Welcome to the GFNMS Virtual SAC Meeting

PLEASE MUTE yourself to reduce background noise.

If you are using a phone for audio: Use *6 to mute and unmute.

+1 314-649-9371
PIN: 942 884 181#

Note the option to turn on captions
Roll Call

1. Dominique Richard (Chair), CAL Marin Primary
2. Abby Mohan (Vice Chair), Recreational Activities Primary
3. Barbara Emley (Secretary), Commercial Fishing Primary
4. Sarah Bates, Commercial Fishing Alternate
5. Joe Fitting, CAL SF/SM Primary
6. Kris Lannin Liang, CAL SF/SM Alternate
7. George Clyde, CAL Marin Alternate
8. Cea Higgins, CAL Sonoma/Mendo Primary
9. Nancy Trissel, CAL Sonoma/Mendo Alternate
10. Richard Charter, Conservation Primary
11. Bruce Bowser, Conservation Primary
12. Francesca Koe, Conservation Alternate
13. Kathi George, Conservation Alternate
14. Bibit Traut, Education Alternate
15. John Berge, Maritime Activities Primary
16. Julian Rose, Maritime Activities Alternate
17. Joshua Russo, Recreational Activities Alternate
18. John Largier, Research Primary
19. Jaime Jahncke, Research Alternate
20. Ezra Bergson-Michelson, Youth Primary
21. Owen Youngquist, Youth Alternate

Government Members
23. Mark Gold, CA Natural Resources Primary
24. Michael Esgro, CA Natural Res. Alternate
25. Cicely Muldoon, NPS Primary
26. Ben Becker, NPS Alternate
27. LT Jacob Joseph, USCG Primary
28. LTJG Chris Bell, USCG Alternate
29. Chris Barr, USFWS Primary
30. Gerry McChesney, USFWS Alternate
31. Jennifer Boyce, NFMS Primary
31. Kevin Grant, MBNMS Primary
32. Dawn Hayes, MBNMS Alternate
33. Dan Howard, CBNMS Primary
34. Michael Carver, CBNMS Alternate
35. Chris Mobley, CINMS Primary
36. Michael Murray, CINMS Alternate
<table>
<thead>
<tr>
<th>Time</th>
<th>Topic</th>
<th>Lead</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:00-9:10</td>
<td>Welcome, Roll Call, Review Agenda</td>
<td>Alayane Chappell, SAC Coordinator</td>
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<tr>
<td>9:10-9:20</td>
<td>SAC Business</td>
<td>Alayane Chappell, SAC Coordinator</td>
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<tr>
<td></td>
<td>- Approve August meeting highlights <em>(Action Item)</em></td>
<td></td>
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<td></td>
<td>- Recruitment update</td>
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<td></td>
<td>- SAC Workplan, retreat comments incorporated</td>
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<td></td>
<td>- Subcommittee timeline updates</td>
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<tr>
<td>9:20-9:40</td>
<td>Greater Farallones National Marine Sanctuary Superintendent’s Report</td>
<td>Maria Brown, GFNMS Superintendent</td>
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<td></td>
<td>- Permits</td>
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<td></td>
<td>- Covid-19 re-entry plans and field operations</td>
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<td></td>
<td>- Updates on sanctuary program activities</td>
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<tr>
<td>9:40-9:50</td>
<td>Sanctuary Enforcement Update</td>
<td>Rad Dew, NOAA OLE Jacob Joseph, USCG</td>
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<tr>
<td>9:50-10:20</td>
<td>New Sanctuary Permit Dashboard Demo and Discussion</td>
<td>Max Delaney, GFNMS Sage Tezak, GFNMS Affiliate</td>
</tr>
<tr>
<td>10:20-10:30</td>
<td>Monterey Bay National Marine Sanctuary Superintendent’s Report</td>
<td>Kevin Grant, MBNMS Acting Superintendent</td>
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<tr>
<td>10:30-10:40</td>
<td>Cordell Bank National Marine Sanctuary Superintendent’s Report</td>
<td>Dan Howard, CBNMS Superintendent</td>
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<tr>
<td>10:40-10:55</td>
<td>PUBLIC COMMENT</td>
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<td>10:55-11:05</td>
<td>BREAK</td>
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<tr>
<td>11:05-12:05</td>
<td>San Francisco-Pacifica Exclusion Zone Subcommittee Recommendations</td>
<td>Dominique Richard, SAC Chair</td>
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<td><em>(Action Item)</em></td>
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<td></td>
<td>- Presentation and SAC Discussion</td>
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<tr>
<td>12:05-12:20</td>
<td>BREAK</td>
<td>Alayane Chappell, SAC Coordinator</td>
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<tr>
<td>12:20-12:50</td>
<td>SAC Charter Renewal <em>(Action Item)</em></td>
<td>Alayane Chappell, SAC Coordinator</td>
</tr>
<tr>
<td>12:50-1:30</td>
<td>Acoustic Monitoring in the Sanctuaries: NOAA Ocean Noise Reference Station Results</td>
<td>Samara Haver, Oregon State University</td>
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<tr>
<td>1:30</td>
<td>ADJOURN</td>
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SAC Business

Approve August Meeting Highlights (Action Item)

• Any edits? Please indicate in the Chat Box
• Virtual vote by roll call
SAC Business

1. Recruitment update
2. Updated SAC workplan distributed
3. Subcommittee timeline updates
Operations

- Maximum telework until further notice
- The facilities and Visitor Center remain closed to the public
- Moved to Phase 1 of re-entry
Conservation Science

• GFNMS staff participated in the Oct. *Nautilus* cruise remotely
• 98% of Beach Watch surveys active
• LiMPETS Program Coordinator Rosemary Romero named the Western Society of Naturalist’s Naturalist of the Year!
Online Education

• Fall Online School Programming Full
• Virtual Sharktoberfest (3,000 participants)
• Virtual Humpback Whale Soirée (600 participants)
Ecosystem Protection

- The Seabird Protection Network held another successful virtual event for 400 participants
- Seadrift Lagoon 5,389 green crabs removed
- Kelp UAV surveys completed (34 of 39 sites identified in plan)
<table>
<thead>
<tr>
<th>Permit Type</th>
<th>Organization</th>
<th>Project</th>
<th>Effect. Date</th>
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</thead>
<tbody>
<tr>
<td>Research</td>
<td>Stanford University and Oregon State University</td>
<td>Ecology and Population Dynamics of Sharks in the Northeastern Pacific (At multiple sites within MBNMS and GFNMS)</td>
<td>Sept. 2, 2020 to Nov. 30, 2022</td>
</tr>
<tr>
<td>Research</td>
<td>Nature Conservancy and Greater Farallones Association</td>
<td>Unmanned Aerial System surveys of bull kelp canopy along Sonoma and Mendocino county coastline (At nine sites within GFNMS NOAA Regulation Overflight Zones 1 and 2 along the Sonoma Coast)</td>
<td>Sept. 9, 2020 to Nov. 1, 2022</td>
</tr>
<tr>
<td>Research</td>
<td>Blue Ocean Gear LLC</td>
<td>Developing and Testing of a Smart Crustacean Trap (At various sites within MBNMS and GFNMS)</td>
<td>Sept. 15, 2020 to Nov. 30, 2021</td>
</tr>
<tr>
<td>Education</td>
<td>Ocean Safaris LLC</td>
<td>Educational tours to the Gulf of the Farallones and Año Nuevo Island to view White Sharks and filming of White Sharks for documentation ID purposes, educational and commercial usage (Within GFNMS at SEFI and within MBNMS at Ano Nuevo Island)</td>
<td>Sept. 17, 2020 to December. 15, 2025</td>
</tr>
<tr>
<td>Letter of Authorization (LOA) under Super's Permit</td>
<td>Jan Roletto (GFNMS) and Chad King (MBNMS) and Nicole Raineault (OET)</td>
<td>West Coast National Marine Sanctuaries Mapping (At various sites within GNMS and MBNMS)</td>
<td>Sept. 30, 2020 to Oct. 31, 2020</td>
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<tr>
<td>TBD</td>
<td>Stanford University</td>
<td>The sandy beach microbiome: physical, chemical and biological controls on diversity and function (Within GFNMS at Stinson Beach)</td>
<td>TBD</td>
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<tr>
<td>TBD</td>
<td>Bodega Marine Reserve and Laboratory</td>
<td>Programmatic Research Permit for Bodega Marine Reserve</td>
<td>TBD</td>
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</table>
Recent Enforcement Activity

1) Capsized Sailing Vessel in Bodega Bay
   Date of Incident: 9/20/2020
   Status: No further action from GFNMS; Referred case to OLE

2) Panga Grounded at Pescadero State Beach
   Date of incident: 11/14/2020
   Status: USCG and CA State Parks cleaned up the beach and Homeland Security CBP seized the vessel
Surface Patrol highlights (25AUG-15NOV):

- ~585 WPB LMR patrol hours
- USCGC SOCKEYE issued violation to Rec Salmon Vessel for unauthorized gear – Bolinas Bay
- USCGC SOCKEYE issued violation and seized undersized salmon – Bodega Head

Aviation Patrol highlights (25AUG-15NOV):

- 22 C-27 Flights (Approx. 144 patrol hours).
- 5 Rotary Flights supporting RAMP data collection
Permit Dashboard Demo
Sage Tazek, GFNMS Affiliate
Max Delany, GFNMS
GFNMS Permit Dashboard

November 19, 2020
Sanctuary Advisory Council
Permit Dashboard

- Permit dashboard & project parameters
- Demonstration
- Product discussion
Permit Dashboard

- A tool used to visualize locations of permitted actions issued within Greater Farallones National Marine Sanctuary, and the Northern Portion of Monterey Bay National Marine Sanctuary
- A tool used to measure number and type of permits issued per quarter/annually
- An assessment tool to evaluate how many and what type of permits have been issued for a specific area

This is a qualitative tool and does not quantitatively measure cumulative impacts
Project Parameters

- Target audience: SAC members & GFNMS staff
- Updated quarterly, just prior to Sanctuary Advisory Council meetings
- Initial build includes permits between 2014-2019
- Permit denials, withdrawals and permit applications under review are not included in the dashboard
- Mapped areas are based on permitted locations - not reported activities
- MULTI permits included in the dashboard show permitted activities only in GFNMS and the Northern Portion of MBNMS
- Amendments are included
- Approximate permitted shipwreck explorations are included in the dashboard
Education

- MBNMS Staff hosted live distance learning programs featuring the 2020 *Nautilus* Expedition with 387 students participating
- Kick off of virtual distance learning programs. Five programs have been developed:
  - Protect your Watershed
  - Plankton Exploration
  - Dive into Kelp Forests
  - Deep Sea Discovery
  - Sounds in the Sanctuary
Research

- Staff completes deep-sea research expedition in MBNMS with E/V Nautilus
  - Date gathered to characterize and identify sensitive seafloor areas of Pioneer Canyon off the San Mateo coast
  - Observed thousands of octopus brooding eggs near Davidson Seamount
  - Whale fall discovered in 2019 revisited
Resource Protection

- Open Farm Tour virtual presentation on plastic in agriculture.
- Team OCEAN hits the water with new COVID precautions
- Whale Entanglement Risk Assessment & Mitigation Program (RAMP) begins for upcoming crab fishing season
Operations and Administration

- MPR Process Continues:
  - Formulating response to Comments document
  - Conducting agency consultations
  - Making edits to the draft management plan, DEA and proposed rule
CBNMS Superintendent’s Report
Dan Howard
PUBLIC COMMENT 10:40-10:55am

Please unmute yourself when called on to provide your verbal comment.

If you are having trouble unmuting, please let us know in the Chat Box or text 415-531-3266

We are also accepting written comments until 1:30pm today. Email your comment to alayne.chappell@noaa.gov
10-min BREAK
## LOCAL SANCTUARIES

<table>
<thead>
<tr>
<th>Denomination</th>
<th>Expansion</th>
<th>Acreage (Sqmi)</th>
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<tbody>
<tr>
<td>GFNMS</td>
<td>1981</td>
<td>3,295</td>
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<tr>
<td>CBNMS</td>
<td>1989</td>
<td>1,286</td>
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<tr>
<td>MBNMS</td>
<td>1992</td>
<td>6,094</td>
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</tbody>
</table>
San Francisco Pacifica Exclusion Area (SFPEA)

Ship Traffic

Dredging

Storm Water Discharges
Dredging:
Placement of dredged material occurs in other sanctuaries and the material dredged from the Main Shipping Channel (MSC) is considered “free” of toxins.

Water treatment Run off
The annual number of times that water quality standards were exceeded has declined since the creation of the Exclusion Area in 1992.
In addition, the installation of new infrastructure in the years following MBNMS designation has significantly decreased the number of CSD (Combined Sewer Discharge) events.

Ship traffic
Vessel traffic entering and exiting the San Francisco Bay along the MSC does not pose a barrier to the proposed sanctuary expansion. The level of vessel traffic in the Exclusion Area is comparable to the level of traffic in existing other National Marine Sanctuaries, including Stellwagen Bank, Channel Islands, and Monterey Bay.

Note: vessel traffic has been further improved with the new Traffic Separation Scheme (TSS) and voluntary speed reduction program
Northern Management Area (NMA) Under GFNMS supervision
Degree Zero: Administrative Reality
Hydrologic argument:
The plume from San Francisco Bay flows north toward the Point Reyes Peninsula

The zone of impact of the San Francisco Bay outflow
John Largier (2016)

BMW Oracle catamaran debris
The Coastodian (2012)
Ecological Argument:
Wildlife transits between the Farallones Island and the bay
The Muwekma Ohlone tribes view the Shellmounds located in Berkeley as a portal for the dead. Starting at “the midpoint of the Eagle’s tail” the soul of the deceased travel west in a straight sightline that runs from the middle of the Eagle’s body, through its beak and to the Farallones... their “Heaven”
Location Argument:
G_FNMS Headquarter & visitor center, located near the San Francisco scenic drive, faces the waters of SFPEA.
Tourism Outreach Argument:

30 million visitors annually!

AMBASSADORS
SFZoo&Garden
California Academy of science
Marin Mammal Center
Bonitas Point lighthouse
Golden Gate Raptor Observatory
Golden Gate Welcome center
Crissy field & GFNMS visitor center
Lands End Trail
Legion of Honor
Shipwreck Museum
Cliff House
Proposal: Inclusion of SFPEA in GFNMS

3 scenarios for the New GFNMS
Southern boundary
PENDING ISSUES

Management of water quality sites included in GFNMS

Responsibility for beach warning or closure in GFNMS

Responsibility for cruise ship discharge monitoring

Complication in establishing boundary changes

Others …
Resolution of the GFNMS Advisory council to recommend the integration of the Pacifica Exclusion Zone in the sanctuary system

Whereas in 1992 the San Francisco Pacifica Exclusion area (SFPEA) was carved out from the initially proposed footprint of the Monterey Bay National Marine Sanctuary (MBNMS) because of storm water discharges, dredging and ship traffic incompatible with sanctuary regulations,

Whereas by 2013, these problems have been mitigated,

Whereas The SFPEA is an integral part of the san Francisco coastline and the Golden Gate entrance to the bay,

Whereas the Farallones Islands, the namesake of GFNMS, are an iconic site for local indigenous tribes as well as part of the City and County of San Francisco,

Whereas the hydrography & ecology of the San Francisco Bay is directly linked to the Gulf of Farallones,

Whereas the geographical location of SFPEA provides an ideal seascape for the interpretation of the sanctuary waters by (1) GFNMS headquarters & visitor center located on Crissy field, (2) the San Francisco Zoo (which is in the immediate proximity of ocean beach), (3) The California Academy of Sciences (in Golden gate park), (4) The lands-end trail and (5) other potential partners or “ambassadors” of GFNMS,

Be it resolved to incorporate the northern end of the MBNMS Northern management area, which includes SFPEA, in the Greater Farallones National Marine sanctuary (GFNMS), by substituting the current GFNMS southern boundary line which end at rocky point by a line connecting Point san Pedro to the offshore southernmost point of the GFNMS boundary.
DISCUSSION & EDITS
Berkeley

Frederick Billings, Trustee of the College of California

In happy climes, the seat of innocence,
Where nature guides and virtue rules,
Where men shall not impose for truth and sense
The pedantry of courts and schools:

There shall be sang another golden age
The rise of empire and of arts,
The good and great inspiring epic rage,
The wisest heads and noblest hearts.
15-min BREAK
ONMS SAC Handbook: Revising a Charter (pg. 55)

- GFNMS SAC Charter expires and must be renewed every 5 years (last renewed Feb 2016)

**Process:**

1. About 6 months before the expiration date, the SAC will review the current Charter and make any recommendations for amendments (these amendments should address existing problems or needs of the council).
2. The sanctuary superintendent and council coordinator will discuss recommendations with appropriate sanctuary staff on-site and at the national office.
3. Any ONMS-wide new legal or programmatic requirements will also be incorporated through guidance from the National Council Coordinator.
4. Once all of the changes have been determined, a new draft charter will be prepared and sent for final approval by the ONMS Director.
5. A final version will be distributed to SAC and posted to the GFNMS website.
Presentation:
Acoustics Monitoring in the Sanctuaries
Samara Haver, Nancy Foster Scholar
Acoustic Monitoring in the Sanctuaries: NOAA Ocean Noise Reference Station Results

Samara M. Haver

Project collaborators: Zoe Rand, Leila T. Hatch, Danielle Lipski, Robert P. Dziak, Jason Gedamke, Joseph Haxel, Scott Heppell, Jaime Jahncke, Megan McKenna, David K. Mellinger, William Oestreich, Lauren Roche, John Ryan, Sofie Van Parijs
Hello!

- PhD candidate at Oregon State University
- Dr. Nancy Foster Scholar (2017-2021)
Seasonal trends and primary contributors to the low-frequency soundscape of the Cordell Bank National Marine Sanctuary


ABSTRACT

Passive acoustic monitoring of ocean soundscapes can provide information on ecosystem status for those tasked with protecting marine resources. In 2015, the National Oceanic and Atmospheric Administration (NOAA) established a long-term, continuous, low-frequency (10 Hz–2 kHz) passive acoustic monitoring site in the Cordell Bank National Marine Sanctuary (CBNMS), located offshore of the central United States of America (U.S.) west coast, near San Francisco, CA. The California Current flows southward along the coast in this area, supporting a diverse community of marine animals, including several baleen whale species. Acoustic data analysis revealed that both large vessels and vocalizing baleen whales contribute to the ambient soundscape of the CBNMS. Sound levels fluctuated by month with the highest levels in the fall and lowest levels in the summer. Throughout the year, very low-frequency (10–100 Hz) sound levels were most variable. Vessels and whales overlap in their contributions to ambient sound levels within this range, although vessel contributions were more omnipresent, while seasonal peaks were associated with vocalizing whales. This characterization of low-frequency ambient sound levels in the CBNMS establishes initial baselines for an important component of this site's underwater soundscape.
Why Passive Acoustic Monitoring?

- Year-round effort
- Not limited by weather or daylight
- Minimal disturbance to environment
  - Only during deployment and retrieval
  - No surface expression
- Long-term data collections
  - Initial data download in 2017 (focus of this analysis)
  - Instrument swapped again in October 2019
- Comparisons to calibrated network
  - Including 3 other NMS - OCNMS, CINMS, SBNMS
NRS Instrumentation
SOUND IN THE SEA
Soundscape analysis = acoustics + more!

- **Establish baseline sound levels**
  - Quantify sound levels (at hydrophone) at each frequency in hourly time windows (MATLAB)
  - Calculate monthly and 2-year **averages**
  - Use **percentiles** to indicate potential influence of chronic vs transient sources

- **Analyze recordings for presence of baleen whale vocalizations**
  - **Automatic** detector indices – simpler, consistent vocalizations
  - **Manual** analysis – for species with large repertoire of call types or possible masking conditions (automatic detector cannot separate from background noise)

- **Comparison to other types of data**
  - **Shipping** activity (AIS)
  - **Visual whale sighting data** (SEFI/ACCESS)
  - **Wind** speed (NOAA weather buoy)
  - **Rainfall** measurement (Bodega Marine Lab)
  - **Earthquakes** (USGS)
Measuring Sound

![Diagram showing the concept of amplitude in sound measurement. Quieter on the left and Louder on the right.](image-url)
What did we hear?

1. Low-frequency soundscape dominated by whales
   • Seasonal patterns of blue and fin whales
   • Humpback whales detected year-round
   • Visual survey and acoustic monitoring detections are not the same

2. Vessel noise is consistent year-round
   • Matches results from AIS

3. Ambient sound levels similar to S. CA
   • Expected because of similar whale habitat and large ports
   • Different sound propagation environments
Biophony (whale vocalizations)

Haver et al., 2020
Whales Affected Monthly Sound Levels

Illustrations: Pieter Folkens & http://cetus.ucsd.edu/

Haver et al., 2020
Seasonality of Ambient Sound Levels

Haver et al., 2020
Visual vs. Acoustic Detections

Haver et al., 2020
Visual vs. Acoustic Detections

Humpback Whales

% of visual on-effort days with positive detections

Month (2015-2017)

Gray Whales

% of visual on-effort days with positive detections

Month (2015-2017)

Haver et al., 2020
Whales and Ocean Noise

Theoretical Zones of Influence

Detection
Masking
Response
Injury

Van Parijs et al., 2015

Adapted from Richardson et al, 1995
Whales and Vessel Noise

Stellwagen Bank National Marine Sanctuary

Boston Harbor

Cape Cod
What did we hear?

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3. Ambient sound levels similar to S. CA
   • Expected because of similar whale habitat and large ports
   • Different sound propagation environments
Implications for Management

• Whale conservation
  • PAM reveals species nearby through the year

• Vessel noise vs. whales
  • Blue and fin whale chorusing detected above ambient, but unknown impact to other species (e.g. grey whales)

• Need more information about where whales are when we are able to hear them
I wonder what he's saying?

A microphone! I'm gonna be famous!

Contact: samara.haver@noaa.gov