalized a rulemaking to allow the consideration of new designations of national marine sanctuaries. This Article analyzes the legal underpinnings of the centerpiece of the National Marine Sanctuaries Act and compares it to other federal and state legal authorities that govern ocean ecosystems and resources. The Article concludes that the new regulation creates an open-sourced, grassroots approach to identifying special marine places that are important to local communities nationwide.

Since the enactment of the Oceans Act of 2000,[1] and notwithstanding the many subsequent recommendations of various blue ribbon and presidentially appointed commissions, the last 15 years have seen little legislative progress in accomplishing the widely recognized need to improve how the nation governs its ocean, coastal, and Great Lakes resources. The inability to enact legislation, which has barred significant advances in ocean governance, is not unique to this issue, and to be sure, there are exceptions to this broad statement. These include the reauthorization of the Magnuson-Stevens Fishery Conservation and Management Act (FCMA)[2] in 2007, the recent ratification of four international fisheries treaties, and individual legislative efforts to tackle specific issues such as harmful algal blooms and marine debris.

Nevertheless, dozens of bills introduced in the U.S. House of Representatives and the U.S. Senate to reform ocean governance have failed to make it into law. Major international treaties, with the United Nations Convention on the Law of the Sea at the top of the list,[3] fail to be ratified. Emergency supplemental appropriations bills passed in response to coastal storms or hurricanes have provided funds for response and reconstruction, but very little for restoration and reform.

Notwithstanding the inability of the U.S. Congress to pass comprehensive ocean policy reform, there has been significant progress through executive and administrative action. Many important initiatives have been taken to recognize, and make recommendations to achieve, comprehensive improvement in the way the nation manages coastal and marine ecosystems. The William Clinton Administration hosted the first National Ocean Conference in 1998, in conjunction with the United Nations-declared International Year of the Ocean.[4] Two ocean commissions have released detailed and compelling reports and recommen-

Author's Note: This Article is based upon an independent work product completed by Perkins Coie LLP on a pro bono request by the National Marine Sanctuary Foundation (NMSF). The authors acknowledge and greatly appreciate the research and writing contributions of Perkins Coie attorneys Paul Smyth, Alix Bromer, and Marcy Hupp, as well as Perkins Coie alumni Steve Higgs and Emily Merolli. The authors would also like to thank the staff at NMSF and at the National Oceanic and Atmospheric Administration's Office of National Marine Sanctuaries for reviewing and providing technical edits on this Article.

1. Oceans Act of 2000, Pub. L. No. 106-256, 114 Stat. 644 (2000).
2. *See* Magnuson-Stevens Fishery Conservation and Management Reauthorization Act of 2006, Pub. L. No. 109-479, 120 Stat. 3575 (2007).
3. United Nations Convention on the Law of the Sea, Dec. 10, 1982, 1833 U.N.T.S. 397.
4. *See* National Ocean Conference: Oceans of Commerce, Oceans of Life (1998) (official conference publication); G.A. Res. 49/131, U.N. GAOR, Supp. No. 49, at 152, U.N. Doc. A/RES/49/131 (Dec. 19, 1994) (declaring 1998 "International Year of the Ocean").

dations: the U.S. Commission on Ocean Policy, mandated by Congress; and the Pew Oceans Commission, funded by the Pew Charitable Trusts.[5] Two national ocean policies under two different Administrations have sought to coordinate ocean governance within the federal family: the U.S. Ocean Action Plan by the George W. Bush Administration; and the National Ocean Policy by the Barack Obama Administration.[6] Using the authority of the Antiquities Act,[7] President Bush established three marine national monuments, including the world's largest marine protected area (MPA) at the time. Using the same authority, President Obama recently announced an expansion of one of those national monuments to establish once again, within the U.S. Exclusive Economic Zone, the world's largest MPA.

Within these administrative achievements, one aspect of ocean governance has witnessed slow but steady progress, but has generally gone unnoticed. The National Oceanic and Atmospheric Administration (NOAA) Office of National Marine Sanctuaries has advanced a number of rulemakings to expand the size of existing national marine sanctuaries, and has finalized a rulemaking to allow, for the first time in two decades, the consideration of new designations of national marine sanctuaries.[8] In addition, Sen. Carl Levin (D. Mich.) announced last June that he is introducing a bill to spur the establishment of new national marine sanctuaries in the Great Lakes. These actions may change the entire landscape—or seascape, more appropriately—of ocean governance over the coming decades.

This Article analyzes the legal underpinnings of the centerpiece of the National Marine Sanctuaries Act (NMSA),[9] and compares the NMSA to other federal and state legal authorities that govern ocean ecosystems and resources. The analysis begins, in Part I, with a discussion of the current threats facing the ocean, and why protections are so important to ensure that ocean resources are managed sustainably. This part further discusses the merits of protecting these resources through area-based management schemes, such as MPAs. Part II describes the NMSA and assesses the law's strengths and weaknesses. Part III then examines other domestic legal mechanisms for preserving marine ecosystems, including federal authorities, state laws, and the common law of torts. While the Article does not constitute an exhaustive analysis of laws governing the marine environment, it does look at the most important domestic laws today.[10]

In comparing the NMSA to other existing laws in the United States, Part IV argues that the NMSA deserves renewed attention as a unique and powerful ocean governance tool. Part V envisions the dawn of a new era in ocean governance in light of NOAA's recently promulgated rule and the opportunity it presents to expand the national marine sanctuary system.

I. Importance of Area-Based, Ecosystem-Based Management

America's ocean covers almost 4.5 million square miles, an area 23% larger than the nation's landmass. Its rich bounty has integrally shaped our nation and the planet. That bounty, however, is being degraded and depleted. Once considered too vast to be impacted by human activity, the ocean now faces a myriad of local and global threats due to human activities. Fish stocks, directly or indirectly, are exploited to the point of depletion. Coastal and marine habitat is sacrificed for development. Land-based pollution and runoff cause uninhabitable dead zones and harmful algal blooms.[11] A changing climate is poised to wreak havoc on the marine environment, with rising temperatures, rising sea levels, and rising acidity levels.[12] While this Article focuses on one law in particular, the NMSA, it is important to first consider the background and importance of area-based management of marine resources.

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5. U.S. Comm'n on Ocean Policy, An Ocean Blueprint for the 21st Century (Final Report) (2004), *available at* http://govinfo.library.unt.edu/oceancommission/documents/full_color_rpt/welcome.html; Pew Oceans Comm'n, America's Living Oceans: Charting a Course for Sea Change (2003), *available at* http://www.pewtrusts.org/our_work_report_detail.aspx?id=30009.
6. Exec. Order No. 13547, §2, 75 Fed. Reg. 43023, 43023 (July 19, 2010) (Obama Administration's National Ocean Policy); White House Council on Envtl. Quality, U.S. Ocean Action Plan (2004) (Bush Administration).
7. Antiquities Act, 16 U.S.C. §§431-443.
8. Re-Establishing the Sanctuary Nomination Process, 79 Fed. Reg. 33851 et seq. (June 13, 2014).
9. National Marine Sanctuaries Act (NMSA), 16 U.S.C. §§1431-1445c-1, 1433(a)(2).
10. While various international laws and treaties also are relevant to ocean protection, international law is beyond the scope of this Article. Similarly, although federal and state pollution laws such as the Clean Water Act (CWA), 33 U.S.C. §§1251-1387, ELR Stat. FWPCA §§101-607, and Clean Air Act (CAA), 42 U.S.C. §§7401-7671q, ELR Stat. CAA §§101-618, serve to protect the ocean environment, the Article is not intended to include a comprehensive analysis of pollution laws.
11. More than 20,000 acres of sensitive marine habitat disappear each year as a result of coastal development, pollution and nutrient runoff, and other human activities. Pew Oceans Comm'n, America's Living Oceans, *supra* note 5, at vi.
12. *See* Kevin E. Trenberth et al., *Observations: Surface and Atmospheric Climate Change*, *in* Climate Change 2007: The Physical Science Basis, Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change 237 (S. Solomon et al. eds., 2007). *See also* Nathaniel L. Bindoff et al., *Observations: Oceanic Climate Change and Sea Level*, *in* Climate Change 2007, *supra*, at 387. Between 1961 and 2003, global ocean temperatures rose by 0.10°C, and sea levels increased by an average of 1.8 millimeters per year. *Id.* Even slight changes in the marine environment have profound impacts on marine life. Victor S. Kennedy et al., Coastal and Marine Ecosystems & Global Climate Change: Potential Effects on U.S. Resources 7 (2002).

A. Understanding the Nomenclature

MPAs are important management tools for protecting and conserving marine resources. Within the United States, Executive Order No. 13158 provides the working definition of an MPA as "any area of the marine environment that has been reserved by Federal, State, territorial, tribal, or local laws or regulations to provide lasting protection for part or all of the natural and cultural resources therein."[13] A more descriptive definition of an MPA is:

> [A] discrete geographic area that has been designated to enhance the conservation of marine and coastal resources and is managed by an integrated plan that includes [area]-wide restrictions on some activities such as oil and gas extraction and higher levels of protection on delimited zones, designated as fishery and ecological reserves within the MPA.[14]

Marine reserves typically are a subset or isolated area of an MPA in which some or all resources are protected from extraction.[15] Marine sanctuaries, another type of MPA, protect areas of special conservation, recreational, ecological, historical, scientific, cultural, aesthetic, or other significance.[16] Generally, regulations under the NMSA allow a wide range of consumptive and nonconsumptive uses within the boundaries of a national marine sanctuary, and protective measures frequently depend on a cooperative relationship with resource managers in multiple jurisdictions.[17] The NMSA is discussed in detail in Part II, below.

B. Appreciating the Purposes

By definition, MPAs, marine reserves, and marine sanctuaries are ecosystem-based management tools. Ecosystem-based management emphasizes the protection of functions and key processes within a system and focuses on the range of activities impacting a particular area.[18] Ecosystem-based management acknowledges the relationship between air, land, and sea and recognizes the interactions between many different species, including humans.[19] As management tools, MPAs provide benefits that serve important scientific, economic, and cultural purposes. Defining the purposes of a potential MPA determines the appropriate level of restrictions or regulations.[20]

1. Conservation of Biodiversity and Habitat

A central purpose of MPAs is to conserve biodiversity and protect the habitat of marine species, particularly stressed, threatened, and endangered species. Ecosystem-based management of a marine area promotes the recovery of overexploited species.[21] The impact can be measured almost immediately. A study of marine reserves found that they achieve greater population density and species diversity within as little as one year after being designated for protection.[22] Promoting biodiversity and critical habitat is crucial to protecting the health of marine ecosystems, and "[h]ealthy ecosystems are . . . more resilient to all perturbations, including climate-induced changes."[23]

2. Fisheries Management

MPAs often play an important role in managing fisheries and fishing activities. Despite the plethora of laws and regulations governing commercial and recreational fishing, many fish populations continue to decline, and rebuilding efforts continue to struggle.[24] Overexploitation threatens not only ecosystem health; successful fishery management is also critical to the health of commercial fishing, a multi-billion dollar industry.[25]

MPAs can protect critical stages of a species' life and reduce secondary impacts of fishing. Prohibiting fishing in known nursing grounds reduces the mortality of juveniles and increases the mature biomass of the adult population.[26] Larger fish and a healthier population within a reserve may also increase the health of the fish population outside the reserve.[27] MPAs that protect fish from overexploitation and enhance fish stock populations promote the health of the entire ecosystem. Managing fishing efforts in a spatial area

13. Exec. Order No. 13158, 3 C.F.R. 273, 274, 65 Fed. Reg. 34909, 34909 (May 26, 2000), *reprinted in* 16 U.S.C. §1431. Similarly, the International Union for Conservation of Nature (IUCN) defines an MPA as "[a]ny area of intertidal or subtidal terrain, together with its overlying water and associated flora, fauna, historical and cultural features, which has been reserved by law or other effective means to protect part or all of the enclosed environment." World Comm'n on Protected Areas of IUCN—The World Conservation Union, Guidelines for Marine Protected Areas, xviii (Graeme Kelleher ed., 1999) [hereinafter Guidelines for Marine Protected Areas] (internal quotation marks and citation omitted).
14. Comm. on the Evaluation, Design & Monitoring of Marine Reserves & Protected Areas in the U.S., Nat'l Research Council, Marine Protected Areas: Tools for Sustaining Ocean Ecosystems 12 (2001) [hereinafter Tools for Sustaining Ocean Ecosystems].
15. *Id.* Marine reserves that prohibit all resource extraction are sometimes called ecological reserves. Harold F. Upton & Eugene H. Buck, Cong. Research Serv., RL32154, Marine Protected Areas: An Overview 3 (2010).
16. *See* NMSA, 16 U.S.C. §1433(a)(2).
17. Tools for Sustaining Ocean Ecosystems, *supra* note 14, at 156-57.
18. Scientific Consensus Statement of Marine Ecosystem-Based Management 1 (2005), *available at* http://doc.nprb.org/web/BSIERP/EBM%20scientific%20statement.pdf.
19. *See id.*; *see also* Guidelines for Marine Protected Areas, *supra* note 13, at xviii ("One thing the definition of MPAs does not say. It does not state that an MPA should keep people out.").
20. Tools for Sustaining Ocean Ecosystems, *supra* note 14, at 12.
21. *Id.* at 175.
22. Kim Diana Connolly et al., *Marine Protected Areas*, *in* Ocean and Coastal Law and Policy 535, 537 (Donald C. Baur et al. eds., 2008).
23. America's Living Oceans, *supra* note 5, at 87.
24. Although most commercially important fisheries in North America are regulated by quotas or license limitations, limited entry, or other restrictions, failure to effectively regulate fishing has resulted in overexploitation. Tools for Sustaining Ocean Ecosystems, *supra* note 14, at 31.
25. In 2011, the total value of American commercial fisheries was over $3 billion. Christophe A.G. Tulou et al., *Climate Change and the Marine Environment*, *in* Ocean and Coastal Law and Policy, *supra* note 22, at 572.
26. Tools for Sustaining Ocean Ecosystems, *supra* note 14, at 22. In marine reserves around the world, average fish biomass doubled within five years of establishing the reserve, and the larger fish within the reserves produced more eggs than fish outside the reserves. America's Living Oceans, *supra* note 5, at 32.
27. Tools for Sustaining Ocean Ecosystems, *supra* note 14, at 75-76.

reduces the physical impact of fishing nets and equipment, reduces wasteful bycatch of marine mammal and fish species, and helps restore the natural food chain of the ecosystem.[28] MPAs, as part of a broader coastal zone regulatory scheme, can contribute to a successful marine resource management system that preserves ecosystem health and sustainable fishing.[29]

3. Scientific Knowledge and Outreach

Designating and regulating marine reserves provides an opportunity to collect baseline data that will help our understanding of ecosystem impacts, fish population dynamics, and natural ecosystem variability. In particular, marine reserves can provide baseline data to study the effectiveness of rehabilitation projects at disturbed and stressed sites.[30] Additionally, MPAs provide unique opportunities for the public to learn about marine ecosystems and can be education destinations for a wide variety of user groups.[31]

4. Recreational Activities, Tourism, and Cultural Heritage

Coastal tourism accounts for 85% of the U.S. tourism industry.[32] Given the huge numbers of visitors to the nation's coastal areas each year, the contribution of tourists to coastal development, demands on infrastructure, and pollution is not surprising. But coastal tourism depends on the quality of the coastal environment for swimming, surfing, bird watching, recreational fishing, whale watching, diving, and snorkeling. MPAs provide a management framework for ensuring a sustainable balance between the tourists enjoying the resources and the resources themselves, and can serve as a means to promote and market the destination.

MPAs also protect cultural sites, including shipwrecks, archeological sites, and areas of special significance to Native American tribes.[33] The first national marine sanctuary was established to protect the remains of the *USS Monitor*, a Civil War ironclad sunk off the coast of North Carolina.[34] MPAs serve as underwater museums, providing a means to preserve human history.

C. Contrasts With Protected Areas on Land

In the United States, the protection of special places on land is an integral thread in the fabric of the nation. The first national park was established in 1872 under President Ulysses S. Grant.[35] The first national wildlife refuge was established in 1903 by President Theodore Roosevelt.[36] The National Park System was created in 1916 under President Woodrow Wilson.[37] The very concept of public lands and the establishment of national parks has been hailed as America's "best idea."[38] Today, the nation enjoys a rich tapestry of public lands consisting of 401 diverse units administered by the National Park Service (NPS) (composed of national parks, monuments, battlefields, and nearly 20 other designations), 560 national wildlife refuges, 155 national forests, and more than 750 wilderness areas.[39]

Marine areas present a contrast. Despite the existing and growing threat to the nation's marine resources and habitats and the advantages of area-based management detailed above, similar protective actions have not been widely applied to American marine areas. Less than 1% of these areas are protected.[40] As discussed in the next part, the number of national marine sanctuaries remains fixed at 13, with the last one designated under the NMSA in 2000.

II. Overview of the NMSA

Originally enacted as Title III of the Marine Protection, Research, and Sanctuaries Act of 1972,[41] the NMSA sets aside ocean and Great Lakes areas for permanent protection and long-term management as national marine sanctuaries. The NMSA takes a comprehensive approach to ocean management, seeking both to protect marine resources and to provide for multiple uses. Today, there are 13 sanctuaries established under the NMSA and located across the country, on the East Coast, the Gulf Coast, and the Pacific Coast and in the Great Lakes, Hawaii, and American Samoa.[42]

28. America's Living Oceans, *supra* note 5, at 40-41.
29. Tools for Sustaining Ocean Ecosystems, *supra* note 14, at 40.
30. *Id.* at 27-28, 49.
31. *Id.* at 28; Upton & Buck, *supra* note 15, at 8.
32. America's Living Oceans, *supra* note 5, at 49.
33. *Id.*
34. Upton & Buck, *supra* note 15, at 8.
35. Yellowstone Park Act, ch. 24, 17 Stat. 32 (1872) (codified as amended at 16 U.S.C. §21); *see* Denise E. Antolini, *National Park Law in the U.S.: Conservation, Conflict, and Centennial Values*, 33 Wm. & Mary Envtl. L. & Pol'y Rev. 851, 921 n.6 (2009).
36. Exec. Order of Mar. 14, 1903 (unnumbered).
37. National Park System Organic Act of 1916, ch. 408, 39 Stat. 535 (1916) (codified at 16 U.S.C. §1).
38. *See, e.g.*, The National Parks: America's Best Idea (PBS 2009) (Ken Burns, director); Wallace Stegner, *The Best Idea We Ever Had: An Overview*, Wilderness, Spring 1983, at 4.
39. *See* Carol Hardy Vincent, Cong. Research Serv., RS 20158, National Park System: Establishing New Units 1-2 (2013) (national parks and monuments); U.S. Fish & Wildlife Serv., Annual Report of Lands Under Control of the U.S. Fish and Wildlife Service 6 (2013) (national wildlife refuges); U.S. Dep't of Agric., Land Areas of the National Forest Service, FS-383, at 1 (2013) (national forests); Katie Hoover, Cong. Research Serv., RL 31442, Wilderness: Overview and Statistics 3 (2014) (congressionally designated wilderness areas).
40. America's Living Oceans, *supra* note 5, at 31.
41. Pub. L. No. 92-532, §§301-304, 86 Stat. 1052, 1061-63 (1972).
42. Nat'l Oceanic & Atmospheric Admin. (NOAA), National Marine Sanctuaries, http://sanctuaries.noaa.gov/visit/welcome.html (last visited May 2, 2014). Under a distinct process under the Antiquities Act, discussed below in the Article, marine national monuments also have been established since 2000. One such monument is co-managed by the U.S. Fish and Wildlife Service (FWS), NOAA, and the state of Hawaii. *See* Proclamation No. 8031 (June 15, 2006) (establishing Northwestern Hawaiian Islands Marine National Monument, now known as Papahānaumokuākea Marine National Monument). NOAA considers it a site managed as part of the national marine sanctuary system even though it is not established or designated as a national marine sanctuary pursuant to the NMSA. *See, e.g.*, NOAA, National Marine Sanctuaries, About Your Sanctuaries, http://sanctuaries.noaa.gov/about/welcome.html (last visited May 1, 2014).

A. *Purposes of National Marine Sanctuaries*

Congress enacted the NMSA in response to significant environmental failures at the time. Public support coalesced after a series of events unfolded in the late 1960s and early 1970s: a major oil spill blackened the coast of Santa Barbara, California, in 1969; other environmental disasters occurred; popular marine recreation areas experienced degradation; and a federal study revealed the toll of ocean dumping.[43] Congress intended that the NMSA would provide a comprehensive solution to the problem of ocean degradation.[44] In the words of one commentator, members of Congress said "they were creating an important program likely to ensure balanced planning for a wide range of uses on a broad geographic scale—in effect, a program to provide for comprehensive multi-use management of the oceans."[45] Indeed, nearly every member of Congress who stated a position referred to the problem's geographic scope and the solution's grand scale.[46]

Given the NMSA's grand scale, Congress emphasized that the legislation was intended to allow for multiple uses in the ocean.[47] Rather than prohibiting all uses in designated sanctuaries, Congress aimed to fashion a system that would permit and manage compatible uses.[48] In sum, then, Congress intended through the NMSA to create a comprehensive management system for the entire marine environment that balanced preservation and human activities. The primary goal of the NMSA is to protect submerged natural and cultural resources in the ocean and the Great Lakes.[49] Similarly, the mission of the national marine sanctuary system, as defined in law and as established by the NMSA's implementing regulations, is "to identify, designate, and manage areas of the marine environment of special national, and in some cases international, significance due to their conservation, recreational, ecological, historical, research, educational, or aesthetic qualities."[50] Setting up the multi-use approach in the law itself, the NMSA identifies the following purposes and objectives[51]:

- Permanently protect nationally significant areas of the marine environment by designating them national marine sanctuaries;
- Manage sanctuaries as ecosystems to maintain and enhance their natural biodiversity, historical and cultural heritage, and other unique qualities;
- Support, promote, and coordinate scientific research and monitoring in sanctuaries;
- Facilitate all lawful public and private sanctuary uses "to the extent compatible with the primary objective of resource protection"[52];
- Enhance public awareness, understanding, and stewardship of the ocean and the Great Lakes; and
- Support permanent preservation of sanctuaries to benefit current and future generations.

The only explicit caveat in the purposes of the NMSA applies to public and private uses of sanctuary resources. That caveat is neither minor nor narrow. It defines the fundamental nature of the NMSA, providing that its "primary objective" is resource protection.[53] However, commentators have questioned whether resource protection has assumed the priority it deserves.[54] Barriers to the primacy of resource protection include the statutory context in which the relevant caveat appears, the multiple purposes and activities authorized and prescribed in the statute, and the very nature of the NMSA, as discussed below, to drive a broad, balanced approach allowing multiple uses.[55]

B. *Sanctuary Designations*

There are two paths by which a national marine sanctuary may be designated. First, as provided in the NMSA, the Secretary of Commerce may take such action for "any discrete area of the marine environment" if, among other factors, the area has "special national significance due to (A) its conservation, recreational, ecological, historical, scientific, cultural, archaeological, educational, or esthetic qualities; (B) the communities of living marine resources it harbors; or (C) its resource or human-use values."[56] As we outline below, the NMSA and its implementing regulations set out several steps that NOAA must follow to advance the designation process.

The second possibility is for Congress simply to pass an act to designate a sanctuary, outside the process defined in the NMSA. Out of a total of 15 sanctuary designations that underlie the 13 existing sanctuaries, Congress has established seven sanctuaries through stand-alone statutes, typically when it tired of waiting for NOAA and presidential administrations to take action.[57] As an example,

43. Donald C. Baur et al., *Putting "Protection" Into Marine Protected Areas*, 28 Vt. L. Rev. 497, 510 (2004); Dave Owen, *The Disappointing History of the National Marine Sanctuaries Act*, 11 N.Y.U. Envtl. L.J. 711, 714-15 (2003); *see also* William J. Chandler & Hannah Gillelan, *The History and Evolution of the National Marine Sanctuaries Act*, 34 ELR 10505, 10515-20 (June 2004).
44. Owen, *supra* note 43, at 716; *see also* 16 U.S.C. §1431(a)(3) (congressional finding that then-current laws could not always "provide a coordinated and comprehensive approach to the conservation and management of special areas of the marine environment").
45. Owen, *supra* note 43, at 716.
46. *Id.* at 716-17.
47. *Id.* at 717-18; Baur et al., *supra* note 43, at 509-10.
48. Baur et al., *supra* note 43, at 509-10.
49. *See* 16 U.S.C. §1431(b)(6) (noting the NMSA's "primary objective of resource protection"); *see generally* NMSA, 16 U.S.C. §§1431-1445c-1.
50. 15 C.F.R. §922.2(a).
51. *See* 16 U.S.C. §1431(a)(4), (b); 15 C.F.R. §922.2(b).
52. 16 U.S.C. §1431(b)(6).
53. *Id.*
54. *See* Chandler & Gillelan, *supra* note 43, at 10560-62.
55. *Id.*
56. 16 U.S.C. §1433(a).
57. *See* Owen, *supra* note 43, at 722, 730-38; NOAA, National Marine Sanctuaries, About Your Sanctuaries, http://sanctuaries.noaa.gov/about/welcome.html (last visited May 1, 2014). Although there have been 15 sanctuary designations, there are only 13 national marine sanctuaries today because Florida Keys National Marine Sanctuary subsumed two other sanctuaries in 1990.

Congress created Stellwagen Bank National Marine Sanctuary in 1992 after expressing concern over a slow-moving designation process, with at least one member of Congress complaining that President George H.W. Bush's Administration was delaying designation because it was hesitant to prohibit sand and gravel mining in the area.[58]

The standard designation process laid out in the NMSA and its regulations is lengthy and entails exceptional stakeholder involvement. Throughout the process, the Secretary must consult with congressional committees, several federal agencies, state and local governments that may be affected by the proposed designation, officials of any Regional Fishery Management Council that may be affected, and other interested parties.[59] Under a recently adopted rule, NOAA has indicated it is accepting from the public nominations of sites for possible designation as sanctuaries.[60] NOAA will evaluate all such nominations and maintain a publicly available inventory of those nominated sites that it determines are eligible for sanctuary designation.[61]

Once NOAA advances an eligible nominated site for designation, public notice of the proposed designation and regulations, and related documentation, must be provided.[62] For all proposed sanctuary designations, NOAA must prepare a draft environmental impact statement under the National Environmental Policy Act (NEPA),[63] a resource assessment, a draft management plan, and maps depicting the proposed sanctuary's boundaries.[64] In addition to the public review process required for an environmental impact statement, at least one public hearing must be held in the coastal area or areas that will be most affected by the proposed designation, to receive comments from interested parties.[65]

The appropriate House and Senate committees may hold hearings on the proposed sanctuary designation.[66] During a 45-day review period, either congressional committee may issue a report on a designation or any of its terms, and the Secretary must consider any such report before designating territory as a sanctuary.[67] Additionally, if any part of a proposed sanctuary lies within state waters, the governor of the affected state may declare the designation or any of its terms unacceptable and without effect as applied to state waters.[68]

Progress in designating sanctuaries has been halting. Only two were designated in the 1970s, totaling 101 square miles.[69] Neither designation "resembled the type of broad-based planning described in early congressional rhetoric," and both sanctuaries were too small to accommodate a wide range of uses.[70] Under President Jimmy Carter, NOAA designated four more sanctuaries, two of which were much larger. Only one new sanctuary was designated during the Ronald Reagan Administration, but designations rebounded by the early 1990s once political winds shifted. After several designations during this period, however, another sanctuary was not designated until 2000.[71] About that time, sanctuary designation was described as "sporadic and geographically piecemeal, dependent upon the whims of Congress and the executive."[72]

No sanctuaries have been designated under the NMSA since 2000, in large part because Congress decided that same year to bar NOAA from making future designations until the agency first determined it had sufficient resources to manage existing sanctuaries and inventory them.[73] Congress' action has had the practical effect of placing a moratorium on sanctuary designations. Some commentators allege that this "moratorium" evinces a lack of congressional commitment to the NMSA and "throws a pall of uncertainty over the program."[74]

Given the roadblocks to new designations, NOAA has undertaken several efforts to administratively expand the boundaries of existing sites. Fagatele Bay National Marine Sanctuary was expanded in 2012 to become the largest national marine sanctuary within the system, from less than one square mile to 13,581 square miles.[75] With widespread public support and bipartisan political backing, NOAA recently announced the expansion of Thunder Bay National Marine Sanctuary, which increases the area of the sanctuary almost tenfold.[76] NOAA currently is proposing to expand by 2,775 square miles two existing national marine sanctuaries off the northern California coast, an action that would more than double the sanctuaries' size.[77]

58. National Marine Sanctuaries Program Amendments Act of 1992, Pub. L. No. 102-587, §2202, 106 Stat. 5039, 5048; *see* Owen, *supra* note 43, at 732-33, 735-36.
59. 16 U.S.C. §1433(b)(2).
60. Re-Establishing the Sanctuary Nomination Process, 79 Fed. Reg. 33851 et seq. (June 13, 2014).
61. *Id.* at 33860.
62. 16 U.S.C. §1434(a)(1).
63. National Environmental Policy Act of 1969 (NEPA), 42 U.S.C. §§4321-4370f, ELR Stat. NEPA §§2-209.
64. 16 U.S.C. §1434(a)(2) (citing NEPA)).
65. *Id.* §1434(a)(3).
66. *Id.* §1434(a)(6).
67. *Id.*
68. *Id.* §1434(b)(1).
69. Owen, *supra* note 43, at 722-24.
70. *Id.* at 724.
71. *Id.* at 722, 725-30, 738-39.
72. *Id.* at 756.
73. 16 U.S.C. §1434(f)(1), added by the National Marine Sanctuaries Amendments Act of 2000, Pub. L. No. 106-513, §6(f), 114 Stat. 2381, 2385 (2000); *see also* NOAA, National Marine Sanctuaries, About Your Sanctuaries, http://sanctuaries.noaa.gov/about/designations.html (last visited May 2, 2014).
74. Chandler & Gillelan, *supra* note 43, at 10560.
75. Expansion of Fagatele Bay National Marine Sanctuary, Regulatory Changes, and Sanctuary Name Change, 77 Fed. Reg. 43942 (July 26, 2012); NOAA, National Marine Sanctuary of American Samoa, About Your Sanctuary, http://americansamoa.noaa.gov/about/welcome.html (last visited May 1, 2014); *see also* NOAA, National Marine Sanctuary of American Samoa: Management Plan Review, http://americansamoa.noaa.gov/management/reports.html (last visited May 2, 2014).
76. Boundary Expansion of Thunder Bay National Marine Sanctuary, 79 Fed. Reg. 52960 (Sept. 5, 2014); *see also Michigan's Lake Huron "Shipwreck Alley" to Be Huge Freshwater Sanctuary*, Guardian, Sept. 5, 2014, *at* http://www.theguardian.com/world/2014/sep/05/michigan-lake-huron-shipwreck-alley-marine-sanctuary-thunder-bay-expanded.
77. Proposed Expansion and Regulatory Revision of Gulf of the Farallones and Cordell Bank National Marine Sanctuaries, 79 Fed. Reg. 20982 (Apr. 14, 2014); *see also* Press Release, NOAA's Office of National Marine Sanctuaries, NOAA Seeks Public Comment on Expanding Gulf of the Farallones and Cordell Bank National Marine Sanctuaries Off Northern California

These expansions have been conducted through the same intensive public process that characterizes the program (as discussed elsewhere in this part): with engagement and support of sanctuary advisory councils, with review and revision of sanctuary management plans, with preparation of environmental impact statements, with opportunity for public comment through the *Federal Register*, and with numerous public hearings. Additional efforts to reinvigorate the national marine sanctuary system as a whole are currently underway, as discussed in Part IV of this Article.

C. Prohibitions and Permitted Uses

Overall, protection of ocean resources under the NMSA has been called "at times creative and innovative" but generally "uneven," given the relatively small amount of marine territory preserved and the inconsistency of prohibitions under the statute.[78] Although the NMSA expressly contemplates multiple uses in national marine sanctuaries, general prohibitions relating to harm, loss, and taking of sanctuary resources are included in the statute.[79] These prohibitions are consistent with the statute's primary purpose of resource protection.

The NMSA also creates a framework for every sanctuary to promulgate its own set of regulations, in addition to the generally applicable regulations. Unless prohibited by sanctuary-specific regulations or other authority, all activities such as fishing, boating, diving, research, and education may be conducted in sanctuaries.[80] Each sanctuary-specific set of regulations is designed to preserve and manage the specific area individually, a recognition of each sanctuary's unique ecosystem and operation under its own designation document.[81] While certain regulations are applied across several sanctuaries, other regulations are crafted with a sanctuary's particular resources in mind.[82] Examples of these regulations have been summarized as follows:

> [M]any of the sanctuary-specific regulations prohibit activities that alter the seabed or are related to developing oil, gas, or minerals. Other common regulations prohibit the removal or injury of historical resources, or the taking of any marine mammal, sea turtle, or seabird. Less common regulations may prohibit activities such as operating personal watercraft or vessels carrying cargo. Some sanctuary-specific regulations prohibit activities such as attracting white sharks, diving of any type, coming within one hundred yards of a humpback whale, or removing, injuring, or possessing coral or live rock.[83]

The U.S. Court of Appeals for the District of Columbia (D.C.) Circuit had occasion to consider restrictions on "motorized personal watercraft" in Monterey Bay National Marine Sanctuary, off the central California coast.[84] Within the sanctuary, the challenged regulation limited to four designated zones and access routes the operation of motorized personalized watercraft, defined to include jet skis, wet bikes, surf jets, miniature speed boats, air boats, and hovercraft.[85] The administrative record before NOAA and the court was "full of evidence" that these watercraft "interfered with the public's recreational safety and enjoyment of the Sanctuary and posed a serious threat to the Sanctuary's flora and fauna."[86] The court upheld the regulation, ruling that NOAA did not act arbitrarily by restricting motorized watercraft without also regulating other types of vessels in Monterey Bay National Marine Sanctuary.[87]

Under the NMSA's implementing regulations, NOAA has the authority to issue national marine sanctuary permits that authorize activities otherwise prohibited by sanctuary-specific regulations.[88] To issue such a permit, NOAA must find that the activity will accomplish one of several objectives listed for each sanctuary.[89] NOAA has discretion in deciding whether to issue a national marine sanctuary permit, though the regulations list several factors the agency must consider in making this determination.[90] Appropriate terms and conditions may be imposed on permits.[91]

In addition to national marine sanctuary permits, the NMSA authorizes the issuance of special use permits for certain activities in a sanctuary. NOAA may issue a special use permit if found necessary either "to establish conditions of access to and use of any sanctuary resource; or to promote public use and understanding of a sanctuary resource."[92] Special use permits may authorize activities in sanctuaries only for a five-year period, unless renewed.[93] Moreover, permits may authorize only an activity that is "compatible with the purposes for which the sanctuary is designated and with protection of sanctuary resources."[94] Permitted activities must be conducted so as not to "destroy,

(Dec. 20, 2012), *available at* http://sanctuaries.noaa.gov/news/press/2012/pr122012.html.

78. Owen, *supra* note 43, at 746-47, 756.
79. 16 U.S.C. §1436. It is unlawful to "destroy, cause the loss of, or injure any sanctuary resource managed under law or regulations for that sanctuary." *Id.* §1436(1). Nor may an individual "possess, sell, offer for sale, purchase, import, export, deliver, carry, transport, or ship by any means any sanctuary resource taken in violation of this section." *Id.* §1436(2).
80. 15 C.F.R. §922.42.
81. *Id.* §922.40; Connolly et al., *supra* note 22, at 542.
82. Connolly et al., *supra* note 22, at 542.
83. *Id.* (footnotes omitted) (citing all relevant regulatory sections).
84. Personal Watercraft Indus. Ass'n v. Dep't of Commerce, 48 F.3d 540, 542, 25 ELR 20681 (D.C. Cir. 1995).
85. *Id.* (citing 15 C.F.R. §§944.3, 944.5(a)(8) (1992)).
86. *Id.* at 545.
87. *Id.* at 541.
88. 15 C.F.R. §922.48(a).
89. As one example, to receive a permit in Cordell Bank National Marine Sanctuary, an otherwise-prohibited activity must (1) further research or monitoring related to the sanctuary, (2) further the sanctuary's educational value, (3) further certain salvage or recovery operations in or near the sanctuary, or (4) assist in managing the sanctuary. *Id.* §922.113(b); *see also id.* §922.153(c) (listing permit issuance criteria for Olympic Coast National Marine Sanctuary, among them promoting or enhancing certain objectives for one of several American Indian tribes adjacent to the sanctuary).
90. *See*, *e.g.*, *id.* §922.113(b), (c) (relevant factors for Cordell Bank National Marine Sanctuary); *id.* §922.123(c) (same for Flower Garden Banks National Marine Sanctuary).
91. *Id.* §922.48(d).
92. 16 U.S.C. §1441(a)(1)-(2).
93. *Id.* §1441(c)(2).
94. *Id.* §1441(c)(1).

cause the loss of, or injure sanctuary resources."[95] Finally, the regulations provide that activities that otherwise would be prohibited in a sanctuary are allowed, provided certain conditions apply, if such activities are authorized by a valid lease, permit, license, approval, or other authorization issued before or after a sanctuary is designated.[96]

Violators of the NMSA are subject to criminal and civil penalties. Certain offenses can receive a criminal punishment of, in most cases, a fine, up to 6 months' imprisonment, or both.[97] Civil penalties can reach $100,000 per violation per day for continuing violations, while individuals who destroy, cause the loss of, or injure any sanctuary resource are civilly liable for the resulting response costs and damages, with interest.[98]

D. Sanctuary Management

NOAA's Office of National Marine Sanctuaries manages each sanctuary pursuant to a sanctuary-specific management plan.[99] NOAA has established advisory councils for every national marine sanctuary to make recommendations about sanctuary management. Advisory councils are composed of stakeholders and may include federal and state employees with relevant expertise; Regional Fishery Management Council members; representatives of local user groups, conservation groups, and other organizations; and other interested individuals.[100]

The national marine sanctuary system is replete with examples of adaptive, collaborative management measures that have been developed by NOAA with stakeholders, and which have been met with broad compliance by users and with strong public support. For example, Olympic Coast National Marine Sanctuary worked with the U.S. Coast Guard and the International Maritime Organization to declare much of the sanctuary as an Area to Be Avoided.[101] Of the approximately 4,000 vessels that each year pass through the sanctuary, there is a 97-98% compliance rate with the voluntary measures.[102] As another example, Stellwagen Bank National Marine Sanctuary also collaborated with the Coast Guard and the International Maritime Organization to alter the Boston Traffic Separation Scheme and amend the shipping lanes to avoid endangered whales and reduce ship strikes.[103] Florida Keys and Channel Islands National Marine Sanctuaries each worked closely with federal and state partners to develop a nested system of zoning rules and requirements to allow for appropriate uses in different areas of the sanctuary.[104] Finally, through innovative arrangements, Florida Keys National Marine Sanctuary is jointly managed with the state of Florida under a co-trustee arrangement, while Hawaiian Islands Humpback Whale National Marine Sanctuary is co-managed with the state of Hawaii.[105]

The complexity of sanctuary management can be underscored with one figure: There are more than 23 different zoning definitions within the regulations governing national marine sanctuaries.[106] NOAA's management of national marine sanctuaries has been reviewed critically and consistently over many decades by outside entities, including the U.S. Government Accountability Office (GAO),[107] the Congressional Research Service,[108] the National Research Council of the National Academy of Sciences,[109] the National Academy of Public Administration,[110] the Inspector General of the U.S. Department of Commerce,[111] and various commissions and task forces.[112] Taken as a whole, these external reviews have concluded that sanctuaries are fundamentally well-conceived, cover gaps in other federal

95. *Id.* §1441(c)(3).
96. 15 C.F.R. §§922.47, 922.49.
97. 16 U.S.C. §1437(c).
98. *Id.* §§1437(d)(1), 1443(a)(1), (c).
99. 15 C.F.R. §922.30(a); *see also* NOAA, National Marine Sanctuaries, Frequently Asked Questions, http://sanctuaries.noaa.gov/about/faqs/welcome.html#3 (last visited May 2, 2014).
100. 16 U.S.C. §1445a(b).
101. George Galasso, Olympic Coast National Marine Sanctuary Area to Be Avoided (ATBA) Education and Monitoring Program 5-7 (2000), *available at* http://sanctuaries.noaa.gov/science/conservation/pdfs/atbafinal.pdf.
102. NOAA, Vessel Transits Through Olympic Coast National Marine Sanctuary and Area to Be Avoided (ATBA)—2013 Estimated Compliance 3 (2014), *available at* http://olympiccoast.noaa.gov/protect/incidentresponse/2013_ais.pdf; NOAA, Vessel Transits Through Olympic Coast National Marine Sanctuary and Area to Be Avoided (ATBA)—2012 Estimated Compliance 3-4 (2013), *available at* http://olympiccoast.noaa.gov/protect/incidentresponse/2012_ais.pdf.
103. Philip A. McGillivary et al., *Enhancing AIS to Improve Whale-Ship Collision Avoidance and Maritime Security*, Oceans 2009, MTS/IEEE Biloxi—Marine Tech. for Our Future: Global & Local Challenges 1, 2 (2009), *available at* http://www.dtic.mil/dtic/tr/fulltext/u2/a527578.pdf.
104. *See* Baur et al., *supra* note 43, at 563-64; Kenneth R. Weiss, *Federal Fishing Ban Casts Wider Net*, L.A. Times, Aug. 9, 2007, at B7; NOAA, National Marine Protected Areas Center: Florida Keys National Marine Sanctuary, http://marineprotectedareas.noaa.gov/aboutmpas/casestudies/floridakeys/ (last visited May 6, 2014).
105. NOAA, Florida Keys National Marine Sanctuary Management, http://floridakeys.noaa.gov/management/welcome.html?s=management (last visited May 6, 2014); NOAA, Hawaiian Islands Humpback Whale National Marine Sanctuary, Welcome, http://hawaiihumpbackwhale.noaa.gov/ (last visited May 2, 2014).
106. Among defined zones are: areas of special biological significance; no-vessel operation areas; preexisting dredged material disposal zones; ecological reserves; limited harvest zones; no-harvest zones; jade collection zones; no-activity zones; military zones; overflight prohibition zones; recreational zones; and wildlife management areas. *See* 15 C.F.R. pt. 922.
107. U.S. Gov't Accountability Office (GAO), Marine Sanctuaries Program Offers Environmental Protection and Benefits Other Laws Do Not (Report by the Comptroller General of the United States) (1981), *available at* http://www.gao.gov/products/CED-81-37.
108. Congressional Research Service study delivered Dec. 5, 1979, and Jan. 22, 1980 (original unavailable) (quoted in GAO, Marine Sanctuaries Program, *supra* note 107, at 20-21).
109. Tools for Sustaining Ocean Ecosystems, *supra* note 14; Nat'l Research Council, Striking a Balance: Improving Stewardship of Marine Areas (1997).
110. *See* James Murley & F. Stevens Redburn, Ready to Perform? Planning and Management at the National Marine Sanctuary Program (2006), *available at* http://sanctuaries.noaa.gov/news/pdfs/napareport.pdf; *see also* Nat'l Academy of Pub. Admin., Protecting Our National Marine Sanctuaries (2000), *available at* http://sanctuaries.noaa.gov/management/pdfs/NAPARpt.pdf.
111. U.S. Dep't of Commerce, Office of Inspector Gen., National Marine Sanctuary Program Protects Certain Resources, But Further Actions Could Increase Protection (2008), *available at* http://www.oig.doc.gov/OIGPublications/IPE-18591.pdf.
112. *See, e.g.*, U.S. Comm'n on Ocean Policy, *supra* note 5; Ctr. for Natural Areas, An Assessment of the Need for a National Marine Sanctuaries Program (1977), *available at* http://www.gpo.gov/fdsys/pkg/CZIC-qh91-75-u6-a8-1977/pdf/CZIC-qh91-75-u6-a8-1977.pdf .

laws, and are making progress toward long-term protection of marine ecosystems.

Consider the conclusions reached by a few of these reviews. In two reports completed last decade, the National Academy of Public Administration called the national marine sanctuary system "fundamentally well conceived" and "unique" for its ability to address the full array of ocean governance issues.[113] According to the academy, the system has enjoyed "a good measure of success" in managing natural resources within sanctuaries,[114] and "is building a strong performance-based management system."[115] The title of an earlier report by the GAO succinctly offered its main conclusion: "Marine Sanctuaries Program Offers Environmental Protection and Benefits Other Laws Do Not."[116] In 2008, the Inspector General of the Department of Commerce found that, while certain improvements were warranted, the national marine sanctuary program was "generally making progress towards long-term protection of marine ecosystems and cultural resources."[117] The Inspector General wrote: "The program effectively complements other federal, state, and local resource protection efforts by offering benefits other laws or regulations do not."[118] All told, the overarching observation in reviews of the national marine sanctuary system has been that the system is a constructive and important tool in ocean governance, and that it is generally well-managed and effectively implemented by NOAA.

E. Analysis: Strengths and Shortcomings

Unique among federal statutes that govern the marine environment, the NMSA provides for comprehensive, ecosystem-based management. The statutory process of sanctuary designation permits the creation of MPAs, which, as discussed, are characterized by integrated management and a focus on the marine system as opposed to an individual resource or species. This approach has several important benefits, as previously identified, including more robust protection of marine biodiversity, habitat, and fisheries.

NMSA regulations, including those applicable across all sanctuaries and to individual sanctuaries, serve to protect and manage marine resources within each designated area. Simple designation of an area as a national marine sanctuary does not guarantee extensive protections, but sanctuary-specific regulations can provide for them. The preceding section discussed sanctuary-specific regulations that prohibit extractive activities, the taking of certain animals, impacts on historical resources, and other human activities that could harm the marine ecosystem. Such regulations, to prohibit extractive and non-extractive activities alike, "provide a good deal of protection" to ocean resources where the regulations apply.[119] Off the California coast, for instance, the NMSA has succeeded in limiting oil and gas drilling.[120]

Given the comprehensive framework of the NMSA, it deliberately balances multiple uses.[121] By authorizing and managing compatible uses of the ocean, the NMSA helps harmonize marine preservation, and human use and enjoyment. Sanctuaries can allow for commercial activity like fishing, for recreational activities that depend on an intact natural environment, and for long-term preservation.

This comprehensive, balanced approach is coupled with the single most powerful and important aspect of the NMSA: its provisions for strong stakeholder and community engagement. The statute includes extensive opportunities for public participation, from the time a site is first proposed for designation as a sanctuary through a sanctuary's ongoing management as a protected area. The NMSA's commitment to participation is evidenced by its provision for advisory committees of stakeholders to make recommendations on sanctuary designation and management.[122] More generally, the sanctuary program is set up to engage citizens in the NMSA's mission. States and communities can take a sense of ownership in their local marine environment through the program.[123] Sanctuaries become living laboratories, classrooms, and playgrounds, as the NMSA makes marine areas accessible for research centers, educational institutions, and other entities. The public involvement aspect of the NMSA is a major strength of the program, as it facilitates long-term buy-in by affected parties and local communities.

For violators of sanctuary protections, the NMSA provides for both civil and criminal penalties. This represents another strength of the statute, as it enables the Secretary of Commerce to assess a civil penalty or request the initiation of a civil action against alleged violators without necessarily instituting criminal proceedings, which likely would have a lower priority relative to, say, violent crimes committed on land.[124] Additionally, NOAA takes into account whether a violation occurred in a sanctuary when assessing penalties under other statutes,[125] including the Endangered Species Act (ESA)[126] and the Marine Mammal Protection Act (MMPA),[127] both discussed in detail later in the Article.

In spite of its strengths, the NMSA, as currently drafted and implemented, also has several weaknesses. It has been politically challenging at times for NOAA to establish

113. *See* Murley & Redburn, *supra* note 110, at vii; Nat'l Academy of Pub. Admin., *supra* note 110, at 1, 10, 45.
114. Nat'l Academy of Pub. Admin., *supra* note 110, at 11.
115. Murley & Redburn, *supra* note 110, at vii.
116. GAO, Marine Sanctuaries Program, *supra* note 107.
117. U.S. Dep't of Commerce, *supra* note 111, at ii.
118. *Id.*
119. Baur et al., *supra* note 43, at 521; *see also* Owen, *supra* note 43, at 745.
120. Owen, *supra* note 43, at 745.
121. *Id.* at 717-18; Baur et al., *supra* note 43, at 509-10 (describing Congress' intention to enable multiple-use management in marine sanctuaries).
122. 16 U.S.C. §1445a(a).
123. Owen, *supra* note 43, at 746.
124. *See* 16 U.S.C. §§1437(d)(1), 1443(c)(1).
125. *See* NOAA, Office of the General Counsel—Enforcement and Litigation, Policy for the Assessment of Civil Administrative Penalties and Permit Sanctions, at 7-8 (Mar. 16, 2011), *available at* http://www.gc.noaa.gov/documents/031611_penalty_policy.pdf.
126. Endangered Species Act (ESA), 16 U.S.C. §§1531-1544, ELR Stat. ESA §§2-18.
127. Marine Mammal Protection Act (MMPA), 16 U.S.C. §§1361-1421h, ELR Stat. MMPA §§2-410.

sanctuaries. Reserving significant natural resources can inspire intense opposition in certain instances where there is a conflict with preexisting commercial activities. In the face of such opposition, it can prove difficult for an administrative agency, particularly one of NOAA's relatively small size, to advance sanctuary designations without broader support from Congress and the president.

As discussed above, Congress has imposed tough requirements on NOAA before the agency can designate further sanctuaries. Consequently, no new sanctuaries have been designated under the NMSA in the last 14 years. Although it remains to be seen whether the congressional requirements will continue to function as a de facto moratorium, we are aware of no evidence that NOAA intends or is able to make the requisite findings to reinitiate designations. The NMSA does not include a private right-of-action that would allow the public to force the designation of sanctuaries. Such a right is common in other environmental laws, such as the ESA, and can empower private citizens to force agency action to protect the environment.[128]

Once sanctuaries are designated, the NMSA's provision for multiple use complicates the preservation of intact ocean ecosystems. Extractive activities like commercial fishing can undermine the biodiversity and integrity of MPAs.[129] Some critics argue that attempts to balance preservation with active uses of sanctuaries have "made it extremely difficult to establish use-specific zones" for low-intensity activities like preservation, thus hindering the NMSA's purpose of preserving marine resources.[130] Accordingly, this critique goes, even though the intent of the NMSA was to preserve ocean ecosystems, the statute lacks a "singular focus on preservation" and, therefore, does not adequately accomplish this goal.[131] Because the national marine sanctuary system operates on a principle of multiuse authorization, it is beneficial—when Congress is involved in designating a sanctuary established to protect certain natural resources—for Congress to provide greater direction to NOAA on the specific resource values to be protected.

Finally, while not a fault with the NMSA per se, NOAA has been chronically underfunded in fulfilling the vision and mission of the NMSA. The NMSA does not guarantee that NOAA will receive increased funding after designating additional sanctuaries, and, indeed, Congress has not routinely made such allocations.[132] In 2000, Congress essentially acknowledged NOAA's financial challenges in managing the sanctuaries when Congress prohibited new designations until NOAA determines it has adequate resources to manage and inventory existing sanctuaries.[133]

128. Owen, *supra* note 43, at 752-53 (citing as examples the ESA, *see* 16 U.S.C. §1540(g); the CWA, *supra* note 10, *see* 33 U.S.C. §1365; and the CAA, *supra* note 10, *see* 42 U.S.C. §7604(a)).
129. Chandler & Gillelan, *supra* note 43, at 10559.
130. *Id.* at 10508.
131. *Id.* at 10560 (emphasis omitted).
132. *See* Owen, *supra* note 43, at 723-57 (noting, throughout a history and analysis of the NMSA, the inadequate funding Congress has allocated to implement the legislation).
133. *See* 16 U.S.C. §1434(f).

III. Other Legal Mechanisms for Preserving Marine Ecosystems

A. *Federal Law*

In addition to the NMSA, several other federal legal authorities play a role in preserving marine ecosystems. However, as this Part indicates, each has significant shortcomings relative to the NMSA.

1. Presidential Orders and Policies

a. Executive Order No. 13158

In May 2000, President Clinton promulgated Executive Order No. 13158, one of several initiatives to advance ocean exploration, research, and conservation.[134] The Executive Order was intended to spur action on MPAs, with §3 providing that relevant federal agencies take "appropriate actions to enhance or expand protection of existing MPAs and establish or recommend, as appropriate, new MPAs,"[135] and §4 specifically calling on the Department of Commerce and the U.S. Department of the Interior (DOI) to develop a "National System" of MPAs.[136]

The Executive Order was also intended to drive federal agencies to adopt better protections for MPAs. Section 5 of the Executive Order requires each federal agency to identify its actions that "affect the natural or cultural resources that are protected by an MPA."[137] It further directs such agencies, "to the maximum extent practicable," to "avoid harm to the natural and cultural resources that are protected by an MPA."[138]

b. U.S. Ocean Action Plan

In 2001, President George W. Bush announced the Administration's retention of Executive Order No. 13158, as well as the appointment of the Marine Protection Area Advisory Committee to fulfill the directive to seek the expert advice and recommendations of various stakeholders.[139] Then in December 2004, the Bush Administration released its U.S. Ocean Action Plan,[140] designed to respond to the findings of the U.S. Commission on Ocean Policy, which highlighted serious problems facing

134. 65 Fed. Reg. 34909 (May 26, 2000), *reprinted in* 16 U.S.C. §1431.
135. *Id.* at 34909. Executive Order No. 13158 provides the working definition of an MPA within the United States.
136. *Id.* at 34910. The Secretaries of Commerce and the Interior were charged to: establish an MPA Federal Advisory Committee to provide nonfederal recommendations; establish a website for information on MPAs; publish and maintain a national inventory of MPAs; establish a Marine Protected Area Center to provide science, tools, and strategies to assess the effectiveness of existing and future MPAs and develop the framework for a national system of such areas; and consult with government and nongovernment stakeholders.
137. *Id.* at 34911.
138. *Id.*
139. Notice of Request for Nominations, 66 Fed. Reg. 42204 (Aug. 10, 2001).
140. White House Council on Envtl. Quality, *supra* note 6; *see also* Exec. Order No. 13336, 69 Fed. Reg. 76591 (Dec. 21, 2004).

the nation's marine environment and offered a strategy for promoting multiple uses and balancing competing stakeholder interests in our nation's ocean, coasts, and Great Lakes.[141] The plan envisioned both immediate and long-term actions dedicated to an ecosystem-based approach to resource management, including the dedication of national leadership on ocean policy, improvement of fisheries management, and enhancement of research on ocean science and technology.[142]

The plan and its subsequent implementation by the Bush Administration made significant progress toward protecting the nation's ocean, coasts, and Great Lakes. Notably, one stated objective of the plan was to protect the Northwestern Hawaiian Islands coral reefs. Following President Clinton's Executive Order establishing the Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve,[143] and a further multi-year development process involving a variety of stakeholders and interests, President Bush used his authority under the Antiquities Act to designate as a national monument the world's largest marine conservation area off the coast of the Northwestern Hawaiian Islands on June 15, 2006.[144] In 2007, the president signed the Magnuson-Stevens Fishery Conservation and Management Reauthorization Act to significantly strengthen a number of key fisheries management provisions.[145] Additionally, through a collaborative process involving more than 60 public and private partners, 10,000 acres of tidal wetlands were restored in an area of the Laguna Atascosa National Wildlife Refuge in Texas known as the Bahia Grande.[146] Of the 88 goals established under the U.S. Ocean Action Plan, nearly all were accomplished by 2007.[147]

c. National Ocean Policy

The Obama Administration in 2010 released a National Ocean Policy, which aims to "protect, maintain and restore the health and biological diversity of ocean, coastal, and Great Lakes ecosystems and resources"[148] as well as "support sustainable, safe, secure, and productive access to, and uses of the ocean, our coasts, and the Great Lakes."[149] The policy reflects recommendations made by the Interagency Ocean Policy Task Force that include shifting away from use-based laws and toward ecosystem-based management of marine resources,[150] as well as increasing stakeholder involvement to ensure that ocean management considers the needs of those affected by new policies.[151]

The policy created the National Ocean Council, which in April 2013 released the National Ocean Policy Implementation Plan.[152] The plan describes specific actions that aim to implement the policy's goals. To address "coastal and ocean resilience," the plan includes specific milestones designed to reduce adverse conditions, prepare for change, and recover and sustain ocean health.[153] The plan's appendix sets forth detailed action items and includes assignments for federal agency implementation and target dates for completion.[154] The Obama Administration is moving forward to establish regional planning bodies as provided in the plan.[155]

d. Analysis: Shortcomings of Presidential Orders and Policies

Executive orders and presidential policies provide an ideal mechanism for articulating an ecosystem-based approach to conservation.[156] However, presidential orders and policies, by definition, are weak due to their lack of enforceability. For example, a private party cannot sue the federal government based on an executive order. Executive Order No. 13518 explicitly acknowledges this limitation by stating that it does not create any "right or benefit, substantive or procedural, enforceable in law or equity by a party against the United States, its agencies, its officers, or any person."[157] Executive orders and presidential policies generally rely on existing authorities and procedures, and available funding, and these limitations invariably undermine their aspirational vision.

2. Use-Based Authorities

a. Outer Continental Shelf Lands Act

The Outer Continental Shelf Lands Act (OCSLA)[158] is the foundation of U.S. ocean energy law. The OCSLA establishes federal jurisdiction of the subsoil and seabed

141. U.S. Comm'n on Ocean Policy, Press Statement: Chairman of U.S. Commission on Ocean Policy Commends President Bush on Initial Step Toward a National Ocean Policy (Dec. 17, 2004), *available at* http://govinfo.library.unt.edu/oceancommission/newsnotices/dec17_04.html.
142. White House Council on Envtl. Quality, *supra* note 6, at 4-5.
143. Exec. Order No. 13178, 65 Fed. Reg. 76903 (Dec. 4, 2000).
144. Proclamation No. 8031, 71 Fed. Reg. 36443 (June 15, 2006).
145. Magnuson-Stevens Fishery Conservation and Management Reauthorization Act of 2006, Pub. L. No. 109-479, 120 Stat. 3575 (2007).
146. *See* NOAA, Press Release: NOAA Awards $200,000 to Ocean Trust for Major Texas Estuary Restoration (Sept. 5, 2003), *available at* http://www.publicaffairs.noaa.gov/releases2003/sep03/noaa03r945.html; *see also* Interagency Committee on Ocean Science and Resource Management Integration, Federal Ocean and Coastal Activities Report to the U.S. Congress for CY 2006 and 2007, at 9 (Jan. 2008).
147. U.S. DOI, Press Release: Secretary Kempthorne Highlights Progress to Achieve Goals of U.S. Ocean Action Plan (Jan. 25, 2007), *available at* http://www.doi.gov/news/archive/07_News_Releases/070126.html.
148. Exec. Order No. 13547, §2, 75 Fed. Reg. 43023, 43023 (July 19, 2010).
149. *Id.* at 43024.
150. White House Council on Envtl. Quality, Final Recommendations of the Interagency Ocean Policy Task Force 2 (2010).
151. *Id.* at 7.
152. National Ocean Council, National Ocean Policy Implementation Plan (2013).
153. *Id.* at 14-18.
154. National Ocean Council, National Ocean Policy Implementation Plan Appendix (2013).
155. *See* Video: CHOW [Capitol Hill Ocean Week] 2014 Opening Keynote: John Podesta—The White House (June 15, 2014), https://www.youtube.com/watch?v=BCsEWez50XE&feature=youtu.be (remarks by John Podesta).
156. *See* Patrick A. Parenteau et al., *Legal Authorities for Ecosystem-Based Management in U.S. Coastal and Ocean Areas*, *in* Ocean and Coastal Law and Policy, *supra* note 22, at 597, 628.
157. Exec. Order No. 13158, 65 Fed. Reg. at 34911.
158. Outer Continental Shelf Lands Act (OCSLA), 43 U.S.C. §§1331-1356a.

of the Outer Continental Shelf seaward of state territorial waters.[159] Within this vast area, the OCSLA gives the Secretary of the Interior the authority to grant leases for the development of energy resources within the Outer Continental Shelf.[160]

The goal of the OCSLA is well-explained by its policy statement: "the outer Continental Shelf is a vital national resource reserve held by the Federal Government for the public, which should be made available for expeditious and orderly development, subject to environmental safeguards, in a manner which is consistent with the maintenance of competition and other national needs."[161] In 2011, DOI restructured the administration of the OCSLA. Today, the Bureau of Ocean Energy Management manages the development of the nation's offshore resources,[162] while the Bureau of Safety and Environmental Enforcement enforces safety and environmental regulations.[163]

Under the OCSLA, the Secretary must prepare and maintain an oil and gas leasing program with a schedule of proposed lease sales indicating the size, timing, and location of leasing activity that the Secretary "determines will best meet national energy needs for the five-year period following its approval or reapproval."[164] Under the program, management of the Outer Continental Shelf "shall be conducted in a manner which considers economic, social, and environmental values of the renewable and nonrenewable resources" contained there "and the potential impact of oil and gas exploration on other resource values of the [Outer Continental Shelf] and the marine, coastal, and human environments."[165] No lease may be issued "unless it is for an area included in the approved leasing program and unless it contains provisions consistent with the approved leasing program."[166]

The OCSLA aims to protect marine ecosystems in at least two ways. The first concerns one of the primary purposes of the law: to find and use domestic oil and gas on submerged public lands. Developing domestic resources on the Outer Continental Shelf minimizes reliance on foreign oil and, in turn, may reduce the travel distances and attendant risks (for example, oil spills) associated with transporting oil in supertankers between countries.[167]

Second, the OCSLA includes provisions expressly designed to protect marine resources. For instance, the OCSLA requires the Secretary to "select the timing and location of leasing, to the maximum extent practicable, so as to obtain a proper balance between the potential for environmental damage, the potential for the discovery of oil and gas, and the potential for adverse impact on the coastal zone."[168] In striking this "balance," the Secretary must consider "environmental sensitivity and marine productivity" of areas when determining whether such areas will be open for development.[169] In addition, the president can withdraw areas of the Outer Continental Shelf from leasing to protect such areas from development.[170] Where activities threaten the marine, coastal, or human environment or threaten damage to fish and other aquatic life, the Secretary can suspend or temporarily prohibit operations pursuant to a lease or cancel a lease,[171] powers that can create de facto MPAs from oil and gas activities.[172]

b. Magnuson-Stevens FCMA

The FCMA[173] is the most significant federal fishery management law. The FCMA establishes a fishery conservation zone within 200 nautical miles of U.S. shores and a set of rules to manage fishing activities.[174] Two institutions primarily implement the law: the National Marine Fisheries Service (NMFS) and eight Regional Fishery Management Councils. The NMFS regulates certain highly migratory species,[175] and the eight councils manage fisheries within their respective jurisdictions, which vary in geographic size.[176]

Under the FCMA, councils decide which fisheries need "conservation and management."[177] For these fisheries, the councils must develop a fishery management plan that establishes "conservation and management measures . . . necessary and appropriate . . . to prevent overfishing and rebuild overfished stocks, and to protect, restore, and promote the long-term health and stability of the fishery."[178] Fishery management plans must also "assess and specify the present and probable future condition of, and the maximum sustainable yield and optimum yield from, the fishery."[179]

159. 43 U.S.C. §1333(a)(1)-(2)(A); *see also* Connolly et al. *supra* note 22, at 546-47; Milo C. Mason, *Offshore Energy Development*, *in* Ocean and Costal Law and Policy, *supra* note 22, at 409 (providing a detailed review of the OCSLA).
160. 43 U.S.C. §1334(a); *see also* Connolly et al., *supra* note 22, at 547.
161. 43 U.S.C. §1332(3).
162. Bureau of Ocean Energy Mgmt., The Reorganization of the Former MMS, http://www.boem.gov/About-BOEM/Reorganization/Reorganization.aspx (last visited May 8, 2014).
163. *Id.*
164. 43 U.S.C. §1344(a).
165. *Id.* §1344(a)(1).
166. *Id.* §1344(d)(3).
167. Mason, *supra* note 157, at 433-34.
168. 43 U.S.C. §1344(a)(3).
169. *Id.* §1344(a)(2)(G).
170. *Id.* §1341(a).
171. *Id.* §1334(a)(1)(B), (a)(2)(A)(i).
172. Connolly et al., *supra* note 22, at 547.
173. Magnuson-Stevens FCMA, 16 U.S.C. §§1801-1884.
174. *See generally* Josh Eagle, *Domestic Fishery Management*, *in* Ocean and Coastal Law and Policy, *supra* note 22, at 275, 276; *see also id*. at 275-93 (providing a detailed review of the FCMA).
175. 16 U.S.C. §§1852(a)(3), 1854(g).
176. Eagle, *supra* note 174, at 277-78.
177. 16 U.S.C. §1852(h)(1).
178. *Id.* §1853(a)(1).
179. *Id.* §1853(a)(3). Each fishery management plan must also be consistent with 10 national standards for fishery conservation and management. *Id.* §1851; Eagle, *supra* note 174, at 280. For instance, councils are to achieve optimum yield from each fishery, use "[c]onservation and management measures . . . based upon the best scientific information available," and manage an individual stock of fish as a unit through its range. 16 U.S.C. §1851(a)(2)-(a)(3). There are also standards that address political and social concerns, including one that prohibits conservation and management measures from discriminating between residents of different states and another that requires such measures, to the extent practicable, to promote safety at sea. *Id.* §1851(a)(4), (a)(10).

The FCMA features mechanisms to rebuild, protect, and conserve marine ecosystems. In U.S. waters, councils must rebuild overfished fisheries in "as short as possible" a period of time and, in general, must do so within 10 years.[180] To further rebuild and protect fisheries, a council's fishery management plan may create MPAs, designating "zones where, and periods when, fishing shall be limited, or shall not be permitted, or shall be permitted only by specified types of fishing vessels or with specified types and quantities of fishing gear."[181]

Councils must "describe and identify essential fish habitat for the fishery,"[182] which includes "those waters and substrate necessary to fish for spawning, breeding, feeding or growth to maturity."[183] Councils must "minimize to the extent practicable adverse effects on such habitat caused by fishing, and identify other actions to encourage the conservation and enhancement of such habitat."[184] Designations of essential fish habitat can have broad conservation impacts beyond the fishing industry because federal agencies must consult with the Secretary of Commerce with respect to actions authorized, funded, or undertaken by the agency that may adversely affect essential fish habitat.[185] If the Secretary determines that an action would adversely affect such habitat, the agency proposing the action must employ recommended conservation measures.[186]

c. Analysis: Shortcomings of Use-Based Authorities

Notwithstanding the marine protection authorities under the OCSLA and the FCMA, these laws do not provide for comprehensive management of ocean ecosystems. While decisions under the OCSLA can create de facto protected areas from development on the Outer Continental Shelf, the OCSLA is designed to develop resources on the Outer Continental Shelf and is not intended to provide for the kind of comprehensive, multisector protection needed to protect whole ecosystems intact and in perpetuity. Similarly, the FCMA includes important marine protection and conservation mechanisms, but the law is meant to sustain and rebuild fisheries rather than broader ecosystems.[187]

Because these use-based authorities center on the management of marine resources for consumptive use, they do not provide a clear mandate to the agencies that administer them to set aside nationally significant marine areas to protect the range of values that can be protected under the NMSA.[188] Further, the narrow use-based focus of the OCSLA and the FCMA shapes the manner in which industry and other stakeholders engage in and seek to influence policy decisions under these laws. Under the OCSLA, stakeholders focus on how best to exploit or prevent the use of energy resources on the Outer Continental Shelf. Under the FCMA, stakeholders focus on managing and recovering fish stocks. By contrast, through the extensive stakeholder engagement to designate sanctuaries under the NMSA, the public can orient its input toward ensuring comprehensive, ecosystem-based management of marine areas in perpetuity.

3. Coastal-Focused Authorities

a. Coastal Zone Management Act

Congress enacted the Coastal Zone Management Act (CZMA)[189] in 1972, in recognition of the "piecemeal development of coastal ecosystems without an overall strategy for comprehensive coastal management."[190] Section 303 of the CZMA declares as the national policy to "preserve, protect, develop, and where possible, to restore or enhance, the resources of the Nation's coastal zone for this and succeeding generations."[191] "Coastal zone" is defined as:

> the coastal waters (including the lands therein and thereunder) and the adjacent shorelands (including the waters therein and thereunder), strongly influenced by each other and in proximity to the shorelines of the several coastal states, [which] includes islands, transitional and intertidal areas, salt marshes, wetlands, and beaches.[192]

The CZMA recognizes that coastal management must take place at a more local level than the federal government, given that land use controls often are adminis-

180. 16 U.S.C. §1854(e)(4)(A)(i), (ii).
181. *Id.* §1853(b)(2). Connolly et al., *supra* note 22, at 543 (describing council use of marine reserves). For instance, the December 2011 Pacific Coast Groundfish Fishery Management Plan set aside time and area closures from fishing and noted that "most either are practically permanent (portions of the [Groundfish Conservation Areas]) or are intended to be permanent (habitat closed areas and the trawl footprint closure). These time/area closures offer lasting protection and may be considered MPA." Pac. Fishery Mgmt. Council, Pacific Coast Groundfish Fishery Management Plan 87 (2011), *available at* http://www.pcouncil.org/wp-content/uploads/GF_FMP_FINAL_Dec2011.pdf/. *See also* NOAA Southeast Fishery Bulletin, FB09-004 (Jan 13, 2009), *available at* http://sero.nmfs.noaa.gov/fishery_bulletins/bulletin_archives/2009/documents/pdfs/fb09-004_fr_for_amend14_sng.pdf (summarizing final rule to implement Amendment 14 to the South Atlantic Snapper Grouper Fishery Management Plan to restrict fishing by establishing eight MPAs ranging from North Carolina to Florida).
182. 16 U.S.C. §1853(a)(7).
183. *Id.* §1802(10).
184. *Id.* §1853(a)(7).
185. *Id.* §1855(b)(2).
186. *Id.* §1855(b)(4)(A). The FMCA also includes provisions to protect global fish stocks by prohibiting the importation of fish, fish products, and sports fishing equipment from any nation identified by the Secretary as having nationals engaged in illegal, unregulated, or unreported fishing beyond the exclusive economic zone of any nation. *Id.* §1826a(b); David K. Schorr, *Trade in Fish and Fisheries Products*, *in* Ocean and Coastal Law and Policy, *supra* note 22, at 333, 355.
187. As reflected in a recent NMFS report, fisheries yield and recovery are properly the focus of the agency administering the law, as opposed to other federal programs that protect valued ocean places. Nat'l Marine Fisheries Serv., 2011 Report to Congress, Status of Stocks: Report on the Status of U.S. Fisheries for 2011, Forward & Executive Summary (2012).
188. Such values include "conservation, recreational, ecological, historical, scientific, cultural, archaeological, educational, or esthetic qualities; . . . the communities of living marine resources [the area] harbors; or . . . its resource or human-use values." 16 U.S.C. §1433(a).
189. Coastal Zone Management Act (CZMA), 16 U.S.C. §§1451-1464.
190. *See* 1 Patricia E. Salkin, American Law of Zoning §3:3 (5th ed. 2012) (internal quotation marks and citation omitted).
191. 16 U.S.C. §1452(1).
192. *Id.* §1453(1).

tered by municipalities.[193] Thus, although the CZMA is administered by the Department of Commerce, the actual implementation of approved management plans under the CZMA takes place at the state level. The states can achieve the CZMA's objectives, and receive the benefits provided by the statute, but are still free to choose the mix of land and water uses in their programs.

The CZMA aims to achieve its goal by encouraging state responsibility for coastal zones through "management programs" to meet numerous objectives, including the protection of natural resources, improvement of coastal water quality, and management of coastal development. Under the CZMA, coastal states may submit management plans for approval by the Department of Commerce. To be approved, a state program must define the boundaries of the state coastal zone, identify how the state will exert control over land and water uses, describe the organizational structure to implement the program, identify which activities are permissible within the zone, and designate legal authorities for decisionmaking and administration of the program.[194] In addition, the state must coordinate its program with local, areawide, and interstate plans and establish a mechanism to ensure continuing consultation between the state agency administering the plan and local and regional agencies.[195] The CZMA provides federal funding to states during both the planning and implementation stages of management plans. If approved, the state management plan is eligible for federal funding to assist in the implementation of the management's objectives.

The CZMA also includes funding opportunities through the coastal resource improvement program. Under the program, states can obtain federal dollars to preserve or restore specific areas because of their conservation, recreational, ecological, or aesthetic values, redevelop urban waterfronts or ports, provide public access to beaches or other areas of significance, or develop a coordinated process to regulate aquaculture facilities.[196] Section 309 also makes federal grants available to coastal states to fund programs that support "coastal zone enhancement objectives." These objectives include the protection, restoration, or enhancement of the coastal wetlands, planning for the use of ocean resources, as well as the assessment of coastal growth and development.[197]

In addition to federal funding, the CZMA's main incentive to states lies in §307, known as the "federal consistency provision."[198] Federal actions affecting a state's coastal uses or resources must be consistent "to the maximum extent practicable" with the state coastal management program.[199] This provision affords the participating states a significant amount of control and the opportunity to exercise autonomy to craft and enforce their coastal management plans.[200]

The federal consistency provision reaches private coastal development projects that require federal permits and licenses. Before a federal authority may grant a permit or license affecting the coastal resource, the applicant must certify that the proposed activity will be conducted in a manner consistent with the management program.[201] If a state objects, the federal agency is precluded from moving forward unless, on administrative appeal, the Department of Commerce finds the proposed activity is consistent with the CZMA's objectives or if national security requires the project to proceed. Projects often affected by this provision include grants from the Department of Housing and Urban Development, as well as federal highway funds and permits from the U.S. Department of Transportation.

The CZMA also established the National Estuarine Research Reserve System (NERRS).[202] Estuaries are defined as the parts of a river, stream, or other body of water having unimpaired connection with the open sea, where the sea water is measurably diluted with fresh waters derived from land drainage.[203] The NERRS is a network of individual reserves that are dedicated to long-term estuarine research.[204] For an estuarine area to be designated as part of the system, the nominating coastal state must have laws in place that provide long-term protection to ensure a stable research environment. The CZMA authorizes federal funding for designated reserves, including the delegation of federal grants for use in managing the reserve and conducting education, research, or monitoring activities.[205] The statute, therefore, is an incentive for coastal states to enact laws dedicated to protecting estuarine areas.[206] Currently, there are 28 national reserves.[207]

The 1990 Coastal Zone Reauthorization Amendments expanded the federal consistency provision in §307 to include federal activities "within *or outside* the coastal zone."[208] Congress expanded the scope of this provision in direct response to the U.S. Supreme Court's decision in *Secretary of the Interior v. California*.[209] In that case, the Court held that DOI's sale of Outer Continental Shelf oil and gas leases did not constitute activity "directly affect-

193. Salkin, *supra* note 190, §3:3.
194. 16 U.S.C. §1455(d).
195. *Id.* §1455(d)(3).
196. *Id.* §1455a.
197. *Id.* §1456b.
198. *Id.* §1456.
199. *Id.* §1456(c)(2).
200. The consistency requirement works both ways: Section 307(d) requires that state or local applications for federal assistance be consistent with the enforceable policies of the coastal state's management program. The statute does provide an exception for projects necessary in the interest of national security. 16 U.S.C. §1456(d).
201. Detailed regulations regarding the certification process are at 15 C.F.R. §§930.30-930.100.
202. 16 U.S.C. §1461. Regulations applicable to the NERRS are at 15 C.F.R. §921.
203. 15 C.F.R. §921.2(e).
204. 16 U.S.C. §1461(b).
205. *Id.* §1461(e).
206. Connolly et al., *supra* note 22, at 545.
207. NOAA, Ocean and Coastal Resource Management, The National Estuarine Research Reserve System, http://coastalmanagement.noaa.gov/programs/nerr.html (last visited Oct. 10, 2013).
208. 16 U.S.C. §1456(c)(1)(A) (emphasis added) (as amended by Pub. L. No. 101-508, §6208(a) (1990)).
209. Secretary of the Interior v. California, 464 U.S. 312, 14 ELR 20129 (1984).

ing" California's coastal zone and that a consistency review was not required.

Thirty-four of the 35 coastal and Great Lakes states (and territories) now operate under approved CZMA programs.[210]

b. Clean Water Act

The Clean Water Act (CWA)[211] provides four notable mechanisms for protecting marine resources: §320 (the National Estuary Program), §403 (Ocean Discharge Criteria), §404 (Permits for Dredged or Fill Material), and §303(d) (Water Quality Standards and Implementation Plans).

i. National Estuary Program

Estuaries are highly productive habitats that sustain a wide variety of animal and plant life, yet they are used extensively for recreation, shipping, and industry. The National Estuary Program (NEP) was established in 1987 as part of amendments to the CWA. Section 320 of the CWA establishes a "place-based" program to protect and restore the water quality of estuaries of national significance. An estuary is defined statutorily as "all or part of the mouth of a river or stream or other body of water having unimpaired natural connection with open sea and within which the sea water is measurably diluted with fresh water derived from land drainage."[212] To date, there are 28 estuaries that have been designated as estuaries of national significance under the NEP.

A state governor may nominate an estuary to the NEP. If accepted, the U.S. Environmental Protection Agency (EPA) holds a management conference to assess the estuary's condition and begin work on a management plan.[213] The membership of the management conference must include a broad cross-section of stakeholders, including representatives of all states located in the estuarine zone, affected local governments, industry, and the general public.[214] The management conference's main work product is its Comprehensive Conservation and Management Plan, which includes recommendations and proposed solutions for the highest priority problems identified by the conference. EPA provides financial support for the efforts of the management conference and the implementation of the management plan.[215]

The NEP emphasizes public participation and uses a consensus-building approach and collaborative decision-making process to identify problems and develop recommendations to solve the challenges facing each estuary. This approach has been praised by some commentators, who note that the networks in NEP areas incorporate more levels of government, integrate more experts into the policy discussion, nurture stronger interpersonal ties between stakeholders, and create greater faith in the procedural fairness of local policy than other comparable estuaries.[216] For example, EPA reports that NEP's membership benefits from the informal exchange of information and best practice regarding common estuarine environmental problems, such as alteration of natural hydrologic flows, aquatic nuisance species, and habitat loss and degradation.[217]

ii. Ocean Discharge Criteria

Section 402 of the CWA requires permits for discharges of pollutants into the territorial seas, contiguous zone, and ocean. The permits are administered by EPA through the national pollutant discharge elimination system (NPDES). Section 403 subjects point source discharges to the territorial seas, contiguous zone, and ocean to certain regulatory requirements in addition to those requirements applicable to typical discharges.[218] The purpose of §403 is to ensure that no unreasonable degradation of the marine environment occurs as a result of the discharge. Under §403, EPA may not issue §402 permits unless it determines that the discharge will not result in "unreasonable degradation" of the marine environment.[219] The ocean discharge regulations, originally promulgated in 1980, specify for the permitting authority the factors that must be considered when evaluating the impact of a discharge to the marine environment.[220]

According to EPA, more than 300 facilities are subject to §403's requirements under individual permits. In addition, approximately 2,500 oil and gas exploration and production platforms must comply with §403.[221]

To protect the quality of "beaches, coasts, and the marine environment from pollution," §4(f) of Executive Order No. 13158 directed EPA to "expeditiously propose new science-based regulations, as necessary, to ensure appropriate levels of protection for the marine environment."[222] EPA interpreted the Executive Order to require revisions to its

210. NOAA, National Coastal Zone Management Program (2012), *available at* http://coastalmanagement.noaa.gov/resources/docs/czmfactsheet.pdf.
211. 33 U.S.C. §§1251-1387, ELR Stat. FWPCA §§101-607.
212. 33 U.S.C. §§1254(n)(4), 1330(k).
213. *Id.* §1330(a)(2).
214. *Id.* §1330(c).
215. *Id.* §1330(f), (g).
216. Mark Schneider et al., *Building Consensual Institutions: Networks and the National Estuary Program*, 47 Am. J. Pol'y Sci. 143 (2003).
217. U.S. EPA, Water: Estuaries and Coastal Watersheds, Challenges and Approaches, http://water.epa.gov/type/oceb/nep/challenges.cfm (last visited May 8, 2014).
218. 33 U.S.C. §1343(c).
219. 40 C.F.R. §125.123.
220. *Id.* §125.122. The factors are: (1) quantities, composition, and potential bioaccumulation or persistence of pollutants to be discharged; (2) potential transport of the pollutants by biological, physical, or chemical processes; (3) composition and vulnerability of potentially exposed biological communities; (4) importance of the receiving water area to the surrounding biological community; (5) existence of special aquatic sites; (6) potential direct or indirect impacts on human health; (7) existing or potential recreational and commercial fishing; (8) any applicable requirements of an approved Coastal Zone Management Plan; (9) such other factors relating to the effects of the discharge as may be appropriate; and (10) marine water quality criteria. *Id.*
221. U.S. EPA, Clean Water Act Section 403, A Framework for Ecological Risk Assessment, http://water.epa.gov/aboutow/owow/programs/403.cfm (last visited May 8, 2014).
222. Exec. Order No. 13158, 65 Fed. Reg. at 34911.

§403 ocean discharge criteria,[223] and in 2000, published a proposed rule.[224] In January 2001, however, President Bush issued a Regulatory Review Plan that withdrew the proposed rule.[225] Yet, as laws and policy evolve further to protect marine resources, the ocean discharge criteria may prove a valuable mechanism to develop discharge criteria for ocean waters.[226]

iii. Permits for Dredged or Fill Material

The CWA also regulates discharges of pollutants into coastal wetlands.[227] Wetlands are important to the marine ecosystem for a multitude of reasons, including their ability to trap and filter pollutants, create floodwater retention and storage, and provide a habitat for various types of species.[228] Section 404 of the CWA, entitled Permits for Dredged or Fill Material, requires permits for certain water resource development projects affecting coastal wetlands, for example, the addition of fill material that has the effect of changing the elevation of a water body.[229] The day-to-day administration of the permitting process is managed by the U.S. Army Corps of Engineers.

The §404 permitting program is centrally premised on the concept of mitigation, which includes "three key steps: avoidance, minimization, and compensation."[230] Avoidance requires searching for an alternative to the discharge to wetlands. Then, the permit applicant must take steps to minimize unavoidable impacts. Compensation is undertaken only if the impacts of the proposed activity cannot be minimized and avoided. This concept is reiterated in the applicable regulations, commonly called the §404(b)(1) Guidelines.[231] Failure to meet mitigation requirements can result in enforcement.[232]

iv. Water Quality Standards and Implementation Plans

Section 303(d) requires states, territories, and authorized tribes to develop lists of "impaired waters," which are so polluted that they cannot meet established water quality standards.[233] After a water is designated "impaired," the appropriate jurisdiction (often the state) must develop total maximum daily loads (TMDLs) that calculate the maximum amount of a pollutant that a water body can receive and still meet water quality standards.[234]

c. Coastal Barrier Resources Act

Coastal barriers—the succession of long, narrow islands, spits, and bay barriers generally located parallel to the mainland coast—are unique land forms that function as buffers, protecting the mainland against the destructive forces of hurricanes and other coastal storms.[235] In addition, coastal barriers protect habitat for migratory birds and other wildlife. Coastal barriers, which are predominantly distributed along the Atlantic and Gulf Coasts, can also be found in areas surrounding the Great Lakes, the Virgin Islands, and Puerto Rico.

Development on coastal barriers can lead to several problems, including the loss of environmentally sensitive ecosystems, interference with natural processes, and increases in storm damage to coastal areas (flooding, hurricane winds, land degradation, and erosion and property damage).[236] The construction of beachfront homes, for example, disrupts the ecosystem by "strait-jacketing" the naturally mobile landforms, with the detrimental effect of inhibiting the barrier's ability to adapt and recover from storms and rising sea levels.[237] Development of these coastal areas persists, despite these threats, with 53% of the U.S. population living in coastal areas with coastal barriers.[238]

The Coastal Barrier Resources Act (CBRA)[239] was enacted in 1982 to protect undeveloped coastal barriers from development. The CBRA's stated purposes are to minimize the loss of human life, decrease wasteful expenditures of federal funds, and prevent damage to fish, wildlife, and other natural resources.[240] The CBRA's central provision restricts future federal expenditures and financial assistance within the John H. Chafee Coastal Barrier Resources System that have the effect of encouraging coastal barrier development.[241] Federal assistance includes loans, grants, guaranties, payments, rebates, subsidies, or any other form of direct or indirect assistance.[242] The CBRA defined the Coastal Barrier Resources System to

223. *See* Ocean Discharge Criteria: Revisions to Ocean Discharge Criteria Regulations; Notice of Public Meetings, 65 Fed. Reg. 42936-01, 42937 (proposed July 12, 2000, to be codified at 40 C.F.R. pt. 125).
224. Ocean Discharge Criteria, 65 Fed. Reg. at 42937.
225. Memorandum for the Heads and Acting Heads of Executive Departments and Agencies, 66 Fed. Reg. 7702-01, 7702 (Jan. 24, 2001).
226. Kathryn Mengerink & Andrea A. Treece, *The Clean Ocean Act*, Envtl. F., Jan.-Feb. 2012, at 28.
227. Wetlands are defined as: "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances, do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas." 33 C.F.R. §328.3.
228. Connolly et al., *supra* note 22, at 87.
229. *Id.* at 97.
230. *Id.* at 106.
231. 40 C.F.R. §230.1(c) states that "dredged or fill material should not be discharged into the aquatic ecosystem, unless it can be demonstrated that such a discharge will not have an unacceptable adverse impact either individually or in combination with known and/or probable impacts of other activities affecting the ecosystems of concern."
232. 33 U.S.C. §1344(s). The U.S. Army Corps of Engineers tends to take the lead role in enforcement. *See* Connolly et al., *supra* note 22, at 142 n.464.
233. 33 U.S.C. §1313(d).
234. *Id.*
235. U.S. GAO, GAO-07-356, Coastal Barrier Resources System: Status of Development That Has Occurred and Financial Assistance Provided by Federal Agencies 6 (2007).
236. U.S. Dep't of Hous. & Urban Dev., Coastal Barrier Resources Act of 1982 (as amended): Guidelines for Compliance (2008), *available at* http://portal.hud.gov/hudportal/documents/huddoc?id=DOC_12983.pdf.
237. Elise Jones, *The Coastal Barrier Resources Act: A Common Cents Approach to Coastal Protection*, 21 Envtl. L. 1015, 1022 (1991).
238. U.S. GAO, Coastal Barrier Resources System, *supra* note 235, at 7.
239. Coastal Barrier Resources Act (CBRA), 16 U.S.C. §§3501-3510.
240. 16 U.S.C. §3501(b).
241. *Id.* §3504.
242. *Id.* §3502(3).

include 585 "units" of undeveloped coastal land, as well as nearly 1.3 million acres of associated aquatic habitats.

The most significant funding restriction is the ban on federal flood insurance policies issued under the National Flood Insurance Act of 1968 for any new construction or substantially improved property.[243] Although the Secretary of the Interior is responsible for consulting with other agencies that propose spending funds within the Coastal Barrier Resources System, recommending modifications to unit boundaries, and maintaining maps for the Coastal Barrier Resources System, the prohibitions on federal spending apply to all federal agencies.

The CBRA contains certain exceptions to the general prohibition, including funding for essential emergency operations, maintaining and replacing existing publicly owned infrastructure, energy development, and land use related to national security.[244] In addition, the CBRA does not impede the issuance of certain federal permits, such as EPA-issued permits regulating the discharge of wastes into navigable waters. Finally, the statute does not prohibit development within the Coastal Barrier Resources System by property owners intent on developing their own lands without federal financial assistance.

The CBRA has been revised several times. Reauthorizations in 2000 and 2005 instructed the U.S. Fish and Wildlife Service (FWS or the Service) to complete a Digital Mapping Pilot Project to improve original Coastal Barrier Resources System maps, which the Service admits were outdated, difficult to use, and frequently challenged via the CBRA's property determination process.[245]

The unique approach employed by the CBRA has several advantages that a more traditional approach to resource protection lacks. It combines environmental protection and cost savings, and promotes state and local land use programs by reducing the development pressure that could undermine local efforts to protect coastal areas. The statute also avoids legal complications that can affect other federal efforts to protect the environment. Specifically, because the denial of federal subsidies is not an actual asset of the property, the subsidies are not viewed as a right and thus avoid challenges as a taking under the Fifth Amendment.[246]

According to a 2007 GAO report, most of the Coastal Barrier Resources System remains undeveloped. Only about 3% of units covered by the CBRA experienced significant development. Despite that, the report concludes that the CBRA did not play the primary role in restricting development. Rather, additional factors are primarily responsible, including: (1) the lack of developable land; (2) the lack of accessibility to the unit; (3) state laws discouraging development within coastal areas; and (4) ownership of land by groups motivated to preserve the natural state of the land (such as the National Audubon Society).[247] This does not mean the CBRA is without influence. It can be viewed as an additional safeguard against coastal development, working in concert, in particular, with state laws that discourage development and with private ownership of coastal land by conservation groups.

d. Analysis: Shortcomings of Coastal-Focused Authorities

The efforts outlined above make significant strides to protect marine life in coastal regions, but they are not without limitations. By definition, the federal statutes discussed above fall short of the NMSA, due to their focus. While the NMSA provides for comprehensive, ecosystem-based management of designated sanctuaries, these authorities provide for coastal protections only. Some federal authorities are even more tailored, such as CWA §404 permits, which address only discharges associated with dredge and fill activities. The NMSA's goals of integrated management and attention to the entire marine system allow for broad-based protections of marine biodiversity, habitat, and fisheries.

There are additional shortcomings associated with coastal-focused protections. For example, participation under the CZMA is voluntary, and states can withdraw at will. The diversity of management programs and the latitude afforded by the statute to the implementing state makes it difficult to measure performance and determine overall effectiveness. Certain sections of the CWA protections are weak on enforcement and remain undeveloped. For example, despite the benefits of the NEP's approach, §320's provisions lack teeth. Namely, the Comprehensive Conservation and Management Plan is not an enforceable regulation.[248] Nevertheless, management plans can serve as a catalyst for changing local laws and regulations that affect estuarine protection.[249]

Finally, the CBRA does not provide comprehensive oversight of the various federal agencies covered by the statute's prohibition. DOI is available for consultation and will issue a written opinion as to the applicability of exemptions or whether the proposed project is consistent with the statute's purposes. But an agency can seek guidance and ignore the recommendations.[250]

The CBRA's effectiveness will improve once better maps are in place. For example, the 2007 GAO report found that four federal agencies provided prohibited financial assistance to property owners in Coastal Barrier Resources System units.[251] The assistance took various forms, including flood insurance policies, home loan guarantees, disaster loans, and assistance payments. While the amount of

243. Other prohibitions include the construction or purchase of roads, airports, boat landings, or other facilities on or leading to a unit, as well as any project to stabilize inlets, shorelines, or inshore areas for the purpose of encouraging development. *Id.* §3504.

244. *Id.* §3505.

245. Additional descriptions of the revised statutes can be found at http://www.fws.gov/CBRA/Act/Legislation.html.

246. Julian Conrad Juergensmeyer & Thomas E. Roberts, Land Use Planning and Development Regulation Law §11:9 (3d ed. 2012).

247. U.S. GAO, Coastal Barrier Resources System, *supra* note 235, at 10.

248. Matthew W. Bowden, *An Overview of the National Estuary Program*, Nat. Resources & Env't, Fall 1996, at 35, 37.

249. *Id.*

250. Jones, *supra* note 237, at 1037-38.

251. Mengerink & Treece, *supra* note 226, at 16.

prohibited funds dispersed was not significant, the GAO report recommended that agencies be provided with more accurate maps, as well as better self-regulate their disbursement of financial assistance.

4. Federal Land-Based Authorities

Federal land-based authorities provide an opportunity to protect, maintain, and restore the nation's ocean resources so that they are capable of delivering ecosystem services—for example, clean beaches, healthy seafood, abundant wildlife—through the protection of spatially defined MPAs. This part examines the various federal land-based conservation statutes that have been used and have the potential to be used to provide spatial protection for sensitive or important protected marine areas.

a. National Park Service Organic Act

The National Park System administered under the National Park Service Organic Act[252] has evolved to represent the natural, scenic, cultural, and historic heritage of the United States. Section 1 of the National Park Service Organic Act states that the purpose of the park system is to "conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations."[253] This directive makes clear that resource protection is the primary goal for units of the park system. Nonetheless, Congress has authorized consumptive use of park system resources through site-specific legislation.[254]

Thirty-nine park system units include coastal or marine waters, or are located adjacent to such areas.[255] Yet, other important marine areas worthy of resource protection may not meet the elements Congress considers to determine whether territory is worthy of national park designation. Moreover, the Act's stringent preservation mandate may not be compatible with the needs of marine resource users and consumers, although exceptions to this mandate can be legislated.

b. National Wildlife Refuge System Administration Act and National Wildlife Refuge Improvement Act

The National Wildlife Refuge System Administration Act of 1966[256] provides a uniform set of management principles that govern the National Wildlife Refuge System. The law authorizes the Secretary of the Interior by regulation to "permit the use of any area within the System for any purpose, including but not limited to hunting, fishing, public recreation and accommodations, and access whenever he determines that such uses are compatible with the major purposes for which such areas were established."[257] The National Wildlife Refuge Improvement Act of 1997[258] provides further guidance regarding management of the refuge system. The Improvement Act establishes a process for determining compatible uses of refuges[259] and adopted an overall mission of the refuge system to conserve fish, wildlife, plants, and their habitats.[260] In this regard, the Improvement Act corresponds to the Park Service Organic Act.

National wildlife refuges may be established by an act of Congress or presidential[261] or secretarial order,[262] donation from private parties, or transfer from other agencies.[263] The purposes of a refuge unit to which the compatibility test applies are determined by the enabling authority for the unit. Typically, this is the federal statute creating the refuge system unit, but it can come from presidential proclamation, secretarial order, or another source depending upon the origin of the unit.

The FWS administers the compatibility test flexibly. The Service allows a wide range of secondary uses, from recreational to commercial. Approximately 140 national wildlife refuges are located in marine and coastal areas.[264]

c. Wilderness Act

Wilderness areas established under the Wilderness Act[265] are generally 5,000 or more acres and comprise lands largely in their natural state. Section 2(c) of the Wilderness Act defines wilderness as areas "where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain."[266] Four federal agencies administer the National Wilderness Preservation System: the Bureau of Land Management (BLM), the FWS, the U.S. Forest Service, and the NPS. Wilderness is designated by Congress based upon the recommendation of the land-managing agency, as transmitted through the president to Congress.[267] To date, Congress has created ocean wilderness areas only as part of upland wilderness designations.[268]

252. 16 U.S.C. §1 and scattered sections throughout Title 16 of the *U.S. Code*.
253. *Id.* §1.
254. *See*, *e.g.*, *id.* §459a-1 (expressly authorizing commercial fishing within the Cape Hatteras National Seashore).
255. Upton & Buck, *supra* note 15, at 21.
256. National Wildlife Refuge System Administration Act, 16 U.S.C. §§668dd-668ee.
257. 16 U.S.C. §668dd(d)(1)(A).
258. National Wildlife Refuge Improvement Act, Pub. L. No. 105-57, 111 Stat. 1252 (1997) (amending 16 U.S.C. §§668dd-668ee).
259. *Id.* §668dd(a)(3)(A)-(D).
260. *Id.* §668dd(a)(2).
261. *Id.* §431 (Antiquities Act) (discussed below).
262. *See, e.g.*, 16 U.S.C. §§715d, 1533(b)(2) (authorizing the Secretary to create refuges).
263. *See, e.g.*, *id.* §§668dd(a)(6), 1534(a)(2).
264. Upton & Buck, *supra* note 15, at 25.
265. Wilderness Act, 16 U.S.C. §§1131-1136.
266. *Id.* §1131(c).
267. *See*, *e.g.*, *id.* §1132(b).
268. *E.g.*, Aleutian Islands Wilderness Area established in §702(1) of the Alaska National Interest Lands Conservation Act, Pub. L. No. 96-487, §702(1), 94 Stat. 2371 (1980); and Florida Keys Wilderness Area established in §1(b) of the Act of Jan. 3, 1975, Pub. L. No. 93-632, §1(b), 88 Stat. 2153 (1975).

The land manager for most federal submerged lands offshore is the Secretary of the Interior, who, as discussed above, has delegated management authority to the Bureau of Ocean Energy Management under the OCSLA.[269] The OCSLA contains no provisions for the Bureau of Ocean Energy Management to recommend submerged lands for wilderness designation. While Congress can directly designate lands as wilderness, wilderness is the most restrictive category of federal lands. Absent compelling resource protection needs, Congress is unlikely to favor a wilderness designation where management flexibility is desired.

d. Antiquities Act

The Antiquities Act[270] authorizes the president to proclaim as national monuments historic landmarks, historic and prehistoric structures, and other objects of historic or scientific interest on the lands owned or controlled by the federal government. The Antiquities Act differs from the foregoing statutes because it delegates congressional authority to the president to set aside national monuments.[271] The ability of the president to act alone and without any required process to take protective action is the Act's most significant feature. There are precedents for the Act being used to preserve marine resources. Through presidential proclamation in 2000, President Clinton designated the California Coastal National Monument[272]; in 2006 and 2007, President Bush designated the Papahānaumokuākea Marine National Monument (Northwestern Hawaiian Islands Marine National Monument)[273]; in 2009, President Bush designated the Marianas Trench, Pacific Remote Islands, and Rose Atoll Marine National Monuments[274]; and in 2014, President Obama expanded the Pacific Remote Islands Marine National Monument to create the world's largest MPA at more than 490,000 square miles.[275]

The Antiquities Act does not itself specify the federal agency that will manage any national monument created under its authority. Although the Park Service Organic Act authorizes the NPS to manage national monuments, other than those under the jurisdiction of the Secretary of the Army,[276] it has not been construed to require management by the NPS. Thus, the president typically may choose which agency will administer a new national monument. Even though national monuments may be managed by the Secretary of Commerce through NOAA, they are not expressly included in the national marine sanctuary system and do not fall within the scope of the protections that the NMSA provides.[277]

e. Analysis: Shortcomings of Federal Land-Based Authorities

Each of these land-based statutes has limitations that make them less useful than the NMSA in protecting marine areas. Indeed, Congress specifically recognized in the NMSA that the nation's historical protection of special areas of the public domain has been directed almost exclusively to land areas above the high watermark.[278] Thus, while marine areas have been included in designations under these land-based statutes, the vast majority of marine areas within such designations were included because of their connection to significant upland resources.

The chief difficulty with using the National Park Service Organic Act to designate MPAs is its stringent preservation mandate. The mandate may not be compatible with the needs of marine resource users and consumers, although exceptions to the mandate can be legislated. In contrast, despite the NMSA's primary goal of preservation, national marine sanctuaries allow for various compatible uses, including fishing, boating, diving, and other forms of human activity. Unlike national parks, which generally apply significant restrictions on human activities, the NMSA facilitates lawful public and private sanctuary uses that are compatible with resource protection. The availability of this multiple-use approach engages the public and reinforces the scientific, cultural, and historic value of marine sanctuaries.

Moreover, national parks are typically established by congressional action, although some park units, such as national monuments, have been established by presidential proclamation under the Antiquities Act. In contrast, absent the current congressional moratorium, the Secretary of Commerce, in addition to Congress, can create a national marine sanctuary. This introduces greater flexibility into the designation process.

Similar to the National Park Service Organic Act, the National Wildlife Refuge Improvement Act creates a preservation mandate that may not be compatible with the needs of marine resource users and consumers. Wildlife refuges can only allow uses that are compatible with the major purposes for which such areas were established. In contrast, the NMSA facilitates lawful public and private sanctuary uses that are compatible with resource protection.

Wilderness is the most restrictive category of federal lands. Only Congress can designate lands as wilderness. Absent compelling resource protection needs, Congress is unlikely to use the wilderness designation for a resource where management flexibility is desired.

269. *See* 43 U.S.C. §1331(b).
270. Antiquities Act, 16 U.S.C. §§431-443.
271. *Id.* §431.
272. Proclamation No. 7264 (Jan. 11, 2000) (Pres. Clinton); Proclamation No. 9089 (Mar. 11, 2014) (Pres. Obama).
273. Proclamation No. 8031 (June 15, 2006) (Pres. G.W. Bush); Amendment of Mar. 2, 2007 (Pres. G.W. Bush).
274. Proclamation Nos. 8335-8337 (Jan. 6, 2009) (Pres. G.W. Bush).
275. Proclamation No. 9173, 79 Fed. Reg. 58645 (Sept. 29, 2014) (Pacific Remote Islands Marine National Monument Expansion); Juliet Eilperin, *Obama to Create World's Largest Protected Marine Reserve in Pacific Ocean*, Wash. Post, Sept. 25, 2014.
276. 16 U.S.C. §1.
277. Including national monuments in the national marine sanctuary program through reauthorization of the NMSA (or another mechanism) would provide opportunity for more uniform and consistent management of all four current marine national monuments and any future monuments for which NOAA has a management role.
278. 16 U.S.C. §1431(a)(1).

Despite the NMSA's primary goal of preservation, national marine sanctuaries allow for various compatible uses, including fishing, boating, diving, and other forms of human activity. Moreover, the NMSA facilitates lawful public and private sanctuary uses that are compatible with resource protection.

Given the recent use of national monuments for establishing MPAs, a more-detailed comparison of national marine sanctuaries and marine national monuments is provided below.

5. Species-Based Authorities

a. ESA

In enacting the ESA,[279] Congress found that "various species of fish, wildlife, and plants in the United States have been rendered extinct as a consequence of economic growth and development untempered by adequate concern and conservation."[280] The purposes of the ESA are to "provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved, to provide a program for the conservation of such endangered species and threatened species, and to take such steps as may be appropriate to achieve the purposes of the treaties and conventions" for conservation of threatened and endangered species.[281]

For a species to receive ESA protections, it must first be listed as threatened or endangered. Listing and delisting decisions may be initiated either by the FWS or NOAA's National Marine Fisheries Service, which jointly administer the ESA, or by nonfederal parties submitting petitions.[282] Once a species is listed as threatened or endangered, the Services are required to designate critical habitat, defined as the specific geographic areas that contain the physical and biological features essential to the species' conservation and that may require special management or protection.[283]

The goal of the ESA is to achieve not only species conservation, but also species recovery, that is, bringing the listed species back to the point where ESA protections are no longer required.[284] There are five primary mechanisms in the ESA that facilitate this goal. First, listed species are protected against "take" within the United States, its territorial sea, and upon the high seas.[285] Second, the Services are required to develop and implement recovery plans for listed species unless they determine that a plan will not promote the conservation of the species.[286] Third, §6 of the ESA authorizes the Services to enter into cooperative agreements with states to establish "adequate and active" programs for the conservation of listed species and to fund such programs.[287] Fourth, under ESA §7(a)(1), federal agencies are directed by broad mandate to carry out programs for the conservation of threatened and endangered species.[288]

Finally, §7(a)(2) requires that all federal agencies consult with the Services to ensure that "any action authorized, funded, or carried out" by a federal agency "is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification" of critical habitat.[289] This §7 consultation process sets the ESA apart from all other wildlife conservation laws. Federal permitting of traditional and renewable offshore energy development; regulation of maritime commerce, ship speeds, and siting of shipping lanes; issuance of fishing permits; issuance of incidental harassment authorizations under the MMPA (discussed immediately below); and military use of sonar and other defense-related testing activities have all undergone §7 consultations that have resulted in protections for listed species and designations of critical habitats.

In the marine environment, the ESA can drive meaningful protections for species, including fish, marine mammals, corals, and sea grasses. For example, to protect listed species of sea turtles, the National Marine Fisheries Service promulgated regulations to require the use of turtle-excluder devices in shrimp-trawl and other bottom-trawl fishing nets.[290] These regulations have been one of the causes of strong increases in turtle populations.

b. MMPA

Congress enacted the MMPA[291] to protect marine mammal species from the threats related to human activity and to reverse continuing population declines of many marine mammal species.[292] Congress also saw the need for increased research and conservation of marine mammals, recognizing the special role that marine mam-

279. *See supra* note 126.
280. 16 U.S.C. §1531(a)(1).
281. *Id.* §1531(b).
282. *Id.* §1533(a)-(c). Listing decisions must be made based on the best available science and subject to specific statutory deadlines, and in accordance with five criteria: (1) the presence or threatened destruction, modification, or curtailment of the species' habitat or range; (2) overutilization of the species for commercial, recreational, scientific, or educational purposes; (3) disease or predation; (4) the inadequacy of existing regulatory mechanisms; or (5) other natural or man-made factors affecting the species' continued existence. *Id.* §1533(a).
283. *Id.* §1532(5).
284. *See id.* §§1531(c), 1533(f).
285. *Id.* §1538(a). "Take" is defined as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct," including significant habitat destruction that actually kills or injures an endangered species. *Id.* §1532(19); 50 C.F.R. §17.3; *see also* Babbitt v. Sweet Home Chapter of Cmtys. for a Great Or., 515 U.S. 687, 25 ELR 21194 (1995).
286. 16 U.S.C. §1533(f). These plans provide specific criteria and conditions that species populations must meet to be deemed "recovered" for purposes of delisting. The plans are developed by "recovery teams" and subject to public review and comment.
287. *Id.* §1535(c). In the past five years, NMFS has completed §6 cooperative agreements with all coastal states, including the Pacific Coast states that are home to most listed marine species.
288. *Id.* §1536(a)(1).
289. *Id.* §1536(a)(2).
290. 50 C.F.R. §§223.206, 223.207.
291. *See supra* note 127.
292. *Id.* §1361(1)-(2).

mals held in maintaining the health and stability of the marine ecosystem.[293]

Like the ESA, the MMPA generally prohibits the "take" of marine mammals, defined as to "harass, hunt, capture, or kill" any marine mammal, or attempt the same.[294] At the core of the MMPA is the moratorium on taking set forth in §101(a), which establishes a general ban on the taking and importation of marine mammals throughout areas subject to U.S. jurisdiction and by any person, vessel, or conveyance subject to the jurisdiction of the United States on the high seas.[295] NMFS regulations also prohibit feeding or attempting to feed marine mammals in the wild.[296] Exemptions from the prohibition on take are authorized in certain situations identified in the regulations.[297]

A number of MMPA provisions emphasize habitat and ecosystem protection, including the §2 findings and declaration of policy.[298] Direct protections can be provided pursuant to the §2 objective that the Services "maintain the health and stability of the marine ecosystem."[299] Additionally, the statute's "take" prohibition further provides the Services with the regulatory authority to implement the protections of the MMPA in a way that results in de facto marine habitat protection. The Services may issue permits for the incidental take of marine mammals related to commercial fishing, which includes the authority to implement time and area closures or gear modifications necessary to reduce take to near zero.[300]

c. National Invasive Species Act

Ballast water discharged from ships is a pathway for the introduction and spread of "aquatic invasive species." Ballast water is water held in tanks or cargo holds of ships to provide stability and maneuverability.[301] Attention first focused on aquatic invasive species following the arrival of zebra mussels, via ballast water discharge, in the Great Lakes in the late 1980s, an episode that inflicted significant damage on city water supplies and electric utilities.[302] More recently, the rapid spread of lionfish populations throughout the Gulf of Mexico, Caribbean, and Southeast Atlantic threaten native ecosystems and fish populations.[303]

The first federal effort to address the spread of aquatic nuisance species from ballast water resulted in the Nonindigenous Aquatic Nuisance Prevention and Control Act (NANPCA) of 1990.[304] The NANPCA's jurisdiction was limited; it required ballast exchange for ships entering the Great Lakes and the Hudson River Watershed.[305] It also created the Aquatic Nuisance Species Task Force to conduct studies and report to Congress regarding the optimal locations for ballast water exchange[306] and the need for controls for vessels entering U.S. waters other than the Great Lakes.[307]

In 1996, the National Invasive Species Act (NISA) amended the NANPCA and created a national ballast management program expanding on the Great Lakes program.[308] The NISA requires the Secretary of Homeland Security to "ensure to the maximum extent practicable that aquatic nuisance species are not discharged into waters of the United States from vessels."[309] The statute initially implemented the program on a voluntary basis, but in 2004, the Coast Guard issued regulations making the program mandatory.[310] Under the NISA, all ships entering U.S. waters must conduct ballast exchange or implement an alternative measure approved by the Coast Guard.[311]

The NISA requires the Secretary of Homeland Security to periodically evaluate and revise its ballast waste management regulations based on the best available scientific information. In 2012, the Coast Guard finalized regulations instituting a new standard for the concentration of living organisms that can be discharged in ballast water.[312] The standard sets numerical limits that the Coast Guard found were supported by reports from the National Academy of Sciences and EPA's Science Advisory Board.[313]

d. NPDES Vessel General Permit

EPA also regulates ballast water discharged from ships. The NPDES, authorized by the CWA, requires permits for point sources that discharge pollutants into waters of

293. *Id.* §1361(3)-(4), (6).
294. *Id.* §§1362(13), 1372(a). The definition of "take" has been expanded by U.S. Fish and Wildlife Service regulations to mean:
> to harass, hunt, capture, collect, or kill, or attempt to harass, hunt, capture, collect, or kill any marine mammal, including, without limitation, any of the following: The collection of dead animals or parts thereof; the restraint or detention of a marine mammal, no matter how temporary; tagging a marine mammal; or the negligent or intentional operation of an aircraft or vessel, or the doing of any other negligent or intentional act which results in the disturbing or molesting of a marine mammal.

50 C.F.R. §18.3.
295. 16 U.S.C. §§1371(a), 1372(a).
296. 50 C.F.R. §216.3.
297. *See* 16 U.S.C. §1371(a)-(d).
298. *See id.* §1361(2), (5)(B), (6).
299. *Id.* §1361(6).
300. *Id.* §1387.
301. Eugene H. Buck, Cong. Research Serv., RL 32344, Ballast Water Management to Combat Invasive Species 2 (2010).
302. *Id.* at 1.
303. National Centers for Coastal Ocean Science, Lionfish, http://coastalscience.noaa.gov/research/pollution/invasive/lionfish (last visited Apr. 29, 2014).
304. 16 U.S.C. §§4701-4741.
305. *Id.* §4711.
306. Ballast water exchange requires ships on their way to the next port to release the lower-salinity coastal water they brought aboard in their last port and replace it with higher-salinity open ocean water. It is designed to reduce the number of potentially invasive species in ballast tanks and replace them with organisms that are less likely to survive in the lower-salinity waters of the ship's next port. *See* Buck, *supra* note 301, at 2.
307. *Id.* at 3.
308. 16 U.S.C. §4711.
309. *Id.* §4711(c)(2)(A).
310. Mandatory Ballast Water Management Program for U.S. Waters, 69 Fed. Reg. 44952-01 (July 28, 2004) (codified at 33 C.F.R. pt. 151).
311. 16 U.S.C. §4711.
312. Standards for Living Organisms in Ships' Ballast Water Discharged in U.S. Waters, 77 Fed. Reg. 17254-01 (Mar. 23, 2012).
313. News Release, U.S. Coast Guard, Coast Guard Issues Standard for Living Organisms in Ships' Discharged Ballast Water (Mar. 16, 2012), http://www.uscgnews.com/go/doc/4007/1410847/Coast-Guard-issues-standard-for-living-organisms-in-ships-discharged-ballast-water.

the United States.[314] EPA originally exempted from the permit requirement those discharges incidental to the normal operation of a vessel, including discharges of ballast water.[315] Environmentalists challenged this regulatory exemption, and in 2008, the U.S. Court of Appeals for the Ninth Circuit upheld a lower court's decision to revoke it.[316]

In response to the litigation, EPA developed its vessel general permit.[317] The permit included general effluent limits applicable to all discharges, as well as additional effluent limits applicable to 26 specific discharge streams.[318] The permit also included inspection, monitoring, recordkeeping, and reporting requirements.[319] Under CWA §401, states are permitted to issue their own conditions to supplement the vessel general permit if the state determines it necessary to ensure discharges do not violate the state's water quality standards.[320] More than 20 states included their own conditions in the permit.[321]

In 2011, EPA and the Coast Guard entered into a memorandum of understanding (MOU) that details the respective obligations each agency committed to implement.[322] Under the terms of the MOU, EPA is responsible for making interpretations of the vessel general permit and its terms. EPA and the Coast Guard jointly will cooperate to enforce the requirements of the permitting program, coordinate and share information, and communicate on a regular basis to ensure efficient implementation of the permit program. The MOU has spurred an enforcement initiative: In 2012, EPA reported that, based on data received from Coast Guard inspections, it was issuing notices of violation to vessels believed to be in violation of the vessel general permit.[323]

The original vessel general permit expired in December 2013. In April 2013, EPA finalized a new version of the permit, which addresses 27 specific discharge categories.[324] Most notable is the permit's incorporation of a numeric technology-based effluent limitations standard to control the release of non-indigenous invasive species in ballast water discharges.[325]

e. Analysis: Shortcomings of Species-Based Authorities

Despite the protections they offer to marine species, the ESA and the MMPA each have significant shortcomings. The primary problem with both statutes is that, unlike the NMSA, the ESA and the MMPA do not set aside protected areas of the marine environment. Designation of critical habitat under the ESA cannot offer the type of broad-based ecosystem protection offered by the NMSA. Such designations only apply to a given action to the extent that the action is authorized, funded, or carried out by a federal agency and, for that reason, subject to the protections of §7(a)(2).[326] Moreover, by their nature, critical habitat designations, like the ESA as a whole, address only a single species at a time, because neither the ESA nor its constituent protections are designed to consider and protect entire ecosystems. The express purposes of the NMSA, in contrast, include protecting all natural habitats, populations, and ecological processes in marine sanctuaries, as well as providing authority for the sanctuaries' comprehensive conservation and management.[327] A related concern with the ESA is the limited protection provided to some species from activities *not* included in the §7 consultation process (that is, activities without a federal link). These activities (including fishery management, whale harvest, and so forth) significantly impact the overall health of the listed species and can dramatically lower the efficacy of ESA protections.

For its part, the MMPA lacks any direct authority to protect critical habitat or other marine ecosystems. The absence of such authority aligns with the MMPA's fundamental purpose of enabling the protection and study of marine mammals. While the statute acknowledges the importance of the marine ecosystem and species habitat in species conservation efforts, it does not incorporate habitat protection authority. This undermines the MMPA's usefulness as a stand-alone tool. Like the ESA, therefore, the MMPA falls short of providing comprehensive protection to the ocean.

The federal authorities focused on aquatic invasive species—the NISA and the NPDES vessel general permit—suffer from some of the same limitations as other federal statutes governing the marine environment. Namely, the efforts are extremely focused and are incapable of implementing comprehensive, ecosystem-based management, as the NMSA can. Each statute also has been subjected to specific criticisms.

The NISA's exemptions have been criticized. The statute provides for an exemption from the ballast manage-

314. 33 U.S.C. §1342.
315. 40 C.F.R. §122.3(a) (2006).
316. Northwest Envtl. Advocates v. EPA, 537 F.3d 1006 (9th Cir. 2008).
317. Final National Pollutant Discharge Elimination System (NPDES) General Permit, 73 Fed. Reg. 79473-02 (Dec. 29, 2008).
318. The NPDES program for vessels regulates not only ballast water, but also bilgewater, graywater, and deck runoff/washdown. *See* U.S. EPA, National Pollutant Discharge Elimination System (NPDES) Vessel Discharges, http://cfpub.epa.gov/npdes/home.cfm?program_id=350 (last visited May 8, 2014).
319. With the exception of ballast water discharges, nonrecreational vessels less than 79 feet (24.08 meters) in length, and all commercial fishing vessels, regardless of length, are not subject to this permit.
320. 33 U.S.C. §341(a).
321. Cory Hebert, *Ballast Water Management: Federal, States, and International Regulations*, 37 S.U. L. Rev. 315, 329 (2010).
322. *The Coast Guard and Environmental Protection Agency Collaborate to Enforce Vessel General Permit Requirements*, Envtl. Couns., Apr. 2011, at 10.
323. U.S. EPA, *Update on EPA and U.S. Coast Guard MOU*, NPDES Vessels Program Q., Spring 2012, at 2, *available at* http://www.epa.gov/npdes/pubs/vgp_spring2012newsletter.pdf.
324. First NPDES General Permit for Discharges Incidental to the Normal Operation of a Vessel, 78 Fed. Reg. 21938 (Apr. 12, 2013). Various constituencies, including industry and environmentalists, are challenging the new Vessel General Permit. *See* Natural Res. Def. Council v. EPA, Nos. 13-1745, 13-2393, 13-2757, 14-39 (2d Cir. filed May 3, 2013). Oral argument on the cases is proposed for early December 2014.
325. 78 Fed. Reg. at 21942.
326. 16 U.S.C. §1536(a)(2).
327. *See id.* §1431(b)(2), (b)(3).

ment practice if the master of the ship determines that a ballast exchange would threaten the safety or stability of the ship or its passengers because of "adverse weather, vessel architectural design, equipment failure, or any other extraordinary conditions."[328] This exemption, which equates "vessel architectural design" with an "extraordinary condition," is viewed by some as eliminating any incentive to modify and upgrade ballast piping systems or implement other management options to address ballast exchange.[329]

The statute has been criticized for its focus, as well. There are additional pathways by which invasive species are introduced, and the NISA addresses only issues associated with ballast water.[330] In addition, the overall efficacy of the ballast management regime is questionable, given that additional introductions of invasive aquatic species persist in the Great Lakes, the region that has been regulated for the longest period.[331]

Finally, the ability of states to tailor the terms of the vessel general permit creates uncertainty for the regulated community. Critics describe the permit program as a "patchwork quilt of regulations represent[ing] the balkanization of vessel discharge regulations."[332] As discussed above, enforcement of the permit's conditions required strengthening, and it remains to be seen what the long-term effects of the joint EPA-Coast Guard enforcement initiative will be.

B. State Law

States have played a critical role in protecting marine resources since the colonial era.[333] In the Submerged Lands Act of 1953, Congress confirmed states' jurisdiction over navigable waters within their borders.[334] States and territories generally have jurisdiction over coastal waters out to three nautical miles of the low watermark.[335]

1. The Public Trust Doctrine

States own lands below their navigable waters in trust for the public.[336] States have embraced the public trust doctrine as a source of authority to protect marine areas. Florida and Louisiana, for example, include the public trust doctrine in their state constitutions.[337] Traditionally, the public trust doctrine protected the public's interest in navigation, fishing, and commerce.[338] Application of the doctrine in some states has evolved to protect state waters for recreation, environmental and ecological preservation, and aesthetic beauty.[339]

The public trust doctrine, however, does not establish a hierarchy among protected uses, many of which may conflict, and raises the question of who decides what use is in the public's best interest.[340] Is the legislature, composed of elected representatives of the people, in the best position to determine the highest public use?[341] Or is the public's interest in protected uses a constitutional right to be arbitrated by courts?[342] Or is the public trust doctrine best employed as a government defense against takings claims by private parties contesting marine restrictions?[343]

Few states have used the public trust doctrine to protect marine areas by prohibiting public uses that may potentially harm marine life and habitat. One outlier is the state of Washington, where the supreme court upheld a county ordinance banning the use of motorized personal watercraft in marine areas.[344] The court implied that the highest public use of marine areas, to be protected even at the expense of some public access or recreation opportunities, is the area's environmental health.[345] Generally, however, the public trust doctrine does not provide comprehensive protection to state waters because it does not require a hierarchy of uses or prevent states from allowing uses that may harm marine ecosystems.[346]

2. Common State MPA Regulations

Relying on common law, constitutional authority, and statutory provisions, states regulate their waters to promote vital fishing and tourism industries and to conserve areas of special ecological and scientific significance. As may be expected, however, state regulation of MPAs is varied. This subpart discusses trends in state regulation of MPAs as classified by a NOAA report.[347]

328. 16 U.S.C. §4711(k)(1).
329. Buck, *supra* note 301, at 5.
330. Flynn Boonstra, *Leading by Example: A Comparison of New Zealand's and the United States' Invasive Species Policies*, 43 Conn. L. Rev. 1185, 1198 (2011).
331. Buck, *supra* note 301, at 5.
332. Constantine G. Papavizas & Lawrence I. Kiern, *2007-2008 U.S. Maritime Legislative Developments*, 40 J. Mar. L. & Com. 315, 321 (2009).
333. Sylvia Quast & Michael A. Mantell, *Role of the States*, *in* Ocean And Coastal Law And Policy, *supra* note 22, at 67. Indeed, the Supreme Court determined in 1842 that states took over the British Crown's rights to navigable coastal waters and underlying soils. Martin v. Waddell's Lessee, 41 U.S. (16 Pet.) 367 (1842).
334. Submerged Lands Act, 43 U.S.C. §§1301 et seq.
335. *Id.* §§1301(c), 1311, 1312. There are some exceptions to this rule. For example, Texas, Florida (with respect to its Gulf of Mexico waters), and Puerto Rico have jurisdiction over waters out to roughly nine miles from the low watermark. Quast & Mantell, *supra* note 333, at 69.
336. Shively v. Bowlby, 152 U.S. 1 (1894).
337. Fla. Const. art. X, §§11, 16; La. Const. art. IX, §1.
338. Donna R. Christie, *Marine Reserves, the Public Trust Doctrine and Intergenerational Equity*, 19 J. Land Use 427, 432 (2004); *see also* J.C. Sylvan, *How to Protect a Coral Reef: The Public Trust Doctrine and the Law of the Sea*, 7 Sustainable Dev. L. & Pol'y 32, 35 (2006).
339. Christie, *supra* note 338, at 432.
340. Sylvan, *supra* note 338, at 34.
341. *See id.*
342. *See id.*
343. *See id.*
344. Weden v. San Juan Cnty., 958 P.2d 273, 283-84 (Wash. 1998).
345. *Id.* at 284 ("[I]t would be an odd use of the public trust doctrine to sanction an activity that actually harms and damages the waters and wildlife of this state.").
346. In Oregon, for instance, the supreme court held that the public trust doctrine did not prohibit the Division of State Lands from granting a permit to fill 32 acres of estuary for non-water-related uses. Morse v. Oregon Div. of State Lands, 590 P.2d 709, 712, 9 ELR 20459 (Or. 1979).
347. *See generally* Braxton Davis et al., State Policies and Programs Related to Marine Managed Areas: Issues and Recommendations for a National System 4 (2004).

a. State Marine Resource Areas

State laws to protect specific marine resources may create MPAs when the protected resource is mapped or mappable.[348] Generic resource laws, however, offer little site-specific protection where the protected resource shifts location over time.[349] Moreover, generic resource laws assume that protection of the resource is equally important wherever the resource is found, regardless of location, size, density, biological functions, and ecosystem significance.[350]

b. State Marine Overlay Zones

Marine overlay zones, generally defined as large sites subject to uniform policies within legally defined and fixed boundaries, include a broad range of protected marine areas, from fishery management zones to restrictive, no-take marine reserves.[351] Marine overlay zones are more protective of a sensitive area than generic resource laws, and the two types of regulations can work together to protect sensitive resources within an overlay zone. Several coastal states have designated marine overlay zones to protect habitat of endangered or threatened species.[352] Coastal states also frequently establish a general shoreline overlay zone or regulatory zones to protect specific shoreline features such as beaches, tidal wetlands, or intertidal flats.[353]

c. State Marine Planning Areas

State marine planning areas are "distinct marine locations subject to site-specific, ongoing management or regulatory planning within fixed boundaries."[354] Although coastal states with marine planning area programs remain a minority, some states have established marine planning to achieve conservation, recreation, and scientific goals. Florida's 41 aquatic preserves protect submerged lands of "exceptional biological, aesthetic, and scientific value."[355] Each aquatic preserve is "set aside [to be] maintained essentially in its natural or existing condition."[356] In the state of Washington, the Department of Natural Resources manages the aquatic reserves program for state-owned aquatic lands with unique or high-quality ecological features and habitats.[357]

State and federal regulations can work together to create MPAs. For example, in California, 10 state marine reserves and two state marine conservation areas protect the nearshore waters around the Channel Islands and complement a network of federal MPAs in the deeper waters surrounding the islands.[358] State and federal regulators coordinate policy.[359]

d. State Coastal Planning Areas

State coastal planning areas are similar to marine planning areas but involve more comprehensive integration of water and land use planning to protect or promote marine resources.[360] Coastal planning areas that include only state-owned uplands generally focus on land management to ensure that land uses do not adversely impact sensitive marine resources or habitats. Coastal planning areas that include privately held uplands typically establish guidelines, recommendations, or policies to protect marine resources from adverse land uses.[361] Many state coastal planning areas that include private properties have been developed under the CZMA's special area management planning program.[362]

3. California's Marine Life Protection Act

Typical of many states' marine environment management schemes, California's system of MPAs was established in a piecemeal fashion that lacked clearly defined purposes or effective management and resulted in only an "illusion of protection."[363] To remedy the problem, the Marine Life Protection Act (MLPA), passed in 1999, called for the creation of a statewide network of MPAs.[364] After two efforts to implement the MLPA had failed due to lack of resources and stakeholder involvement, the California Department of Fish and Game partnered with the California Resources Agency and the Resources Legacy Fund Foundation in 2004.[365] The parties created the Marine Life Protection Act Initiative, a public-private partnership to achieve the MLPA's goals of incorporating best available science and the advice of resource managers, stakeholders, and the public.[366]

The MLPA Initiative established five study regions to plan and execute regulations. A multilayered process involves state regulators, scientists with specialties in

348. *Id.* at 4-5.
349. *Id.* at 5.
350. *Id.*
351. *Id.*
352. *Id.* at 6.
353. *Id.*
354. *Id.* at 7.
355. Fla. Stat. §258.36.
356. *Id.* §258.37(1).
357. Wash. Admin. Code §332-30-151. The program establishes three types of reserves: educational, environmental, and scientific, and ecosystem considerations play a key role in the designation of an area for protection. *Id. See also* Braxton Davis & John Lopez, Case Studies of State-Level Marine Managed Area Systems: Addendum to State Policies and Programs Related to Marine Managed Areas: Issues and Recommendations for a National System 18 (2004).
358. Davis & Lopez, *supra* note 357, at 3. State marine reserves are no-take areas; state marine conservation areas allow limited recreational and commercial fishing. Cal. Pub. Res. Code §36700. *See also* Cal. Dep't of Fish & Wildlife, Channel Islands MPAs: Color Map, http://www.dfg.ca.gov/marine/channel_islands/ci_finalmap.asp (last visited May 8, 2014).
359. Davis & Lopez, *supra* note 357, at 5.
360. Davis et al., *supra* note 347, at 8.
361. *Id.* at 8-9.
362. *Id.* at 8.
363. Marine Life Protection Act (MLPA), Cal. Fish & Game Code §§2850-2863, 2851(a).
364. *Id.* §2853.
365. Cal. Dep't of Fish & Game, Master Plan for Marine Protected Areas 9 (Rev. Draft, Jan. 2008).
366. *Id.* at 14; Cal. Fish & Game Code §2855.

marine ecology, regional stakeholder groups, and public officials. Throughout the master plan development and the regional planning processes, the Resources Legacy Fund Foundation obtains and coordinates philanthropic investments that supplement public funding.[367]

The public-private partnership has paid off in the form of a pioneering effort to establish a statewide network of marine protection. California's regional MPA regulations implement three types of protective designations: state marine reserves; state marine parks; and state marine conservation areas. For example, the Central Coast regional MPAs cover approximately 204 square miles (roughly 18% of state waters in the region) and include 15 marine conservation areas and 13 "no-take" marine reserves.[368]

It is too soon to measure the long-term success of California's regional implementation process, but the MLPA Initiative serves as an example of a process that integrates best available science, stakeholder interests, and private funding to protect valuable ecological and economic resources.[369] Though California's growing network of MPAs serves as a model of statewide planning and coordination, the system faces ongoing funding and enforcement challenges.[370] Additionally, compromise was a necessary byproduct of the public-private, multilayer planning and implementation process, and, therefore, final regional plans likely do not satisfy any constituency completely, whether conservation groups or the fishing industry.[371]

4. Analysis: Shortcomings of State Law

While California's experience shows that state regulations can protect marine resources and habitat in a comprehensive manner, the state is an outlier. Other states' traditional reliance on generic resource laws, or in limited cases on the public trust doctrine, has not supported ecosystem-based management. Even in states with established MPA programs, there remains a general lack of systematic goals and integration. For example, Florida's 41 aquatic preserves were established site by site, with little consideration of fish migration or larval transport.

The challenges of protecting vast marine resources illustrate the benefits of federal regulation. Ecosystem-based management of marine resources requires systemwide objectives, uniform monitoring, and consistent purposes. Unlike state laws, a federal law such as the NMSA has the necessary reach to establish a network of MPAs that crosses state borders, includes waters outside state jurisdictions, and preempts inconsistent state laws and regulations.

367. Cal. Dep't of Fish & Game, *supra* note 365, at 16.
368. Cal. Dep't of Fish & Wildlife, Central Coast Marine Protected Areas, http://www.dfg.ca.gov/mlpa/ccmpas_list.asp (last visited May 8, 2014).
369. Mary Gleason et al., *Designing a Network of Marine Protected Areas in California: Achievements, Costs, Lessons Learned, and Challenges Ahead*, 74 Ocean & Coastal Mgmt. 90, 91 (2013).
370. For example, environmental groups have volunteered to patrol local waters to supplement state enforcement staff. *See* Editorial, *Protecting Marine Protected Areas*, L.A. Times, Jan. 10, 2012, *available at* http://articles.latimes.com/2012/jan/10/opinion/la-ed-0110-marine-20120110.
371. Gleason et al., *supra* note 369, at 91.

C. Common-Law Tort Claims/Public Nuisance

Unlike the statutory and executive authorities, tort law has emerged largely through judge-made common law. We consider here whether common-law tort doctrine might be expansive enough to enable a successful legal strategy that preserves marine ecosystems.

1. Public Nuisance

While other potential routes exist, the most promising doctrinal means of advancing a tort claim likely would be public nuisance. A public nuisance constitutes "an unreasonable interference with a right common to the general public," a concept the courts have applied in a wide range of circumstances.[372] Consistent with the term's vague definition, public nuisance is viewed as the "tort of choice" for plaintiffs who seek "breathtakingly broad relief" on international environmental issues.[373]

2. Analysis: Shortcomings of Common-Law Tort Claims

Plaintiffs in nuisance cases have struggled.[374] These plaintiffs are forced to "establish compelling fact situations and carry out aggressive, costly, and oftentimes difficult litigation strategies."[375] Such litigation stands in contrast to the type of public nuisance claim approved by the Supreme Court in *New Jersey v. City of New York*, a relatively narrow suit to prevent a city from dumping into the ocean garbage that was polluting a neighboring state's waters and beaches.[376]

Courts generally have shown "only faint appetite . . . for creative use of the public nuisance cause of action."[377] Courts simply are reluctant to use tort law to advance broad policy goals such as ocean preservation; they prefer instead to address harms to a specific geographic area or class of people, where causation is clearly supported, and where there is a close fit to the traditional elements of a tort claim.[378] Additionally, federal courts have resisted recognizing public nuisance claims under maritime law.[379] Even

372. Restatement (Second) of Torts §821B(1) (1979); *see also, e.g.*, City of Milwaukee v. Illinois & Michigan, 451 U.S. 304, 348, 11 ELR 20406 (1981) (Blackmun, J., dissenting) (citing the *Restatement* definition).
373. Richard O. Faulk, *Uncommon Law: Ruminations on Public Nuisance*, 18 Mo. Envtl. L. & Pol'y Rev. 1, 2 (2010).
374. Baur et al., *supra* note 43, at 542.
375. *Id.*
376. New Jersey v. City of New York, 283 U.S. 473, 476-77, 483 (1931).
377. Douglas A. Kysar, *What Climate Change Can Do About Tort Law*, 41 Envtl. L. 1, 35 (2011); *see also* Thomas H. Koenig & Michael L. Rustad, *Reconceptualizing the BP Oil Spill as* Parens Patriae *Products Liability*, 49 Hous. L. Rev. 291, 326 (2012) ("The failure of . . . avant-garde theories of tort causation has left plaintiffs without redress in toxic torts, products liability, environmental torts, and other collective injury cases.").
378. *See* Mark Latham et al., *The Intersection of Tort and Environmental Law: Where the Twains Should Meet and Depart*, 80 Fordham L. Rev. 737, 750 (2011).
379. *See, e.g.*, Barber Lines A/S v. M/V Donau Maru, 764 F.2d 50, 56-57 (1st Cir. 1985); Louisiana ex rel. Guste v. M/V Testbank, 752 F.2d 1019, 1030-32, 15 ELR 20273 (5th Cir. 1985) (en banc).

where federal maritime common-law claims are recognized and relief is granted, punitive damages generally are capped at a one-to-one ratio to compensatory damages.[380] This array of barriers to public nuisance claims indicates that tort law cannot offer a comprehensive solution to protecting ocean ecosystems.

IV. Comparative Analysis

A. *Advantages of the NMSA Over Other Existing Authorities*

When compared to other ocean resource laws that could provide spatial protection, the NMSA is best-suited to offer the kind of management regime needed to preserve ocean resources. In preserving the ocean's benefits for current and future generations, the NMSA deserves renewed attention as a unique and powerful ocean conservation tool. Although the NMSA has some weaknesses that may limit its effectiveness, as discussed above, the statute has the following significant advantages over other existing authorities in establishing, protecting, and managing specific geographic areas.

1. Ecosystem-Based Management

The NMSA was created to ensure that marine areas of significant cultural, historic, scientific, educational, and environmental value are protected. To this end, the statute creates the authority to apply a comprehensive, ecosystem-based approach to solving problems of ocean degradation and conflicting uses. Many other legal authorities do not take an ecosystem-focused approach. For instance, use-based authorities such as the OCSLA and the FCMA focus primarily on offshore oil and gas development and fisheries management, while species-based authorities such as the ESA and the MMPA aim to protect and revive individual species. Federal authorities focused on aquatic invasive species are so targeted that they are incapable of implementing comprehensive marine management.

The NMSA's systematic approach to sanctuary designation is also preferable to state-based management plans, or coastal-focused authorities such as the CBRA, the CZMA, and the CWA. While these authorities aim to protect and manage the coastal environment, they by definition have a limited jurisdictional authority relative to the NMSA. For their part, courts are reluctant to assert their jurisdiction and use tort law in lieu of more comprehensive federal statutory schemes to advance broad policy goals like reversing ocean degradation.

2. Compatible Uses

Taking into account the NMSA's primary goal of resource protection, national marine sanctuaries also allow for various compatible uses, including fishing, boating, diving, and other forms of human activity. This is a broader approach than other federal authorities governing different classifications of protected areas, such as national parks and wilderness areas, which generally apply significant restrictions on human activities. For example, Monterey Bay National Marine Sanctuary, which stretches from Marin County to Cambria, California, and encompasses 6,094 square miles of ocean (276 miles of shoreline), supports one of the world's most diverse marine ecosystems.[381] The sanctuary was established for the purpose of resource protection, but also for research, education, and public use. Specifically, the sanctuary permits various human uses, including commercial shipping, commercial fishing, and military and recreational uses.[382] Uses are tailored to unique sanctuary subunits created using marine spatial planning.[383]

3. Unified Governance and Enforcement Mechanisms

The NMSA provides comprehensive law enforcement authority to the Secretary of Commerce to enforce the protections accorded to marine sanctuaries. Regulations are sanctuary-specific and thus tailored to the unique habitats and resources of a given sanctuary. Other laws, for example the ESA and MMPA, only provide enforcement authority for activities that result in injury to constituent elements of the marine environment, such as the individual members of protected species. The NMSA, by contrast, extends its prohibitions and enforcement authority to all components of the sanctuary area.

4. Substantial Public Involvement

The NMSA also provides for significant stakeholder involvement from the initial proposal of a site for designation through detailed management decisions by a sanctuary superintendent. Prior to designating a sanctuary, the Secretary must consult with congressional committees, several federal agencies, state and local governments, regional fishery councils, and any other interested parties. Further, NOAA must prepare an environmental impact statement, resource assessment, draft management plan, and spatial planning maps. Local public hearings are held, and public comments are collected and considered. Once a sanctuary is designated, advisory councils work with NOAA to develop and implement sanctuary management plans. This degree of public participation facilitates the balanced, multi-use concept behind the NMSA and helps

380. Exxon Shipping Co. v. Baker, 554 U.S. 471, 512-13 (2008).

381. NOAA, Monterey Bay National Marine Sanctuary, Quick Facts: The Sanctuary at a Glance, http://montereybay.noaa.gov/intro/mbnms_quickfacts.html (last visited May 9, 2014).

382. U.S. Dep't of Commerce, Monterey Bay National Marine Sanctuary Final Management Plan 4748 (2008).

383. NOAA, Noaa Strategic Priority: Supporting Effective Coastal & Marine Spatial Planning (2010), *available at* http://www.noaa.gov/factsheets/new%20version/marine_spatial_planning.pdf.

ensure that sanctuary-specific regulations are meaningful and enforceable.

B. Advantages of the NMSA Over the Antiquities Act

Given presidential use of the Antiquities Act within the past two decades to set aside marine areas as marine national monuments, and in light of the congressional moratorium on the designation of future marine sanctuaries,[384] it is relevant to consider whether the Antiquities Act has become the statute of preference for protecting sensitive or important marine areas. This Article argues that, despite recent reliance on the Antiquities Act, the NMSA remains the best tool for preserving and protecting marine areas.

The fundamental purposes of the NMSA and the Antiquities Act are different. The NMSA creates a comprehensive, ecosystem-based approach to solving problems of ocean degradation and conflicting uses. The Antiquities Act is designed to preserve objects of historic and scientific interest, and its authority is limited to the smallest area necessary to do so. There are differences in the management authorities contained within the Antiquities Act and the NMSA. The Antiquities Act only addresses the president's power to designate national monuments. It does not provide any significant management authority. Historically, the president has relied upon the federal land-managing agency assigned to a national monument to use its organic authority to manage the monument.[385] For example, President Bush assigned management authority to the Secretaries of Commerce and the Interior, acting through NOAA and the FWS respectively, to manage the Papahānaumokuākea Marine National Monument. Other marine national monuments have been established with exclusive management authority by the Secretary of the Interior.

In contrast to the Antiquities Act, the NMSA provides comprehensive law enforcement authority to enforce the protections accorded to marine sanctuaries. This authority extends to regulating fishing outside of the marine sanctuary that impairs resources within the sanctuary.[386] The NMSA also provides for civil and criminal penalties for violations of the statute's protections, whereas the Antiquities Act contains only criminal provisions that have been held to be overly vague and therefore unconstitutional.[387] In place of the Antiquities Act's criminal provisions, the organic authority of the monument's land-managing agency applies to criminal and civil violations of a monument's protections. But in contrast to civil penalties available under other land-based authorities, the NMSA authorizes NOAA to assess significantly higher civil penalties (up to $100,000 per day per violation) for violations of the NMSA or its implementing regulations, and damages against people who injure sanctuary resources, including imposition of response costs.[388] Other land-based authorities also do not provide for in rem jurisdiction and the imposition of a maritime lien over vessels used in committing a violation.[389]

National monuments may work well in relatively remote areas with less human use, but they are less effective in areas near larger human populations or with more complex or higher levels of use because the Antiquities Act does not provide a predesignation process through which potential conflicts are identified, addressed, and resolved to the extent possible. Rather, the Antiquities Act gives the president immediate authority to designate a national monument without any outside consultation, and does not provide any significant management authority or stakeholder participation. Conversely, designation through the NMSA ensures substantial public involvement in the designation process, and in the ongoing management of the site through the sanctuary advisory council process.

V. Dawn of a New Era

The NMSA is the most effective and comprehensive approach currently available to protect specific areas within the coastal and ocean zones, including entire marine ecosystems, and the statute is the only existing federal law structured with this end squarely in mind. In contrast to other management regimes, Congress designed the NMSA to provide for comprehensive management of marine ecosystems, allowing for multiple uses that are compatible with the statute's primary goal of preservation. Stakeholders play a significant role in sanctuary designations and in defining permitted uses in each sanctuary, a key attribute of the program that helps ensure affected parties buy into the NMSA's mandate to protect ocean resources.

Apart from the strengths of the NMSA relative to other management regimes, the principles behind the statute are wholly consistent with those of ocean governance advocated by scientists, policymakers, academics, and blue-ribbon commissions over several decades. The NMSA deserves renewed attention for its comparative advantages and its consistent validation. While it appears this atten-

384. Section 304(f)(1) of the NMSA, 16 U.S.C. §1434(f)(1).

385. While the organic authority of the NPS, the FWS, and BLM each provides law enforcement authority, the organic authority of the Bureau of Ocean Energy Management only provides enforcement authority relating to mineral extraction activities.

386. While the organic authority of the NPS has been interpreted to allow regulation of at least some activities beyond the boundaries of the protected lands, this authority is very limited. *See* Memorandum from John Leshy, Solicitor, U.S. DOI, to Bruce Babbitt, Secretary, U.S. DOI (Apr. 16, 1998), *available at* http://www.doi.gov/solicitor/opinions/M-36993.pdf. Moreover, the NPS and the FWS may not have the administrative expertise to craft protective regulations that adequately address the needs of the competing marine-based constituencies, especially the commercial fishing industry.

387. United States v. Diaz, 499 F.2d 113 (9th Cir. 1974).

388. *See* 16 U.S.C. §§1436, 1437, 1443. Significant civil penalties are important to protecting marine resources. In light of federal prosecutors' heavy caseloads, criminal violations affecting far-flung marine resources are unlikely to receive priority. In contrast, civil penalties can be enforced by the Secretary of Commerce without involving federal prosecutors, at least initially. In most cases, prosecutors can be avoided altogether, when civil penalties are not contested in court. Moreover, the level of civil penalties under the NMSA and the ability to recover response costs in addition to damages ensures more than just a slap on the wrist for destruction of the resources protected by marine sanctuaries.

389. *Id.* §§1437, 1443.

tion will not be provided by Congress (the NMSA was last reauthorized in 2000 and was due for reauthorization in 2005), it is being given by NOAA.[390] As NOAA realigns its offices and looks for synergies and efficiencies in a tough budget climate, the agency is recognizing the importance of place-based governance. The incorporation of the National Marine Protected Areas Center into NOAA's Office of National Marine Sanctuaries is one example; the new planning documents of the National Ocean Service offer another example; the recently announced merger of NOAA's Coastal Services Center and Office of Ocean and Coastal Resource Management to form the Office for Coastal Management is a third example.[391]

As discussed above, NOAA also has promulgated a number of rulemakings in recent years to strengthen and expand the national marine sanctuary system. In recognition of the obstacles confronting new sanctuary designations, NOAA has advanced rulemakings and administrative efforts to expand existing sites. These expansions are not limited in scope: They can include noncontiguous areas and can be sizable. Consider that Fagatele Bay National Marine Sanctuary went from being the smallest to the largest national marine sanctuary through an administrative rulemaking.[392]

Most importantly, NOAA recently published a final rule that reopens the door to considering new sanctuary designations.[393] Previous regulatory provisions had required NOAA to maintain a comprehensive Site Evaluation List of marine sites that preliminarily were deemed "highly qualified" for possible designation as sanctuaries.[394] Yet, the provisions that allowed for new sites were removed from the *Code of Federal Regulations* in 1995.[395] Thus, for the first time in nearly 20 years, NOAA has established a process to consider nominations for proposed designations of additional sanctuaries. The new rule did not reactivate the defunct Site Evaluation List. Rather, it created a new approach to identifying potential new sanctuary designations by requesting nominations. In short, it turned the old process upside down and created "a more grassroots, bottom-up approach to national marine sanctuary designations."[396] Specifically, the rule established a process by which local communities can nominate an area of the marine environment for consideration as a national marine sanctuary.[397]

Based on nearly 18,000 comments submitted to the agency, the vast majority of which were in support of the proposed rule, NOAA promulgated a final rule that clarified the criteria and the process for nominations. The agency identified four criteria to evaluate the national significance of a nomination, and seven considerations for management of the area as a national marine sanctuary.[398] These criteria and considerations are consistent with the statutory provisions in §303(b) of the NMSA.[399] In general, the criteria for national significance look at natural and cultural resources, economic uses, and publicly derived benefits of the area.[400] The considerations for management look at a range of factors for research, education, management, conservation, partnership opportunities, and community support, with particular emphasis on the last consideration.[401]

The final rule also defined the process for nominations by the public, and consideration of nominations by NOAA. The agency defined six steps from development of a nomination by the public to acceptance by NOAA of the nomination to the inventory of potential sanctuary designations.[402] This approach to new designations fits comfortably into the philosophy and approach of the NMSA. The law already allowed for tremendous public engagement with sanctuary designation and management, even at the local level. The new rule implemented this approach one step earlier in the process, providing that the very nomination of a new site for sanctuary designation should start with local stakeholders and interested persons.

To be sure, the full effect of the rule will only be realized when Congress removes current language in the NMSA that limits new sites based on budget determinations.[403] While this provision has served as a de facto moratorium since it was enacted in 2000, its effect going forward remains to be seen. Nevertheless, the significance of the new rule reestablishing the sanctuary nomination process cannot be overstated: It creates an open-sourced, grassroots approach to identifying special marine places that are important to local communities nationwide and that will fold into a national framework for ocean governance through the national marine sanctuary system. This new approach has the potential to galvanize local communities and create a national movement for ocean stewardship that other programs and policies have not inspired. Indeed, we finally may see national marine sanctuaries fulfill the vision embodied in the NMSA: a comprehensive system of sanctuaries that both celebrates and conserves the best of the American ocean.

390. *See* National Marine Sanctuaries Amendments Act of 2000, Pub. L. No. 106-513, §14, 114 Stat. 2381 (2000).
391. *See, e.g.*, NOAA, NOS Priorities Roadmap 13-15 (2014), *available at* http://oceanservice.noaa.gov/about/; NOAA, About the Office for Coastal Management, http://www.coast.noaa.gov/about/ (last visited Oct. 1, 2014).
392. Expansion of Fagatele Bay National Marine Sanctuary, Regulatory Changes, and Sanctuary Name Change, 77 Fed. Reg. 43942 (July 26, 2012) (expanding the national marine sanctuary from 0.25 to 13,581 square miles).
393. Re-Establishing the Sanctuary Nomination Process, 79 Fed. Reg. 33851 et seq. (June 13, 2014).
394. *See* 15 C.F.R. §922.10(a) (prior to amendment on June 13, 2014) ("The Site Evaluation List (SEL) was established as a comprehensive list of marine sites with high natural resource values and with historical qualities of special national significance that are highly qualified for further evaluation for possible designation as National Marine Sanctuaries."). Selection of a site from the SEL began the formal sanctuary designation and evaluation process. *Id.* §922.21, *removed by* 79 Fed. Reg. at 33860.
395. National Marine Sanctuary Program, 60 Fed. Reg. 66875, 66876 (Dec. 27, 1995).
396. 79 Fed. Reg. at 33853. NOAA described the SEL as "an agency-driven, top-down approach." *Id.*
397. NOAA has issued a number of documents and videos to explain the nomination process and has created a dedicated set of web pages housing these materials. *See* NOAA, Sanctuary Nomination Process, http://www.nominate.noaa.gov/ (last visited Oct. 1, 2014).
398. *Id.* at 33853-54.
399. *See* 16 U.S.C. §1433(a).
400. 79 Fed. Reg. at 33853.
401. *Id.* at 33853-54.
402. *Id.* at 33854-55.
403. 16 U.S.C. §1434(f)(1).

Oregon Ocean Policy Advisory Council

Meeting Summary – October 16th, 2014

Issues Decided/Positions Taken

- The Draft Meeting Summary of the June 5th, 2013 Ocean Policy Advisory Council (OPAC) was approved by consensus with 1 revision noted (adding a consensus decision by the council to host a public National Marine Sanctuary forum).
- The Council reached consensus to send a letter to the USCG (with revisions by specific council members) regarding the closure of the USCG Newport Air Station.

Presentations

- Implementation of the Marine Reserves Program at the Redfish Rocks Site. **Cristen Don** of ODFW, and Tyson Rasor of the Redfish Rocks Marine Reserve Community Team provided a program implementation update to the council.
- Implementation of a Regional Planning Body for the National Ocean Council by **John Hansen** of NOAA.
- Ocean Health Index Project presentation provided by **Conservation International Staff**.
- National Marine Sanctuary Program presentation on the revised nomination process and ongoing program implementation by **Bill Douros** of NOAA.

OPAC Members Attendance

Members Present (voting): **Scott McMullen** (North Coast Commercial Fisheries, OPAC Chair); **David Allen** (Coastal City Official), OPAC vice-chair); **Jim Pex** (South Coast Charter, Sport or Recreational Fisheries); **Jena Carter** (Statewide Conservation or Environmental Organization); **Robin Hartmann** (Coastal Conservation or Environmental Organization); **Walter Chuck** (Ports, Marine Transportation, Navigation); **Terry Thompson** (North Coastal County Commissioner); **John Holloway** (North Coast Charter, Sport or Recreational Fisheries); **Susan Morgan** (South Coastal County Commissioner); **Charlie Plybon** (Coastal Non-Fishing Recreation). **Brad Pettinger** (South Coast Commercial Fisheries) [11/14]

Members Present (*ex officio)*: **Gabriela Goldfarb** (Office of the Governor); **Loren Goddard** (Oregon Coastal Zone Management Association); **Patty Snow** (Department of Land Conservation & Development); **Shelby Walker** (Oregon Sea Grant); **Chris Castelli** (Department of State Lands); **Caren Braby** (Oregon Department of Fish & Wildlife); **Laurel Hillmann** (OPRD); **Jennifer Purcell** (Oregon Dept. of Environmental Quality). [8/11]

Absent: **Vicki McConnell** (DOGAMI); **Mary Abrams** (Department of State Lands); **Kris Wall** (NOAA Fisheries).

Members Absent: **Robert Kentta** (Oregon Coastal Indian Tribes); **Fred Sickler** (Coastal Non-Fishing Recreation); **Dalton Hobbs** (Dept of Agriculture) [4]

Staff: **Paul Klarin** (DLCD); **Andy Lanier** (DLCD, OPAC Staff); **Steve Shipsey** (DOJ) **Bridgette Lohrman** (US EPA); **Meg Gardner** (DLCD); **Cristen Don** (ODFW); **Dave Fox** (ODFW).

Public Comment and Attendance

Public Comment speakers (with affiliation if provided): **Kristen Fletcher** (Conservation International): **John Hansen** (NOAA West Coast Regional Planning Body); **Brett Webb** (Port Orford Commissioner); **David Brock Smith** (Curry County); **Laura Anderson** (Local Ocean Seafood); **Robert and Betsy Bailey**;

Others in Attendance (with affiliation if provided):
Steve Bodnar (Coos Bay Trawlers Association); **Dale Beasely** (CRCFA); **Rob Bovett** (Association of Counties); **Lon Ottorby** (Sierra Club); **John Schaad** (BPA); Hugh Link (Oregon Dungeness Crab Commission); **David Yammamoto**.

Acronyms and Initials:
DLCD-Department of Land Conservation and Development; DOGAMI- Oregon Department of Geology and Mineral Industries; DSL- Department of State Lands; OMD – Oregon Military Department; ODFW-Oregon Department of Fish and Wildlife; OPRD-Oregon Department of Parks and Recreation; DOJ – Department of Justice; CRCFA- Columbia River Crab Fisherman Association; FACT-Fishermen's Advisory Committee of Tilllamook, TSPWG – Territorial Sea Plan Working Group (an OPAC Subcommittee), NNMREC – Northwest National Marine Renewable Energy Center; PEV- Pacific Energy Ventures; WCGA – West Coast Governors Alliance; BPA- Bonneville Power Administration; USCG- United State Coast Guard; TNC – The Nature Conservancy; WCSPA - West Coast Seafood Processors Association;

Distributed Materials

1. OPAC October 3rd, 2013 - Draft Meeting Summary

Additional Resources

1. Department of Land Conservation and Development Website (http://www.oregon.gov/lcd/)
2. OPAC Website: (http://www.oregon.gov/LCD/OPAC)
3. Oregon Ocean Information Website: Http://www.OregonOcean.info
4. http://www.newportfishermenswives.com/

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For a copy of the video record of this meeting, please contact Andy Lanier at the contact information listed below, and complete a public records request available online at:
http://www.oregon.gov/LCD/docs/publications/DO_110.02_PublicAccesstoDLCDRecords_RequestForm.pdf

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M E M O R A N D U M

May 5, 2015

To: Oregon Ocean Policy Advisory Council

From: Chris Castelli, Oregon Department of State Lands

Subject: Legislative Update for the Regular OPAC Meeting

Abandoned and Derelict Vessels/Structures

HB 2463: Creates a Submerged Land Enhancement Fund for removing abandoned and derelict structures, and marine debris on state-owned waterways.
Status: Moved out of the House on April 28 and is in the Senate Committee on Environment and Natural Resources.

Ocean Energy

SB 319: Adjusts the current framework for state-agency regulation of ocean renewable energy facilities in the territorial sea by: 1) eliminating water right and hydroelectric license requirement from the Oregon Water Resources Department; 2) requiring all ocean renewable energy facilities to obtain and meet requirements of a removal-fill permit from DSL; 3) directing DSL to evaluate the appropriate authorization for non-commercial research and pilot projects; and 4) consolidating the state review of an ocean energy project within the Department of State Lands.
Status: Moved out of the Senate on March 23 and is in House Committee on Energy and Environment. It has a public hearing scheduled for May 12.

HB 2187: This bill originally required the Department of State Lands to study issues relating to regulation and net metering of ocean renewable energy. The bill was later amended to a policy position "that any regional transmission planning processes conducted for the transmission planning regions that wholly or partly encompass any

areas of this state shall adequately consider the transmission of electricity from ocean renewable energy generated within Oregon's territorial sea"
Status: Moved out of the House on April 22 and is in the Senate Committee on Business and Transportation.

HB 3398: This bill stablishes ocean power districts to contract with Department of State Lands to carry out certain duties related to regulation of ocean renewable energy facilities.

Status: This bill had a public hearing in the House Committee on Energy and Environment on April 7. This bill did not have a work session scheduled.

The West Coast **Ocean Acidification & Hypoxia** Science Panel

February 2015

A multi-state, bi-national effort providing scientific guidance to state and federal decision makers

A Shared Challenge

Ocean acidification and hypoxia, often coupled due to biological and oceanographic processes, have the potential for profound impacts to marine and coastal environments. West Coast governments, tribes, and citizens are expressing concerns about the threats to marine resources and the livelihoods that depend on them. These issues are shared challenges among the region, and managing for resilient ocean and coastal communities requires cooperation across state and regional boundaries.

The Opportunity for Coast-wide Collaboration

At the nexus of this challenge is the West Coast Ocean Acidification and Hypoxia Science Panel (OAH Panel), an interdisciplinary collaboration of 20 esteemed scientists from California, Oregon, Washington, and British Columbia. The OAH Panel, convened in 2013 at the request of the California Ocean Protection Council, is collaborating with decision-makers on these complex issues.

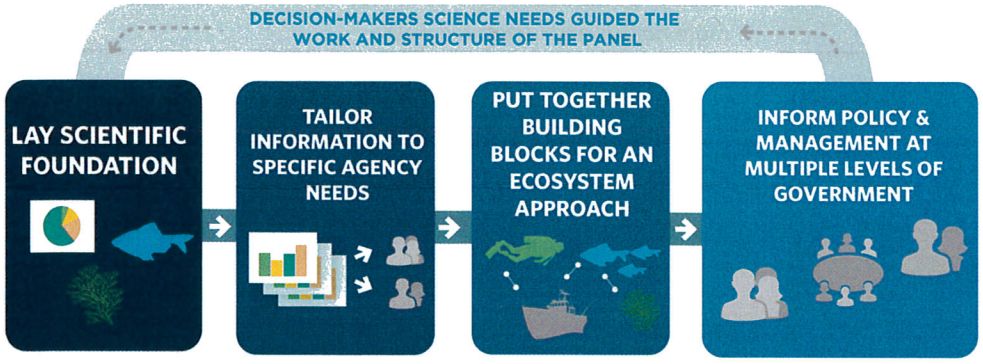
Building Pathways for Science

Conversations with decision-makers across the West Coast states, federal and international scales formed the foundation for the structure and work of the OAH Panel. Decision-makers are not asking for specific answers. Rather, the central question across these conversations was:

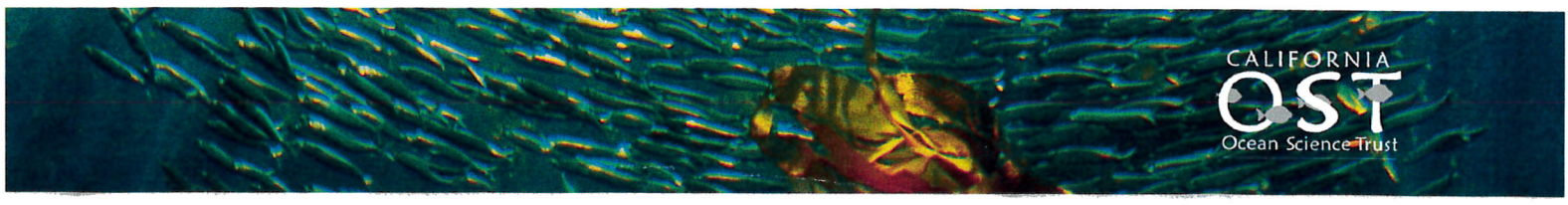
How can the latest scientific knowledge about ocean acidification and hypoxia effectively inform efforts to mitigate for and adapt to climate change?

To explore this question, the OAH Panel is taking a multi-pronged approach, including:

- **Laying a scientific foundation** by generating scientific publications on topical themes identified by decision-makers.
- **Tailoring information to agency needs** by developing targeted translational products to inform specific management processes.
- **Putting together the building blocks for an ecosystems approach** by articulating more policy-focused products that envision ways to mobilize the scientific community on these issues.
- **Informing policy and management at multiple levels of government** by sharing growing scientific knowledge in ways that deepen the policy and management dialogue and illuminate strategies to adapt and respond.



Structured around the needs of decision-makers, the OAH Panel is laying the scientific foundation for government leaders and agencies to leverage existing management and policy frameworks towards ecosystem-based approaches.



Panel Membership

Jack Barth
Oregon State University

Alexandria Boehm (Chair)*
Stanford University

Francis Chan*
Oregon State University

Elizabeth Chornesky
Independent Consultant

Andrew Dickson
Scripps Institution of Oceanography

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California Ocean Science Trust

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Skyli McAfee
California Ocean Science Trust, Ocean Protection Council Science Advisor

*Denotes Executive Committe Members

The Value of an Ecosystems Approach to Managing for Resilience

As the OAH Panel continues its work through 2015, scientific insights are emerging that are already galvanizing discussion among decision-makers about ways to readjust management and policy approaches through a climate change lens:

- ***Consider ocean acidification in the context of other system drivers.***

  To confront the potential impacts of climate change on individual species to complex ecosystems, ocean acidification must be considered together with other system drivers, such as dissolved oxygen and temperature.

- ***Build cross-jurisdiction partnerships.***

  The need to consider multiple stressors presents an opportunity to provide more relevant scientific guidance that spans both water quality/nutrient and living marine resource management.

- ***Bolster ecosystem resilience in the face of uncertainty.***

  These issues are complex – building resilience into ocean and coastal ecosystems is a buffering approach that can buy us time to evaluate options, test solutions, and adaptively manage.

- ***Vision ecosystem-based monitoring to connect to 'things we care about.'***

  Emerging from the Panel is the recognition that monitoring of ecosystem impacts connects this issue to 'things we care about' as a society, economic dialogues and management decisions.

What this means for the West Coast of North America

What this means for the West Coast of North America
The challenge of ocean acidification and hypoxia now extends beyond shellfish, and the borders of any one state. The OAH Panel is harnessing scientific knowledge to help decision-makers at multiple levels of government develop strategic responses to these issues in more holistic and integrated ways.

Two policy-focused, visionary products have been released:

Today's Need for a Coast-wide Approach
Envisioning a Future Science Landscape

Available at: www.westcoastOAH.org/products

The Panel was convened by the California Ocean Science Trust at the request of the California Ocean Protection Council. For more information, please visit www.westcoastOAH.org.