

Monterey Bay National Marine Sanctuary Advisory Council

February 17, 2022

FINAL Meeting Minutes

VOTING MEMBERS

Agriculture: Sarah Lopez
At-Large: Jenny McAdams
At-Large: Dan Haifley
At-Large: Steve Allen
Business/Industry: Tom Rowley
Commercial Fishing: Kathy Fosmark
Conservation: Rachel Kippen
Diving: Brian Nelson
Education: Pamela Neeb Wade
Recreation: Tony Elliot
Research: Brandon Southall
Tourism: Michael Bekker

AMBAG: absent
CA Coastal Commission: absent
CA Department of Fish and Wildlife: Paul Reilly
CA Environmental Protection Agency: Karen Mogus
CA State Parks: Daniel Shaw
Harbors: John Haynes

NON-VOTING MEMBERS

Channel Islands NMS: Chris Mobley
College: Cindy Matuch
College: Josie Wrinkle (alternate)
Greater Farallones & Cordell Bank NMS: Maria Brown
US Coast Guard: absent

Monterey Bay NMS: Lisa Wooninck
Monterey Bay NMS: Dawn Hayes (alternate)
Elkhorn Slough NERR: Dan Brumbaugh (alternate)
National Marine Fisheries Service: absent

ALTERNATES PRESENT

Marieke Desmond - Agriculture
Rebecca Cenicerros - At-Large
Cynthia Mathews - At Large
Monica Lal - Business/Industry
Jennifer Abbott - Conservation
Keith Rootsart - Diving
Felicia Van Stolk - Education
Nicholas Wilson - Recreation
Steve Haddock - Research
Dawn Mathes - Tourism

Chelsea Protasio - CA Department of Fish and Wildlife
CA Resources Agency - Elyse Goin
Josie Wrinkle - College
Monterey Bay NMS - Dawn Hayes
Dan Brumbaugh - Elkhorn Slough NERR

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I. Call to Order

Welcome to the USGS Pacific Coastal and Marine Science: Nadine Golden

Round Robin of all members and their seats

Roll Call

Oath: Lisa Wooninck led new and reappointed members through the oath

Approval of December Meeting Minutes: with editorial suggestions from Keith Rootsart, Tom Rowley, Paul Reilly, Dan Brumbaugh and Dan Haifley

Motion by Dan Haifley, seconded by Tom Rowley

Yes: 8 No: 0 Abstain: 4

Motion passes

II. SUPERINTENDENTS REPORTS

Lisa Wooninck, Superintendent of MBNMS, shared a Superintendent's Report for Monterey Bay National Marine Sanctuary (MBNMS). Highlights included:

1. NOAA announces the Marine and Coastal Area-based Management Advisory Committee which will advise NOAA on science-based approaches to area-based protection, conservation, restoration, and management in coastal and marine areas. The Committee will be made up of a group of ocean and Great Lakes experts and stakeholders who can represent diverse perspectives. Nominations are currently open for 20 members from a broad range of sectors, including those who represent resource management agencies, commercial and recreational fishing, ocean industry, recreation and tourism, conservation organizations, tribal and indigenous communities, youth serving organizations, environmental justices organizations, and individuals with natural and social science expertise.
2. Recommendations developed by a Channel Islands National Marine Sanctuary Advisory Council Maritime Shipping Working Group in 2016 to separate maritime commerce and endangered whales to reduce fatal ship-strikes were adopted last week. These will enhance navigational safety and protect whales from ship strikes in an area containing some of the highest densities of commercial maritime traffic in the world.
3. Monterey City Council voted to stop providing vital services to cruise ships. The city does not have the authority to ban cruise ships in the bay. However, they can choose to stop providing services when ships arrive at Fisherman's Wharf. Agriculture seat Sarah Lopez asked what "vital services" means. Chair Brian Nelson explained that services for these vessels include security and docking. Superintendent Lisa Wooninck said this sends a symbol to cruise ships that they are not welcome in MBNMS.
4. Public comments on the Dry Dock study YFD-70 are extended through 3/15/2023. Due to a technical error, ONMS is extending the public comment opportunity for an additional 30 days and encouraging the public to resubmit any comments. All comments should be submitted again no later than March 15, 2023 via email to gfnms.restoration@noaa.gov. All comments will receive a submission acknowledgement.
5. MBNMS program specialist and budget analyst Ray Chisolm has been selected as a member of Office of National Marine Sanctuaries's (ONMS's) Diversity and Inclusion Committee to share ideas and learn about ONMS and NOAA programs, groups, and a

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broad array of diversity, equity, inclusion, justice and accessibility issues. The Committee also celebrates the diversity within ONMS and NOAA. He developed a Black History Month enrichment on black inventors to present to MBNMS staff and the Diversity and Inclusion working group. The MBNMS Advisory Council (AC) voted to establish a Diversity and Inclusion working group to identify how the council and MBNMS can do better to address diversity, equity, inclusion, justice and accessibility issues. This group will convene its first meeting later this month or early March and welcomes any new members to participate. Dawn Hayes will get information out to the whole council on how to participate shortly. MBNMS leadership continues to meet with members of the local Indigenous Community. AC members and sanctuary staff will invite members of the indigenous community to attend a local AC meeting to observe operations. MBNMS staff will provide interested members of the indigenous community the opportunity to provide a presentation about their tribe and interests to the AC. MBNMS staff has applied for an ONMS mini-grant supporting diversity and inclusion work at its sites. MBNMS chose to request funds supporting a diversity and inclusion professional to work with the diversity and inclusion subcommittee and AC in a training series.

6. California Cooperative Oceanic Fisheries Investigations (CalCOFI) is a multi-agency partnership that studies California's marine environment and includes NOAA National Marine Fisheries Service (NMFS), Scripps Institution of Oceanography (SIO), and the California Department of Fish and Wildlife (CDFW). CalCOFI has a long history of contemporaneous biological, physical, and chemical time series data, making it an invaluable asset for resource management and ecosystem research. In an attempt to meet the resource management needs of state and federal governments, NOAA and Scripps Institution of Oceanography researchers expanded the CalCOFI mission to 18 locations identified as important by federal agencies. This expanded sampling effort will include survey lines within MBNMS (e.g., off Ano Nuevo, Monterey Bay, Sur Ridge, Davidson Seamount, and southern region) near proposed wind energy areas. The expanded sampling will occur twice per year (spring and fall), which began in Oct 2022, and is now being planned for April 2023. The expanded sampling effort will help with the designation of the proposed Chumash Heritage National Marine Sanctuary, assist in tracking potential impacts from offshore wind energy development, and characterize the areas mentioned within MBNMS.
7. A paper was published on coral feeding at the Sur Ridge Deep-Sea Coral Observatory. (*Proceedings of the Royal Society B* 289:20021033; available on MBNMS website, *Research Technical Reports*). Partners on the paper included Monterey Bay Aquarium Research Institute and MBNMS. In March 2020, a time-lapse camera was deployed at a depth of 1230 meters in the northern section of Sur Ridge, which collected hourly images for one year. The camera characterized feeding activity for the deep-sea bubblegum coral *Paragorgia arborea*. This study provides the first evidence of behavioral rhythms in a coral species at depths greater than one km. Information on the feeding biology of this cosmopolitan deep-sea octocoral will contribute to a better understanding of how future environmental change may affect deep-sea coral communities and the ecosystem services they provide. Sur Ridge has exceptionally dense and diverse deep-sea coral populations.
8. MBNMS produced a high-quality, poster-sized map detailing important marine zones of

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MBNMS, GFNMS, CBNMS, and CINMS will use this map as a template to produce their own and complete a series for all California National Marine Sanctuaries. These maps will be made available to the public.

9. MBNMS research team has also welcomed a new Sea Grant fellow, Grace Kumaishi, who will assist with the Climate Vulnerability Assessments for MBNMS and CINMS.
10. MBNMS Education is hosting First Friday events at the Sanctuary Exploration Center. Underwater artwork by Patrick Webster and Marc Shargel has been featured. Amerlia Nommenson will be performing an ocean-inspired dance at the next First Friday event on March 3rd.
11. MBNMS Resource Protection is coordinating with NOAA Office of Law Enforcement and the Monterey County District Attorney's office on black abalone poaching.
12. MBNMS is monitoring the movement of sediment from winter storms into sanctuary waters. January storms also caused failures at sewage treatment plants. MBNMS monitored discharges in coordination with Monterey County Health Department.

Maria Brown, Superintendent of GFNMS/CBNMS, shared a Superintendent's Report. Highlights included:

1. Currently, researchers are out in the Farallon Islands doing rocky intertidal monitoring and comparing to shorelines.
2. The hypoxia monitoring mooring was serviced by a team from GFNMS/CBNMS and Bodega Marine Laboratory. Hypoxia monitoring has been conducted at Cordell Bank since 2014. Following the high swells and storm in January, the team was thrilled to find the mooring in place and in good condition. They recovered it and deployed a new mooring.
3. GFNMS/CBNMS staff are planning a 2023 research cruise with ACCESS cruises to perform monitoring for seabirds and oceanographic work.
4. The CBNMS Condition Report is in the final stages of development. The Report gives status and trends of focal resources in the Sanctuary. Status and trends look stable and healthy in this Condition Report. GFNMS is also creating a Condition Report and is currently in the phase of expert review of the findings.
5. Education and Outreach programs are in partnership with the nonprofit, Greater Farallones Association. One such program is the Winged Ambassadors program.
6. A letter went out 2/16/2023 with CBNMS/GFNMS and MBNMS comments on non-Trawl Rockfish Conservation Area. Haven to send out a copy of that letter.
7. GFNMS/CBNMS's operations team briefed ONMS and NOAA leadership on Crissy Field Facilities. This led the Green Operations Working Group to assess ONMS greenhouse gas emissions.

Brian Nelson, Chair, asked for an update on a vessel that sank off the coast of Big Sur, specifically the possibility of sea otter interactions with the diesel fuel. Karen Grimmer, MBNMS staff, said the vessel is called "Going Coastal". The next step is to defuel the boat, as there are a few hundred gallons of fuel on the boat. The response to this sinking is stalled by the lack of availability of the right vessel that can do the work. An update should be coming in the next few months.

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Brian Nelson, Chair, stated that in 2018 two million tons of sewage were dumped accidentally into MBNMS. All of the beaches were closed. Although the AC received the stats, how can we be reassured it will not happen again? Karen Grimmer, MBNMS staff, answered that redundancies were put in place to ensure that it does not happen again. She would like to do a full presentation at another meeting, as it is a complicated issue. Lisa Wooninck, MBNMS Superintendent said the MBNMS received funding for ensuring it would not happen again. Monica Lal asked who funds this defueling. Karen Grimmer said that insurance funds are paying for it, but that is not always the case.

Keith Rootsart, Diving seat, said that an abundance of sea otters have come into south Monterey Bay. There is concern that they are refugees from the poor conditions in Big Sur. With all of these predators, there is concern about how that will affect the ecosystem.

III. ACTION ITEM: VESSEL SPEED REDUCTION ZONE IN MBNMS

GFNMS/CBNMS Superintendent Maria Brown shared a presentation. She shared diagrams of vessel tracks throughout MBNMS. Sanctuary staff overlaid these areas with the tracks of the three most endangered species of whales: blue whales, fin whales, and humpback whales. There is overlap between the two tracks. Since 2007, 82 recorded fatal ship strikes on whales have occurred in CA. There have been 51 recorded strike fatalities on endangered whales in CA since 2007. These are just the ones recorded. Sanctuary staff worked with Point Blue to create a model on lethal ship strikes. They are estimated to be 20 times more than the numbers that are recorded. Staff compared total mortality for each whale species in certain areas. Jess Morton, GFNMS/CBNMS staff, stated that this is a naval encounter model that considers the presence of whales and overlays it with AIS data of vessel traffic. It also considers speed and size of the vessel.

Tom Rowley, Business/Industry seat, stated that humpback populations in Australia have increased greatly. Lisa Wooninck, MBNMS Superintendent, stated that the humpbacks off of our coast don't intermix with the ones in Australia. From the CBNMS condition report, a slight increase in population size can be observed, but not enough to delist them. With climate change, whales are coming closer to shore to feed, which brings them closer to ships and ship traffic. Blue whales are recovering very slowly. Whale ship strikes are one of the most prevalent effects people have on whales.

Marieke Desmond, Agriculture alternate, asked about stranding records.

Brandon Southall stated that underreporting is variable from year to year. The first thing to address is reducing the co-occurrence of whales and ships. Currently, we are halfway to this goal, with a 23% reduction in lethal ship strikes. The GFNMS and CBNMS AC recommended having a voluntary vessel speed reduction zone extended throughout the whole sanctuary and extended to be year-round. The GFNMS/CBNMS AC also said that mandatory speed limits should be considered.

Steve Haddock, Research alternate, asked if the voluntary vessel speed reduction zone applies to

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all vessels. Maria Brown, GFNMS/CBNMS Superintendent said that it only applies to vessels 300 tons or greater. If a large vessel travels at ten miles per hour or less, it reduces the chances of whale mortality by 50%.

Rebecca Ceniceros, At-Large alternate, asked how fast these ships normally go. John Haynes, Harbors seat, said about 20 knots.

Josie Wrinkle, College alternate, asked how voluntary speed reduction zones are enforced. Maria Brown, GFNMS/CBNMS Superintendent, stated that shipping companies are contacted and told that a voluntary reduction is in place and then Sanctuary staff report back to companies how well they are doing. Currently there is 60% cooperation. This cooperation is actually tracked, not self reported. Whalesafe.com gives these stats.

Sarah Lopez, Agriculture seat, asked for a time comparison for ships traveling slower in the voluntary zones. Maria Brown stated that it takes just a few minutes longer.

Protecting Blue Whales and Blue Skies is a program of air quality and ocean orgs. It covers the same area as the whale/ship models and studies greenhouse gasses. Vessels slowing in these zones have reduced nitrous oxide, regional greenhouse gasses, and noise.

Brandon Southall, Research seat, made the point that there are tradeoffs. With more time in the sanctuary, there is more prolonged exposure of ships to whales. Crossing the whole sanctuary at a slow speed would also create more of a difference than a couple minutes.

Jennifer Abbott, Conservation alternate, asked if there are any acoustics being used to steer whales away from vessels. Maria Brown, GFNMS/CBNMS Superintendent, said that there is a researcher from UC Berkeley looking into this. Jess Brown, GFNMS/CBNMS staff said that such alarming signals can cause the whales to breach and endanger themselves. Brandon Southall, Research seat, agreed that there can be unintended consequences for using this.

Maria Brown, GFNMS/CBNMS Superintendent requested the MBNMS AC to consider joining CBNMS and GFNMS and CINMS in the 2023 NOAA voluntary vessel speed reduction zones program.

Brian Nelson, Chair, asked how the wind farm outside of the Sanctuary would interact with the channels and funneling whales to the Santa Barbara Channel. Maria Brown stated that there is coordination to ensure that there are no hotspots of human activities. Steve Allen, At-Large seat, stated that recently the staging and integration site surveys as well as operation and maintenance site surveys for the wind farm are at many different sites. This is causing big ships to go back and forth for a sustained period of time and makes this issue complicated and political.

Brandon Southall, Research seat, stated that the Research Activities Panel (RAP) received a briefing about two places with concentrations of blue whales where vessels could be routed around to protect whales. There would be some potential trade offs with location and speed.

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Lisa Wooninck, MBNMS Superintendent, restated that Maria requests the MBNMS AC to consider joining CBNMS and GFNMS and CINMS in the 2023 NOAA voluntary vessel speed reduction zones program. Dan Haifley, At-Large seat, asked if this fits with current MBNMS priorities. Lisa Wooninck, MBNMS Superintendent replied that it hits two of MBNMS's 2023 priorities: whale conservation (ship strikes and noise) and climate change.

Marieke Desmond, Agriculture alternate, asked about the partnership with air districts. Is the funding from one source? Maria Brown, CBNMS/GFNMS replied that, with the incentives based program, many of the ships have given the money back and are doing it voluntarily. The majority of the shipping industry is on board. Some have expressed concern that the vessel speed reduction zones would affect their tight schedules. This is why it is important to know where the vessel speed reduction zones are ahead of time to meet deadlines.

Keith Rootsart, Diving alternate, asked about cost to commerce. Are ships getting the product there in time? Maria Brown, CBNMS/GFNMS was unsure about that, but there are economic studies that can be sent out. These studies consider inventory carry cost, which goes up a little in these zones, and fuel cost, which goes down a little in these zones. All in all, there are minimal costs. The incentive structure is not just the money that they can be rewarded. Carriers can also market themselves as whale safe operators. About one third of the incentive program budget goes to marketing and brand ambassador programs in which retail companies are engaged with how they can select more whale safe carriers. Sarah Lopez, Agriculture seat, said that there is a huge industry around incentives specifically with food. She recommended considering the possibility of reaching out to certification programs, which subsequently reach all of their retail clientele.

Monica Lal, Business/Industry alternate, asked how many vessels are traversing this area. Maria Brown, GFNMS/CBNMS stated that there are thousands of transits per year in Monterey and San Francisco.

Superintendent Lisa Wooninck then shared a letter received from the Marine Mammal Center regarding vessel speed reduction zones (see Appendix II). The letter strongly encouraged MBNMS to engage in this program. Another letter from Benioff Laboratories at UCSB regarding vessel speed reduction zones was shared (see Appendix III). It expressed strong support for MBNMS joining the vessel speed reduction program.

John Haynes, Harbors, asked if this would have the sanctuaries work together to enact these voluntary zones.

Michael Bekker asked if anybody has done any studies on if you play whale sounds on a ship, would it cause other whales to move. Brandon Southall said most studies of this nature have proven ineffective.

Brandon Southall suggested that a 10 degree deviation could reduce whale strikes much more than just reducing speed. Maria said that vessel routing is outside of Sanctuary jurisdiction, but

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the US Coast Guard can be influenced to make this change.

Kathy Fosmark said that when making regulations it is important to consider whether you can enforce it. Brian Nelson stated that at this point it is a voluntary program, so enforcement is not an issue.

Motion to recommend that the Sanctuary team participate in a year-round voluntary vessel speed reduction program in collaboration with CINMS, CBNMS, and GFNMS.

Motion by Dan Haifley, seconded by Tony Elliot

Yes: 15 No: 0 Abstain: 1

Motion passes

Dawn Hayes, MBNMS staff, asked for public comment on vessel speed reduction specifically. There were no responses.

IV. ACTION ITEM EXECUTIVE COUNCIL ELECTIONS

Tom Rowley nominated Sarah Lopez for Secretary.

Brian Nelson nominated Pamela Neeb Wade for Vice Chair.

Dan Haifley nominated Adam Helm for Vice Chair.

Dan Haifley nominated Pamela Neeb Wade for Chair.

The results of the votes will be announced later in the meeting.

V. PUBLIC COMMENT FOR ITEMS NOT ON THE AGENDA

Tom Rowley shared that March 18th and 19th is the Whale Fest.

Keith Rootsart shared that March 15th is Marine Protected Area day at the Monterey County Fairgrounds. The deadline to register has already passed. There will be a discussion by the Marine Resources Committee meeting the following day.

Earth Day is the 22nd of April. There will be a fundraiser for CA Ocean Alliance at Humble Sea Brewery in Santa Cruz.

Alex Viera is a lifelong resident of SC, surfs, dives, spearfishes. Efoils at Cowels and other crowded areas can threaten individuals enjoying the water. He suggested the possibility of a letter from the AC saying that efoils should be treated as personal watercrafts like jet skis. Superintendent Lisa Wooninck stated that MBNMS is currently talking with NOAA attorneys about this.

VI. ACTION ITEM: MBNMS CLIMATE VULNERABILITY ASSESSMENT

MBNMS Superintendent requested via the AC for select members of the Research Activity Panel to engage with the MBNMS climate vulnerability assessment in Spring of 2023. At the last AC meeting in December, Steve Lonhart, MBNMS staff, explained what the RAP is and what it does. Brian Nelson, Chair, clarified the difference between action items and discussion items

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when making decisions as a council. This is an action item because the AC has already had a presentation on it. Performing a climate vulnerability assessment is one of the priorities outlined in the work plan.

Move that the AC ask that select members of the Research Activity Panel to engage with the MBNMS climate vulnerability assessment in Spring of 2023.

Motion by Dan Haifley, seconded by Pamela Neeb Wade

Yes: 16 No: 0 Abstain: 0

Motion passes

VII. ACTION ITEM: RAP PRESENTS KELP RECOMMENDATION

Steve Haddock, Research alternate, shared the RAP's recommendations for protecting iconic kelp in the Sanctuary. There are ongoing concerns about the vulnerability of kelp beds. AC and the RAP have both received briefings by the local kelp team summarizing the status of the situation and what might be done about it. A long report about the recommendations was distilled down for the AC and sent out by Haven two weeks ago. There are 13 recommendations to help kelp recover, not necessarily to be done by any one institution. These are kelp monitoring and restoration recommendations that MBNMS should support, although MBNMS does not need to necessarily be the one executing them.

1. Monitor the natural recovery of giant kelp forests with SCUBA and drones
2. Determine sea urchin behavior in kelp forests of various conditions
3. Role of sea otters in healthy kelp forests
4. Effects of urchin density and condition on kelp survival
5. Areal extent of kelp spore dispersal
6. Evaluate frequency of urchin removal required and effectiveness
7. Effects of environmental conditions on urchin feeding and kelp production
8. Effects of water temperature, density and starvation on urchin disease
9. Economic and social values of healthy kelp forests
10. Apply remote sensing: satellite, planes, drones
11. Develop a visual, conceptual model of MBNMS kelp forests
12. Assess potential solutions from aquaculture
13. Develop a historical perspective

Brian Nelson, Chair, said that the sea star wasting disease that was once confined is now spread across the coast. Sea stars are dying off, which allows for urchins to deplete the kelp forest. There has been culling in some areas where urchins have depleted the kelp, and the kelp came back rapidly. However, to do this, there are lots of permits and legal hoops. Citizen science is researching sea star wasting syndrome. The sea star wasting disease and temperature changes are big factors in the explosion of the sea urchin population and subsequent loss of kelp. Mark Carr, a professor at University of California at Santa Cruz, put in a request to fund a kelp study, citing that these are questions that MBNMS wants to address. Input from constituents could be given if a working group is formed. The State is also working on the same thing: helping kelp in terms of monitoring and restoration. Moving this science forward today would be the basis for all of this.

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Lisa Wooninck, MBNMS Superintendent, recommended waiting to create the working group until later in the fall.

Paul Reilly, CA Department of Fish and Wildlife, asked about item 12. He stated that there was an article in the Herald about a local scientist converting his home into a lab to raise invertebrates (beginning with sand dollars) in hopes to repopulate other species (i.e. sunflower

stars). Does aquaculture include projects like this? Andrew DeVogelaere, MBNMS staff, said that there is potential to farm urchins and feed them with agricultural products. Steve Lonhart, Research alternate, said that there is also potential to grow predators to reduce harmful species.

Mike Bekker, Tourism seat, said that the AC received a film about a kelp study many years ago. Further studies should include this footage. Lisa Wooninck, MBNMS Superintendent, said that this could be included in the last item: “Develop a historical perspective”. Although kelp has a cyclical presence in the sanctuary, in general there is a decline occurring and studies are necessary for the cause and solutions.

Dr. Kristen Elsmore, Department of Fish and Wildlife, wants to reinforce collaboration across agencies to address kelp issues. There is support from CA Ocean Protection Council to create a statewide kelp management plan, which will require continued close work with MBNMS staff. Steve Haddock, Research alternate, asked if there are any more items Dr. Kristen Elsmore thinks should be included. Steve Haddock is concerned that lumping the two types of kelp (giant kelp and bull kelp) together overlooks the fact that there may be different solutions for each. Dr. Kristen Elsmore said that some of those knowledge gaps are outlined in the [interim kelp action plan](#). Additions to the plan can be informed by this AC action item.

Keith Rootsart, Diving alternate, asked when these projects will be finished. Andrew DeVogelaere, MBNMS staff, said that eventually there will be a kelp working group through which that work might be completed. Stay tuned.

Marieke Desmond asked if many of the same restoration projects would equally help both types of kelp? Andrew DeVogelaere said that bull kelp is generally found in rougher water and is more vulnerable because it annually spores. Keith Rootsart, Diving alternate, stated that there are different survival strategies for both kelps and, therefore, warrant different strategies for conservation. Dr. Kristen Elsmore clarified that there is a lot of complexity around these issues and a lot to learn about how to best conserve these species.

Motion to approve the recommendations from the RAP and forward them to the Superintendent.

Motion by Tony Elliot, seconded by Sarah Lopez

Yes: 16 No: 0 Abstain: 0

Motion passes

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VIII. DISCUSSION ITEM: MBNMS ED TEAM UPDATE FROM AMITY WOOD, EDUCATION AND OUTREACH COORDINATOR

Amity Wood, MBNMS staff, shared 2022 in review from the Sanctuary's education team.

Outreach and media engagement saw many strides in 2022, including a number of news articles and columns around the 30th anniversary of the sanctuary, a special episode on Netflix, new printed brochures in partnership with MPA collaborative, and an ONMS webstory about Black Abalones Rescue and Recovery Project in Big Sur.

Public programs also underwent positive changes, including the reopening of visitor centers after two and a half years of closure and an increased amount of public programs offered. Such

programs include the Day on the Beach with Shared Adventures event, which hosted over 300 individuals with diverse special needs. Support from AC members Jose Montes and Adam Helm allowed for recreational fishing activities with 40 participants. The Sanctuary Exploration Center also hosted the USPS First Day of Issuance ceremony and MBNMS staff conducted Sanctuary Fest at Cowells Beach.

School programs also saw improvements. The National Marine Sanctuary Foundation and MBNMS were awarded \$310k from CA State Parks Outdoor Equity Program Grant for a project connecting Watsonville students to MBNMS. The Sanctuary Exploration Center and the Coastal Discovery Center hosted 33 school programs reaching 946 students at 16 schools. Distance learning programs reached 555 students from 13 schools.

Signage and exhibits were improved with a multiyear coastal signage replacement project, in which eight panels were added in Pacific Grove, two at the Santa Cruz wharf, and eight in Monterey. Five motorized personal watercraft panels were added in partnership with harbor districts, and 15 panels were added with CA State Parks. There is also a new Sanctuary Exploration Center sign. MBNMS also partnered with MBARI for Sounds in the Sanctuary at the Coastal Discovery Center.

In looking ahead to 2023, Bay Net and Team OCEAN have secured \$15k in funding to revitalize programs for 2023. New volunteer training for these programs begins mid April. Staff and docent recruitment at the Sanctuary Exploration Center and the Coastal Discovery Center is underway. There is a manager job opening and docent openings.

Dan Haifley said thank you for your great work, Amity.

IX. MEMBER ANNOUNCEMENTS

Superintendent Lisa Wooninck announces the results of the executive council elections. The results are as follows.

Sarah Lopez as Secretary

Adam Helm as Vice Chair

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Pamela Neeb Wade as Chair

Thank you to Dan Haifley and Brian Nelson for your years on the Executive Committee.

Nicholas Wilson, Recreation alternate, introduced himself. He is an avid boater, and lives on a vessel in SC Harbor.

Tony Elliot, Recreation, shared an event happening this evening from 6 to 7:30pm. SC Black Surfers club hosting a film at the Natural History Museum about inclusivity and accessibility in the water.

Brandon Southall, Research, comes from a broad background, with experience at Duke and NOAA. He started his own research company and is an avid fisherman. Southall works with the Global Alliance for Managing Ocean Noise. He has been on the RAP for three years and has

experience working with MBNMS and MBARI staff. He shared an update from the last RAP meeting, which was held on the 13th of January virtually. There, Andrew Devogulare highlighted a new applied research app that he is helping put together to help people connect their research to the broader scientific community. The RAP received a briefing on the Climate Vulnerability Assessment from Mikaela Provost. The RAP also worked on the letter presented today. There was a discussion about possibly changing the criteria of the Ricketts Award to encourage more diverse recipients. The RAP is considering changing its schedule to match the quarterly approach that the AC has. Wind energy and seal bombs were also discussed.

Cindy Matuch, College, shared that she is excited to be here and experience stakeholder relationships with MBNMS.

Keith Rootsart, Diving, shared that there was a webinar yesterday with friends in Tasmania.

Dan Shaw, CA State Parks, shared that he was pleased to be here.

Monica Lal, Business/Industry alternate, stated that she was excited to make community connections.

Tom Rowley, Business/Industry, thanked Superintendent Lisa Wooninck for coming to the Monterey Bay City Council meeting for the cruise ship ordinance, although it was a bad result in Tom Rowley's opinion. He also stated that it is important for AC members and alternates to attend in person so that people can meet each other face to face like today. He stated his concern for the lack of water for new housing and affordable housing. The CA Coastal Commission approved a new desalination plant.

Steve Haddock, Research alternate, shared that former flagship the Western Flyer has been transferred to FL to be used as a diversity and outreach vessel. There will be a cruise in November on the new big ship, the David Packard. The cruise's purpose will be generating time series over long distances, with the potential to monitor kelp.

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Rebecca Cenicerros, At-Large alternate, is looking forward to getting started on the council.

John Haynes, Harbors, stated that storms have caused pilings to fall in the harbors. Workers have been pulling out trees and dredging in Santa Cruz. Monterey and Moss Landing are done dredging. In another week the harbor entrance will be open again.

Steve Allen, At-Large, will get together with PJ Webb and talk about issues facing MBNMS. He wants to get her email list with updates. He also wants to meet Gwen Kellas, At-Large alternate. Steve Allen is currently completing docent training with Coastal Discovery Center.

Dan Haifley, At-Large, stated that the Monterey Bay National Marine Sanctuary Foundation advocates for the Sanctuary, if anyone would like to join. It recently hosted a Gala.

Marieke Desmond, Agriculture alternate, shared that an agriculture order has mandated a level of fertilizer that farmers must be below. With the flooding events, there is lots of attention on how overgrown the river was and how it contributed to flooding. There is the possibility of applying for permits for removing this overgrowth. Reservoirs are 85% capacity.

Pamela Neeb Wade, Education, is looking forward to having the chair position. The Teacher Institute for Santa Cruz County Office of Education is an opportunity for schools to participate in environmental issues on campus. She also discussed the new Bay of Life curriculum. Pacific Grove Natural History Museum hosted the Long-term Monitoring Program and Experiential Training for Students recently.

Rachel Kippen, Conservation, shared that the Conservation Working Group meeting created an agenda for its next meeting in person on April 12th. Agenda items include a discussion about balloons and strategies for grad season. Leatherback sea turtles updates were shared. Rachel Kippen also stated that she likes hybrid meetings to ensure accessibility. This weekend the Santa Cruz Sentinel will have a column about the First Friday event at the Sanctuary Exploration Center in March.

Adam Helm, Recreational Fishing thanked the AC for his new position as Vice Chair. Jose Montes, Recreational Fishing alternate and Adam Helm have been working hard as there have been a lot of changes. The season for nearshore fishing went from nine months to five months and there are new depth restrictions. He is hitting social media hard to relay the [new information](#).

Mike Bekker, Tourism, shared that tourism is on the rebound. In Cannery Row, cardboard collection has yielded six tons a week, which means that tourists are ordering and recycling. There has also been high aquarium attendance. The AT&T tournament also brought in tourists. There will be a single use plastic meeting on April 14th. There has also been a man dressed as a Cookie Monster on the wharf accosting people.

Paul Reilly, CA Department of Fish and Wildlife, shared that recreational boat fishing was very affected by the recent storms. The Santa Cruz Harbor entrance was closed for a while. For

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nearshore rockfish, cabezon, and greenlings recreational fishery: close January 1 through April 30, open at all depths May 1 through September 30, closed October 1 through December 31. For all other rockfish (shelf and slope species) and lingcod recreational fisheries: closed January 1 through April 30, open at all depths May 1 through September 30. From October 1 through December 31, take of shelf and slope rockfish and lingcod is open seaward of the 50 fathom Rockfish Conservation Area line.

Dan Brumbaugh, Elkhorn Slough National Estuarine Research Reserve, stated that the third phase of the Hester Marsh restoration site is underway. This site is next to the Moonglow Dairy, with 120 acres. There is lots of restoration science going on. Steve Haddock, Research, would love to see an update on this in a future AC meeting.

Adjourn: 3:30pm

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Appendix I. Written Member Announcements

Name: Karen Mogus

Seat: CalEPA

Announcement: State Water Board Hearing on Amendments to Once Through Cooling Policy on 3/7/2023

Relevant Links:

[CWA 316\(b\) Thermal Discharges-Cooling Water Intake Structures | California State Water Resources Control Board](#)

Photos (add below)

Narrative - On January 31, 2023, the State Water Board released for public comment the Draft Amendment to the Once-Through Cooling Policy to Extend the Compliance Schedules for Alamitos, Huntington Beach, Ormond Beach, and Scattergood Generating Stations, and Diablo Canyon Nuclear Power Plant, as well as the associated Draft Staff Report. Written comments must be submitted by noon on March 17, 2023.

The State Water Board will also hold a public hearing to receive oral comments on the proposed Once-Through Cooling Policy Amendment and Draft Staff Report. The public hearing will be held on March 7, 2023.

Name: Karen Mogus

Seat: CalEPA

Announcement: State Water Board Hearing on the 2024 California Integrated Report (aka 303(d) list) on 3/21/2023

Relevant Links: [2024 California Integrated Report Public Notice](#)

Photos (add below)

Narrative - The draft 303(d) List for the 2024 California Integrated Report and the supporting draft staff report will be posted on the State Water Board's website on or before Friday, February 17, 2023. The list is commonly known as the "303(d) List" or the "List of Impaired Waters." The 303(d) List includes new listing and delisting recommendations for waterbodies in the regions of the San Francisco Bay, Los Angeles, Santa Ana, Central Valley, Central Coast, and San Diego Regional Water Quality Control Boards. The State Water Board will accept written comments on the draft 303(d) List and draft staff report. All written comments must be received no later than 12:00 noon on Monday, April 3, 2023. A hearing before the State Water Board is scheduled on March 21, 2023.

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Name: Karen Mogus

Seat: CalEPA

Announcement: State Water Board information item on Ocean Acidification Modeling on 3/21/2023

Relevant Links: [Board Calendar](#) | [California State Water Resources Control Board](#)

Photos (add below)

Narrative - pH and oxygen levels are falling in ocean waters. Most of these changes result from global climate change, but in some places, local discharges of human sources of nutrients can exacerbate this problem. The OPC Strategic Plan (2020) identified assessment of how land-based nitrogen sources affect ocean conditions in California as a next step in developing management strategies and encouraged development of a coupled physical-biogeochemical model to achieve that. Scientists from the Southern California Coastal Water Research Project (SCCWRP) will present the preliminary results from that modeling for Southern California at the State Water Board meeting on March 21, 2023.

Name: Dan Haifley

Seat: At Large Northern Area Primary

Announcement: 1) Vessel Incident Response Fund, 2) Iconic Kelp, 3) One Ride At A Time, and 4) AB 80 (Offshore wind mitigations) and 5) Other Foundation activities.



Narrative - 1) To implement the Vessel Incident recommendations made by a committee and approved by SAC in 2022, as a foundation board member I have been drafting language along with

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Karen Grimmer, MBNMS Resource Protection Coordinator, for a state budget request to establish a fund to respond to vessel emergencies, to provide to Senator John Laird's office for legislative action. A separate but related item, a bill to require insurance for all vessels to support owner financial responsibility, would be introduced next year giving Monterey Harbormaster Brian Nelson time to consult with area and state harbors on the matter. 2) Fundraising for 2023 has begun in earnest, in particular I am contacting potential donors to support MBNMS' Iconic Kelp Project, and wrote [a foundation blog](#) and a piece in [Lookout Santa Cruz](#) on the topic. 3) I attended a kick-off for [One Ride At A Time](#), a unique partnership with Frans Lanting and Christine Eckstrom's Bay of Life Project, the Santa Cruz Metro (bus operator) and Santa Cruz County Regional Transportation system that allows bus riders to collect credits to benefit the Bay of Life Fund at the Monterey Bay National Marine Sanctuary Foundation. Metro buses will be wrapped in images provided by Lanting and Eckstrom. 4) I met with Assemblymember Dawn Addis, representing some of MBNMS coast, with regard to her AB 80 that would establish a fund to mitigate the impacts of wind energy development west of the sanctuary. 5) Other foundation activities include contacting sponsors for 2023, and a [KSQD FM radio show](#) about MBNMS and the foundation.

Name: Adam Helm

Seat: Recreational Fishing

Announcement: Major changes to the 2023 Recreational fishing season

Relevant Links: <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=185052&inline>

Photos (add below)

Narrative - The recreational nearshore fishing season will now be from May 1st to September 30th. That's a 9 month fishing season (2022) to 5 months for 2023. This is for nearshore fishing. From October to December take is prohibited of the specific fish shoreward at the 50 Fathom (300ft) Rockfish Conservation Area Boundary line. See link for a full list of fish and details.

Name: Keith Rootsart

Seat: Diving (Alternate)

Announcement: MPA Day, March 15

Relevant Links: <https://wildlife.ca.gov/Conservation/Marine/MPAs/Management/Decadal-Review#566381263-forum>

Photos (add below)

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Narrative - The California Department of Fish and Wildlife (CDFW), in partnership with the California Ocean Protection Council and the California Fish and Game Commission, is hosting a public gathering "MPA Day" Management Review Forum to share the findings and recommendations, of the Decadal Management Review. This Review Forum will provide space for partner agencies and organizations to highlight their collaborative work over the last 10 years that informed parts of the Review. It also provides an opportunity for two-way conversations about the Review and management of the Network. Deadline for Registration and to ask for a table is February 15.

Name: Paul Reilly

Seat: California Department Fish and Wildlife

Announcement:

Relevant Links:

Photos (add below)

Narrative -

[Recreational boat fishing Monterey Bay](#)

In December vessels sought rockfish and Dungeness crab and effort was relatively low. The party boat Kahuna returned to Moss Landing harbor and is being run by Stagnaro Brothers.

Storms in early January severely curtailed fishing effort. The Santa Cruz harbor launch ramp was closed until January 18 due to shoaling of the harbor entrance. The Monterey harbor launch ramp was closed due to a paving project in the parking lot. By mid-month skies had cleared but windy

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conditions kept most boats from venturing out. A party boat from Santa Cruz targeted sand dabs. In general, boat fishing effort remained low the first half of February.

Recreational fishing regulation changes

Changes to recreational fishing seasons, depth limits and bag limits for a variety of groundfish species will be implemented in 2023.

The new regulations were adopted by the Pacific Fishery Management Council in June 2022 and the California Fish and Game Commission in November 2022 and took effect Jan. 1, 2023. As in previous years, the boat-based fishery for most groundfish species will be closed statewide beginning Jan. 1, while spear divers and shore-based anglers will continue to have year-round fishing opportunities for groundfish.

For groundfish including Rockfish, Cabezon and Greenling (RCG) as well as lingcod, the boat-based seasons will bring a mix of increased and reduced fishing opportunities, depending on the species. Unlike prior years, all Groundfish Management Areas will have a portion of the season when 'all-depth' fishing is allowed and anglers are not subject to the Rockfish Conservation Area (RCA) depth constraints. This allows new fishing opportunities for deeper-water shelf and slope rockfish, which are most abundant in areas that have been previously closed to recreational groundfish fishing. The following is a summary of the new boat-based regulations for RCG species and lingcod in each management area:

Central Management Area between 37°11' N. latitude (Pigeon Point) and 34°27' N. latitude (Point Conception):

- For nearshore rockfish, cabezon and greenlings: closed Jan. 1 through April 30, open at all depths May 1 through Sept. 30, closed Oct. 1 through Dec. 31.
- For all other rockfish (shelf and slope species) and lingcod: closed Jan. 1 through April 30, open at all depths May 1 through Sept. 30. From Oct. 1 through Dec. 31, take of shelf and slope rockfish and lingcod is open seaward of the 50 fathom RCA line. Take is prohibited shoreward of the 50 fathom RCA line.

Anglers will need to [identify rockfish species](#) they catch, and beginning in 2023, be able to determine if the fish is categorized as a [nearshore](#), [shelf](#) or [slope](#) rockfish species, as different seasons and depths apply to each category depending on the Groundfish Management Area and month. The RCG bag limit will remain at 10 fish in combination of rockfish, cabezon and greenlings, with sub-bag limits of not more than four [vermillion](#) rockfish, one [copper](#) rockfish and

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one [quillback](#) rockfish. Take and possession of cowcod, yelloweye and bronzespotted rockfish will remain prohibited.

The new groundfish regulations are a significant departure from the fishing seasons and depth limits that anglers are accustomed to and are necessary due to scientific information suggesting that copper rockfish and quillback rockfish populations are in severe decline. The season structures for each management area were developed in consultation with fishing industry representatives, non-governmental organizations and state, federal and tribal governments, and were designed to provide the greatest amount of groundfish fishing time and opportunity to anglers throughout the year.

There are also changes for several species that have been subject to boat-based closures in the past, which may offer new alternatives for boat-based anglers as early as January. They include:

- New year-round opportunities: ocean whitefish, California scorpionfish, leopard shark, soupfin shark, Dover sole, English sole, arrowtooth flounder, spiny dogfish, skates, ratfish, grenadiers, finescale codling, Pacific cod, Pacific whiting, sablefish and thornyheads will now be open year-round in all depths, statewide.
- Boat-based fishing for California sheephead, will be open from March 1 through Dec. 31, statewide. The bag limit, regardless of fishing mode, will decrease from five fish to two fish.

To meet harvest goals, the recreational groundfish fishery is subject to in-season regulatory changes. Please stay informed by visiting CDFW's [summary of recreational groundfish fishing regulations](#) webpage before fishing.

Ocean salmon

The California Department of Fish and Wildlife (CDFW) invites the public to attend its annual Salmon Information Meeting via webinar on Wednesday, March 1, 2023, from 10 a.m. to 4 p.m. The meeting will feature the outlook for this year's sport and commercial ocean salmon fisheries, in addition to a review of last year's salmon fisheries and spawning escapement.

Following the informational presentations, stakeholders are encouraged to offer testimony and recommendations for the 2023 fishing season regulations in advance of the upcoming Pacific Fishery Management Council (PFMC) meetings in March and April.

The 2023 Salmon Information Meeting marks the beginning of a two-month long public process used to develop annual sport and commercial ocean salmon fishing regulations. The process

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involves collaborative negotiations between West Coast states, federal agencies, tribal co-managers, and stakeholders interested in salmon fishery management and conservation.

Public input will help California representatives develop a range of recommended season alternatives at the March 5-10 PFMC meeting in Seattle. Final season recommendations will be adopted at the PFMC's April 1-7 meeting in Foster City, Calif.

Salmon Information Meeting details, informational materials and instructions for attendance will be published in advance of the event on [CDFW's Ocean Salmon webpage](#). Please see the Ocean Salmon webpage for a complete Calendar of Events and contact information regarding the Salmon Preseason Process, including other opportunities for public engagement in the season-setting process.

Dungeness crab

CDFW opened the commercial Dungeness crab fishery statewide on December 31, 2022. Crab quality had increased sufficiently to allow opening of Fishing Zones 1-2 (north of the Sonoma/Mendocino county line). Declining presence of humpback whales in Fishing Zones 3-6 (all areas south of the Sonoma/Mendocino county line) allowed the commercial fishery to open but to further reduce potential marine life entanglement risk, the fishery opened under a 50 percent trap reduction. The trap reduction was lifted on January 15, 2023 following continued declines of humpback whale presence within the Fishing Grounds.

The recreational fishery has been open statewide since November 5, 2022, although crabbers were initially prohibited from using trap gear. The recreational crab trap restriction was lifted on November 28, 2022 for Fishing Zones 1 and 2 and on January 14, 2023 for Fishing Zones 3-6.

Both the commercial and recreational fisheries are currently operating under a Fleet Advisory, which encourages participants to remain vigilant and move or avoid setting gear in areas where whales are transiting or foraging to further minimize risk of entanglement.

Nearly 700 commercial Dungeness crab traps were retrieved during 2022 under CDFW's formal Trap Gear Retrieval Program and through voluntary efforts by the commercial Dungeness crab fleet. A summary of gear recovery during 2022 will be available soon on [CDFW's Whale Safe Fisheries page](#).

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Name: Rachel Kippen

Seat: Conservation Primary

Announcement: CWG reunited and meeting every other month

Relevant Links:

Photos (add below)

Narrative - Our Conservation Working Group reconvened after the applications and appointments were finalized for the council seats. Jenniffer Abbott now serves as Conservation Alternate and co-chair of the CWG. The CWG held its first meeting on Thursday, February 16th from 3-5 pm. We were introduced to Jennifer, learned about her background as a marine educator, deckhand, naturalist and her many volunteer experiences locally in the Monterey Bay region for more than the past ten years. Karen Grimmer, Rachel Kippen, Jennifer Abbott, Pat Matejcek, and Keith Rooseart were in attendance at this meeting. The CWG has opted to continue the every other month meeting schedule and determined that our next meeting will be held in person in Moss Landing as an accessible middle ground for all members in Santa Cruz and Monterey. The agenda for the 2023 kick off meeting included an intro to Jennifer as the new co-chair, a refresher of some of the concepts that the CWG had previously worked on, a discussion about leatherback sea turtles and celebration/awareness and conservation efforts, a renewed strategy around balloon pollution, an update from Karen Grimmer about the Voluntary Speed Reduction program proposal for seasonal speed reductions in the Sanctuary alongside other neighbor sanctuary programs that the council will consider at the AC meeting, updates from members including events at the Sanctuary Exploration Center, MPA meetings, upcoming climate forums, status of tobacco waste policy efforts locally, among others.

Our next meeting will invite Balloon Free Seas folks (Robert, CMSF, Meg DeCoite), Save Our Shores, Coastal Watershed Council, and all the regular CWG folks. We will talk about balloon reduction efforts locally including outreach to school districts, coordinate with SOS efforts as possible, and prepare for graduation. A standing item will include updates on any leatherback sea turtle event possibilities and partnerships, as well as a standing item to hear updates from Karen Grimmer regarding Sanctuary activities that she is working on and how the CWG may support.

Name: Pamela Neeb Wade

Seat: Education Primary

Announcement:

Relevant Links: <https://bayoflife.santacruzcoe.org/home>, www.whalefest.org, <https://whalefest.org/symposium>

Photos (add below)

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Narrative - “Every Classroom a Green Classroom” Teacher Leadership Institute for Sustainability at the Santa Cruz County Office of Education kicked off in January.

The goal of this teacher leadership institute is to increase TK-12 teacher capacity for integrating environmental sustainability with classroom curriculum in any content area and leading students in sustainability efforts at school and in their communities. Teachers and their students who complete the program will receive recognition for taking part in the countywide "Every Classroom a Green Classroom" challenge. This green classroom recognition program will challenge teachers and students to make a commitment to sustainable practices as a learning community and apply their classroom knowledge and skills to impact an environmental issue on their campus or in their community. Stewardship projects may take place on campus or through partnership with organizations in the area, including those working in the sanctuary.

The Pacific Grove Museum of Natural History hosted a LiMPETS Rocky Intertidal Workshop on Saturday, February 4, 2023, from 11PM-5PM.

LiMPETS (Long-term Monitoring Program and Experiential Training for Students) is an environmental monitoring and education program for students, educators, and volunteer groups. The program offers teachers a five-unit curriculum linked to science education standards (NGSS, Common Core and Ocean Literacy Principles), a variety of web-based resources, online data entry and graphing tools and a hands-on staff with academic training in science and education.

NEW! Bay of Life Curriculum

Bay of Life creators Frans Lanting and Chris Eckstrom have partnered with the Santa Cruz County Office of Education and a team of local environmental organizations to educate and inspire conservation across the region by connecting this unique project with our schools. The COE will be providing every school library with a copy of the Bay of Life and has launched a new website with images from the book along with TK-12 education resources and local field trip programs.

Monterey Whalefest - March 18 & 19th, Old Fisherman’s Wharf, Custom House Plaza, 11am-5pm

This is the 13th annual Whalefest and symposium. The event includes interactive activities, a symposium, research vessels and music. Presentations from MBARI, Moss Landing Marine Lab, the Monterey Bay National Marine Sanctuary and the Marine Mammal Center. The Marine Life Studies and Whale Entanglement Team will also be in attendance.

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Appendix II. Letter from the Marine Mammal Center regarding vessel speed reduction zones.



February 17, 2022

Brian Nelson,
Chair, Monterey Bay National Marine Sanctuary Advisory Council

Dan Haifley,
Vice Chair, Monterey Bay National Marine Sanctuary Advisory Council

Sarah Lopez,
Secretary, Monterey Bay National Marine Sanctuary Advisory Council

RE: Vessel Speed Reduction Zone in MBNMS

Dear Mr. Nelson, Mr. Haifley, and Ms. Lopez,

On behalf of The Marine Mammal Center, I wish to offer comment on the action item addressing vessel speed reduction (VSR) in the Monterey Bay National Marine Sanctuary (MBNS). Specifically, The Marine Mammal Center strongly encourages MBNMS to participate in the VSR program.

Founded in 1975, The Marine Mammal Center is a global leader in marine mammal health, science and conservation and is the largest marine mammal hospital in the world. The Center operates out of facilities in Sausalito, Morro Bay and Moss Landing in California, and in Hawai'i, on the Big Island and Maui, and has a team of 110 staff and 1,300 actively engaged volunteers. A field research team of the Center studies whales and dolphins in San Francisco Bay, GFNMS, CBNMS, and the MBNS with the goal of mitigating human impacts and improving the conservation of large whales. A team member also sits on the GFNMS Advisory Council and participated in the GNFMS and CBNMS joint ship strike working group. Our support for whale protections can be viewed in the final report (linked [here](#)). In the fall of 2022, we launched Whale Safe San Francisco with the Benioff Ocean Science Laboratory, a technology-based mapping and analysis tool designed to prevent vessel and whale collisions.

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The southern shipping lane in the San Francisco Bay Region is currently under the VSR and is part of MBNMS. The addition of the entire Sanctuary would provide increased protections for whales and consistency for the shipping industry. On August 29th, The Marine Mammal Center and the California Academy of Sciences conducted a necropsy, or animal autopsy, on a dead humpback whale in Half Moon Bay, within the MBNMS. The necropsy determined the whale's injuries were consistent with a ship strike. Our team reached out to our partner, Happywhale, to match a photo of the whale from the necropsy with a database of known humpback whales. There was a match, and we sadly learned that Fran was the victim on the beach. According to

Happywhale, Fran was second most sighted humpback whale in the world. Whale watchers, researchers, and animal lovers around the world mourned her tragic death, which is an example of what typically goes unseen. More than 80 endangered whales are killed every year on the west coast (Rockwood et al, 2017). No one wants whales to be killed or injured. The best way to protect whales is to avoid them and slow vessels down.

Knowing that Vessel Speed Reduction has also been shown to offer additional environmental benefits, including significant reductions in air emissions and underwater noise, both negatively impacting the health of marine mammals and their ocean environment, adds to our conviction that the VSR should be expanded.

I am happy to address any questions that you might have, and I applaud your efforts to create safer waters for marine mammals and other ocean wildlife while sustaining those industries upon which we rely.

Sincerely,



Dr. Jeffrey R. Boehm
Chief External Relations Officer

Cc: Lisa Wooninck, PhD, Superintendent, Monterey Bay National Marine Sanctuary
Maria Brown, Superintendent, Greater Farallones and Cordell Bank National Marine Sanctuaries
Chris Mobley, Superintendent, Channel Islands National Marine Sanctuary

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Appendix III. Letter from Benioff Laboratories regarding vessel speed reduction zones.

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February 16, 2022

Brian Nelson,
Chair, Monterey Bay National Marine Sanctuary Advisory Council

Dan Haifley,
Vice Chair, Monterey Bay National Marine Sanctuary Advisory Council

Sarah Lopez,
Secretary, Monterey Bay National Marine Sanctuary Advisory Council

RE: Vessel Speed Reduction program in MBNMS

Dear Mr. Nelson, Mr. Haifley, and Ms. Lopez,

The Benioff Ocean Science Laboratory, based at the Marine Science Institute at UCSB, is an applied research center that collaborates with scientists around the world to address issues such as plastic pollution, endangered species, and climate change. One of our flagship projects, Whale Safe, aims to reduce the risk of fatal ship collisions with endangered whales along the California coast. Whale Safe uses an AI-powered whale detection system that displays near real-time whale and ship data to provide mariners and resource managers with the latest information on whale presence in busy shipping areas in the Santa Barbara Channel and the San Francisco region.

We would like to voice our strong support for MBNMS joining the Vessel Speed Reduction (VSR) program. Research shows that slower speeds help to reduce both the likelihood and fatality of ship strikes, reduce air pollution, and reduce the impacts of underwater noise (Wiley et al., 2011; Psarافتis et al., 2007; Vanderlaan and Taagart, 2007; Leaper, 2019). A seasonal VSR zone in Monterey will create a more contiguous protected area from Point Arena to Cambria and will strengthen conservation measures for endangered blue, fin, and humpback whales who forage along California's coast.

As part of the Whale Safe project, we analyze AIS data in the existing VSR zones to understand vessel activity and cooperation with the vessel speed recommendations.

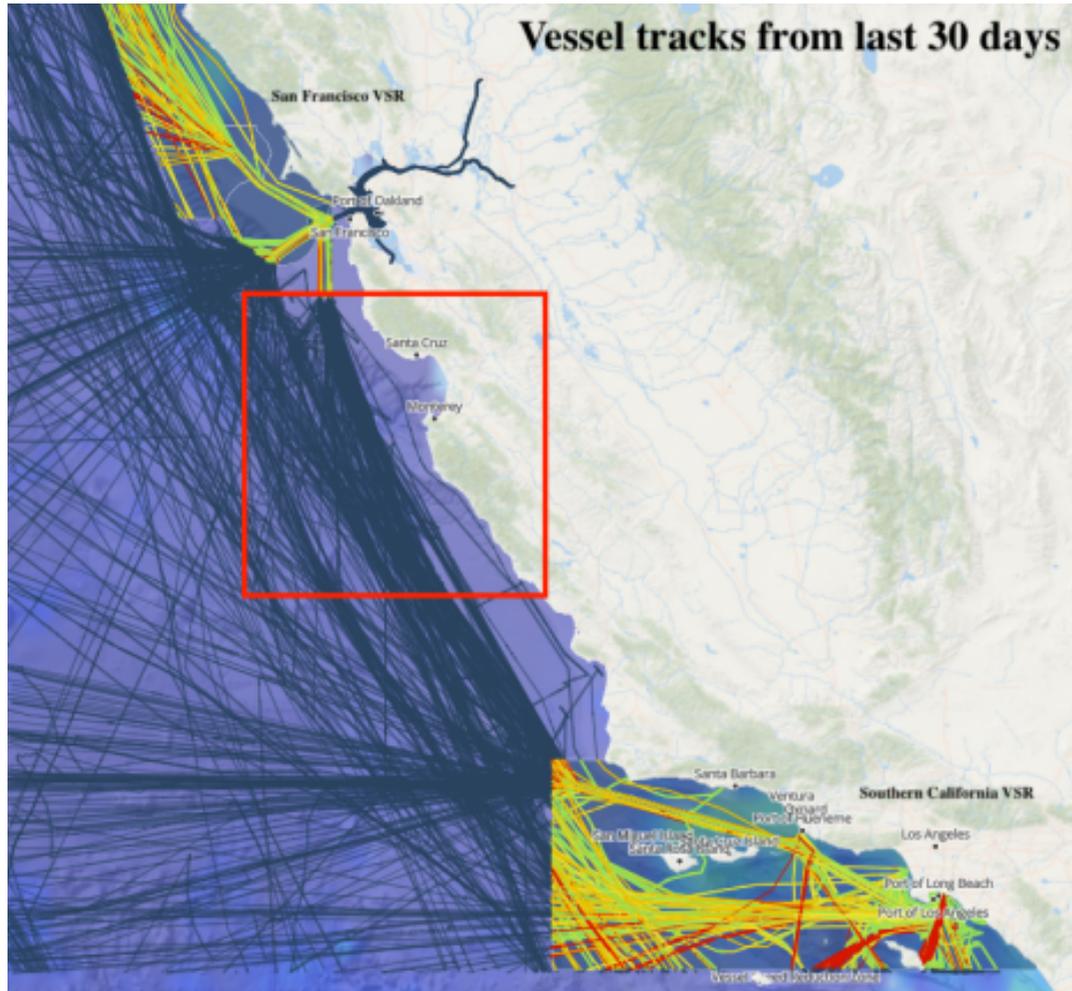
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During the 2022 VSR season (May 1 - December 15) in the San Francisco region, there were 735 large vessels (>300 tons) that transited a total of 142,460 nautical miles. In Southern California, there were 1,283 large vessels that transited a total of 772,160 nautical miles.

For comparison, we looked at AIS data for large vessels in the MBNMS during that same time period and found **831 large vessels** transited a total of **134,336 nautical miles**. Overall, **59,023** of the total nautical miles were transited at 10 knots or less (the speed attributed for whale and mariner safety). This would be a 43.9% “cooperation” rate (nm traveled at ≤ 10 knots/total nm)

compared to ~62% in the existing VSR zones in Southern California and San Francisco. The southern lane of the San Francisco Traffic Separation Scheme in MBNMS is already included in the San Francisco VSR program, however, expanding the entire MBNMS into the VSR program would help protect whales from vessels transiting between major ports along the coast.

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Screenshot from the Whale Safe website (www.whalesafe.com) showing vessel traffic (≥ 300 gross tons) from the last 30 days. The vessel traffic in the existing VSR zones is color coded by speed, and the dark blue tracks show vessel activity outside the existing VSR program. During this same time period (May 1 - December 15), there were 176 sightings of blue, fin, and humpback whales recorded on Whale Alert & Spotter Pro, 906 humpback individuals identified on Happy Whale, and 71 encounters of blue and fin whales recorded on Happy Whale. Given the high concentration of whales in this region and the amount of vessels transiting at speeds >10 knots, we see great benefit in MBNMS joining the VSR program.

Sincerely,

Doug McCauley
Director, Benioff Ocean Science Laboratory

Monterey Bay National Marine Sanctuary Advisory Council

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Callie Leiphardt

Project Scientist, Benioff Ocean Science Laboratory

Rachel Rhodes

Project Scientist, Benioff Ocean Science Laboratory

Cc:

Lisa Wooninck, PhD, Superintendent, Monterey Bay National Marine Sanctuary
Maria Brown, Superintendent, Greater Farallones and Cordell Bank National Marine Sanctuaries
Chris Mobley, Superintendent, Channel Islands National Marine Sanctuary

Citations:

Leaper, Russell. "The role of slower vessel speeds in reducing greenhouse gas emissions, underwater noise and collision risk to whales." *Frontiers in Marine Science* 6 (2019): 505.

Psaraftis, Harilaos N., Christos A. Kontovas, and Nikolaos MP Kakalis. "Speed reduction as an emissions reduction measure for fast ships." 10th International Conference on Fast Sea Transportation FAST. 2009.

Vanderlaan, Angelia SM, and Christopher T. Taggart. "Vessel collisions with whales: the probability of lethal injury based on vessel speed." *Marine mammal science* 23.1 (2007): 144-156.

Wiley, David N., et al. "Modeling speed restrictions to mitigate lethal collisions between ships and whales in the Stellwagen Bank National Marine Sanctuary, USA." *Biological Conservation* 144.9 (2011): 2377-2381.

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Appendix IV. Memo from RAP to AC regarding kelp monitoring and restoration.

January 27, 2023

MEMORANDUM FOR: Brian Nelson, Chair

Monterey Bay National Marine Sanctuary Advisory Council

Lisa Wooninck, PhD, Superintendent
Monterey Bay National Marine Sanctuary

FROM: Steven Haddock, PhD, Acting Chair

Monterey Bay National Marine Sanctuary Research Activity Panel

SUBJECT: Response to request from MBNMS AC on iconic kelp

Kelp (*Macrocystis pyrifera* and *Nereocystis luetkeana*) form an iconic habitat in Monterey Bay National Marine Sanctuary (MBNMS). Kelp canopies have declined drastically in Northern California and there has also been a noticeable decline within MBNMS, where kelp supports valuable economic and cultural resources. The Research Activity Panel (RAP) has discussed the issue at several meetings and received additional insight from internationally recognized kelp experts. On December 9, 2022, the MBNMS Advisory Council (AC) approved a motion requesting the RAP, “evaluate in MBNMS suggested/proposed options for science to inform monitoring, recovery, and restoration of kelp forests.” Below, please find a series of RAP endorsed related science projects that need to be addressed; though numbered, the items are not prioritized. Potential MBNMS contributions to these efforts include: staff support (subject matter experts; field operations); use of MBNMS research vessels; facilitating coordination with other kelp interest groups; and supporting funding efforts to address the research.

1) Monitoring the natural recovery of giant kelp forests

Monitoring the natural recovery of kelp forests is necessary to identify the environmental and ecological conditions that are conducive to forest recovery. The objective is to monitor and compare kelp forests that exhibit early phases of recovery with those that do not, to identify those conditions that facilitate recovery. The information would inform when and where restoration efforts might be most successful, as well as what can be done to expedite recovery (e.g., urchin removal, kelp outplanting). This type of information is also necessary for accurate MBNMS Condition Reports. Methods to address this topic could include modifications to ongoing PISCO/MPA diver surveys, additional surveys, and aerial drone canopy surveys.

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2) Determining sea urchin behavior in kelp forests of various conditions

By determining the size distribution, movement, relative abundance of exposed and concealed urchins, and associated levels of live and drift algal cover, this project

would inform conditions needed to facilitate kelp forest recovery (e.g., altering sea urchin behavior or reducing their numbers). It is also possible that kelp and urchins interact differently in deep reefs, at the limits of standard SCUBA diving depths, providing some sort of kelp refuge. Methods to address this topic could include academic and community scientist diver surveys, and use of the recently developed autonomous camera system BOSS (Benthic Observation Survey System).

3) Determining the role of sea otters in persistent boundaries of healthy kelp forests

Sea otters feed preferentially on sea urchins that have healthy gonads, and these may be associated with access to drift algae at the boundaries of healthy kelp forests. By assessing biomass of urchins (concealed and exposed) and frequency of otters in healthy kelp forests, there will be an improved understanding of whether otters actively protect forest boundaries or whether intervention with urchin removal is necessary to protect and expand remnant forests. The Monterey Bay Aquarium has initiated this project with UC Santa Cruz.

4) Determining the effects of urchin density on urchin condition and kelp recruitment and survival

This study would assess the effect of the separate and combined densities of both red and purple urchins on kelp settlement and post-settlement survival. Red and purple urchin densities would be manipulated in cages while associated kelp recruitment and gonad conditions would be measured. Related experiments could be done by creating urchin clearings of different sizes at different frequencies to determine thresholds for kelp recovery. This project not only informs efforts to facilitate recovery, but also evaluates the effect of purple urchin numbers on the marketability of red urchins (for *uni*) in northern California.

5) Evaluating the areal extent of kelp spore dispersal “shadow”

The objective of this study would be to determine what dispersal patterns can be expected from kelp. Methods to address this question could include measuring recruitment on settling plates at different distances from naturally persisting kelp or placed spore sources (e.g., bags of sporophylls or translocated kelp) of giant and/or bull kelp. Knowledge of the distance of spore dispersal will inform where restoration efforts can leverage natural spore dispersal or require outplanting.

6) Evaluating the required frequency of urchin removal to maintain or expand forests

For protecting remaining forests or restoring kelp through expansion of those forests, it is important to understand: the relationship between the width of an urchin

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removal

border and frequency of urchin removal to maintain reduced urchin densities; how that relationship differs with the rugosity of the reef; how the relationship varies with the density of urchins in the adjacent barrens; how the density of other herbivores (e.g., gastropods, herbivorous crabs) alter the effect of urchin removals on the maintenance of forest boundaries; what the recruitment rate of kelp plants is relative

to urchin density; what the overall effort (number of visits and number of divers) per unit length of a removal area is required to maintain urchin removals; and what the costs (e.g., divers, time, vessels) are associated with the overall effort. Carefully designed experiments could be addressed through a professional and community scientist collaboration. These questions are already being addressed, in part, at “Tanker Reef” by CDFW, MBNMS and community scientists.

7) Evaluating the effects of environmental conditions on the foraging rate of purple sea urchins and kelp production

Mesocosms (large outdoor tanks at marine labs) can be used to determine relationships between water chemistry and temperature on urchin feeding and kelp growth. If grazing rate increases with water temperature, it may explain the outbreak of urchins associated with the marine heatwave. If grazing rates decline with cold temperatures, it might suggest recovery will coincide with cold water events/locations (upwelling) and years; these would also be favorable conditions for restoration projects. This project has been initiated by a UC Santa Cruz PhD student.

8) Evaluating the effects of water temperature, density and starvation on disease in the purple sea urchin

Recovery of kelp may be determined by a decrease in density of sea urchins, and sea urchin densities in southern California have declined with disease outbreaks. Knowing what conditions are conducive for disease outbreaks would allow for predictions of whether outbreaks will naturally control urchin numbers. This study would involve laboratory experiments where temperature, urchin body condition and urchin density are manipulated to assess the infection rate and mortality from black spot disease.

9) Developing an understanding of the economic and social values of healthy kelp forests

Kelp forests have value for a number of human uses like: providing critical habitat for dozens or hundreds of key species; recreational diving opportunities; food for abalone aquaculture; habitat that supports commercial and recreational fisheries; decreasing coastal erosion; scenic value, including bird and sea otter watching; and cultural activities, including for indigenous groups. An academic study on the social/cultural and monetary value of MBNMS kelp forests would inform the need to

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protect and restore this iconic habitat.

10) Taking advantage of remote sensing technology

Satellites are able to make large scale assessments of changing kelp cover, and lower altitude drones can provide higher resolution imagery. LIDAR from planes can be used to distinguish between the canopies of different species of kelp and to assess the health of plants. Monterey Bay Aquarium Research Institute (MBARI) is developing a drone program with long-range capabilities and CSU Monterey Bay already has a

short-range drone program (partly funded by NOAA). Datasets generated by these surveys could be integrated with other data sharing products being developed by the Central and Northern California Ocean Observing System (CeNCOOS).

11) Developing a visual, conceptual model of MBNMS kelp forests This model would include: environmental causes for growth and decline; anthropogenic causes for growth and decline; biological interactions impacting kelp abundance; and effects of different restoration methods. A visual (graphic) model would highlight how science questions around kelp are interrelated and the role of different restoration methods. The model would also have heuristic value in interpreting this complex system to decision makers.

12) Assessing the potential of solutions from aquaculture

Conservation aquaculture has been used in marine systems to outplant impacted species for restoration (e.g., white abalone); to select for individuals that are resistant to problematic pressures (e.g., heat resistant populations); to grow and release predators that reduce problematic species (e.g., sea stars that eat urchins); and to enhance the commercial value of harvested species (e.g., feed collected urchins until they are valuable for human consumption). While not necessarily in the purview of MBNMS, NOAA has been promoting aquaculture as a necessary component to addressing the increasing need of seafood for human consumption.

13) Developing a historical perspective

Using tools of historical ecology (e.g., old photographs, media interviews) it would be valuable to develop retrospective knowledge on variability in MBNMS kelp canopy cover through time. This would help provide targets for kelp restoration, could determine if kelp has decreased and recovered before (to what levels and over what time periods), and therefore provide guidelines on the urgency of MBNMS resource management actions.