



CORDELL BANK NATIONAL MARINE SANCTUARY

SANCTUARY ADVISORY COUNCIL

MEETING MINUTES

February 23, 2021

9:10 AM

Held as a Virtual Meeting

Note: The following meeting notes are an account of discussions at the meeting of the Sanctuary Advisory Council for Cordell Bank National Marine Sanctuary (CBNMS). The council is an advisory body to the sanctuary superintendent. The opinions and findings of this publication do not necessarily reflect the position of CBNMS and the National Oceanic and Atmospheric Administration (NOAA).

Call to Order/Welcome/Review Virtual Meeting Logistics/Roll Call (Bec Detrich)

Bec Detrich, Advisory Council Chair, called the meeting to order at 9:11 AM and welcomed everyone, noting there was a new governmental alternate. She went over some of the features of the virtual meeting platform. Jennifer Stock is providing technical support, and will monitor the chat. For the most part, for questions and comments, Bec asked that people say them out loud; chat is not accessible to everyone. Members of the public may speak during the public comment period, and will be unmuted if they have a comment then. She noted the meeting was not being recorded. Lilli Ferguson, advisory council coordinator, then called roll.

Nongovernmental Members Present:

Frank Borodic (Community-at-Large - Marin County)
Rob Taboada (Community-at-Large - Marin County)
Steve Tubbs (Community-at-Large – Sonoma County)
Scott Artis (Conservation)
Morgan Patton (Conservation)
Bec Detrich (Chair; Education)
Irma Cuevas (Education)
Dick Ogg (Vice-Chair; Fishing)
Noah Wagner (Fishing)
Chris Hendry (Maritime Activities)
Kai Martin (Maritime Activities)
Jeff Dorman (Research)
Chrissy Piotrowski (Research)

Agency Members and Alternates Present:

Brian Johnson (Greater Farallones National Marine Sanctuary [GFNMS] – Alt.)
George Galasso (Monterey Bay National Marine Sanctuary [MBNMS] – Alt. [Acting])
LTJG Chris Bell (USCG – Alt.)

Members of the CBNMS staff present:

Dan Howard (Sanctuary Superintendent)
Michael Carver (Deputy Superintendent and Resource Protection Coordinator)
Lilli Ferguson (Resource Protection Specialist and advisory council coordinator)
Danielle Lipski (Research Coordinator)
Rachel Pound (Research Operational Specialist [NOAA Affiliate])
Jennifer Stock (Education and Outreach Coordinator)

Review and Approve Agenda (Bec)

- The Cordell Bank National Marine Sanctuary Advisory Council (CBNMSAC) reviewed the agenda and unanimously approved it.

Review and Approve November Meeting Minutes (Bec)

- The advisory council reviewed the November 12, 2020 minutes and unanimously approved them.

Sanctuary Superintendent's Report (Dan Howard)

- Dan also thanked everyone for being at the first meeting of the year, noting things were wild with COVID-19 infections spiking, release of a vaccine, and the election, bringing a new administration with President Joe Biden and Vice President Kamala Harris.
- The new administration is focused on the COVID vaccine, social justice, reviving the economy, climate change, preserving 30% of our lands and waters by 2030, stopping new oil and gas leases for development, and providing renewed attention on sources of alternative energy. Many of these priorities are in line with the priorities of national marine sanctuaries. Nancy Pelosi and Vice President Harris have Bay Area roots. It will be interesting to see how the common priorities will be addressed.
- Dan welcomed George Galasso, the acting Deputy Superintendent at Monterey Bay National Marine Sanctuary (MBNMS) for a 120-day detail; his regular job is as the deputy at Olympic Coast National Marine Sanctuary (OCNMS). George noted he was physically still in Washington.
- Dan gave a brief Marin County COVID report, and noted he is tracking county, state and federal requirements and what that means for getting back to the office. The staff continues to telework from home. He can approve short visits; longer visits to the office are approved by the Office of National Marine Sanctuaries (ONMS) regional director.
- He received the budget for FY 21 for CBNMS on February 8th. ONMS got an increase of about \$1.2 million. There were some NOAA rescissions to fund other things within NOAA, and increased overhead for sanctuaries. This resulted in a lower CBNMS budget than in FY 20. Tough decisions at the regions and sites had to be made about what could be funded. We were able to extend some of our contracts from FY 20 for a year and use that funding to support a remotely operated vehicle (ROV) cruise. We were able to fund much of our Applied California Current Ecosystem Studies (ACCESS) activities, but were not able to fund some of our other education or resource protection activities. We hope to find funding for some of these projects through partnership agreements. The federal fiscal year starts on October 1 and extends to September 30 of the following year. The CBNMS budget proposal for an upcoming year gets submitted in August or early September, is reviewed by the region, then is submitted ONMS headquarters; a series of meetings results in the final budget allocation.
- The staff is meeting next Tuesday with ONMS Director, John Armor, ONMS Deputy Director, Becky Holyoke, and Regional Director, Bill Douros. It is an opportunity for leadership and site staff members to interact virtually, and talk about program and site priorities.
- Craig Kenkel is the new superintendent at Point Reyes National Seashore (PRNS); his background is in cultural heritage. He was the superintendent at the Maritime Museum at Fisherman's Wharf in the 90s; most recently, he was at a park in Ohio. Dan talked to him last week; Craig is excited about the PRNS-CBNMS partnership.
- Dan gave a brief report from the Cordell Marine Sanctuary Foundation (CMSF). Rob Lee, an active member of the Bay Area Underwater Explorers (BAUE) joined the board. BAUE is a dive group in Monterey that has dove several times on Cordell Bank and done monitoring there. He has a passion for the bank and healthy oceans. CMSF invited Jennifer, CBNMS education and outreach coordinator; Dani Lipski, CBNMS conservation science coordinator; and Michael Carver, CBNMS resource protection coordinator, to recent board meetings so the board could better understand CBNMS program needs and plan ways to better support them. Dani has been working to update a CBNMS memoranda of agreement with CMSF; this takes a lot of back and forth to complete. We hope it will be in place by spring.
- Dani is working on renewing the CBNMS agreement with PRNS for facilities and some joint activities.

- Dani gave an update about the current process to update the ONMS strategic plan, which covers FY 17 – 22. The work now is to get an updated plan ready after it expires. ONMS had gotten input that the existing plan is general in nature with a few specifics. ONMS is soliciting input from within the agency, and a little bit from other parts of NOAA that work with ONMS and some external conservation leaders. A series of 19 staff focus groups are looking at program areas, such as science, education, and resource protection; specific topics, such as climate; and regional activities. There was also an employee-wide survey on employee engagement and the workforce. ONMS headquarters staff members will pull together and summarize the input, which will go back out to focus groups. Eventually the input will go to the ONMS senior management team for next steps. This process will continue over the next year or so.
- There was a question about what concrete commitments were being made at the national level. Organizations, after George Floyd's death, have been making diversity and inclusion commitments; what are some examples?
- Dani acknowledged that conversation was going on; such issues are not called out specifically in the existing strategic plan. She was not sure exactly how it might get worked into the new ONMS strategic plan, in terms of the workforce and outside engagement.

Advisory Council Business (Bec)

- Prior to taking nominations for Chair and Vice-Chair candidates, Bec went over the duties of the two positions. A Chair facilitates the meetings, and attends a meeting held by the national office of chairs and vice-chairs; this year, that was done virtually, and in the past, it has been in person. With Dan, the Chair sets agendas, and helps in planning and facilitating retreats. The chair also reviews applications as part of the preliminary review panel, with the decision being Dan's of who to recommend for appointment. The Vice-Chair fills in for the Chair, if something happens; this has not been needed for meetings during the last two years. The Vice-Chair also participates in the preliminary review panel and the national meeting of chairs and vice-chairs.
- Lilli clarified that when the national meeting has been held in person, which is budget dependent, the people who have attended are the chairs, ONMS headquarters staff members, and some or all of the advisory council coordinators. Vice-chairs have only attended those if their respective chairs could not attend. One other Chair responsibility is follow up on certain actions, such as signing a letter.
- Bec is the current Chair and Dick Ogg is the current Vice-Chair. Members can nominate any member, including themselves. A nominated individual must accept the nomination. Consider if an individual will be reaching the end of the third consecutive term prior to the officer term ends. Lilli will check in with nominees prior to the April meeting, when the election will be held.
- Lilli noted that all members, including governmental members (except the GFNMS and MBNMS superintendents), may be nominated. She reached out to Rad Dew and Lee Crusius (unable to be present at this meeting), who indicated that would not be able to accept if nominated as Chair or Vice-Chair. Two members who will reach the end of their third consecutive terms, prior to end of the next officer terms for Chair and Vice-chair, are Dick and Noah Wagner.
- Dick said the Vice-Chair role was pretty easy for him.
- Dick nominated Bec to be Chair again. Bec thanked him; she said she would not accept the nomination since, potentially in the next two year period, she might move to a different state. She noted learned a lot and it was great to work with the staff.
- Bec asked if there were other nominations for Chair.
- Steve Tubbs nominated Kai Martin as Chair; Kai accepted the nomination.
- Noah nominated Irma as Chair. Irma said she is still learning how to navigate on the advisory council so was not sure, but would think about it.
- Dick nominated Chris Hendry as Chair. Chris said he appreciated it, but said he could not accept as he is off to Angola on a temporary assignment in the coming months.
- Bec then asked for nominations for Vice-Chair nominations.
- Bec nominated Irma for Vice-Chair, and Irma accepted that nomination.

- Lilli said the elections would take place at the next meeting; officer elections are the one instance where governmental members may vote. If a governmental member is not able to be present at the meeting, but the governmental alternate is, the alternate may then vote in the officer election. The newly elected officers would start after the April meeting, and their terms would run until the next officer election at the April 2023 meeting. She helps the new officers and orients them to their officer roles.

Hypoxia in the Cordell Bank Region (Kate Hewett)

- Dani introduced Kate Hewett, who is at U.C. Davis, Bodega Marine Laboratory, working with John Largier. Kate is a Nancy Foster Scholar and is analyzing data from the hypoxia buoy in CBNMS, and helping interpret the findings. She is writing up her thesis.
- Kate said she was happy to share her work, and noted the subject covers a lot of specialties. People with questions or comments may ask at the end or email her.
- Hypoxia equals oxygen stress and it occurs when the rate of oxygen supply is less than the rate of oxygen removal. Physiological stress and leads to the death of marine organisms. Marine organisms get the oxygen they need to survive from the water. Oxygen enters the water at the air-water interface and becomes a dissolved gas. Also in the water are cyanobacteria, phytoplankton, and plants, which produce oxygen through photosynthesis. Saltier water holds less oxygen than less salty water, and warmer water holds less oxygen than colder water. She provided additional details about sources of supply and removal of oxygen from the ocean.
- Hypoxia is a natural process that can be influenced by human activity. She explained what could happen when hypoxia is mild, intermediate and severe. When severe, the Dungeness crab catch can be impacted.
- Studies show oxygen decline in open ocean and coastal waters globally, and “oxygen minimum zones” that are increasing in area.
- In the CBNMS region, in the central California Current system, oxygen-poor, high-nutrient, low pH water is upwelled on to the shelf when there are upwelling-favorable winds, which blow from north to south. Oxygen minimum zone water is not coming onto the shelf. She described how the California current system, actually a series of currents, works. The water on the shelf is moved around by winds, then is transported by currents.
- Kate showed where the moorings with oceanographic instruments are in the central coast national marine sanctuaries. The data from them help in understanding where the water goes. Two currents mixing can lead to hypoxia.
- Observations: seasonal and inter-annual variation in upwelled water to the shelf; dissolved oxygen in sub-thermocline water over the shelf declines with increasing stratification, leading to hypoxic events; and deoxygenation can lead to more frequent and more severe hypoxia.
- When winds relax, there is a reduced connection from the surface to the bottom. Upwelled water can increase oxygen in the water as it is refreshing hypoxic layers.
- She went over the data and which moorings it came from. There was only one event in 2014 where they saw moderate hypoxia at the bank; they have not seen severe hypoxia at the bank. She described what data were observed from 2014-2018 during various seasons at the 100 m depth in CBNMS.
- Upwelling leads to productivity that fuels the CBNMS ecosystem and refreshes the shelf waters at certain points, keeping hypoxia from being severe. Typically, in the winter, the oxygen is high in the water, and later in the season it is low. If there are not strong upwelling seasons in the future, that could cause more hypoxic conditions; deoxygenation can lead to more frequent and more severe hypoxia.
- She thanked the partners and funders of the work and asked for questions.
- In response to a question about tolerances of different species, she said a lot of work had been done on describing hypoxic levels; however, there is not as much known for each species. It would be a great question for a student or intern to look at the oxygen tolerances of the species at Cordell Bank.
- There was a suggestion to reach out to fishermen to ask them what they are seeing with respect to upwelling, if the opportunity arises. Kate appreciated the suggestion.
- There are lots of museum records with historical data from the bank from at least the 1980s to the present. It would be good to make new observations about what is happening now with species on the

bank, if their abundances are increasing, what the relationship is to dissolved oxygen, etc. Kate agreed those would be interesting questions to answer.

- Dani observed there is a range of sensitivity among species. Some might be able to move away but sedentary/sessile species, which cannot move away, tend to have more tolerance for low oxygen conditions. She said we have some idea about species' tolerances, though the suggested study has not been conducted. The CBNMS management interest in hypoxia is that severe conditions, including die-offs, have been seen in other places, like Oregon. We are interested in observing the conditions and any changes over time, especially since global conditions indicate oxygen is going down in the water.

Public Comment

- There was none.

Non-governmental Member Recruitment Review Subcommittee Report (Chris Hendry)

- Bec said this advisory council subcommittee was formed to look specifically at the recruitment process. Chris would do the work and findings, and if a vote was needed, she would facilitate that.

- Chris thanked Lilli for her help and support in holding the meetings and helping the subcommittee members to understand the application and selection process. He also thanked the other subcommittee members, Rob Taboada, Jeff Dorman, Dick, and Irma. At its first meeting, the subcommittee members named it the Non-Governmental Member Recruitment Review Subcommittee. It was formed in April 2019, when there was CBNMSAC discussion around who makes up the CBNMSAC, members' backgrounds, who comprises the represented communities, etc.

- Chris presented the Subcommittee's recommendations, which they put in four buckets - outreach, application, selection, and access.

- Access to the sanctuary can be difficult, as it is a remote location, and access to meetings was a consideration.

- The subcommittee organized the recommendations by things the CBNMS staff could do, and things the CBNMSAC could do.

- Dan asked if the outreach bullet regarding a working group was about that kind of subunit or a subcommittee; Chris affirmed it was about a working group.

- On the application bullet to add a question or questions to the application form, Chris believed Lilli told him ONMS was already considering that.

- Chris said the subcommittee members believe we already have an extremely diverse Advisory Council, but we can reach more underrepresented communities. The group believes by updating the nongovernmental member recruitment process, the CBNMSAC could be better able to serve the community.

- There was discussion about what was meant by access; Dan said it might be considered after we come out of coronavirus restrictions.

- The subcommittee did not make a determination that access to meetings is a problem; the thought was that the advisory council, when doing outreach, might find out access for candidates was an issue.

- Some people may not have technology or internet access, or be tech savvy.

- After brief discussion, a suggested edit was to insert "physical and technological" after "determine whether".

- Bec reminded the group that what the Advisory Council recommends is its decision, then Dan would decide what he wanted to implement or not.

- Brian Johnson brought forward that federal personnel policy, for employees, is to have a diverse selection committee. He did not see that spell out as a nongovernmental member recruitment need.

- There was a brief discussion about who makes up the preliminary review panel and how participants are selected.

- Bec stated the preliminary review panel is currently the Chair and Vice-Chair, with Lilli as staff, providing input to Dan. Lilli affirmed this was the membership of the preliminary review panel while she

had been an advisory council coordinator as CBNMS and when she was the Florida Keys National Marine Sanctuary advisory council coordinator.

- Brian noted at GFNMS, people volunteer to work on it. Lilli said different sanctuaries may use different procedures for the preliminary review panel [as consistent with the national advisory council handbook and charter]. She did not think it could be called a subcommittee, as such a subunit must present its findings back to the full advisory council at a public meeting, and the full advisory council would then make a recommendation to the superintendent. The process for the preliminary review panel is different, and it has to take action fairly quickly after the application period closes. Brian noted the GFNMS panel changes; it is made up from advisory council members on an as-needed basis and the superintendent would design that.

- The advisory council thought about adding an edit regarding the preliminary review panel and adding more people to it; instead, instead, Lilli offered to look into the language describing and process for the preliminary review panel and report back at a subsequent meeting.

- A suggested edit, to add as another bullet under selection process – CBNMS management was, “Have the superintendent and staff look into the structure of the preliminary review panel internally and report back to the CBNMSAC at a future meeting.”

- A motion, to adopt the amended recommendations on non-governmental recruitment, was moved by Steve Tubbs and seconded by Irma Cuevas. The motion passed unanimously. Below is the text approved by the motion.

The Cordell Bank National Marine Sanctuary Advisory Council accepts the recommendations made to itself and the Cordell Bank National Marine Sanctuary Superintendent by its Non-governmental Member Recruitment Review Subcommittee, as amended at the February 25, 2021 meeting, and provides these recommendations to the Cordell Bank National Marine Sanctuary Superintendent for his consideration.

CBNMS Education and Outreach and Conservation Science Program Reports (Jennifer and Danielle)

Conservation Science: Dani talked about the CBNMS mission, and for conservation science, goals are to understand the ecosystem of the sanctuary and monitor the conditions of the habitat and organisms to provide information that can be used to better protect the sanctuary.

- A challenge is limited resources; there is some program money put towards science, but it is also necessary to fundraise. The research community is fairly small, and it is difficult to access the sanctuary. The three science staff members (two are contractor affiliates) work with partners and students.

- The key ecosystem components are open ocean, studied via ACCESS; and the seafloor, studied via ROVs. To study deep and mid-water habitat, they use buoys to gather oceanographic (including hypoxia) and acoustic data. There is value from repeated measuring. She briefly described these projects.

- Fieldwork was cancelled in 2020, but they are working to get out in the field in 2021, working on ACCESS, ROV cruises, acoustics and hypoxia.

- Another prior is working on ONMS West Coast and national priorities, like the ONMS strategic plan.

- This year, a big priority is updating the CBNMS Condition Report. The last one was published in 2009. These are done nationwide for the national marine sanctuaries, and each report asks the same questions. The purpose of the report is to inform the subsequent management plan review process. Conditions in the sanctuary are described and rated, for water quality, habitat, living resources, maritime heritage, human activities, and ecosystem services. She is organizing status and trend workshops in March, April, May. There are more than 70 data indicators. Many of the data summaries are drawn from work done by the CBNMS staff. CBNMSAC members may be invited to some workshops and ask to review content. The full CBNMSAC will review the draft report. CBNMSAC members may be invited to workshops, asked to review content, and full advisory council will review the report.

- The accomplishments report for the past year will be distributed by email to the CBNMSAC. It covers the start of the Condition Report update process, a species inventory update, new species identified, hypoxia monitoring, science reports, and publications.

Education and Outreach: Jennifer shared that the National Marine Sanctuaries Act states the Secretary of Commerce may support, coordinate and promote efforts to enhance public awareness, understanding and appreciation of national marine sanctuaries. Activities may include education of the public, teachers, students, users of sanctuaries, and ocean and coastal resource managers. There are several guiding plans: the NOAA education plan, ONMS strategic plan, the CBNMS Management Plan (2008 version revised for the 2015 expansion of the sanctuary), and ONMS West Coast Region priorities.

- CBNMS has a goal to inspire ocean and climate literacy and conservation through national marine sanctuaries, to create an ocean-literate public to make informed environmental decisions.

- Some of the priorities for this year are updating exhibits at the PRNS Bear Valley Visitor Center, working with GFNMS; creating a recapitalization plan for coastal interpretive signs, working with other West Coast national marine sanctuaries; a Virtual Classroom Visit program; preparing education and outreach and sense of place content for the Condition Report update; and serving as lead for the ONMS West Coast education team.

- She is piloting the Virtual Classroom Visit Program with Madrone High School. She is starting with an ocean acidification project, and plans to expand the program to include Winged Ambassadors and more.

- Samara Haver wrote a story, with support from ONMS, Jennifer and Dani, to describe the work the acoustic monitoring project is doing and what we are learning. There is a link to it on the CBNMS website, on the home page.

- The NOAA Hollings undergraduate scholarship program funds junior and senior students to get a summer placement within NOAA; it includes conference fees, travel funds and housing allowances for scholars. She submitted a CBNMS project to create Next Generation Science Standard "phenomena" introductions for classroom teachers focused on CBNMS and science. She will find out in April if there are any applicants. The placement would be with CBNMS for nine weeks. The program recruits from minority-serving institutions around the country.

Members' and Alternates' Reports (advisory council)

Brian – GFNMS is also working to get back in the field, with ACCESS, Beach Watch, and the Long-term Monitoring Program and Experiential Training for Students (LiMPETS). The sanctuary education programs are all virtual, and are at capacity. They need more teachers. They have also started the process to update the GFNMS Condition Report, and will have workshops about a year from now, then will kick off their management plan update process about three years from now. The GFNMS staff also met with ONMS leadership and West Coast Region leadership about two weeks ago; it was a good opportunity for the staff to highlight priorities.

George – He is in the second week of his detail. He helped with the Joint Management Plan Review process in 2001 and worked on the vessel traffic working group. He meets regularly with Michael. On recent MBNMS work, he provided a series of updates. The annual WhaleFest Monterey event went virtual, and expanded from two days to four nights. The Santa Cruz Warriors basketball team highlighted the Santa Cruz Exploration Center in a monthly video newsletter. A talk on bioluminescent blooms, part of the National Marine Sanctuary Webinar Series, had over 1,000 participants. The traveling MBNMS Salmonscape Exhibit has been completed; it has four panels. It will likely start at the Santa Cruz Exploration Center, if that is able to open, and be there through next summer, then travel to partner organizations afterwards. At the Big Sur debris flow, Steve Lonhart has been working at the edge to rescue black abalone. The 33rd annual Ed Ricketts Memorial Award was presented on January 21 to Dr. Terrie M. Williams, Director of the Center for Marine Mammal Research. Her collaborative research examines how evolutionary processes in animal design conspire with modern anthropogenic pressures to challenge the survival of mammals in the marine environment. The "First Flush" monitoring took place in

December, the 21st year of that effort. In January, the motorsailer *Bobbie Ann* broke loose from a mooring ball in Monterey Harbor due to high wind and seas; the responsible party was able to recover it and prevent any environmental harm. The MBNMS Management Plan update process continues; in development are an environmental assessment and draft regulations changes associated with the plan update. Regarding leadership, Kevin Grant was Acting Superintendent; now Dawn Hayes is. Lisa Wooninck will follow Dawn. Work is underway to get out the job announcement for the MBNMS Superintendent.

LTJG Chris Bell – went over the time the United States Coast Guard (USCG) devoted to all three central coast national marine sanctuaries from October 1 – February 15. The USCG is back to normal tempo. They did 104 surface patrol with the WPB cutters. Domestic fisheries is one of the things they focus on, and there were three violations during this period. USCGC SOCKEYE had a case on October 15; a pleasure craft four nm south of Bolinas was fishing for salmon with four rods in the water; only one rod was authorized. USCGC PIKE had a case on October 16; a vessel 16 NM off Half Moon Bay fishing for sablefish, a groundfish, was outside the daily catch limit with no permit onboard and was missing bird avoidance gear. USCGC TERN had a case on October 23 with a vessel three nm off the Golden Gate that was missing electronic fishing tickets for groundfish. He mentioned that Michael had sent a product related to looking at Essential Fish Habitat in the 50 fathom isobath around the bank to the USCG. Such communications with sanctuary subject matter experts can help the USCG better target its efforts.

Frank Borodic - his business, a bed and breakfast inn, has been closed since last March. The local community is tourism-based. Visitors are going to fewer trailheads. He is involved in a number of things in the community, including vaccine distribution.

Steve – he is in Sonoma County, which is in the purple tier for coronavirus. Much is being done virtually, if it is happening at all. He had not had much chance to meet with groups in his constituency. He is sharing virtually, through Facebook, about CBNMS and other interesting presentations. The Russian River fly fishers have been meeting every month. They are involved in Steelhead in the Classroom and they are sponsoring a new video about steelhead in the Russian River. They are working with the California Department of Fish and Wildlife (CDFW) and the water agency. They hope to have the video out in the next few months.

Scott Artis – said the preliminary count by the Salmon Protection and Watershed Network (SPAWN) for salmon redds was 101 in the Lagunitas watershed. This is a generational improvement from three years ago, but is below the federal target goal of 1,300 redds to recover the species. Due to little rain having fallen, many of the smaller tributaries were inaccessible for allowing the coho to move upstream. This is still being monitored. The San Geronimo Creek Restoration project was completed. They put woody debris in to help slow failing stream banks and preserve homes. Roy's Pools has transformed into Roy's Riffles. There is a new bridge, but it is not open yet.

Bec – there have been challenges with COVID-19 and shifts to virtual programming for the education community. It is great to see the efforts the national marine sanctuaries are making. There is not much to report except, “wait and see.” There are challenges with kids at home and uncertainty if kids will return to school. Her own organization has been reaching out virtually and has reached some communities they have not been able to reach in the past.

Dick – said the crab season had been pretty poor at best, but the price has been good. The low quantity has been tough for the fishermen. He thought this was probably the result of the warm water blob about five years ago as crab reach maturity at about five years. There is going to be testing of “pop up gear” to see if that could be used to mitigate whale interactions with crab gear. Floating and stationary acoustic

testing is coming up, to listen to whales; he will be doing acoustic testing with Shannon Rankin. He hoped the salmon season would be like last year's season.

Noah – there was a Bodega Bay town hall live streamed on February 23, hosted by the 5th district supervisor; lot of issues were noted on increased traffic, parking, trash, and sanitation. The county is working on solutions to all of these problems. One consideration is restriping the roads; another is electronic hazard signs. The parks manager said weekdays have been like weekends are normally, and weekends have been like holidays are normally. Everyone wants to get out to coast during COVID-19. Putting out electronic signs as one solution. Other topics: refreshing beach hazard signs, Measure B, an update on the Meredith Fish plant removal, and future plans for the that site were discussed. The former Meredith pier area may become a town center and feature sculptures; people may submit proposals at creativesonoma.org. The Bodega Bay weather buoy broke free from its mooring. Parker Diving recovered it; they cut off the tether, then dragged it into Bodega Bay. The National Data Buoy Center plans to launch a new buoy soon. CDFW is having a 2021 salmon season informational meeting on February 25; it will include the outlook for the coming season.

Kai – IMO 2021 went into effect this year so carriers must now use fuel with less sulfur oxide; this will mean less pollution at sea. In effect as of 1/1/21 are greater penalties for oil spills in California waters. There is a glut of ships in Los Angeles and Oakland right now so they are slower steaming. That may result in fewer whale strikes by ships this year. His company is going to launch a Liquified Natural Gas-powered ship soon and a second one later this year. They are looking into getting a certification for sustainable shipping company practices from Friend of the Sea, who did Dolphin Safe tuna.

Jeff – the West Coast is coming into upwelling season, and researchers will be doing a lot of data collection. There will be holes due to lack of collections last year. California Cooperative Oceanic Fisheries Investigations (CalCOFI) researchers went out in the wintertime; this will add to the data set and help in understanding the ecosystem. Researchers try to connect at conferences, and those did not happen in person, but virtual collaboration at conferences increased. The Pacific States Marine Fisheries Commission and the California Ocean Protection Council just released a solicitation for research to reduce entanglements of whales and turtles from fishing gear. In a few months, there will be new studies on how to reduce entanglement risk.

Chrissy Piotrowski – also looking forward to collecting new data and has been connecting virtually as well. There is a webinar the afternoon of this meeting by a post doc who works in collaboration with the Ocean Protection Council and CDFW to translate citizen coastal science observations of use real time data to build capacity for management and conservation. Inaturalist could be a useful tool for fishermen and others working in the sanctuary to help with observations and surveys of real time data of subtidal habitats in CBNMS. There has been a significant increase of visitors to rocky intertidal zones and harvesting, both legal and illegal. There was a Bay Nature article about this. The Environmental Action Committee of West has started a docent program to patrol in West Marin at low tide. Folks at the California Academy of Science are also concerned and working on this.

Reducing Lethal Vessel Strikes of Endangered Whales Project: Update and Possible Next Steps (Michael)

- The CBNMS resource protection program uses a suite of regulatory and non-regulatory tools to allow activities that are compatible with ecosystem health while considering human needs. Over ten years, the project to reduce lethal strikes by ships of endangered whales in national marine sanctuaries has been a team effort among the CBNMS staff and other partners. He is the project lead.
- The co-occurrence of ships and whales sometimes result in ships striking the whales. Sometimes a whale may have been dead when picked up on a ship's bow. When a whale necropsy is done, bruising and broken bones link a death to having been struck by a ship.

- Deaths of endangered blue and endangered/threatened humpback whales (status varies among distinct population segments in Central America and Mexico) are of particular concern. Michael went over the minimum population and potential biological removal (PBR) estimates from 2019 National Marine Fisheries Service (NMFS) stock assessments. The PBR level is the maximum number of animals, not including natural mortalities, which may be removed while allowing the stock to reach or maintain a sustainable population. The PBR for blue whales in the E. North Pacific Stock is 1.2 and for humpback whales in the California, Oregon and Washington stocks is 16.7.
- He reviewed numbers of standings of large whales in California and Northern California from January 2009 – August 2019. There have been higher numbers of reported strandings around the ports. He also went over the numbers attributed to vessel collisions.
- From 2007-2019, there were 56 recorded fatal strikes on endangered whales along the U.S. west coast; 12 were blue whales and 17 were humpback whales. There are caveats about the database; detection is estimated at 1 – 17%, and only whales necropsied are included in it. For blue whales, the leading cause of human induced mortality is being struck by ships and for humpback whales it is entanglement.
- In 2011, a joint advisory council working group of the CBNMS and Gulf of the Farallones national marine sanctuaries' advisory councils formed to look at vessel strikes to and acoustic impacts on whales. Four blue whales were killed in 2007, with another bump in 2010. He showed who participated. Five of the recommendations the advisory councils adopted were: for NOAA and the USCG to work together to modify the shipping lanes to avoid areas of whale concentrations; for the sanctuaries to implement a real time whale sighting and monitoring network; for the sanctuaries to implement passive acoustic monitoring of whales and vessels; for sanctuaries to work with partners to establish incentives to reduce underwater ship noise; and for the sanctuaries' education and outreach to engage and inform maritime industry stakeholders on solutions with measurable outputs and an implementation schedule.
- The USCG did a Port Access Route Study and ACCESS data was utilized, along with safe navigation and fishing considerations. As a result, in 2013, the San Francisco Bay Traffic Separation Scheme (TSS) was modified to reduce the conflict among vessels and whales using their preferred habitat.
- In 2014, a Whale Alert West Coast app was released, after working with NOAA folks, who started it on the East Coast. Observations come from various contributors, including biologists on the Farallon Islands. Point Blue Conservation Science (PBCS) provides Whale Alert information in a Twitter feed.
- In 2015, NOAA started a passive acoustic monitoring program in CBNMS and voluntary seasonal vessel speed reduction (VSR) (to 10 knots or less May 1 – Nov. 15). He reviewed some of the activities that goes into the VSR project to work with the USCG, the shipping industry, and others before, during and after the requested slowdown period.
- In 2017, NOAA partnered with the Bay Area Air Quality Management District to expand the VSR incentive program to the Bay Area. It offers monetary incentives for vessel operators to slow down to a speed of 10 knots or less, which helps meet the district's mandate to reduce air pollution as well as reducing the risk of lethal ship strikes of endangered whales. Almost \$200,000 is available for incentive awards annually; awards are scaled according to the levels of cooperation with the speed request. Cooperation has increased, up to 64%. The reductions in vessel emissions is significant – in 2019, equivalent to taking 3,622 cars off the road.
- In 2017, CBNMS received funding from NMFS Protected Resources Division and awarded a contract to Point Blue Conservation Science to evaluate the risk reduction of current and possible future management options for reducing ship strikes of whales in CBNMS and GFNMS.
- An internal sanctuary team considered a list of management options in 2018-19, and set a goal for the sanctuaries to reduce the risk of lethal ship strikes of endangered blue, humpback and fin whales by 50%.
- The report with the PBCS analysis published in September 2020. A key takeaway in it is, even if we achieve a 95% cooperation rate with the existing VSR, that would only reduce mortality risk to target whale species by about 25%.
- The sanctuary staff evaluated 18 possible management options the sanctuaries might consider in a structured decision making process; the team prioritized eight of those, then reduced those to three conceptual options. In next steps, these will be presented to a GFNMS Advisory Council (GFNMSAC)

Working Group, with the plan to have the group meet at least three times starting in April 2021, to consider providing input on risk reduction measures to a full advisory council meeting in November 2021. He asked for questions.

- What are the conceptual ideas? Michael reached out to Maria about that prior to this meeting, and she would like to have those presented when the working group is formed, and not in advance.
- He and Dan reviewed that the current VSR area in the San Francisco TSS is not meeting the staff goal and that many of the whale deaths occur outside the shipping lanes.
- As the whale populations increase, will it be more and more difficult to avoid interactions with ships, as fishermen have seen with interactions with their gear? Michael said the VSR program has focused on the populations of about 2,500 humpbacks and 1,000 blues whales; he acknowledged it was a fair point that as populations recover, interactions will increase. We want the populations to fully recover.
- Bec said there has been a suggestion, or invitation, for members of the CBNMSAC to join the GFNMSAC working group to address or work through some of the things Michael shared. It would become a joint working group. If the advisory council wanted to do this, was there an individual that might want to help the GFNMSAC working group as a group co-chair? Also, are there potentially one or two other CBNMSAC members who would like to join such a working group? Some individuals for which it might make sense to join could be those representing research, conservation, or maritime activities. She asked Dan, who was at the most recent GFNMSAC meeting, if he had anything to add.
- Dan said the GFNMSAC talked about trying to establish membership on the working group so it had representation from any group that had an interest in the discussion. Julian Rose, who might be the GFNMSAC co-chair, is a representative of the shipping industry. He did not know yet who else from the GFNMSAC would join.
- Bec said Kai sent a chat during the discussion noting he wants to be involved, though not as a co-chair.
- Lilli provided a reminder that the working group or groups would report back to the full advisory council(s), which provide input to the superintendent(s).
- Michael noted the Marine Mammal Commission provided a grant for staff support for such a working group, and Jessica Morten would be doing that, handling a lot of the administrative work.
- Dick said he had been working on whale entanglement and interactions with fishing gear, and there is a need to protect the whales. Fishermen have done what they can on this; the working group would be looking at different perspectives. He said he would be happy to help.
- Bec thought there was consensus to have a joint working group, and ask for a verbal vote. All the responses were “aye”.
- The CBNMSAC co-chair would help organize working group meetings and report back to the CBNMSAC. If there were no CBNMSAC co-chair for the working group, that would be OK but we would need to figure out about collaborating and how to report information from the group to the CBNMSAC. She asked if there were others with the time and bandwidth to commit to the new working group.
- Jeff said he would be happy to contribute if there was a role for research in it; it was hard for him to tell if that would add value to the group. Dan responded he thought Jeff would be a good asset and that it would be important for the group to understand the science and the biology. Michael noted technical experts could also be brought in. Jeff said he would be a member of the working group.
- Dan said in addition to Julian, he thought other GFNMSAC working group participants were Kathi George, Sarah Bates, Bibit Traut, and John Berge.
- Bec asked what the next steps were. Dan said we could pass along to GFNMSAC about who from the CBNMSAC is participating, leave it open as to who would be the CBNMSAC co-chair, and from that point forward, communications about the joint working group would include the CBNMS participants.

Bec adjourned the meeting at 2:12 PM.