



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE
Office of National Marine Sanctuaries
Stellwagen Bank National Marine Sanctuary
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54th SANCTUARY ADVISORY COUNCIL
October 18, 2018 9:30 am-3 pm
JFK Federal Building, Boston MA
MINUTES of MEETING

Present:

Bill Adler	Primary: Fixed Gear Commercial Fishing
Jennifer Anderson	Federal: NOAA Fisheries GARFO
Aurora Avallone	Primary: Youth
Michelle Bachman	Federal: New England Fishery Management Council
Terri Birkeland	Alternate: At Large
Kevin Blinkoff	Primary: Recreational Fishing
Tim Brady	Alternate: Recreational Fishing
Todd Callaghan	State: Coastal Zone Management
Christina Ciaramatero	Alternate: Education
Tracey Dalton	Primary: Research
Rich Delaney	Primary: Education (Vice Chair)
Tim Donovan	Federal: NOAA Office of Law Enforcement
Susan Farady	Primary: Education
John Galluzzo	Primary: Maritime Heritage
Laura Howes	Primary: Whale Watch
Les Kaufman	Alternate: Research
CAPT Kevin King	Federal: First US Coast Guard District
Martin Klein	Alternate: Maritime Heritage
Heather Knowles	Primary: Diving (Chair)
Randall Lyons	Alternate: Business Industry
Marissa Marcoux	Alternate: Diving
Officer Ryan Lennon	State: Massachusetts Environmental Police
Chris McGuire	Primary: Conservation
Frank Mirarchi	Alternate: Mobile Gear Commercial Fishing
Cate O'Keefe	State: Mass Division of Marine Fisheries
Monica Pepe	Alternate: Education
Wayne Petersen	Alternate: Research Primary
Kevin Powers	Primary: At Large
Jeff Rosen	Primary: Business Industry
Howard Rosenbaum	Primary: Conservation
Rory Simpson-Brown	Alternate: Youth
Mason Weinrich	Primary: Research
John Williamson	Primary: At Large

SBNMS Staff:

Pete DeCola	Anne-Marie Runfola	Elizabeth Stokes
Ben Haskell	Alice Stratton	



ONMS East Coast Regional Staff:

Matt Brookhart, Acting Director

Paul Ticco, East Coast Regional Coordinator

I. Welcome and Approval of 53rd SAC Minutes and Review of 54th SAC Agenda (H. Knowles and A-M. Runfola)

i. The 53rd SAC Minutes were approved with a minor clarification regarding the SAC Executive Committee terms: At the 53rd SAC meeting, the Council unanimously re-elected Heather Knowles, the SAC Chair and Rich Delaney, Vice Chair for a 1-year term respectively. These are 2-year term appointments according to the SAC Charter, not 1-year terms as previously announced at the 53rd SAC meeting. The Secretary's term is 1 year.

ii. Introductions: Heather Knowles, SAC Chair, introduced Matt Brookhart, Acting Director for ONMS's East Coast Region, and Pete DeCola, the new SBNMS Superintendent.

Mr. James Cantwell, Massachusetts State Director and senior staff to Senator Edward Markey, briefly joined the SAC meeting accompanied by two of his staff members. He encouraged SAC members to contact him if there were any issues that they would like for him to address with Senator Markey.

II. SAC Business (A-M. Runfola)

i. Terri Birkeland, new SAC At Large member was introduced. Her background is in corporate communications and project management. She is also a volunteer working on research, education and outreach projects for SBNMS.

ii. To date, SAC members have contributed over 1600 volunteer hours by attending SAC meetings and participating in the working groups and subcommittees, and other related sanctuary events.

iii. The sanctuary will recruit for the following seats on its Advisory Council. The deadline to apply is November 30th:

- At-Large (Primary member)
- Diving (Primary member)
- Diving (Alternate member)
- Education (Primary member) – 2 vacancies
- Fixed Gear Commercial Fishing (Primary member)
- Fixed Gear Commercial Fishing (Alternate member)
- Research (Alternate member)
- Whale Watch (Primary member)

III. Sanctuary Updates

i. Vision for Stellwagen Bank National Marine Sanctuary (P. DeCola)

Pete DeCola, the new Sanctuary Superintendent, introduced his vision focusing on a strong team and partnerships to achieve the sanctuary's mission. He thanked SAC members for their service and contributions. Pete's presentation is available upon request.

ii. Eastern Regional Director Report (M. Brookhart)

Matt Brookhart briefed the SAC on a variety of ONMS issues. He explained the ONMS Strategic Plan document, its vision and mission and the core values of the ONMS program. He also talked about the program's *Blue Economy* initiative, the National Marine Sanctuaries Act, the ongoing sanctuary system expansion and nomination process as well as sanctuary compatible uses. He recognized SAC members' service and emphasized how indispensable the role the sanctuary advisory councils play in providing advice and recommendations, to not only the superintendents but to the regional and program directors as well. He spoke about the ONMS budget which has been flat since 2004. However for this fiscal year, the prospects for a brighter budgetary outlook are encouraging, but there are still challenges and shortfalls across the sanctuary system. Matt Brookhart's presentation is available upon request.

The ONMS Strategic Plan and related documents can be viewed on the ONMS website:
<https://sanctuaries.noaa.gov/management/strategic.html>

iii. Northeast Ocean Plan Update (P. Ticco)

Dr. Paul Ticco, ONMS East Coast Regional Coordinator, offered a short talk and subsequent discussion regarding the history and status of regional ocean planning in the northeast. Many national and international legislative efforts, commission reports, and ocean planning policy documents beginning in 1969 preceded the 2005 founding of the Northeast Regional Ocean Council (NROC), a state/federal partnership that coordinates and collaborates on regional approaches to support balanced uses and conservation of the northeast region's ocean and coastal resources. NROC also has responsibility for implementing the Northeast Ocean Plan, a product of President Obama's 2010 Executive Order 13547: "Stewardship of the Ocean, Our Coasts, and the Great Lakes." Certified by the National Ocean Council in December 2016 (as was the Mid-Atlantic Regional Ocean Plan) the Northeast Ocean Plan, through the Northeast Regional Planning Body (RPB), seeks to advance economic, environmental, and cultural priorities; promote best management practices to guide coordination and collaboration among agencies, states, tribes, and the New England Fishery Management Council (NEFMC); and offer a broad, robust and ever-evolving centralized Northeast Ocean Data Portal that provides resource managers, industry, community leaders and stakeholders access to many types of data, interactive maps and other information to be used for coastal and ocean planning purposes.

President Trump's 2018 Executive Order 13840: "Ocean Policy to Advance the Economic, Security, and Environmental Interests of the United States" revokes President Obama's 2010 oceans policy; abolishes the Regional Planning Bodies; shifts much of ocean policy and planning to the states. State and federal agencies, tribes, non-profit organizations, businesses, and other coastal and ocean users and constituents are beginning to work through this new policy, but the true impacts are unclear. What is evident, though, is that states are given an increased decision-making role; there is a shift in priorities from stewardship and protection of resources to resource use and extraction; the newly formed Ocean Policy Committee shares many members of the former RPB; and that data generation and dissemination are still key components to northeast ocean planning going forward. The restructuring of the Northeast Ocean Plan may serve as a "jumping off" point for a new regime.

iv. Condition Report and Management Plan Review Update (B. Haskell and A. Stratton)

The schedule for the Condition Report (CR) has slipped a bit. Extra time was given for the experts who participated in the CR workshops to provide their comments and also to allow time for Pete DeCola, the new superintendent, to get up to speed on both CR and Management Plan processes. Sanctuary staff is now working with the ONMS headquarters team to go through the comments and resolve issues that were raised by participants and experts in the workshops, with the goal to have the next version address those concerns. The next round is an invited review by interested parties, such as state and federal partners, and SAC members among others. These comments will be addressed in December 2018 and January 2019, followed by a peer review process. From these rounds of comments, the committee will identify items to be addressed in the next Management Plan. The goal is to have the Condition Report published by late May/early June 2019. After the Condition Report is final, staff will issue the Notice of Intent to conduct public scoping for the Management Plan Review regarding priority issues that should be addressed. These issues will then be presented to the SAC in Fall 2019. There will be a couple more meetings of the Management Plan subcommittee to identify issues to be addressed.

Action Item: Heather Knowles asked that staff send subcommittee and working group meeting minutes to SAC members to keep them up to date.

v. Keith Ellenbogen Underwater Photography (B. Haskell)

Ben provided an update on Keith Ellenbogen's underwater photography work in the sanctuary. He reported on Keith's close encounter with a Great White shark in the sanctuary during one of his underwater photography expeditions. Discussion ensued among SAC members about the latest string of Great White incidents in Cape Cod waters. Bottom line is that we need to help change in the public's perception of sharks when these incidents occur, moving away from calling them shark "attacks" but rather shark "bites" because this is a shark's natural behavior. It's part of the "Jaws" movie phenomenon to be frightened of these sharks.

Action Item: Heather Knowles agreed that the SAC needs to tackle this: think about messaging and proactively change this perception. She will work with the SAC Executive Committee on how to incorporate and structure this into the SAC Work Plan.

IV. Agency/Governmental Reports

i. MA Coastal Zone Management (CZM) (T. Callaghan)

CZM has been reviewing the environmental impacts of several offshore wind developments: from wind tower placement and alignments to cable laying techniques. There is a lot of interest from the resource protection and fishing communities on establishing long-term scientific inquiries into the movement of water, sediments, plankton, and larvae through the wind farms. There has been work to establish a research framework with a focus on whales and their food supplies, parts of which may be funded by a combination of Bureau of Ocean Energy Management (BOEM), NOAA, and wind developer funds.

CZM recently met with New Hampshire Transmission regarding the SeaLink cable: a 520 megawatt (MW) renewable energy supply source that would travel from Salisbury around Cape Ann to Revere Beach (the route has already been surveyed). We also met with a company called Anbaric regarding its interest in building a converter station and cable system

to carry offshore wind energy from multiple companies through one cable to Massachusetts. Anbaric already has several projects developed or planned in NJ and NY waters. Due to Massachusetts' renewable energy requirements and the recent closing of several power plants (3000 WM of energy), we are seeing a lot of interest in laying energy cables in marine waters.

CZM received notice of a permit from Ted Maney of Salem State University to expand a longline mussel farm located 7 miles off the coast of Cape Ann (just outside SBNMS) from an experimental plot to 32 400-foot lines. The lines are hung 50-75 feet below the surface of the ocean.

CZM participated in a review of projects requesting funding from MIT SeaGrant. CZM, with support from others on the review panel, advocated for and succeeded in extending the purview of two ocean acidification models to include Stellwagen Bank and its seafloor. There was also a project that proposed a swarm of 100 autonomous sampling robots that would record ocean pH in Mass Bay and another project aimed at designing more ocean-worthy aquaculture pens.

Given the interest in aquaculture lines (both mussel and kelp), aquaculture pens, and cables that have the potential to impact the resources of SBNMS, CZM suggests that the management plan review address these issues in detail and establish proactive policies to minimize conflicts with existing (and emerging) uses within SBNMS.

ii. MA Division of Marine Fisheries (C. O'Keefe)

Stellwagen Recreational Fishing Mini Grant:

MA Division of Marine Fisheries (DMF) partnered with *On The Water* LLC and received a \$1,000 grant from Stellwagen Bank National Marine Sanctuary's Recreational Fishing Education, Outreach, Conservation Grant Program. The project titled, "Educational Outreach about Best Practices to Minimize Mortality from Recreational Discards in the Stellwagen Bank National Marine Sanctuary" proposed to create a digital educational outreach campaign to promote best practices for fish handling and avoidance to enhance recreational opportunities and promote conservation of important species. In August, Kevin Blinkoff, Executive Editor at *On The Water Magazine*, joined several MA DMF staff, along with students from UMass Boston and researchers from the New England Aquarium to observe research on discard mortality of recreationally-caught groundfish. This project will help inform best handling practices for catch and release fishing in the sanctuary.

MA Fisheries Working Group:

In collaboration with Rhode Island, National Marine Fisheries Service, and BOEM, MA DMF is developing a framework for regional scale studies for understanding potential impacts from offshore wind energy development, focused on fish and fisheries. The framework will be presented to the MA Fisheries Working Group on Offshore Wind Development in the coming months for recommendations on priority research areas and funding sources.

Lobster Gear Modifications:

DMF is engaged with ongoing regional discussions about potential modifications to lobster fishing gear to reduce impacts on right whales. There will be additional updates on this topic in the future.

White Shark Tagging Project:

MA DMF is in the final weeks of 5-year tagging study for white sharks off of Cape Cod and in the Cape Cod Bay area. Results from the study will be publicly available when complete. In the meantime, MA DMF will request that project researchers present information and findings to the SAC.

iii. Enforcement Reports

NOAA Office of Law Enforcement (T. Donovan):

- Two day at-sea patrol of Middle Bank with US Coast Guard Cutter Key Largo (10/3-10/4)
 - Boarded 6 vessels. One violation no license on hand. Two reporting violations.
- Patrol of Northern Stellwagen w/USCG Station Gloucester - 1805175
 - 5 vessels boarded, two reporting violations
- Patrol of Northern Stellwagen w/USCG Station Gloucester focused on
 - Bluefin Blowout tournament - 1805238
 - 15 vessels contacted, boarded two of them that had catch onboard.
 - One reporting violation. Outreach and provided LE presence with other 13 vessels.
- An Enforcement Officer is investigating 2 vessels for failure to report Bluefin tuna harvested from Stellwagen Bank.
- 9/5/18 A special agent and the assistant director attended a hearing for a civil case involving a humpback whale / ship strike that occurred in the sanctuary. Verdict is still pending.
EO's received training from the ship builder Metal Shark on the new patrol boat. Officer Wilmarth has been ensuring all agency safety requirements are met and operators are signed off before conducting operations.

Again, these statistics are based on our Joint Enforcement Agreement program. Doesn't account for multiple hours spent in SBNMS enforcing things such as Recreational Boating Safety and often many hours enforcing whale regulations like Atlantic Large Whale Take Reduction Plan and Right Whale enforcement.

MA Environmental Police (Officer R. Lennon):

These numbers are according to our Joint Enforcement Agreement (JEA) records which do not cover all of our activity in the sanctuary. Here is a summary:

From June 1st until September 30, 2018, officers of the Massachusetts Office of Law Enforcement conducted 157 vessel patrol hours in the sanctuary using 272 personnel hours. In addition 17 hours of community outreach were conducted in the sanctuary. During those patrols, officers contacted, usually by boarding, 90 commercial fishing vessels and 20 recreational fishing vessels. Fifty five of those vessels were being used to fish for Bluefin Tuna, 20 were being used to fish for American lobsters, 5 were being used in the Northeast Multispecies Fishery, 18 vessels boarded were engaged in a variety of activities and fisheries including whale watching.

iv. New England Fishery Management Council (NEFMC) (M. Bachman)

NEFMC met September 24-27 in Plymouth, MA. Our next meeting is December 4-6 in Newport, RI.

The major action taken at the September meeting was to select final management alternatives for Amendment 8 to the Atlantic Herring Fishery Management Plan. The two measures include a control rule for setting acceptable biological catch as well as a localized depletion closure where mid-water trawls are prohibited from fishing. The control rule caps the rate of fishery removals at 80% of F_{MSY} , leaving a portion of the resource to account for herring's role as a prey species. The localized depletion closure includes waters out to 12 nm from the US/Canadian border to roughly the RI/CT border. This boundary is extended to around 20 nm offshore east of Cape Cod. Within this closure mid-water trawls are prohibited year-round (mid-water trawls are prohibited from the remainder of management area 1A during other months as well). The Council is also setting catch limits for herring for the next three years and will take final action on this issue in December. A benchmark stock assessment was completed over the summer, and recent recruitment estimates are very low. The Council's Scientific and Statistical Committee met last week to recommend catch limits and endorsed the Herring Plan Development Team's recommendations for 2019 and 2020 but suggested keeping limits at 2020 levels for 2021. The scientific and statistical committee also indicated that an updated assessment would be extremely useful prior to the 2021 fishing year to take another look at recent recruitment.

The Council is also in the process of updating annual catch specifications for scallops and groundfish. The scallop resource is in very good condition. The School for Marine Science and Technology surveyed Stellwagen Bank and other Gulf of Maine beds with their drop camera system this past summer, and the results suggest that 2019 fishing in the Northern Gulf of Maine management area will likely be focused on Stellwagen Bank again. This year the Northern Gulf of Maine fishery was open for about a month to smaller vessels before the quota was reached; limited access vessels are authorized to fish in the area using Research Set Aside quota but have not done so. Catch limits for most of the groundfish stocks were set in last year's specifications action, although shared US/CAN resources on Georges Bank are allocated annually. The Council is also working on revised rebuilding programs for several groundfish stocks including witch flounder and northern windowpane flounder.

SBNMS will work closely with Michelle Bachman and Jen Anderson NOAA GARFO.

v. NOAA Greater Regional Fisheries Office (J. Anderson)

Atlantic Large Whale Take Reduction Team:

- Overall, we are pleased with the outcome from the Take Reduction Team (TRT) meeting. The purposes of the meeting were to collect Team input on a suite of potential recommendations to reduce large whale entanglements. In addition to proposals with potential recommendations, the Team provided NMFS with guidance on analyses they need prior to March to guide their selection of recommended changes to the Take Reduction Plan.
- Members of the TRT broke into groups composed of a cross-section of interests (e.g., industry, non-governmental organizations, and state reps) to discuss proposals received. They identified further information needs and developed three work plans to guide analysis and information collection efforts to inform March TRT selection of recommendations.

- Regional Office staff are now working to integrate these plans into a comprehensive NMFS work plan. Once completed, we will implement the plan with the Science Center and members of the TRT (via formal and informal working groups).
- The results of this work will be presented to the Team at the March TRT meeting to help them evaluate the likelihood that proposal elements in reducing serious injury/mortality of right whales and other large whales. The Team is expected to use this information to assist them when they recommend measures that should go forward.
- The TRT did not provide a consensus recommendation regarding the Advanced Notice of Proposed Rulemaking (ANPR), although a number of TRT members endorsed ropeless gear as an alternative to future area closures. Given the tepid response to the ANPR but general support of ropeless gear, it is not clear that we will go forward with the ANPR.

Right Whale Unusual Mortality Event:

- From April 2017 through the present (excluding confirmed death from last week) from Canada to Florida, there are 19 confirmed mortalities (12 Canada; 7 U.S.).
- The preliminary cause of death is suspected human interactions.
- Significant Findings:
 - 13 whales necropsied (7 Canada; 6 U.S.)
 - 6 suspect/confirmed entanglements (3 w/gear)
 - 5 suspect/confirmed vessel strikes (blunt force trauma)
 - 2 undetermined

Northeast Pinniped Unusual Mortality Event:

- From July 2018 to present, from Maine to Massachusetts, over 1,100+ harbor and gray seals have died.
- Preliminary Cause is Phocine Distemper Virus
- Co-infections with Avian Influenza
- Still under investigation

International Year of the Salmon:

- We are launching the international year of the salmon initiative (IYS) on October 30, 2018, at the New England Aquarium with lectures about the history and cultural significance of wild Atlantic salmon.
- This launch event is one of several launch events across the northern hemisphere; these events are meant to introduce the IYS initiative and to build interest and momentum around events and activities that will be announced and happening throughout 2019.
- As salmon share similar threats across the Northern Hemisphere, this initiative aims to connect scientists, Indigenous Peoples, fishers, policy makers and resource managers to create an intense burst of outreach and research that will enhance the effectiveness of their efforts to conserve and protect salmon.

For more information:

<https://yearofthesalmon.org/> or <https://www.fisheries.noaa.gov/national/endangered-species-conservation/2019-international-year-salmon>

V. Ocean Noise Presentation (L. Hatch)

Leila Hatch, SBNMS marine ecologist, provided an overview of underwater sound research in the sanctuary, with a focus on work the sanctuary is doing to increase capacity to characterize underwater sound conditions nationally, and within US national marine sanctuaries specifically. She talked about recent growth in programs that include monitoring locations within SBNMS and will provide calibrated and standardized recordings among sanctuaries. The presentation and subsequent discussion highlighted the value of information that can be used to compare the contributions made by marine animals, the physical environment and human activities to underwater acoustic environments across many protected areas.

VI. SAC Updates

i. SAC Work Plan Status (H. Knowles)

The SAC Work Plan is close to being finalized. Progress has been made on a lot of high priorities and objectives of the plan. There are a couple of topics that need a deeper look, such as marine debris, trash and plastic reduction, among others. This will put the SAC in a good position to refresh the plan in looking at priorities and adding new content. Over the next few months, the SAC Executive Committee will go back and do its own assessment and reconciliation with the SBNMS Work Plan. A deeper assessment will be presented at the next SAC meeting and proposals will be brought forward at that time.

ii. Management Plan Action Plan (J. Williamson)

The Management Plan (MP) working group is waiting to review the Condition Report. The next MP meeting will focus on comparing the Condition Report with the MP subcommittee's initial suggestions for updates and gap identification.

iii. Maritime Heritage Working Group (H. Knowles)

Two meetings were held and a lot of time has been spent discussing fishing and diving. There is an opportunity to continue digesting the data on the scallop fleet pilot study looking at 5 or 6 sites, and the impact of notification and whether it has affected the fleet's behavior. The working group has spent time reviewing the data but it is not possible to draw firm conclusions as to whether or not disclosure would be a benefit or rather potentially increase the risk of exposure to wrecks. There is more work to be done trying to find a balance between non-disclosure and no access. The next meeting will focus on refining these findings. Heather would like to see the working group do a robust study of the diving programs of other sanctuaries to see if there are opportunities to learn and apply them to our sanctuary. She will report on the working group's progress at the next SAC meeting.

iv. Business and Tourism Subcommittee (J. Galluzzo and A. Maloney, Massachusetts Office of Travel and Tourism (MOTT))

John Galluzzo report:

Plymouth County Tourism Forum:

John Galluzzo reserved one of 50 seats for the forum on Friday, June 8, 2018, an annual event held by the local RTC (regional tourism council) to disseminate information about the industry locally to state officials. In this case, they turned out to be State Senator Vinny

DeMacedo, along with an aide for State Senator Mark Pacheco; State Representatives Matt Muratore, Susan Williams Gifford, Bruce Ayers, Keiko Orral, and an aide for State Representative Josh Cutler.

Aside from listening to an update about the industry, John was able to make the following connections:

a. Paula Fisher, Plymouth County Convention and Visitors Bureau (PCCVB) - discussed with her what exactly a CVB would like to have from an attraction (other than membership and money) and she said that they would love access to photos, that they love "Firsts" and "Top Tens" (any superlative accolades like the *USA Today* recognition last year) and any ready-made language we can deploy for her. She recommended that we set up a meeting with...

b. Claire MacPherson, Marketing Communications Manager, PCCVB - spoke with her briefly before the program started and told her we would be in contact for a meeting (preferably Anne and John).

c. Marie Oliva, President and CEO, Cape Cod Canal Chamber of Commerce - said we would love to speak with her someday soon about marketing SBNMS. Their territory is Sandwich, Bourne and Wareham.

d. John also spoke to Paul Cripps, the head of Plymouth County Convention and Visitors Bureau and Destination Plymouth, Rep. Ayers and Cole Angeley, aide to Rep. Cutler. Follow-up items: arrange meeting with Claire MacPherson; arrange meeting with Marie Oliva. Emails sent on August 7, 2018.

2. South Shore Chamber of Commerce:

Ben Cowie-Haskell, Anne Smrcina and John Galluzzo invited Peter Forman, Executive Director of the South Shore Chamber of Commerce and Eric Dykeman, Director of Community Development, to SBNMS headquarters in Scituate for a meeting on Tuesday, June 19, 2018.

a. SBNMS team discussed the value of the sanctuary in terms of cultural tourism and the economic development of the South Shore, focusing on the sanctuary's role in attracting tourists to the region, with or without direct name recognition. While Mr. Forman indicated bluntly that the Chamber is not interested in cultural tourism, and is instead focused on its "South Shore 2030" plan, he stated that he could make connections that would be of benefit to both the sanctuary and the Chamber. He wondered aloud whether or not the Chamber could "plant a flag on the bank and claim it for the South Shore," as he understood the value of it in terms of attracting visitors and eventually new residents to the region.

b. After the meeting, on Thursday, June 21, Mr. Forman connected Ben with Rhiannon D'Angelo, Director of Marketing for LStar Ventures, the developers of the South Weymouth Naval Air Station property, known currently as Union Point.

"Ben and Rhiannon, let me introduce you to one another. LStar Ventures is the owner/developer of Union Point—one of the largest development projects in New England. This is the site of the former Naval Air Base—and current Coast Guard buoy maintenance yard. They are developing a new city center with up to 5,000 homes and millions of square feet of commercial, retail and entertainment space. There are many draws that will pull people to this including their commitment to open space and environmental sensitivity with their smart city design. I told Rhiannon about the inflatable whale education exhibit and suggested that

might be an interesting hook around a conservation/environmental themed event at their site some weekend. A great way to promote both Union Point's conservation and 50 miles of bike and walking paths and the Sanctuary. Ben, can I suggest you give Rhiannon a call sometime and exchange some ideas?"

3. Mass Office of Travel & Tourism:

On Wednesday, August 1, Ben Haskell, Anne-Marie Runfola, Anne Smrcina and John Galluzzo welcomed Annie Moloney, Chief of Staff, Massachusetts Office of Travel & Tourism (MOTT), and Shannon Healey, Director of Domestic Public Relations for the same, to the headquarters building in Scituate for a discussion on ways to incorporate Stellwagen Bank National Marine Sanctuary in the state's tourism marketing. While the meeting served as an introduction to the sanctuary, its history and importance to the MOTT staff, the discussion was targeted at ensuring that Stellwagen Bank National Marine Sanctuary is featured in the state's new Whale Trail, which, to this point, it has not been. In a follow-up email, Ms. Moloney assured us that it would be: "We are grateful for your stewardship, and your willingness to enlighten us land dwellers! We look forward to partnering with you to increase its renown. We have a few things on our end with regards to follow up - but, in broad terms, as we develop the Massachusetts Whale Trail we'll be sure to keep the Stellwagen Bank National Marine Sanctuary at the forefront."

Discussions are ongoing.

4. Cape Cod Canal Chamber of Commerce:

John Galluzzo met with Marie Oliva, Executive Director of the Cape Cod Canal Chamber of Commerce, at her office in Bourne on September 5, 2018. They discussed general awareness of Stellwagen Bank National Marine Sanctuary among area residents and visitors and focused on awareness of recreational fishermen chartering trips out of Sandwich. Marie offered SBNMS a full page in the chamber's 2019 guidebook, about 750 words of text and a photograph. The chamber agreed to continue to distribute brochures and newsletter at their Sagamore and Buzzards Bay visitor information centers (100+ at each location to start the season in May), and although they have just updated their website and have no more "room" for new pages, Marie requested links that she could use to jump to SBNMS resources.

5. Plymouth County Convention and Visitors Bureau:

John Galluzzo and Anne Smrcina met with Paula Fisher, Director of Marketing & Group Services, and Claire Macpherson, Marketing Communications Manager, on Wednesday, September 6, 2018 in their office in Plymouth. We discussed the general awareness of Stellwagen Bank National Marine Sanctuary among visitors to Plymouth County, focusing heavily on whale watching, stressing that the sanctuary is the destination for whale watches leaving from Plymouth. We discussed, among other things, ties to the Pilgrim story. A passage in William Bradford's *Of Plimoth Plantation* relates the story of a Pilgrim who attempted to shoot a whale and had a gun backfire in his face.

We discussed the placement of brochures and newsletters, specifically asking for advice on how to revamp the sanctuary newsletter to be even more appealing to the traveling public than it already is.

We discussed the potential relocation of the sanctuary's big "traveling" exhibit to a site in Plymouth. We discussed potential sponsors and locations, and then discussed the potential of a local host of the traveling art contest show.

We discussed imagery and video for use on the website and for marketing purposes, and the potential for SBNMS staff and volunteers to be guest bloggers on the visitors bureau's website (www.seeplymouth.org).

Later that day, Paula sent an email to Shannon Healey, Director of Domestic Public Relations for the Massachusetts Office of Travel & Tourism, asking her why Stellwagen Bank National Marine Sanctuary had been left out of the most recent iteration of the state's "Whale Trail," to which Shannon replied that changes were forthcoming.

Annie Maloney report:

- Annie discussed the history and process behind the Mass Office of Travel & Tourism's new Whale Trail, including the initial reactions by the media and individuals (through social media), plans for the future of the project and an upcoming one-year anniversary event to which we will be invited.
- Annie's office is working on the 1st anniversary celebration for the Whale Trail, to which we will be invited. I have also volunteered us to help in any way we can.
- Annie has connected us to the North of Boston RTC, with whom we have a pending meeting, as soon as we can coordinate schedules.
- Annie and I discussed the idea of the big exhibit going to the Big E in Springfield in 2020.
- MOTT will continue to generate media coverage of the Massachusetts Whale Trail which specifically mentions the Stellwagen Bank National Marine Sanctuary.

v. Small Boats Working Group (L. Howes)

- Met last on 7/25/18
- Lots of great updates of what our members have been up to during the busy summer season:
 - Monica Pepe, Whale and Dolphin Conservation - 4 boater outreach events:
 - Share the Seas
 - Hingham touch a boat
 - Cape Cod Safe boating day
 - NE Whale Festival (200 SALT visitors/tours of the Auk)
 - Shelley Brown: 2 events sailing Atlanticcup (whale education to students) and Vineyardcup
 - Randall Lyons: Mass kids boating and fishing day
 - Matt O'Connor from Freedom Boat Club: busiest season yet, exceeding last year
 - Alex Hill: just on 7/4 weekend there were 4-5 vessel strikes observed
 - NOAA intern Kayla: creating a central database of vessel strike occurrence
- This meeting was post our last big update at last SAC meeting:
 - Next goals: offer more education/lecture events in offseason (we did New England boat show last February)

- Brainstorming ideas for best venues to be most productive, and periodicals
- Utilize See-A-Spout video. Here is a link to their quiz <https://seeaspout.org/take-the-interactive-quiz/> (a useful resource!)
- Chance to form new goals since we were extended
- Make new action items happen

Action Item: Heather Knowles suggested that it is time to begin to formalize the findings and recommendations of the SAC working groups and subcommittees. This may be an action that can be tagged for sanctuary staff and the Executive Committee to set dates within the framework of the overall Management Plan update timeline; to take a look at the recommendations, then report to the SAC. This is something to think about over the next few months.

VII. New Business

Anne-Marie Runfola reported that there are long pauses between meetings, so a fourth SAC meeting will be considered for the calendar year. This fourth meeting would be in person rather than by webinar. Anne-Marie solicited ideas for agenda items such as a SAC review of the Management Plan SAC, as well as conducting self-evaluations of the SAC, SBNMS, and individual work plans. There is also a need for more speakers and interactive discussions when everyone is physically in the room together. Feedback is requested for SAC meeting location pros and cons.

Update -- 2019 SAC meetings dates are scheduled as follows:

- 13 February - Boston Convention Center (the week of the New England Boat Show)
- 10 April - Hilton Doubletree, Rockland
- 19 June - NOAA GARFO, Gloucester
- 9 October - Boston (location to be determined)

VIII. Public Comment: No public comment.

IX. Adjourn: 2:50 pm.

SBNMS PROGRAMMATIC UPDATE FALL 2017 – SUMMER 2018

EDUCATION/OUTREACH/EXHIBITS/MEDIA

Anne Smrcina

Maritime Gloucester Exhibit Updated and Enhanced

During the winter and fall, staff worked with Maritime Gloucester to revise and update the sanctuary hall in the main facility. The work included building consensus on messaging, locating a contractor for design (we used the same designer as in the original exhibit to be better able to match earlier work), writing all text, finding or taking new photographs, replacing the 3-D map, and overseeing the placement of exhibit elements. The exhibit was finished a week before the planned opening and positive feedback from the museum, its visitors and sanctuary personnel. Maritime Gloucester is the only marine-focused (marine science and maritime heritage) institution along the Gloucester waterfront and is an important education partner in one of the sanctuary's gateway cities. With added support over the next few years, portions of the exhibit that were not replaced this year will need attention (e.g., whale research video, technology diorama, etc.). With its new messaging, which highlights individuals (researcher, fish market owner, citizen-scientist birders, naturalists), the exhibit gives a human face to sanctuary operations. Our enhanced links with Maritime Gloucester make this an ideal site for continued education/outreach programming and partnerships.

2018 Marine Art Contest Gains National Attention

The marine art contest, a partnership with MA Marine Educators, and with support from four other co-sponsors, continues to be a success, attracting some 750 pieces of art and engaging about 80 different schools. Although the contest is intended to inform MA students about the diversity of marine life in their ocean "backyard" (SBNMS), the program has attracted the attention of students from other states and sometimes countries (no international entries in 2018 but 8 other states). The contest was highlighted on the front page of the National Marine Sanctuaries website, and included a link to a news story (which fed Twitter and Facebook postings). The touring art from the 2017 contest graced the exhibit halls of the New Bedford Whaling Museum, Cape Cod National Seashore Salt Pond Visitor Center and South Shore Natural Science Center. The 2018 exhibit is starting its tour and the 2019 contest has been announced recently. The art contest has drawn attention at the National Marine Educators Association meeting and regional educator meetings. The sanctuary is offering workshops for educators (2 during the 2017-2018 school year, more planned for 2018-2019) to provide information on marine biodiversity and show ways that art can be used in science classes and science can be used in art programs (STEM to STEAM)

GSI: GREAT SHEARWATER INVESTIGATIONS – A New Education Program Tied to Seabird Tracking

A new education program is in development, assisted by teacher Melinda Forist from Monomoy Middle School and using data from David Wiley's shearwater tracking project. From daily points selected from the database of location coordinates provided by the satellite tags, the students are mapping the changing positions of our tagged birds. This year, the shearwaters were named after Cape Cod schools that agreed to track the birds. Two 24"x36" maps were produced, one of the Gulf of Maine to locate summer feeding activity and one of the entire Atlantic Ocean to track the bird's full migration (if the satellite tags survive into the winter). Mention of the project during a national education webinar attracted interested teachers from several distant states and a short talk at the recent Boston Harbor Educators Conferences brought in additional educator interest. Along with the maps, the sanctuary (with Ms. Forist's technical assistance) has produced a set

of activities that provide background information on great shearwaters, seabird research and the tracking program.

Marine Debris Kiosks Completed and Looking for Temporary Homes

Under a grant from the NOAA Marine Debris Program, the sanctuary was able to produce two touchscreen kiosks, two windowshade banners and rack cards covering topics related to marine debris. The kiosks allow visitors to view the six videos defining marine debris and giving a global perspective on the issue produced by NOAA and a new Powerpoint video –written, narrated and produced – in-house, which offers a local look at the problem of marine debris. The exhibit package of banner, kiosk and literature will be offered free of charge to interested host sites for a loan ranging from one to several months. At the time of the writing of this review, a schedule was in development.

High Quality Imaging of Sanctuary Begins – Despite a Curious White Shark

Keith Ellenbogen has begun his photographic exploration of sanctuary biodiversity, although one of his early in-water photo efforts presented some thrilling effects (and excellent media coverage). Keith wants to document marine life from the smallest plankton to the greatest whales. He has received the first permit from NOAA Fisheries to photograph whales in local waters. He is also working with MIT on other aspects of the project. His recent swim with a 16-foot white shark could have cut the project short, but luckily, the only outcome was a 360-degree video of the close encounter. The project will continue over the next two years.

Animals Without Passports Exhibit Needs A New Home – Immediately

Amtrak is taking over the MAX theater area of The Maritime Aquarium in Norwalk, CT where our Animals Without Passports exhibit now resides. We need to find a new home for the exhibit, immediately. Anyone with any suggestions should contact anne.smrcina@noaa.gov ASAP.

HQ Film Team Visits Sanctuary to Gather Video and Still Images

A team from sanctuary headquarters visited the sanctuary at the end of August to gather video and still images of the Scituate campus, of whales at the surface and marine life underwater during a dive at the Paul Palmer, of sanctuary uses including recreational fishing and whale watching, and to interview local residents who have played an important role in the sanctuary, including Stormy Mayo. The film team had access to drones with cameras, and were able to shoot a breaching humpback and other whale behaviors (FAA certified drone pilot). The video footage will be included in a HQ-produced video for the sanctuary and available for our own uses.

SCIENCE

David Wiley, Michael Thompson, Leila Hatch, Anne-Marie Runfola
Grant Funded: Tasia Blough, Jenni Stanley

Tagging Humpback Whales with Synchronous Motion, Acoustic Recording Tags

Partners: Woods Hole Oceanographic Institute (WHOI), Oregon State University, Syracuse University, Center for Coastal Studies (CCS), Stanford University

Platform: R/V *Auk*

Funding: Volgenau Foundation, International Fund for Animal Welfare (IFAW)

PI: Wiley

Description: Use suction-cup attached tags to investigate the behavioral ecology of endangered whales relative to vulnerability to lethal collisions with ships and entanglement in commercial fishing gear. We will now be working under our own permit which is valid for the next five years.

Habitat Use, Foraging Ecology and Bycatch Risk of Great Shearwaters Based on PTT Tags and Stable Isotope Analysis

Partners: USF&WS, UMASS-Amherst, Boston University, University of Long Island, National Marine Fisheries Service (NMFS), University of Canterbury (New Zealand)

Platform: R/V *Auk*

Funding: Volgenau Foundation; Mudge Foundation

PI: Wiley

Projects Descriptions:

- Great Shearwater habitat use in the SBNMS and Gulf of Maine based on state-space modeling;
- Food habits of Great Shearwaters based on stable isotope analysis of feather, blood and exhaled gas samples;
- Demonstrating the relationship between sand lance forage fish and the abundance of shearwaters to provide support to limit the development of a commercial sand lance fishery;
- Co-occurrence modeling of Great Shearwater habitat use and sink gillnet fishing effort to identify areas of predicted bycatch;
- Combining bycatch modeling with fisheries dependent data to test co-occurrence predictions, identify factors contributing to bycatch and make recommendations for bycatch mitigation;
- Using PTT tracked Great Shearwaters for dynamic management of large whales;
- Testing a new theoretical framework, chord and clock navigation, capable of explaining the precise spatial orientation and temporal pacing performed by great shearwaters during their long-distance migrations over open ocean.

The Role of Sand Lance Fish (*Ammodytes* spp.) in Structuring the Abundance and Distribution of Marine Mammals, Seabirds and Commercial Fishes in the Stellwagen Bank National Marine Sanctuary

Partners: USGS, Boston University, UCONN

Platform: R/V *Auk*

Funding: Volgenau Foundation, SBNMS and USGS. Grants submitted

PI: Wiley

Description: We are monitoring 44 sights within the SBNMS to determine the distribution and relative abundance of sand lance. These data will be correlated with simultaneous data from surface sightings of marine mammals and seabirds and video transects of commercial and recreational fishes

Sensitivity of Early Stage Sand Lance *Ammodytes dubius* on Stellwagen Bank to Predicted Ocean Warming, Acidification, and Deoxygenation

Partners: SBNMS, UCONN, USGS, BU

Platform: R/V *Auk*; UCONN fish rearing laboratory

Funding: Sea Grant

PIs: Baumann; Wiley

Description: Live SBNMS captured northern sand lance will be spawned and reared at UCONN. Larval fish will be reared in future projected oceanographic conditions to quantify individual and combined effects of elevated temperature, low pH, and low DO conditions on the development, growth, and survival of early life stage *A. dubius* (northern sand lance).

Sensitivity of Early Stage Sand Lance *Ammodytes dubius* to Ocean Noise

Partners: SBNMS, UCONN, USGS, BU

Platform: R/V *Auk*; UCONN fish rearing laboratory

Funding: NMFS/ONMS

PIs: Baumann; Stanley, Hatch

Description: Live SBNMS captured northern sand lance will be spawned and reared at UCONN. Larval fish will be exposed to various sound levels to examine developmental impact.

Otolith Microstructure Analysis as a Tool to Address Source-Sink Problems in Marine Fish Populations

Partners: SBNMS, UCONN, USGS, BU

Platform: R/V *Auk*

Funding:

PIs: Baumann; Wiley

Description: The origin of sand lance in the SBNMS is unknown. We will address this question by conducting a targeted otolith study on YOY sand lance from Stellwagen Bank. Otolith microstructure analysis will be used to determine ages and hatch distributions and ultimately couple the data with a hydrodynamic model of the coastal shelf to evaluate the probability of self- vs. external recruitment.

Whales and Waves: Zooplankton Accumulation, Fish and Humpback Whale Foraging Response, and the Jump Waves in the SBNMS

Partners: WHOI, University of Lisbon

Platform: R/V *Auk*

Funding: Sea Grant

PI: Pinada, Wiley

Description: This is a long-term (2009) ongoing investigation into the role of internal waves in concentrating predators and prey in the SBNMS.

Using Corporate Responsibility to Increase Vessel Compliance with NOAA's Right Whale Ship Strike Rule, Provide Increased Protection of North Atlantic Right Whales, and Recognize the Achievements of Deserving Maritime Companies

Partners: International Fund for Animal Welfare (Australia), USCG

Platform: SBNMS AIS infrastructure

Funding: International Fund for Animal Welfare

PIs: Ramage, Wiley

Description: AIS derived data on mariner compliance and commitment with NOAA Ship Strike Rule will be used to create report cards that categorize shipping companies relative to their level of commitment in the two speed restriction areas. Compliance/Commitment grades will be determined and Certificates will be sent to ships and companies receiving A+ and A grades.

Whale Alert

Partners: West coast sanctuaries. IFAW, Conserve IO, Canadian Whale Institute, New England Aquarium, Cornell University, USCG, NPS, NMFS NEFSC, WHOI

Funding: IFAW

PIs: M. Carver, R. Ramage, B. Winney, D. Wiley, Christine Gabriel, Alieria Jensen

Description: Version 2.0 includes substantial updates as follows:

(1) expansion of Whale Alert to the west coast (focus on blue whales); (2) expansion of Whale Alert to Atlantic Canada and Quebec; (3) inclusion of NOAA PORTS data where available; (4) the ability of mariners and other to report whale sightings (citizen science); (5) the ability of mariners and other to report dead, injured or distressed (e.g., entangled) animals; (6) provide

weather data; (7) creation of a cloud database that scientists can use; (8) working with US Coast Guard and Alaskan native communities to include active fishing areas and times in Whale Alert; (9) working with Mark Baumgartner at WHOI to add real-time acoustic glider detection of Right, Humpback and Sei Whales, as well as auto-detection buoys off Martha's Vineyard and New York

Somatosensory Sensory Capabilities of Whale Skin

Partners: BU Medical School, UMD

Funding: NOAA

PIs: Eldridge, Mortazavi, Wiley

Description: Biopsy samples of humpback whale skin are collected and analyzed to identify and classify nerve fiber organization and presumptive functions using specific antibody staining (immunohistochemistry).

Microbial Genomics & Novel Drug Discovery in the Stellwagen Bank National Marine Sanctuary

Partners: Gloucester Marine Genomics Institute

Funding:

PIs: Bucci

Description: To characterize the sediment microbial community and bio-diversity at study sites using metagenomic tools. The goal is to generate draft genomes of marine microbes isolated from samples. An additional aim is to identify bio-synthetic gene clusters (i.e. *Actinomyces*) with the potential to develop drug products with biotech applications.

Habitat Use of Toothed Whales in Massachusetts Bay

Partners: UMass Dartmouth, WHOI, SBNMS

Funding: Nancy Foster Scholarship, WHOI Marine Mammal Center

PIs: Silva; Wiley

Description: Toothed whale spatial and temporal distribution patterns and associations with environmental conditions are being explored within and around the Sanctuary using habitat models of visual and acoustic data.

Workshops:

- International Whale Alert Workshop on Nantucket Island
- International Sand Lance Workshop in Newburyport

NOAA Noise Reference Station

(FY14-ongoing project leveraging OAR-PMEL capacity, NMFS Science Center vessel time and NMFS Ocean Acoustics Program funding)

Olympic Coast, Channel Islands, Cordell Bank and Stellwagen Bank NMSs have acquired long term listening stations (1-2 year sequential deployments) as part of a NOAA-wide initiative to increase passive acoustic data holdings for the purpose of informing the agency's management of ocean noise. Data from these units (placed in all nine NOAA-managed regions) will be used to compare trends in low frequency ambient noise levels. SB's sensor was successfully retrieved and redeployed in February 2018 for another year of recording. The first publication of results from this project were published in April (see below). Analysis continues, with a current Nancy Foster Scholar based at Oregon State University focusing on shallow water comparisons between recordings from SBNMS and those in two National Parks off American Samoa and in the Caribbean.

Haver, S, Gedamke, J, Hatch, LT et al (2018) Monitoring long-term soundscape trends in U.S. Waters: The NOAA/NPS Ocean Noise Reference Station Network Marine Policy 90: 6-13.

Stellwagen Bank Fish Acoustic Ecology & Communication Assessment

(FY16-18 project leveraging NMFS and ONMS support for post doctoral researcher working jointly with SBNMS and NEFSC)

Dr. Jenni Stanley began her position as a post doctoral researcher specializing in soundscape ecology in September 2015, and was introduced to the SAC in fall 2015. She has been examining various acoustic recording assets currently in hand to further describe less well documented acoustically active marine species that are contributing to the sanctuary's lower frequency soundscape, including several species of fish and marine invertebrates. This work has resulted in spatial and temporal documentation of calling activity by spawning Atlantic cod and haddock, as well as cusk. A paper was published on the application of her findings in Scientific Reports in November 2017.

Stanley, JA, VanParijs, SM, Hatch, LT (2017) Underwater sound from vessel traffic reduces the effective communication range in Atlantic cod and haddock Scientific Reports 7: 14633.

Four-sanctuary Acoustic Monitoring Project

(FY 16-18 project supported by ONMS & NEFSC as well as SB, GR, FK and FBNMS)

Beginning in 2016, SBNMS and NEFSC acoustic staff developed and implemented a new program to conduct shallow-water acoustic monitoring in the relatively shallow-water sanctuaries down the east coast and within the Gulf of Mexico. Two locations were chosen for acoustic monitoring in each of Stellwagen Bank, Gray's Reef, Florida Keys and Flower Garden Bank National Marine Sanctuaries. Using either divers (GR, FK, FGB) or acoustic releases (SB), SoundTraps were deployed at all eight sites to continuously record broadband acoustic conditions for at least a lunar month and as much as 75 days per season. Deployments were coordinated to provide comparable data from each site. The first recordings were made in summer 2016 and the last in spring 2018. Analyses have provided standardized and calibrated insights regarding variability among sites in biological and human-induced contributions soundscapes, including temporal peaks in spawning activity by fish, feeding activity by baleen whales, small and large vessel activity and offshore energy exploration/research using airguns. A paper is in preparation, and will be submitted for publication in fall 2018.

Sanctuary Sound Research Project

(Co-chaired by L. Hatch, SBNMS and Danielle Kitchen, OPNAV N45 US Navy)

NOAA and the U.S. Navy are co-managing a project to better understand underwater sound within national marine sanctuaries. For the next five years, these agencies will work with numerous scientific partners to study sound within seven national marine sanctuaries and one marine national monument, including waters off Hawaii and the East and West coasts.

This program will help NOAA and Navy measure sound levels and identify their impacts on marine wildlife. This research project will collect standardized sound measurements from various sources, including marine animals, physical processes (like wind and waves), and human activities. NOAA's Office of National Marine Sanctuaries (ONMS) will deploy acoustic sensors in Stellwagen Bank, Gray's Reef, Florida Keys, Olympic Coast, Monterey Bay, Channel Islands and Hawaiian Islands Humpback Whale national marine sanctuaries and Papahānaumokuākea Marine National Monument. Three locations in SB have been chosen for stationary continuous, broadband monitoring for the next five years, beginning in winter 2018. Acoustic glider work and integration of telemetry data will augment these recordings. A workshop was held in May 2018 in Woods Hole, MA to gather input from international soundscape ecologists on data analysis and presentation methods. A website for this program is under development and should be live prior to the October SAC meeting.

CONTINGENCY PLANNING AND MANAGEMENT PLAN

Alice Stratton

Condition Report

In March, 2017, SBNMS and ONMS HQ staff initiated efforts to update the SBNMS Condition Report. The report will assess the condition and trends of sanctuary resources, particularly in comparison to their status as reported in the original 2007 Condition Report. During Fall 2017, staff prepared initial assessments describing the current state of natural and heritage resources and ecosystem services. In February, 2018, we hosted a three-day Condition Report Workshop with 25 invited experts to review those assessments, and provide a status and trend rating for each component. Over the summer, staff prepared a draft Condition Report and resource ratings, which was subsequently shared with the Workshop experts to insure that their input was adequately reflected. Once updated in response to expert comments, a revised draft will be distributed to invited partners (SAC members, partner agencies and stakeholders), and then there will be a final peer review at the end of the year. We expect that the final Condition Report will be available in the first half 2019.

Management Plan Review

In May 2017, the SAC established a Management Plan Review Subcommittee, chaired by John Williamson. Ben Haskell is on the subcommittee to represent SBNMS management and Alice Stratton is providing staff support. The purpose of the subcommittee is to consider what management actions have and haven't worked, and what other partnerships, actions, and/or regulations may be recommended in an updated Management Plan. The subcommittee has met three times, once via conference call in September 2017, and then two full day meetings (November 2017 & May 2018) to review all of the existing Action Plans (except Maritime Heritage, which is being reviewed by the Maritime Heritage working group). The subcommittee has completed a high level review of the existing Action Plans and has developed an initial list of recommended revisions, or areas to focus on. The next step will be to compare that list against the findings of the Condition Report, to ensure that suggested revisions accurately take into account the status of sanctuary resources. The subcommittee recommendations will be shared with the full SAC, and are expected to serve as a starting point to develop Management Plan Review scoping documents in early 2019.

Shipwreck Ecology

Alice Stratton has returned to our effort to document and inventory the species and communities which live on SBNMS shipwrecks. A pilot assessment was completed a few years ago, in collaboration with Dr. Peter Auster at UConn. Alice is now reviewing archived photo and video data from two SBNMS wrecks and recording data on species presence and status of habitat. The goal is to complete data collection for these two sites in 2019 and then prepare an initial report documenting shipwreck habitat use within SBNMS at varying depths.

Permitting

In FY18, SBNMS issued seven permits to conduct prohibited activities within the sanctuary, and reviewed/ provided feedback on three other permit applications. While this is a small number compared to some other sites, this is an increase over previous years, and reflects our success in partnering with NMFS and other agencies to recognize that research activities within SBNMS permitted by other agencies may also need a separate sanctuary permit. Of note this year was our active participation with other Federal agencies for the review of AtlanticLink, an application to install an undersea high voltage power cable from Plymouth, MA to Canada; that project has now been placed on hold. We were also successful in partnering with five other sanctuaries to create a multi-site permit for the National Data Buoy Center to place buoys within those sites.

SANCTUARY ADVISORY COUNCIL

Anne-Marie Runfola

SAC Members FY18 Hours of Service: 1,512

- Created first SAC Workplan and Individual SAC Member Workplans
- Updated and renewed SBNMS SAC Charter
- Completed one recruitment cycle: three incumbents and one new member
- Initiated more sustainable practices: reusable meeting materials; venue near public transportation
- Some subcommittee and working group updates in Ben Haskell's section

VOLUNTEER PROGRAM

Anne-Marie Runfola

FY 18 Stats

Volunteers: 159 currently active in five programs

- Includes volunteers from partner orgs working jointly with us

Programs: Sanctuary Ambassadors, Child's Sanctuary, Sanctuary Seabird Stewards, Research/Cruise Support, Internships

Interns: 9

- 8 volunteer, one partially funded through National Marine Sanctuary Foundation stipend)
- Started new partnership with Northeastern University. Created intern position for first coop student from Northeastern for 4-5 months, starting Fall 2018

Volunteer Hours: 9,108

- Education/Outreach/Communications: 90 Sanctuary Ambassadors, Education, Outreach Volunteers, Interns: 2,382 hours
- Citizen Science: 62 Seabird Stewards (S4), Other Research/Cruise Support Volunteers, Interns: 6,620
- Wildlife Viewing Socioeconomic Study: 7 Volunteers, 106 hours

Education and Outreach

- Organized 51 outreach events, reaching over 100,000 people directly, and over a million more through traditional and electronic media promotions.
- Developed *Salt* the inflatable humpback into our sanctuary's signature outreach program. *Salt* was featured at 19 events (28 days), including ten days at the New England Boat Show (new visitor record - 50,000).
- Recruited Emerson College graduates to create a sand lance research video <https://www.youtube.com/watch?v=IORQuQc9vyY&feature=youtu.be> and a promotional video for volunteer program (first draft complete).

Citizen Science

- Organized five standardized seabird data collection cruises on the R/V *Auk*, and 32 trips on whale watch vessels, with over 40,000 sightings recorded to this year.
- Worked with Kevin Powers and interns on Seabird Stewards data effort correction. 2012-2017 completed. Data incorporated into SBNMS Condition Report.

- Volunteers helped support 30 other cruises in FY18, offering skills such as photography, wildlife observation, and data collection.

FEATURED PARTNERSHIPS

Anne-Marie Runfola, Ben Haskell

Whale Watch Industry: Developed or expanded relationships with eight whale watch companies for S4 citizen science program, joint outreach, sanctuary volunteer opportunities and/or climate change communication and the sanctuary.

- Organized and ran three workshops for whale watch naturalists to exchange ideas and build capacity for them to interpret climate change in the sanctuary with some of the million whale watch guests per year.

USCG: Worked with Ben Haskell to organize two meetings with the US Coast Guard First District and Sector Boston and created partnership plan. Set up first work exchange with USCG. Petty Officer Hayden Hunt started his exchange in September 2018.

NOAA Fisheries

- Continued partnership with NOAA Greater Atlantic Regional Fisheries Office (GARFO) Port Agents to offer joint outreach at recreational fishing shows and related outreach events.
- Continued partnership with GARFO and NEFSC to offer more education and outreach activities together, with shared NOAA messaging.
- Worked with GARFO Recreational Fishing Liaison to create draft ideas for joint recreational fishing education, outreach and promotions. Created joint recreational fishing event calendar for GARFO and SBNMS.

Recreational Fishing Community: Worked with Ben Haskell, SAC Recreational Fishing seats, and NOAA Fisheries to develop a recreational fishing funding opportunity in partnership with the National Marine Sanctuary Foundation (NMSF). Received six proposals and awarded funds to four projects, representing six organizations. The projects focus on enjoying, promoting, and educating about sustainable recreational fishing in the sanctuary.

NOAA Fisheries and Whale and Dolphin Conservation: Started a joint outreach calendar and system to share resources and support for activities related to safe boating around whales. Ran several events together, and shared each other's key messages at other events.

Political Representatives: SBNMS organized two wildlife observation cruises for congressional representatives' offices.

SELECT SPECIAL PROJECTS

Anne-Marie Runfola

ONMS Leadership Team Meeting and Get Into Your Sanctuary Kickoff in Provincetown

SBNMS organized a week-long Office of National Marine Sanctuary (ONMS) leadership team meeting in Spring 2018 at the Center for Coastal Studies (CCS). During that time, we held a *Get Into Your Sanctuary* kickoff reception at CCS. Rich Delaney, President and CEO of CCS and a Provincetown Selectboard member welcomed the 60 guests, including sanctuary leaders from around the country, Stellwagen staff and SAC members, and sanctuary partners from CCS, the National Parks Service, Town of Provincetown, local whale watch company, chamber of commerce, and other business and tourism partners. The event provided an opportunity to network and celebrate the start of high tourism season in the sanctuary. We also used the event

to present the SBNMS Volunteer of the Year award to Rachel Mehmel and to show off the K-12 marine art award winners.

SBNMS Visitor Information Center, Provincetown

SBNMS is working in partnership with the Town of Provincetown and Center for Coastal Studies to create a future Stellwagen Bank National Marine Sanctuary Visitor Information Center in Provincetown. A feasibility study was completed last year, identifying the area next to the MacMillan Pier bathrooms as the best site (near the parking lot and bus stop). In the next few weeks, we should be able to announce a Request for Qualifications (RFQ) and then a Request for Proposals from design firms for the facility's conceptual design. Anne-Marie Runfola is the sanctuary liaison on the project.

Future Goal: Coastal Trail to Connect Community to SBNMS Marine Operations Center

Anne-Marie Runfola and Ben Haskell organized Scituate Town employees, community members and a land trust to garner support for the town purchase of coastal property abutting the SBNMS Marine Operations Center (MOC - boat house). We helped write a grant, presented at town meetings and are in the process of creating a video for Scituate Town Meeting in November 2018. If funds to purchase the property are approved at Town Meeting, our goal is to help the town build an educational trail on the land, connecting the Scituate Maritime Center on Edward Foster Road to our MOC. SBNMS would offer educational activities and interpretive tours on the site and help steward the property.

Mass Audubon Celebrates Sanctuary Heroes: The focus of the most recent Mass Audubon State of the Birds report is on Climate Change, and they added a seabird section. On page 33, Mass Audubon celebrates SBNMS as a hero for the work we collectively contribute in research, monitoring, education, and protection. (Citation at right) Full report: <https://www.massaudubon.org/our-conservation-work/wildlife-research-conservation/statewide-bird-monitoring/state-of-the-birds/>

Hero
STELLWAGEN BANK NATIONAL MARINE SANCTUARY

Even before receiving its official designation as a National Marine Sanctuary in 1992, Stellwagen Bank National Marine Sanctuary has long been recognized as an important refuge for seabirds, marine mammals, and other marine life. Among the priorities of the sanctuary are research, monitoring, and education. Collectively these activities have produced a wealth of information that is of significance to the general public, the commercial fishing community, and scientists. Along with information derived from a number of other prestigious institutions, a growing volume of scientific information is now available to the general public and the research community. Stellwagen Bank National Marine Sanctuary is one of the true heroes working in the Gulf of Maine to ensure the future of this significant marine region. Some of the more important activities undertaken by the sanctuary staff are listed below.

- Systematic survey and study of sand lance populations in the sanctuary
- Tagging and monitoring of cod populations in Stellwagen Bank National Marine Sanctuary
- Satellite-tagging and monitoring of foraging locations of Great Shearwaters
- Systematic, year-round monitoring of seabirds in the sanctuary through the use of staff and volunteer citizen scientists in the S4 Program (Stellwagen Sanctuary Seabird Steward Program)
- Long-term marine mammal monitoring and the regular tagging of humpback whales
- Extensive outreach education for both youth and adults, including use of a spectacular inflatable humpback whale model
- Serving as a national leader in acoustic monitoring of the marine environment.
- Working with tourism centers to inform visitors about safely viewing local marine resources.



Maritime Heritage Program
Ben Haskell

With the transfer of maritime archaeologist Matthew Lawrence to the FKNMS, Ben has assumed coordination of maritime heritage activities. The main action over the last two years has been mitigation of potential impacts on historic resources, i.e. shipwrecks, from a scallop fishery that developed on the NW corner over the last several years. After the scallop derby fishery in March 2017, Ben worked with colleagues at NMFS GARFO to implement and test an experimental approach to mitigation that involved requesting that the scallop fleet voluntarily avoid several known historic wrecks. A baseline side scan survey was conducted prior to the fishery and a post-fishery survey was conducted after the fishery closed to determine if the mitigation worked. Results were mixed: dredge marks indicate the avoidance buffer was violated many times; however, no historic shipwrecks were impacted. A modern wreck (<50 years old) appears to have been hit by a dredge, the same wreck that was torn apart during the 2017 fishery. One of the lessons learned from this effort is that more outreach needs to take place with the fishermen so they understand the context and reason for the mitigation.

Operations, Management Planning, and Special Projects
Ben Haskell, Deputy Superintendent; Alice Stratton, ecologist; and Dave Slocum,
Operations Coordinator

Vessel Operations

The R/V *Auk* conducted 91 days-at-sea in FY18 which is the most we have ever done.

Boater Outreach for Whale Watching (BOWW)

The BOWW program entered its fourth season this past summer building on experiences and lessons learned in past years. *Auk*, along with R1606, staff and volunteers, conducted three outreach trips directed at private vessels operating in the vicinity of whales. Goals continue to include educating the public on safe operation of vessels while whale watching and relieving heavy vessel congestion around whales during busy summer months.

Management Plan

Ben and Alice have initiated several concurrent efforts that will build the basis for the revision of the SBNMS Management Plan.

- Management Plan Review subcommittee, chaired by John Williamson, has met twice. It has reviewed the Action Plans and started to discuss changes and additions.
- Maritime Heritage Working Group, chaired by Heather Knowles, has met twice and is beginning to formulate recommendations for improved management of historic resources.
- Small Boat Interaction with Whales Working Group, chaired by Laura Howes, has met multiple times and has agreed to continue meeting. They have formulated some recommendations and will continue refining them.
- The next iteration of the Condition Report is well underway and has been reviewed by the expert panel that was convened for a 3-day workshop in February. The report will be reviewed next by invited reviewers, such as fishery agencies.

Together, these efforts will provide an updated understanding of the current state of sanctuary resources and an assessment of their current and potential stressors. The results of these efforts will provide an updated baseline from which to begin the Management Plan Revision, which we anticipate beginning in 2019.

Sister Sanctuary Program

Ben Haskell

The Sister Sanctuary Program (SSP), initiated by SBNMS (2007) to protect our shared population of humpback whales in collaboration with marine mammal sanctuaries/initiatives in the Dominican Republic, Bermuda, French Antilles (Agoa) and the Caribbean Netherlands (Yarari), is a pioneering program of NOAA's Office of National Marine Sanctuaries (ONMS) the United Nations Environment Programme's Special Protected Areas and Wildlife's (UNEP-SPAW) Marine Mammal Action Plan for the Wider Caribbean Region (MMAP-WCR).

Accomplishments:

- The Memorandum of Agreement with Bermuda was renewed in 2017.
- Cari'Mam was funded by the European Commission for approx. \$3M for three years. Cari'Mam is a program to develop a network of marine protected areas in the greater Caribbean dedicated to the conservation of marine mammals. This program should help advance SSP goals and objectives.