

# Harbor Safety Committee

of the San Francisco Bay Region

*Mandated by the California Oil Spill  
Prevention and Response Act of 1990*

## Draft Minutes

**Harbor Safety Committee of the San Francisco Bay Region**

**Thursday, March 10, 2022**

**Remote Meeting Via Zoom**

**10 Commodore Drive, Emeryville, CA**

**Capt. Lynn Korwatch** (M), Marine Exchange of the San Francisco Bay Region (Marine Exchange), Chair of the Harbor Safety Committee (HSC); called the meeting to order at 10:03.

**Marcus Freeling** (A), Marine Exchange, confirmed the presence of a quorum of the HSC.

Committee members (M) and alternates (A) in attendance with a vote: **Cody Aichele-Rothman** (A) Bay Conservation and Development Commission; **LTC Kevin Arnett** (M), US Army Corps of Engineers; **John Berge** (M), Pacific Merchant Shipping Association; **Capt. Sean Daggett** (M), Sause Bros. Inc.; **Jeff Ferguson** (M), NOAA; **David Fisch** (M), Port of Redwood City; **Kathi George** (A), The Marine Mammal Center; **Troy Hosmer** (M), Port of Oakland; **Capt. Thomas Kirsch** (M), Blue and Gold Fleet; **Capt. Taylor Lam** (M), United States Coast Guard; **Julian Rose** (M), Marathon Petroleum; **Capt. Paul Ruff** (M), San Francisco Bar Pilots; **Jeff Vine** (M), Port of Stockton; **Capt. Amanda Wallace** (M), Chevron Shipping Company.

The meetings are always open to the public.

## Approval of the Minutes-

A motion to accept the minutes of the February 10, 2022, meeting was made and seconded. The minutes were approved without dissent.

## Comments by Chair- Capt. Lynn Korwatch

Welcomed the committee members and audience. Plans are being made to return to in-person HSC meetings in May. Details will be provided.

## Coast Guard Report- Capt. Taylor Lam

- The public comment period for USCG PAC-PARS ends on May 26<sup>th</sup> and a notice has been distributed (MSIB 01-22 attached). PAC-PARS is a long-term study of maritime traffic patterns.
- The USCG is enacting new fire safety rules for small passenger vessels. The new regulations are a response to the tragic Conception dive boat fire and will go into effect on March 28<sup>th</sup>. For questions contact: [SectorSF.Domestic.Insp@uscg.mil](mailto:SectorSF.Domestic.Insp@uscg.mil).

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- Destruction and removal of the grounded vessel American Challenger was approved but heavy weather has delayed operations. Surveys have been conducted and planning continues under Unified Command.
- On February 25<sup>th</sup>, the unmanned and adrift fishing vessel Seastar was reported to the Coast Guard. A Search and Rescue was conducted for the vessel's captain who was recovered unresponsive. The Seastar grounded on Kehoe Beach. Pollution and salvage concerns were addressed and an investigation of the incident is underway. Partnership and engagement with the fishing community is a priority.
- Sector San Francisco will be hosting a Marine Environmental Response open house in late April. Details will be provided.
- The USCG is working on issues relating to Russian sanctions over the war in Ukraine.
- Richard James, Costodian.org, advised that salvage of grounded vessels are complex operations that often leave debris and pollute coastal areas. Significant amounts of foam debris were found in the dune grass after the Seastar salvage.
- Cea Higgins, Greater Farallones National Marine Sanctuary Vessel Incident Subcommittee Co-Chair, advised that successful environmental cleanup operations require agency cooperation, community engagement and funding. Participation with the subcommittee is requested. Cooperation with the maritime community and commercial fishing industry are priorities. Contact: [ceaview63@gmail.com](mailto:ceaview63@gmail.com). Capt. Lam advised that the USCG is open to expanded dialog and will participate.
- Capt. Tom Cullen, OSPR Administrator, advised that the Seastar incident was a difficult case. The SAR took priority over other concerns and rescue towing was not deployed for the adrift vessel. The incident response will be reviewed. Prevention of grounded vessels is a shared goal and further engagement is needed.
- LTJG Harris read from the February- 2022 Prevention/Response Report (attached).

## **Army Corps of Engineers Report- LTC Kevin Arnett**

- FY 2022 dredging projects are being planned. San Rafael dredging is scheduled for late July. Port of Oakland dredging is being planned for late August. An assessment of Redwood City Harbor indicated the need for annual dredging which will begin in 2023.
- Jessica Vargas read from the US Army Corps of Engineers, San Francisco District Report (attached). Debris removal for February was below average. The Oakland Harbor Turning Basins Widening Study is ongoing. The quarterly LTMS Management Committee Meeting is on March 11<sup>th</sup>. Surveys are posted and a channel condition report is included.

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- Julian Rose advised that annual dredging of Pinole Shoal Channel should be considered given that the channel is currently below project depth in some areas. Pinole Shoal dredging is deferred in 2022. Capt. Ruff advised that the Bar Pilots support maintaining project depth. LTC Arnett advised that reduced depth is only observed at the extreme edges of the channel. William Crabbs, Phillips 66, advised that any lack of project depth restricts vessel transit windows and is a financial/safety issue. Julian Rose advised that shipping decisions are based on chart data. Continued shoaling in Pinole Shoal Channel may require emergency dredging in the future and presents a navigational hazard. Capt. Korwatch advised the scheduling of a Dredge Issue Work Group meeting on the topic and USACE agreed to participate.

## **Clearinghouse Report- Marcus Freeling (report attached)**

### **OSPR Report- Mike Caliguire**

- A notice of HSC membership vacancies was previously distributed. Expiring members are encouraged to reapply. Contact: [michael.caliguire@wildlife.ca.gov](mailto:michael.caliguire@wildlife.ca.gov)
- Capt. Cullen advised that an oil spill technology workshop will be held on April 12<sup>th</sup>. An after-action review of the Southern California pipeline oil spill will be released. Debris from the American Challenger and other derelict vessels is an environmental concern. SB 1065 has been introduced to fund removal of commercial abandoned and derelict vessels which are particularly common in the delta. Richard James voiced support for efforts to reduce marine debris at the source and reported several abandoned vessels in Bodega Bay.

### **NOAA Report- Jeff Ferguson**

- Read from the NOAA HSC Report for March 2022 (attached). The NOAA survey vessel Fairweather has finished surveying in the bay. The cancelation of NOAA raster charts in favor of ENC's is ongoing. The 2022 Sea Level Rise Technical Report has been released. The NWS reports that La Nina is still in effect and dry weather is expected to continue. Our region is in severe drought condition.

### **State Lands Commission Report- Robert Booker**

- Read from the February 2022 State Lands Commission Report (attached). The agency has been hiring and inspections are expected to increase.

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## **Report on Sail GP 2022- Melanie Roberts, Sail GP**

- Melanie Roberts, Sail GP, gave a follow up presentation to the committee on plans for the upcoming sailing event (slides attached). Free sailing in preparation for the race will take place on March 19<sup>th</sup>-25<sup>th</sup>. An official practice will be held on March 25<sup>th</sup>. The actual race is on March 26<sup>th</sup>-27<sup>th</sup>. The race box will be established off the City Front with a smaller box for the practice. The exclusion zone will be in effect from 12:00 – 15:45 on race days. Races start at 14:00. The USCG permit for the event is being finalized.

## **Report on ProtectedSeas Data Collection- Deirdre Brannigan, ProtectedSeas**

- Deirdre Brannigan, ProtectedSeas, gave a presentation to the committee on the organization and M2 marine data collection (slides attached). ProtectedSeas, in partnership with NOAA, has developed a marine regulatory framework navigator and the Marine Monitor (M2) vessel tracking system. Marine areas often have complex and overlapping management issues including MPA regulations, fishing, jurisdictional and military restrictions. The proposed Chumash Heritage National Marine Sanctuary north of Santa Barbara contains thirty-eight managed areas. The Marine Monitor (M2) project is a land-based radar system used to determine active maritime usage of an area. The system is easily deployed with applications supporting SAR, MPA management, security, and research. The system has been used for whale ship strike risk management and fishing vessel tracking. AIS was previously used to study traffic patterns but excludes many vessels picked up by the M2 system. Maritime community engagement is welcome.
- John Berge asked if regulatory agencies are involved with the project. ProtectedSeas advised that federal and state partnerships are a priority and regulatory data is updated. It can be difficult to determine what regulations apply to a given area and the navigator tool streamlines the process.

## **Work Group Reports-**

**Tug Work Group-** Capt. Sean Daggett: Nothing to report.

**Navigation Work Group-** Capt. Paul Ruff: The USCG PAC-PARS comment period ends on May 26<sup>th</sup> and input is welcome. Updated VSR best practices will be voted on and included in the Harbor Safety Plan upon approval.

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**Ferry Operations Work Group-** Capt. Tom Kirsch: Nothing to report.

**Dredge Issues Work Group-** Julian Rose advised that a Work Group meeting will be scheduled on Pinole Shoal Channel dredging issues.

**PORTS Work Group-** Troy Hosmer: Nothing to report.

**Prevention through People Work Group-** Nothing to report.

**PORTS Report- Marcus Freeling**

- Equipment upgrades and redeployment of Southampton Shoal LB6, Oakland LB4, and Oakland LB3 buoy-mounted current meters was performed in late February. There are continuing problems with the shore station equipment and data is still offline pending additional upgrades. A power issue has been detected at the Oakland Berth 34 Weather Station which will be investigated. Routine PORTS maintenance is ongoing.
- PORTS data is publicly available through NOAA's Tides and Currents website:  
<https://tidesandcurrents.noaa.gov/ports/index.html?port=sf>

**Public Comment-**

- Alex Kryska, Prop SF, advised of expanded ferry service to Treasure Island.

**Old Business- None**

**New Business-**

- Cody Aichele-Rothman advised that the annual Harbor Safety Plan Update is upcoming. Work Group Chair's should start preparing their annual reports. Voting on the HSP update will be held at the June HSC meeting.
- Capt. Korwatch advised that the HSC is planning to return to in-person meetings in May at the Port of Oakland. Zoom access will also be available for those that cannot attend in-person.

**Next Meeting-**

1000-1200, April 14, 2022  
Remote Meeting via Zoom

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## **Adjournment-**

A motion to adjourn to meeting was made and seconded. The motion passed without dissent and the meeting adjourned at 11:29.

Respectfully submitted:

Capt. Lynn Korwatch



## Marine Safety Information Bulletin Eleventh District

Commander  
U.S. Coast Guard District Eleven  
Coast Guard Island, Building 50-7  
Alameda, CA 94501

MSIB Number: 01-22  
Date: March 01, 2022  
Staff Symbol: dpw  
Phone: (510) 437-3801  
Email: PACPARS@USCG.MIL

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### Notice of Inquiry: Pacific Coast - Port Access Route Study (PAC-PARS)

In support of the PAC-PARS, USCG District Eleven has published a Notice of Inquiry (NOI) on the Federal Register to focus the study, improve information gathering, and expand public engagement. In it, the Coast Guard requests public comments regarding vessel traffic patterns in the regions near Point Mugu and south of the Channel Islands in the Pacific Missile Range, offshore San Francisco, and the Bureau of Ocean Energy Management (BOEM) Humboldt Bay and Morro Bay offshore Wind Energy Areas (WEAs) as outlined in the attached chart. The information generated from this NOI will be used to improve waterway operations and vessel movement along the California coast.

The PAC-PARS will determine whether vessel routes should be established, adjusted, and/or modified to improve navigation safety due to planned or potential uses, such as: offshore development, current port capabilities, planned port improvement projects, vessel traffic, anchorage areas, historical changes in vessel traffic patterns, weather, and navigation challenges. To improve timeliness and a whole of government approach, public comments and pertinent information collected from data analysis will be shared across government agencies on a continuous basis. Additionally, the Coast Guard is committed to maintaining open communication and transparency with all waterway users, especially during this study. Mariners are encouraged to provide answers to the questions included in the NOI and provide any additional information that should be considered regarding the four geographic focus areas.

The Notice of Inquiry is available at Federal Register docket number USCG-2021-0345, at the federal portal: <https://www.regulations.gov/>.

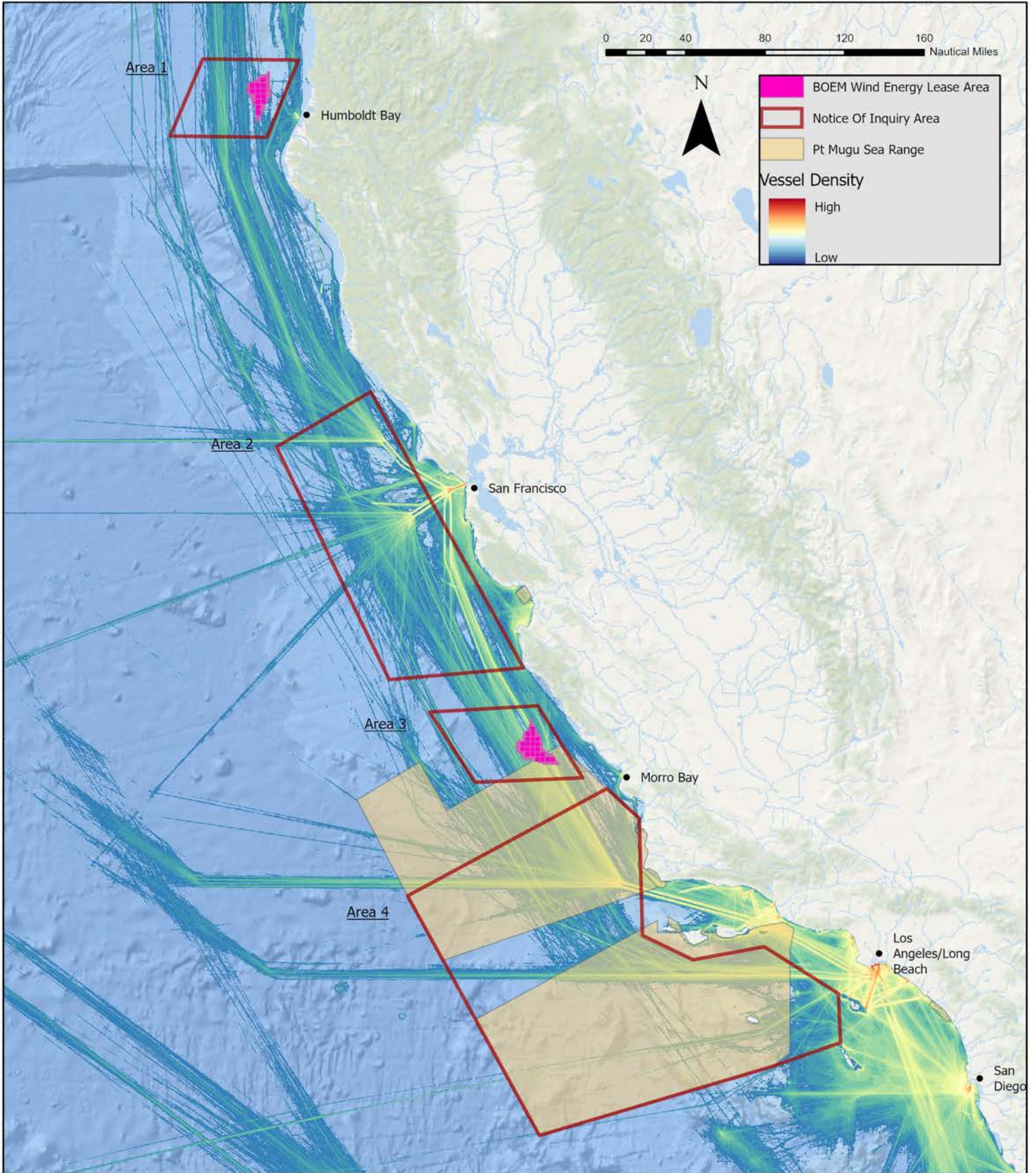
Using the website above, you may submit comments identified by docket number USCG-2021-0345. See the “Public Participation and Request for Comments” portion of the SUPPLEMENTAL INFORMATION section for further instructions on submitting comments. We request all comments and material be submitted on or before May 26, 2022.

Following the NOI 90-day comment period, a draft PAC-PARS will be completed and published on the federal register, under the same docket number, for public review. The Notice of Study, NOI, and draft PAC-PARS provide multiple opportunities for public participation and keep with the Coast Guard’s commitment to maintaining open dialog and accessibility with the maritime community and public. The draft PAC-PARS is tentatively scheduled to be published before the end of 2022.

For questions regarding this Marine Safety Information Bulletin, the Notice of Inquiry, or the study, email the PAC-PARS team at [PACPARS@USCG.MIL](mailto:PACPARS@USCG.MIL).

-uscg-







**SIGNIFICANT PORT SAFETY AND SECURITY CASES (FEBRUARY 2022)****MARINE CASUALTIES**

Equipment Failure (02FEB2022): A U.S. flagged passenger ferry moored at the SF Ferry building with no passengers onboard reported a drop in oil pressure. The vessel was removed from service and transited to Alameda for repairs. Case closed.

Equipment Failure (12FEB2022): A U.S. flagged commercial fishing vessel experienced an equipment failure approximately 8 miles north of Humboldt Bay with 03 persons onboard. The vessel was towed back into Humboldt Bay. Vessel was inspected with no deficiencies. Case closed.

Loss of Propulsion (13FEB2022): A U.S. flagged commercial fishing vessel suffered a loss of main propulsion while underway near the entrance of Humboldt Bay. Cause was determined to be from broken reduction gear heat exchanger suction strainer and securing of the main engine. The vessel was towed back and inspected with no deficiencies. Case closed.

Engine Failure (23FEB2022): A U.S. flagged small passenger vessel was departing the San Francisco Ferry building with 114 passengers on board when they experienced an alarm for a water pump failure on one of its engine. The vessel returned and dropped off passengers then transited back to Vallejo to conduct repairs. Vessel conducted repairs to the satisfaction of a USCG inspector. Case closed.

Equipment failure (24FEB2022): A U.S. flagged RO/RO experienced a loss of AC power alarm during their daily steering test while transiting through the South China Sea. Vessel installed their spare steering gear motor and reported all in good working order. Case closed.

**VESSEL SAFETY CONDITIONS**

Operational Control (02FEB2022): A U.S. flagged small passenger vessel was issued an Operational Control (Code 17, prior to departure) for overdue dry-dock and internal structural examination. Case pends.

Operational Control (02FEB2022): A U.S. flagged small passenger vessel was issued an operational control (code 17, prior to departure) requiring an annual inspection. Vessel conducted inspection with USCG personnel. Case closed.

Operational Control (04FEB2022): A U.S. flagged small passenger vessel was inspected in Emeryville, CA and issued an Operational Control (Code 17, prior to departure) for improperly corresponding MMSI number on programmed DSC. Vessel installed correct equipment. Case closed.

Operational Control (07FEB2022): A U.S. flagged dry cargo ship reported improperly sounding general alarm throughout the vessel and issued an Operational Control (Code 17, prior to departure). The vessel conducted repairs to the satisfaction of the USCG inspector. Case closed.

Operational Control (08FEB2022): A U.S. flagged commercial fishing vessel was issued a Captain of the Port Order requiring the vessel to submit an updated vessel response plan and increase security protocols for visitors onboard due to a history of crewmembers absconding. Case pends.

Operational Control (08FEB2022): A foreign flagged containership was inspected in Oakland, CA and issued 02 Operational Controls (Code 17, prior to departure) for active fuel leak on fuel heaters in purifier room and oil soaked lagging. Vessel conducted repairs and provided class report to the satisfaction of PSC inspectors. Case closed.

Operational Control (09FEB2022): A U.S. flagged small passenger vessel was issued an Operational Control (Code 17, prior to movement) for overdue annual inspection. Case pends.

Operational Control (10FEB2022): A U.S. flagged small passenger vessel was issued two Operational Controls (Code 701, prior to carriage of passengers) for failure to pay inspection fees and an overdue annual inspection. Case pends.

Operational Control (17FEB2022): A U.S. flagged containership was inspected in Oakland, CA and issued several Operational Controls (1 Code 60 & 7 codes 17's, prior to movement & departure) for missing emergency lighting and other various deficiencies. Vessel conducted repairs and provided class technician reports to the satisfaction of the PSC inspector. Case closed.

Operational Control (23FEB2022): A U.S. flagged small passenger vessel was issued an Operational Control for a failed raw water pump. Vessel conducted repairs. Case closed.

Operational Control (23FEB2022) A foreign flagged tankship was inspected at Anchorage 9 in San Francisco, CA and issued an Operational Control (Code 17, prior to departure) for high oxygen alarm failure on the N2 generator not indicated in the cargo control room during testing. Case pends.

Operational Control (24FEB2022): A foreign flagged containership was inspected in Oakland, CA and issued 02 Operational Controls (Code 17, prior to departure) for exposed electrical wires on deck, and a weather-tight door that was not tightened. Vessel conducted repairs and provided class technician reports to the satisfaction of the PSC inspector. Case closed.

Operational Control (25FEB2022): A U.S. flagged small passenger vessel reported failed engine mounted drive shaft coupling and issued an Operational Control (Code 17, prior to departure). Vessel conducted repairs to the satisfaction of a USCG inspector. Case closed.

Operational Control (25FEB2022): A U.S. flagged small passenger vessel was issued an Operational Control (Code 701, prior to the carriage of passengers) for overdue annual inspection. Case pends.

Operational Control (26FEB2022): A foreign flagged containership reported a non-operational main engine blower while transiting to San Francisco and issued a Captain of the Port Order. Vessel is required to have one tug escort while transiting through the San Francisco Bay. Case pends.

Operational Control (28FEB2022): A U.S. flagged small passenger vessel was inspected in Sausalito, CA and issued 03 Operational Controls (2 Code 60's & 1 Code 701, prior to movement or carriage of passengers) for the following deficiencies; life float fixture stowed in position that would not allow it to float free, no annual service certificate for firefighting systems, and extinguished starboard running light. Case pends.

Operational Control (28FEB2022): A U.S. flagged small passenger vessel was issued an Operational Control (Code 701, prior to the carriage of passengers) for overdue annual inspection. Case pends.

### NAVIGATIONAL SAFETY

Letter of Deviation (LOD), Inoperable Gyrocompass (17FEB2022): A foreign flagged bulk carrier was issued an inbound LOD for inoperable gyrocompass. Repairs were conducted and equipment is working properly. Case closed.

### SIGNIFICANT INCIDENT MANAGEMENT DIVISION CASES

Letter of Warning (LOW) (03FEB2022): IMD received notification that a recreational vessel sank in Bethel Island, CA and discharged approx. 5gal of gasoline into Piper Slough. IMD personnel found that the vessel partially submerged. IMD unable to contact the owner, OSLTF accessed to remove the pollution threat. Local contractors successfully refloated the vessel and removed the remaining pollution. NOFI and LOW. Case Closed.

Letter of Warning (LOW) (04FEB2022): IMD received notification that a recreational vessel sank at its slip in Walnut Grove, CA and discharged approx. 2gal of gasoline into the Sacramento River. IMD contacted the owner and harbormaster who stated that the vessel sank overnight for unknown reasons. The owner placed boom around the vessel and reached out to local contractors to begin removal operations. Owner utilized California's Vessel Turn-In Program (VTIP) and Sacramento Marine Unit had the vessel removed. Source of pollution secured with no further discharge. NOFI and LOW issued. Case Closed.

Letter of Warning (LOW) (13FEB2022): IMD received notification that a recreational vessel discharged approx. 10gal of diesel into the San Joaquin River IVO Isleton, CA. IMD contacted the responsible party who stated that the discharge was due to an equipment malfunction on-board and clean-up operations were underway. Both IMD and California OSPR determined that clean-up efforts were sufficient and the equipment failure was remedied. Source of pollution secured with no further discharge. NOFI and LOW issued. Case Closed.

Letter of Warning (LOW) (13FEB2022): IMD received notification that a recreational vessel submerged and discharged approx. 2gal of diesel into the San Francisco Bay, off Dunphy Park, in Sausalito, CA. IMD contacted Sausalito PD who stated that the owner had intentionally beached the vessel in order to clean the hull. The police cited the vessel and instructed the owner to depart at the next high tide, but the vessel began taking on water and began sheening. Sausalito PD hired local contractors to deploy boom around the vessel. California OSPR determined that the sheening was just residual oil and no further pollution threat existed. Sausalito PD brought the vessel to a local marina for removal on 17FEB2022. Source of pollution secured with no further discharge. NOFI and LOW issued. Case Closed.

Letter of Warning (LOW) (17FEB2022): IMD received notification that a recreational vessel discharged approx. 1gal of gasoline into the San Pablo Bay in Benicia, CA. IMD contacted the responsible party who stated he was working on the vessel when the gasoline was discharged through the bilge. The harbormaster and responsible party both stated that the small sheen quickly dissipated and the source of pollution was secured. IMD confirmed that the bilge was sufficiently cleaned. Source of pollution secured with no further discharge. NOFI and LOW issued. Case Closed.

Letter of Warning (LOW) (21FEB2022): IMD received notification that a recreational vessel sank at its slip in Redwood, CA and discharged approx. 5gal of gasoline and motor oil into Redwood Creek. IMD responded, observed that the harbormaster deployed limited booms. IMD contacted vessel owner, who had insurance. The owner hired local contractors to place hard and sorbent boom around the vessel, vessel refloated the following day. Source of pollution secured with no further discharge. NOFI and LOW. Case Closed.

| <b>PREVENTION / RESPONSE - SAN FRANCISCO HARBOR SAFETY STATISTICS</b>  |                 |                 |                  |
|--|-----------------|-----------------|------------------|
| <b>February 2022</b>   |                 |                 |                  |
| <b>PORT SAFETY CATEGORIES*</b>   | <b>Feb-2022</b> | <b>Feb-2021</b> | <b>**3yr Avg</b> |
| <b>Total Number of Port State Control Detentions:</b>  | <b>0</b>        | <b>1</b>        | <b>0.08</b>      |
| SOLAS (0), STCW (0), MARPOL (0), ISM (0), ISPS (0)   |                 |                 |                  |
| <b>Total Number of COTP Orders:</b>  | <b>2</b>        | <b>6</b>        | <b>3.53</b>      |
| Navigation Safety (2), Port Safety & Security (0), ANOA (0)  |                 |                 |                  |
| <b>Marine Casualties (reportable CG 2692) within SF Bay:</b>   | <b>5</b>        | <b>3</b>        | <b>7.17</b>      |
| Allision (0), Collision (0), Fire (0), Capsize (0), Grounding (0), Sinking (0)   |                 |                 |                  |
| Steering (0), Propulsion (3), Personnel (0), Other (0), Power (2)  |                 |                 |                  |
| <b>Total Number of (routine) Navigation Safety issues/Letters of Deviation:</b>  | <b>1</b>        | <b>5</b>        | <b>2.25</b>      |
| Radar (0), Gyro (1), Steering (0), Echo Sounder (0), AIS (0)   |                 |                 |                  |
| ARPA (0), Speed Log (0), R.C. (0), Other (0)   |                 |                 |                  |
| <b>Reported or Verified "Rule 9" or other Navigational Rule Violations:</b>  | <b>0</b>        | <b>0</b>        | <b>0.53</b>      |
| <b>Significant Waterway events/Navigation related Cases:</b>   | <b>0</b>        | <b>0</b>        | <b>0.06</b>      |
| <b>Total Port Safety (PS) Cases opened</b>   | <b>8</b>        | <b>15</b>       | <b>13.61</b>     |
| <b>MARINE POLLUTION RESPONSE</b>   |                 |                 |                  |
| <b>Pollution Discharge Sources (Vessels)</b>   | <b>Feb-2022</b> | <b>Feb-2021</b> | <b>**3yr Avg</b> |
| U.S. Commercial Vessels  | 0               | 3               | 0.69             |
| Foreign Freight Vessels  | 0               | 1               | 0.17             |
| Public Vessels   | 1               | 0               | 0.58             |
| Commercial Fishing Vessels   | 1               | 0               | 0.72             |
| Recreational Vessels   | 7               | 4               | 5.94             |
| <b>Pollution Discharge Sources (Facilities)</b>  | <b>Feb-2022</b> | <b>Feb-2021</b> | <b>**3yr Avg</b> |
| Regulated Waterfront Facilities  | 0               | 1               | 0.22             |
| Regulated Waterfront Facilities - Fuel Transfer  | 0               | 0               | 0.03             |
| Other Land Sources   | 0               | 1               | 2.50             |
| Mystery Spills - Unknown Sources   | 2               | 8               | 4.61             |
| <b>Number of Pollution Incidents (By Spill Size)</b>   | <b>Feb-2022</b> | <b>Feb-2021</b> | <b>**3yr Avg</b> |
| Spills < 10 gallons  | 8               | 9               | 9.61             |
| Spills 10 - 100 gallons  | 1               | 0               | 1.08             |
| Spills 100 - 1000 gallons  | 0               | 1               | 0.36             |
| Spills > 1000 gallons  | 0               | 0               | 0.00             |
| Spills - Unknown Size  | 2               | 8               | 4.42             |
| <b>Total Pollution Incidents</b>   | <b>11</b>       | <b>18</b>       | <b>15.47</b>     |
| <b>Oil Discharge/Hazardous Materials Release Volumes by Spill Size</b>   | <b>Feb-2022</b> | <b>Feb-2021</b> | <b>**3yr Avg</b> |
| Estimated spill amount from U.S. Commercial Vessels  | 0.00            | 3.00            | 2.45             |
| Estimated spill amount from Foreign Freight Vessels  | 0.00            | 1.00            | 0.28             |
| Estimated spill amount from Public Vessels   | 1.00            | 0.00            | 6.94             |
| Estimated spill amount from Commercial Fishing Vessels   | 2.00            | 0.00            | 29.67            |
| Estimated spill amount from Recreational Vessels   | 26.00           | 4.00            | 86.15            |
| Estimated spill amount from Regulated Waterfront Facilities  | 0.00            | 750.00          | 21.39            |
| Estimated spill amount from Regulated Waterfront Facilities - Fuel Transfer  | 0.00            | 0.00            | 0.06             |
| Estimated spill amount from Other Land Sources   | 0.00            | 1.00            | 28.51            |
| Estimated spill amount from Unknown Sources (Mystery Sheens)   | unk             | unk             | 0.00             |
| <b>Total Oil Discharge and/or Hazardous Materials Release (Gallons)</b>  | <b>29.00</b>    | <b>759.00</b>   | <b>175.44</b>    |
| <b>Penalty Actions</b>   | <b>Feb-2022</b> | <b>Feb-2021</b> | <b>**3yr Avg</b> |
| Civil Penalty Cases  | 0               | 0               | 0.11             |
| Notice of Violations   | 0               | 2               | 0.81             |
| Letters of Warning   | 6               | 6               | 5.22             |
| <b>Total Penalty Actions</b>   | <b>6</b>        | <b>8</b>        | <b>6.14</b>      |
| * NOTE: Values represent all cases within the HSC jurisdiction during the period. Significant cases are detailed in the narrative e. |                 |                 |                  |
| ** NOTE: Values represent an average month over a 36 month period for the specified category of information.                         |                 |                 |                  |

**Harbor Safety Committee  
Of the San Francisco Bay Region**

**Report of the  
U.S. Army Corps of Engineers, San Francisco District  
March 10, 2022**

**1. CORPS O&M DREDGING PROGRAM**

Planning for the FY22 dredging program is currently underway based on FY22 President's Budget amounts. The FY22 project schedules are included in this report. Adjustments may be made to future schedules as the FY 2022 Appropriations bill is passed by Congress and a subsequent Work Plan is announced.

**FY 2022 DREDGING**

- a. **Richmond Inner Harbor** – Planning for the FY22 dredging episode is currently underway with contract award tentatively scheduled for late May and dredging estimated early July to start.
- b. **San Rafael Creek** – Planning for maintenance dredging of the San Rafael Creek is currently underway with a contract award tentatively scheduled for mid-June and dredging estimated to start late July. Dredging will be performed in both the Inner Canal and Across-the-Flats reaches of the project. The last time this project was dredged was back in 2011.
- c. **San Joaquin River (Port of Stockton)** – Planning for the FY22 dredging episode is currently underway with contract award tentatively scheduled for mid-June and dredging estimated to start beginning of August.
- d. **Sacramento River Deep Water Ship Channel** – Planning for the FY22 dredging episode is currently underway with contract award tentatively scheduled for late June and dredging estimated to start mid-August.
- e. **Suisun Bay Channel (and New York Slough)** – Planning for the FY22 dredging episode is currently underway with contract award tentatively scheduled for early July and dredging estimated to start mid-August.
- f. **Oakland Harbor** – Planning for the FY22 dredging episode is currently underway. Initially, contract award was scheduled for late August, and dredging for mid-October based on the Tier III sediment testing requirement for DMMO suitability determination. The recent Tier I extension allows re-examination of the timeline, in context with other SPN Nav project schedules. Contract award is now tentatively scheduled for mid-July and dredging estimated to start late August.
- g. **Napa River** – Planning for maintenance dredging of the Napa River is currently underway with a contract award tentatively scheduled for early August and dredging estimated to start mid-September. Dredging will be performed in the upper reaches only. The project was previously dredged in 2016.
- h. **SF Main Ship Channel** – The Government Hopper Dredge Essayons is scheduled to dredge the Main Ship Channel during the last half of May. The dredged material placement will return to the near-shore site as in previous years.

- i. **Richmond Outer Harbor (and Richmond Long Wharf)** – Following completion of the Main Ship Channel, the Essayons will move to Richmond Outer Harbor in early June and complete maintenance dredging there. Upon completion of Richmond Outer Harbor, Essayons will depart the Bay Area.
- j. **San Pablo Bay (Pinole Shoal)** – Dredging is deferred to FY23 to remain in compliance with the Water Quality Certification for SF Bay Area Dredging.
- k. **Redwood City Harbor** – This project is currently on a 2-year cycle and dredging last occurred in FY21. An assessment was recently done comparing advance maintenance to annual dredging. The result of the analysis supports switching to annual dredging beginning in FY23.

**2. EMERGENCY (URGENT & COMPELLING) DREDGING: None at this time.**

**3. DEBRIS REMOVAL** –Debris removal for February was 40 tons. Dillard: 37 tons; Raccoon: 0 tons (out of service for repair); other boats: 3 tons. Average debris removal for February from 2012 to 2021 is 92 tons (Range: 34-198).

**BASEYARD DEBRIS COLLECTION TOTALS:**

| MONTH | RACCOON | DILLARD | MISC | TOTAL |
|-------|---------|---------|------|-------|
| 2022  | TONS    | TONS    | TONS | TONS  |
| JAN   | 0       | 374     | 0    | 374   |
| FEB   | 0       | 37      | 3    | 40    |
| MAR   |         |         |      |       |
| APR   |         |         |      |       |
| MAY   |         |         |      |       |
| JUN   |         |         |      |       |
| JUL   |         |         |      |       |
| AUG   |         |         |      |       |
| SEP   |         |         |      |       |
| OCT   |         |         |      |       |
| NOV   |         |         |      |       |
| DEC   |         |         |      |       |

|          |
|----------|
| YR TOTAL |
| 414      |



#### **4. UNDERWAY OR UPCOMING HARBOR IMPROVEMENTS**

**Oakland Harbor Turning Basins Widening Study:** This study will investigate and determine if there is a technically feasible, economically justifiable, and environmentally acceptable recommendation for federal participation in a navigation improvement project to the existing - 50-foot Oakland Harbor Federal Navigation Project. The scope of the tentatively selected plan includes expansion of both inner and outer basins for a 1,310-foot design vessel. This expansion is expected to meet the needs of the future fleet. A NED waiver to continue with a Comprehensive Benefits Plan (CBP), which includes electric dredging, was submitted to the Assistant Secretary of the Army (ASA) by USACE Headquarters. The Final decision by the ASA to continue with the CBP is pending after their assessment of the public review comments. The Draft Integrated Feasibility Report (IFR) was released on 17 December 2021 for public comment. Public comment was extended to February 14, 2022, at the request of three stakeholders, Earth Justice, EPA, and BCDC. The Agency Technical Review (ATR) was launched on 20 December 2021, ATR comments were received and responded to on Monday February 7, 2022. The 3x3x3 feasibility study is on track and on budget. However, 3X3X3 compliance will need to be reassessed after public comments are received.

#### **5. OTHER WORK**

**LTMS Management Committee Meeting:** The Management Committee quarterly meeting for the Long-Term Management Strategy (LTMS) for San Francisco Bay Area dredged material is scheduled for March 11th. The public portion of the meeting will begin at 11:30 am and will be held virtually. Current agenda items include USACE FY22 dredging overview, San Pablo Bay Disposal Site Reference Data, and dredged material beneficial reuse site updates. For more information on the meeting, please email Jessica Vargas at [Jessica.M.Vargas@usace.army.mil](mailto:Jessica.M.Vargas@usace.army.mil)

**Regional Dredge Material Management Plan:** Following public and stakeholders' outreach for the PMP, the project is now in phase 1 gap analysis to address the key issues as identified by the stakeholders from the virtual charrettes held in July 2020. SFEI has been contracted to perform this phase and is coordinating with the Interagency Working Group (IWG) to provide expert advice and review of work products associated with the RDMMP Gaps Analysis, including prioritizing the knowledge gaps identified by the project team and reviewing the scopes of work produced to address those knowledge gaps. Information on the RDMMP and draft final PMP can be found on our website:

<https://www.spn.usace.army.mil/Missions/Projects-and-Programs/Regional-Dredge-Material-Management-Plan/>

**USACE Work Plan Web Address:** <http://www.usace.army.mil/Missions/Civil-Works/Budget/>

## 6. HYDROGRAPHIC SURVEY UPDATE

Address of Corps' web site for completed hydrographic surveys:

<http://www.spn.usace.army.mil/Missions/Surveys,StudiesStrategy/HydroSurvey.aspx>

The following surveys are posted:

**Alameda Naval Navigation Channel:** Condition survey of October 14, 2021.  
**Berkeley Marina (Entrance Channel):** Condition survey of April 22, 2021.  
**Islais Creek Channel:** Condition survey of August 26, 2021.  
**Larkspur Ferry Channel:** Condition survey of April 8, 2020.  
**Mare Island Strait:** Condition survey of September 29, 2021.  
**Marinship Channel (Richardson Bay):** Condition survey of June 23, 2020 and April 20, 2021.  
**Napa River:** Condition survey of February 2-10, 2022.  
**Northship Channel:** Condition survey of September 20, 21, & 28, 2021.  
**Oakland Inner Harbor:** Condition survey of March 1-3, 2022.  
**Oakland Inner Harbor (Brooklyn Basin):** Condition survey of 15-20 January 2021.  
**Oakland Outer Harbor:** Condition survey of March 1, 2022.  
**Petaluma River (Across-the-Flats):** Post-dredge condition survey of December 15, 2020.  
**Petaluma River (Main Channel):** Post-dredge survey of October 10, 12, and 16 2020.  
**Petaluma River (Extended Channel):** Post-dredge survey of October 10, 12, and 16 2020.  
**Pinole Shoal Channel:** Condition survey of January 12-18, 2022.  
**Redwood City Harbor:** Post dredge surveys of September 1, 6, 16, and 19, 2021.  
**Richmond Inner Harbor:** Condition survey of January 6, 2022.  
**Richmond Inner Harbor (Santa Fe Channel):** Condition survey of December 20, 2016.  
**Richmond Outer Harbor (Longwharf):** Condition survey of November 8, 2021.  
**Richmond Outer Harbor (Southampton Shoal):** Condition survey of November 10, 2021.  
**Sacramento River Deep Water Ship Channel:** Condition Survey of December 15-18, 2021.  
**San Bruno Shoal:** Condition survey of February 26, 2021.  
**San Francisco Main Ship Channel:** Condition survey of September 22-23, 2021.  
**San Leandro Marina (and Channel):** Condition survey of March 30 and April 1, 2015.  
**San Rafael (Across-the-Flats):** Condition survey of February 9, 2021.  
**San Rafael (Creek):** Condition survey of February 9, 2021.  
**Stockton Ship Channel:** Condition survey of December 10-14, 2021.  
**Suisun Bay Channel:** Condition survey of February 15-17, 2022.  
**Suisun Bay Channel (Bullshead Reach):** Condition survey of February 15-17, 2022.  
**Suisun Bay Channel (New York Slough):** Condition survey of December 10-14, 2021.

Disposal Site Condition Surveys:

**SF-08 (Main Ship Channel Disposal Site):** Condition survey of Jul 27, 2021.  
**SF-09 (Carquinez):** Condition survey of October 5, 2021.  
**SF-10 (San Pablo Bay):** Condition survey of October 5, 2021.  
**SF-11 (Alcatraz Island):** Condition survey of February 16, 2022.  
**SF-16 (Suisun Bay Disposal Site):** Condition survey of October 20, 2021.  
**SF-17 (Ocean Beach Disposal Site):** Condition survey of July 27, 2021.

**Requested Surveys:**

Pre/Post-dredge and condition surveys have been completed for all of San Francisco District's in-bay projects dredged in FY21.

**Channel Condition Report (CCR):**

Attached is the Channel Condition Report (CCR) for all Corps maintained channels dated **8 MAR 2022**. The CCR is generated by the USACE eHydro database and is not a substitute for the controlling depths set by the SF Bar Pilots. Please see the respective bathymetric plots for locations (highlighted in red) of the shoaliest soundings reports in the CCR.

## FY 2022 O&M DREDGING PLAN\*

| Project  | Bid Open   | Award      | FY2022 |     |     |     |     | FY2023 |     |     |     |     | Estimated CY | Dredge Type | Placement Site |     |                  |                     |                  |
|--|------------|------------|--------|-----|-----|-----|-----|--------|-----|-----|-----|-----|--------------|-------------|----------------|-----|------------------|---------------------|------------------|
|  |            |            | FEB    | MAR | APR | MAY | JUN | JUL    | AUG | SEP | OCT | NOV |              |             |                | DEC | JAN              | FEB                 |                  |
| <b>CONTRACT CLAMSHELL OR CUTTERHEAD PIPELINE</b> |            |            |        |     |     |     |     |        |     |     |     |     |              |             |                |     |                  |                     |                  |
| Richmond Inner Harbor                            | 9-May (S)  | 24-May (S) |        |     | ◆   | ◆   | ◆   | ◆      | ◆   | ◆   | ◆   | ◆   | ◆            | ◆           | ◆              | ◆   | 250kcy           | Contract Clam Shell | SF-DODS          |
| San Rafael Creek                                 | 26-May (S) | 10-Jun (S) |        |     |     | ◆   | ◆   | ◆      | ◆   | ◆   | ◆   | ◆   | ◆            | ◆           | ◆              | ◆   | 220kcy           | Contract Clam Shell | SF-10<br>SF-DODS |
| San Joaquin River (Port of Stockton)             | 2-Jun (S)  | 15-Jun (S) |        |     |     | ◆   | ◆   | ◆      | ◆   | ◆   | ◆   | ◆   | ◆            | ◆           | ◆              | ◆   | 300kcy           | Contract Pipeline   | Various Upland   |
| Sacramento River (30 Foot Project)               | 13-Jun (S) | 27-Jun (S) |        |     |     | ◆   | ◆   | ◆      | ◆   | ◆   | ◆   | ◆   | ◆            | ◆           | ◆              | ◆   | 150kcy           | Contract Pipeline   | Various Upland   |
| Suisun Bay Channel                               | 22-Jun (S) | 7-Jul (S)  |        |     |     | ◆   | ◆   | ◆      | ◆   | ◆   | ◆   | ◆   | ◆            | ◆           | ◆              | ◆   | 175kcy           | Contract Clam Shell | SF-16            |
| Oakland Harbor                                   | 30-Jun (S) | 14-Jul (S) |        |     |     | ◆   | ◆   | ◆      | ◆   | ◆   | ◆   | ◆   | ◆            | ◆           | ◆              | ◆   | 450kcy<br>450kcy | Contract Clam Shell | SF-11<br>Upland  |
| Napa River                                       | 18-Jul (S) | 1-Aug (S)  |        |     |     | ◆   | ◆   | ◆      | ◆   | ◆   | ◆   | ◆   | ◆            | ◆           | ◆              | ◆   | 75kcy            | Contract Clam Shell | TBD              |
| <b>WEST COAST HOPPER CONTRACT</b>                |            |            |        |     |     |     |     |        |     |     |     |     |              |             |                |     |                  |                     |                  |
| Humboldt Bar & Entrance Channels                 | 9-Mar (S)  | 23-Mar (S) | ◆      | ◆   | ◆   | ◆   | ◆   | ◆      | ◆   | ◆   | ◆   | ◆   | ◆            | ◆           | ◆              | ◆   | 1100kcy          | WCHC (Portland)     | HOODS            |
| <b>GOVERNMENT HOPPER</b>                         |            |            |        |     |     |     |     |        |     |     |     |     |              |             |                |     |                  |                     |                  |
| Humboldt Interior Channels                       | N/A        | N/A        |        |     |     | ◆   | ◆   | ◆      | ◆   | ◆   | ◆   | ◆   | ◆            | ◆           | ◆              | ◆   | 150kcy           | Govt Hopper         | HOODS            |
| SF Main Ship Channel                             | N/A        | N/A        |        |     |     | ◆   | ◆   | ◆      | ◆   | ◆   | ◆   | ◆   | ◆            | ◆           | ◆              | ◆   | 350kcy           | Govt Hopper         | OBDS/SF-8        |
| Richmond Outer Harbor                            | N/A        | N/A        |        |     |     | ◆   | ◆   | ◆      | ◆   | ◆   | ◆   | ◆   | ◆            | ◆           | ◆              | ◆   | 250kcy           | Govt Hopper         | SF-11/SF-10      |

|   |                 |                                |                      |
|---|-----------------|--------------------------------|----------------------|
|   | Solicitation    | WCH West Coast Hopper Contract |                      |
| ◆ | Bid Opening     | YAQ Gov't Dredge Yaquina       | Environmental Window |
| ◆ | Contract Award  | ESS Gov't Dredge Essayons      | Mobilization         |
| ◆ | Hopper Dredging |                                | New SPN Contract     |
|   |                 |                                | Funded for P&S only  |

\* Program execution is based on the FY22 President's Budget.





**REPORT OF CHANNEL CONDITIONS  
400 FEET WIDE OR GREATER**

| To: Navigation Interests                                     |                | From: US Army Corps of Engineers San Francisco District<br>450 Golden Gate Ave<br>San Francisco, CA 94102 |                   |                 |   |                                     |                                      |                                       |
|--|----------------|---|-------------------|-----------------|---|-------------------------------------|--------------------------------------|---------------------------------------|
| RIVER/HARBOR NAME AND STATE<br>RICHMOND HARBOR<br>CALIFORNIA |                |   |                   |                 | MINIMUM DEPTHS IN EACH 1/4<br>WIDTH OF CHANNEL ENTERING<br>FROM SEAWARD |                                     |                                      |                                       |
| NAME OF CHANNEL  | DATE OF SURVEY | AUTHORIZED PROJECT  |                   |                 | LEFT<br>OUTSIDE<br>QUARTER<br>(feet)                                    | LEFT<br>INSIDE<br>QUARTER<br>(feet) | RIGHT<br>INSIDE<br>QUARTER<br>(feet) | RIGHT<br>OUTSIDE<br>QUARTER<br>(feet) |
|  |                | WIDTH<br>(feet)   | LENGTH<br>(miles) | DEPTH<br>(feet) |   |                                     |                                      |                                       |
| Richmond Inner Harbor<br>Entrance Channel                    | 01-06-2022     | 809<br>1021   | 0.96              | 38              | 35.3  | 36.3                                | 36.4                                 | 36.0                                  |
| Richmond Inner Harbor<br>Approach Channel                    | 01-06-2022     | 809<br>1201   | 3.09              | 38              | 33.7  | 35.1                                | 36.1                                 | 34.8                                  |
| Richmond Inner Harbor<br>Santa Fe Channel                    | 02-26-2019     | 195<br>509  | 0.37              | 38              | 33.7  | 35.4                                | 36.4                                 | 36.0                                  |
| Richmond Outer Harbor<br>Richmond Outer Harbor               | 01-26-2022     | 600<br>1291   | 3.25              | 45              | 40.5  | 45.1                                | 44.3                                 | 42.3                                  |
| Richmond Outer Harbor<br>Longwharf Turning Basin             | 02-15-2022     | 2188<br>5598  | 0.88              | 45              | 33.1  | No<br>Data                          | No<br>Data                           | No<br>Data                            |
|  |                |   |                   |                 |   |                                     |                                      |                                       |
|  |                |   |                   |                 |   |                                     |                                      |                                       |
|  |                |   |                   |                 |   |                                     |                                      |                                       |
|  |                |   |                   |                 |   |                                     |                                      |                                       |
|  |                |   |                   |                 |   |                                     |                                      |                                       |
|  |                |   |                   |                 |   |                                     |                                      |                                       |
|  |                |   |                   |                 |   |                                     |                                      |                                       |
|  |                |   |                   |                 |   |                                     |                                      |                                       |
|  |                |   |                   |                 |   |                                     |                                      |                                       |
|  |                |   |                   |                 |   |                                     |                                      |                                       |
|  |                |   |                   |                 |   |                                     |                                      |                                       |
|  |                |   |                   |                 |   |                                     |                                      |                                       |
|  |                |   |                   |                 |   |                                     |                                      |                                       |
|  |                |   |                   |                 |   |                                     |                                      |                                       |
|  |                |   |                   |                 |   |                                     |                                      |                                       |
|  |                |   |                   |                 |   |                                     |                                      |                                       |



REPORT OF CHANNEL CONDITIONS  
400 FEET WIDE OR GREATER

Page 1 of 2  
Date 3/8/2022

| To: Navigation Interests                             |                | From: US Army Corps of Engineers San Francisco District<br>450 Golden Gate Ave<br>San Francisco, CA 94102 |                   |                 |   |                                     |                                      |                                       |
|--|----------------|---|-------------------|-----------------|---|-------------------------------------|--------------------------------------|---------------------------------------|
| RIVER/HARBOR NAME AND STATE<br>OTHER<br>CALIFORNIA   |                |   |                   |                 | MINIMUM DEPTHS IN EACH 1/4<br>WIDTH OF CHANNEL ENTERING<br>FROM SEAWARD |                                     |                                      |                                       |
| NAME OF CHANNEL                                      | DATE OF SURVEY | AUTHORIZED PROJECT  |                   |                 | LEFT<br>OUTSIDE<br>QUARTER<br>(feet)                                    | LEFT<br>INSIDE<br>QUARTER<br>(feet) | RIGHT<br>INSIDE<br>QUARTER<br>(feet) | RIGHT<br>OUTSIDE<br>QUARTER<br>(feet) |
|  |                | WIDTH<br>(feet)   | LENGTH<br>(miles) | DEPTH<br>(feet) |   |                                     |                                      |                                       |
| Redwood City Harbor<br>Redwood City Harbor           | 09-16-2021     | 300<br>943  |                   |                 |   |                                     |                                      |                                       |
| San Bruno Shoal<br>San Bruno Shoal                   | 10-28-2021     | 500   | 3.94              | 30              | 30.1  | 30.0                                | 30.3                                 | 30.3                                  |
| Richardson Bay/Marinship<br>Richardson Bay/Marinship | 06-23-2020     | 300<br>1069   | 2.11              | 20              | 4.6   | 6.0                                 | 6.4                                  | 6.4                                   |
| Islais Creek<br>Islais Creek                         | 08-27-2021     | 500<br>1424   | 1.71              | 40              | 30.7  | 37.5                                | 37.5                                 | 23.9                                  |
| Alameda Naval Air<br>Alameda Naval Air               | 10-14-2021     | 1000<br>4178  | 2.90              | 37              | 11.5  | 12.5                                | 19.0                                 | 17.2                                  |
| San Rafael ATF<br>Across the Flats                   | 02-09-2021     | 100   | 2.25              | 8               | 2.4   | 4.2                                 | 4.0                                  | 2.3                                   |
| San Rafael River<br>Inner Canal Channel              | 02-09-2021     | 60<br>160   | 1.55              | 6               | 0.7   | 1.6                                 | 0.9                                  | 1.4                                   |
| Petaluma River<br>Main Channel                       | 10-16-2020     | 100<br>361  | 4.06              | 8               | +1.5  | 0.5                                 | 1.0                                  | +0.9                                  |
| Petaluma River ATF<br>Across the Flats               | 12-15-2020     | 200<br>206  | 5.68              | 8               | 6.3   | 8.8                                 | 8.3                                  | 8.2                                   |
| Mare Island Strait<br>Mare Island Strait             | 09-29-2021     | 400<br>606  | 3.37              | 30              | 27.3  | 29.1                                | 31.8                                 | 32.1                                  |
| Larkspur Channel<br>Larkspur Channel                 | 07-11-2019     | 231<br>542  | 2.37              | 13              | 6.5   | 10.0                                | 9.7                                  | 8.0                                   |
| Northship Channel<br>Northship Channel               | 09-20-2021     | 3576<br>4769  | 5.97              | 45              | 23.1  | 38.2                                | 37.8                                 | 35.2                                  |
| Berkeley Marina<br>Berkeley Marina                   | 04-22-2021     | 100<br>142  | 1.36              | 6               | 3.5   | 3.8                                 | 4.3                                  | 4.3                                   |
| Bodega Bay<br>Bodega Bay                             | 09-24-2021     | 100<br>400  | 3.46              | 12              | 3.4   | 10.0                                | 10.5                                 | 7.9                                   |
| Moss Landing<br>Moss Landing                         | 03-31-2021     | 120<br>405  | 0.98              | 6               | 13.2  | 12.3                                | 11.1                                 | 10.9                                  |
| Noyo River<br>Entrance Channel                       | 02-10-2021     | 97<br>150   | 0.67              | 10              | 6.1   | 9.6                                 | 10.6                                 | 7.6                                   |

REPORT OF CHANNEL CONDITIONS  
400 FEET WIDE OR GREATER

Page 2 of 2  
Date 3/8/2022

| To: Navigation Interests                                     |                | From: US Army Corps of Engineers San Francisco District<br>450 Golden Gate Ave<br>San Francisco, CA 94102 |                   |                 |   |                                     |                                      |                                       |
|--|----------------|---|-------------------|-----------------|---|-------------------------------------|--------------------------------------|---------------------------------------|
| RIVER/HARBOR NAME AND STATE<br>OTHER<br>CALIFORNIA           |                |   |                   |                 | MINIMUM DEPTHS IN EACH 1/4<br>WIDTH OF CHANNEL ENTERING<br>FROM SEAWARD |                                     |                                      |                                       |
| NAME OF CHANNEL  | DATE OF SURVEY | AUTHORIZED PROJECT  |                   |                 | LEFT<br>OUTSIDE<br>QUARTER<br>(feet)                                    | LEFT<br>INSIDE<br>QUARTER<br>(feet) | RIGHT<br>INSIDE<br>QUARTER<br>(feet) | RIGHT<br>OUTSIDE<br>QUARTER<br>(feet) |
|  |                | WIDTH<br>(feet)   | LENGTH<br>(miles) | DEPTH<br>(feet) |   |                                     |                                      |                                       |
| Noyo River<br>Channel  | 02-10-2021     | 97<br>150   | 0.67              | 10              | 8.3   | 9.9                                 | 10.5                                 | 3.6                                   |
| Crescent City<br>Entrance Channel                            | 02-08-2021     | 200<br>320  | 0.42              | 20              | 18.1  | 19.4                                | 19.0                                 | 17.2                                  |
| Crescent City<br>Inner Harbor Basin Channel                  | 02-08-2021     | 200<br>300  | 0.39              | 15              | 14.8  | 14.8                                | 15.0                                 | 13.8                                  |
| Crescent City<br>Marina Access Channel                       | 02-08-2021     | 228<br>170  | 0.22              | 15              | 4.8   | 10.6                                | 12.2                                 | 9.5                                   |
| Pinole Shoal Channel<br>Pinole Shoal Channel                 | 01-12-2022     | 600<br>1644   | 10.36             | 35              | 30.4  | 35.5                                | 36.3                                 | 33.0                                  |
| Suisun Bay Channel<br>Suisun Bay Channel                     | 02-15-2022     | 300<br>350  | 13.86             | 35              | 34.0  | 33.6                                | 34.3                                 | 30.7                                  |
| Suisun Bay Channel Anchorage<br>Suisun Bay Channel Anchorage | 02-15-2022     | 400   | 0.90              | 35              | 34.3  | No<br>Data                          | No<br>Data                           | No<br>Data                            |
| New York Slough<br>New York Slough                           | 12-10-2021     | 400<br>411  | 4.42              | 35              | 34.4  | 35.1                                | 35.2                                 | 34.9                                  |



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Harbor Safety Committee of the  
San Francisco Bay Region Clearing House  
c/o Marine Exchange of the San Francisco Bay Region  
10 Commodore Drive  
Emeryville, California 94608  
415-441-6600 -- hsc@sfmtx.org

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## San Francisco Clearinghouse Report

March 10, 2022

- ✎ In February the clearinghouse did not contact OSPR regarding any possible escort violations.
- ✎ In February the clearinghouse did not receive any notifications of vessels arriving at the Pilot Station without escort paperwork.
- ✎ The clearinghouse has not contacted OSPR in 2022 regarding possible escort violations. The clearinghouse did not contact OSPR in 2021 regarding possible escort violations. The clearinghouse contacted OSPR 1 time in 2020 regarding a possible escort violation. The clearinghouse did not contact OSPR in 2019 regarding possible escort violations. The clearinghouse contacted OSPR 1 time in 2018 about a possible escort violation. The clearinghouse did not contact OSPR in 2017 about possible escort violations. The clearinghouse contacted OSPR 1 time in 2016 about a possible escort violation. The clearinghouse contacted OSPR 3 times in 2015 about possible escort violations. The clearinghouse contacted OSPR 5 times regarding possible escort violations in 2014. The clearinghouse contacted OSPR 1 time in 2013. The clearinghouse contacted OSPR 3 times in 2012 regarding possible escort violations, 3 times in 2011, 6 times in 2010, 8 time 2009; 4 times 2008; 9 times in 2007; 9 times in 2006; 16 times in 2005; 24 times in 2004; twice in 2003; twice in 2002; 6 times in 2001; 5 times in 2000.
- ✎ In February there were 76 tank vessel arrivals; 13 ATBs, 6 Chemical Tankers, 11 Chemical/Oil Tankers, 23 Crude Oil Tankers, 16 Product Tankers, and 7 Tugs with Barges.
- ✎ In February there were 191 total vessel arrivals.



# San Francisco Bay Clearinghouse Report For February 2022

## San Francisco Bay Region Totals

|  | <u>2022</u> |        | <u>2021</u> |        |
|--|-------------|--------|-------------|--------|
| Tanker arrivals to San Francisco Bay           | 56          |        | 47          |        |
| ATB arrivals                                   | 13          |        | 9           |        |
| Barge arrivals to San Francisco Bay            | 7           |        | 11          |        |
| Total Tanker and Barge Arrivals                | 76          |        | 67          |        |
| Tank ship movements & escorted barge movements | 244         |        | 234         |        |
| Tank ship movements                            | 120         | 49.18% | 117         | 50.00% |
| Escorted tank ship movements                   | 100         | 40.98% | 79          | 33.76% |
| Unescorted tank ship movements                 | 20          | 8.20%  | 38          | 16.24% |
| Tank barge movements                           | 124         | 50.82% | 117         | 50.00% |
| Escorted tank barge movements                  | 14          | 5.74%  | 19          | 8.12%  |
| Unescorted tank barge movements                | 110         | 45.08% | 98          | 41.88% |

Percentages above are percent of total tank ship movements & escorted barge movements for each item.

Escorts reported to OSPR 0 0

| <b>Movements by Zone</b> | <b>Zone 1</b> | <b>%</b> | <b>Zone 2</b> | <b>%</b> | <b>Zone 4</b> | <b>%</b> | <b>Zone 6</b> | <b>%</b> | <b>Total</b> | <b>%</b> |
|--------------------------|---------------|----------|---------------|----------|---------------|----------|---------------|----------|--------------|----------|
| Total movements          | 143           |          | 241           |          | 0             |          | 90            |          | 474          |          |
| Unescorted movements     | 70            | 48.95%   | 131           | 54.36%   | 0             | 0.00%    | 40            | 44.44%   | 241          | 50.84%   |
| Tank ships               | 62            | 43.36%   | 111           | 46.06%   | 0             | 0.00%    | 38            | 42.22%   | 211          | 44.51%   |
| Tank barges              | 8             | 5.59%    | 20            | 8.30%    | 0             | 0.00%    | 2             | 2.22%    | 30           | 6.33%    |
| Escorted movements       | 73            | 51.05%   | 110           | 45.64%   | 0             | 0.00%    | 50            | 55.56%   | 233          | 49.16%   |
| Tank ships               | 65            | 45.45%   | 97            | 40.25%   | 0             | 0.00%    | 47            | 52.22%   | 209          | 44.09%   |
| Tank barges              | 8             | 5.59%    | 13            | 5.39%    | 0             | 0.00%    | 3             | 3.33%    | 24           | 5.06%    |

Notes:

- Information is only noted for zones where escorts are required.
- All percentages are percent of total movements for the zone.
- Every movement is counted in each zone transited during the movement.
- Total movements is the total of all unescorted movements and all escorted movements.

# San Francisco Bay Clearinghouse Report For 2022

## San Francisco Bay Region Totals

|  | <u>2022</u> |        | <u>2021</u> |        |
|--|-------------|--------|-------------|--------|
| Tanker arrivals to San Francisco Bay           | 108         |        | 694         |        |
| ATB arrivals                                   | 36          |        | 193         |        |
| Barge arrivals to San Francisco Bay            | 17          |        | 148         |        |
| Total Tanker and Barge Arrivals                | 161         |        | 1,035       |        |
| Tank ship movements & escorted barge movements | 542         |        | 3,431       |        |
| Tank ship movements                            | 282         | 52.03% | 1,959       | 57.10% |
| Escorted tank ship movements                   | 228         | 42.07% | 1,513       | 44.10% |
| Unescorted tank ship movements                 | 54          | 9.96%  | 446         | 13.00% |
| Tank barge movements                           | 260         | 47.97% | 1,472       | 42.90% |
| Escorted tank barge movements                  | 35          | 6.46%  | 246         | 7.17%  |
| Unescorted tank barge movements                | 225         | 41.51% | 1,226       | 35.73% |

Percentages above are percent of total tank ship movements & escorted barge movements for each item.

Escorts reported to OSPR 0 0

| <b>Movements by Zone</b> | <b>Zone 1</b> | <b>%</b> | <b>Zone 2</b> | <b>%</b> | <b>Zone 4</b> | <b>%</b> | <b>Zone 6</b> | <b>%</b> | <b>Total</b> | <b>%</b> |
|--------------------------|---------------|----------|---------------|----------|---------------|----------|---------------|----------|--------------|----------|
| Total movements          | 322           |          | 533           |          | 0             |          | 213           |          | 1,068        |          |
| Unescorted movements     | 148           | 45.96%   | 277           | 51.97%   | 0             | 0.00%    | 98            | 46.01%   | 523          | 48.97%   |
| Tank ships               | 127           | 39.44%   | 223           | 41.84%   | 0             | 0.00%    | 92            | 43.19%   | 442          | 41.39%   |
| Tank barges              | 21            | 6.52%    | 54            | 10.13%   | 0             | 0.00%    | 6             | 2.82%    | 81           | 7.58%    |
| Escorted movements       | 174           | 54.04%   | 256           | 48.03%   | 0             | 0.00%    | 115           | 53.99%   | 545          | 51.03%   |
| Tank ships               | 159           | 49.38%   | 223           | 41.84%   | 0             | 0.00%    | 106           | 49.77%   | 488          | 45.69%   |
| Tank barges              | 15            | 4.66%    | 33            | 6.19%    | 0             | 0.00%    | 9             | 4.23%    | 57           | 5.34%    |

Notes:

1. Information is only noted for zones where escorts are required.
2. All percentages are percent of total movements for the zone.
3. Every movement is counted in each zone transited during the movement.
4. Total movements is the total of all unescorted movements and all escorted movements.

# NOAA report to the San Francisco Bay Harbor Safety Committee

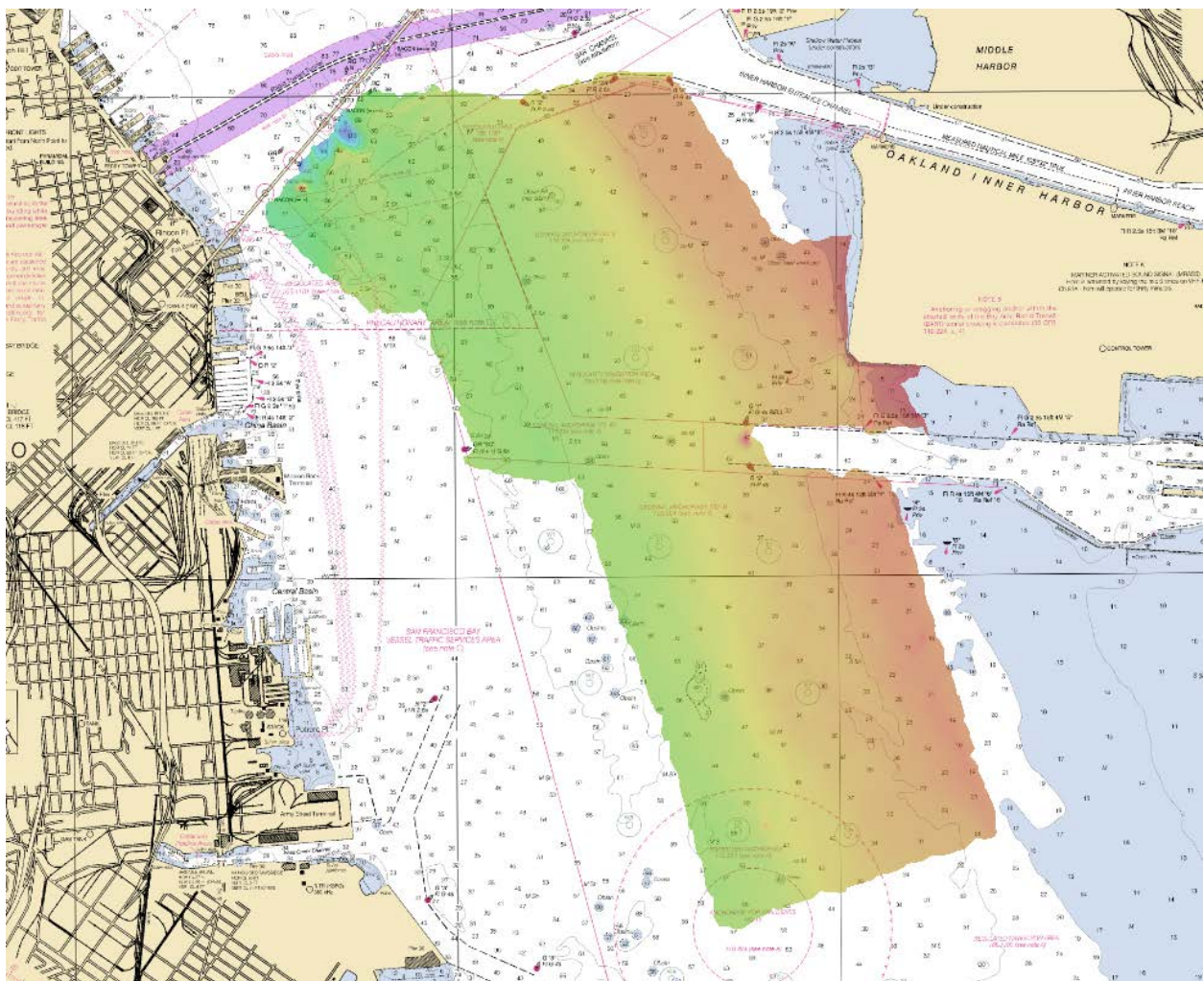
March 2022

## NOAA Ship FAIRWEATHER survey

The FAIRWEATHER conducted additional survey work in San Francisco Bay.

See coverage charlet below to see the areas completed this year. They also did a small survey area around the Hyde Street pier to support the National Park Service. This should conclude survey operations as the ship prepares to depart for Alaska.

All this data will take a few months to process and validate. Once validated, it will be publicly available and will be used to update the nautical charts.



## Transitioning to Electronic Navigational Charts (ENC)

NOAA announced a new NOAA Chart Display Service (NCDS) which renders NOAA electronic navigational chart (NOAA ENC®) data with “traditional paper chart” symbology in online and offline applications for which a basemap of nautical chart data is desired, including GIS, web-based, and mobile mapping applications.

The service uses symbols, labels, and color schemes familiar to those who have used NOAA paper nautical charts or the [NOAA Custom Chart](#) application. NCDS is available as Esri REST Map Service, OGC Web Map Service (WMS), and MBTiles formats. More information available here: <https://nauticalcharts.noaa.gov/data/gis-data-and-services.html#enc-display-services>

NOAA is developing its own online NCDS viewer that will enable users to easily pan and zoom through U.S. ENC data rendered by the NCDS. This [preview of the viewer](#) – available on the Coast Survey website soon – will give you an idea of what the NCDS rendered data looks like.

The NCDS replaces the Raster Navigational Chart (RNC) Tile Service and the Seamless RNC Service. These services are being shut down on March 15 as part of NOAA’s continuing transition away from traditional paper and raster nautical charts

## 2022 Sea Level Rise Technical Report

The Sea Level Rise Technical Report provides the most up-to-date sea level rise projections available for all U.S. states and territories.

This multi-agency effort, representing the first update since 2017, offers projections out to the year 2150 and information to help communities assess potential changes in average tide heights and height-specific threshold frequencies as they strive to adapt to sea level rise.

The report and tools to view and analyze the data is available here:

<https://oceanservice.noaa.gov/hazards/sealevelrise/sealevelrise-tech-report-sections.html>

## National Weather Service

*U.S. Drought Monitor*  
**San Francisco, CA WFO**



Still in a La Nina condition, which should remain through the Spring.

Area in “Severe Drought” condition. Likely not to improve in the near term.

### END OF REPORT

Submitted by

Jeffrey Ferguson

California Navigation Manager

NOAA’s Office of Coast Survey

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# CALIFORNIA STATE LANDS COMMISSION

## HARBOR SAFETY COMMITTEE MONTHLY REPORT - FEBRUARY COMPARISON

### VESSEL TRANSFERS

|                       | <u>Total Transfers</u> | <u>Total Vessels Monitored</u> | <u>Total Transfers Percentage</u> |
|-----------------------|------------------------|--------------------------------|-----------------------------------|
| FEBRUARY 1 - 28, 2021 | 145                    | 25                             | 17.24                             |
| FEBRUARY 1 - 28, 2022 | 175                    | 21                             | 12.00                             |

### CRUDE OIL / PRODUCT TOTALS

|                       | <u>Crude Oil ( D )</u> | <u>Crude Oil ( L )</u> | <u>Overall Product ( D )</u> | <u>Overall Product ( L )</u> | <u>GRAND TOTAL</u> |
|-----------------------|------------------------|------------------------|------------------------------|------------------------------|--------------------|
| FEBRUARY 1 - 28, 2021 | 9,538,650              | 0                      | 13,826,467                   | 5,443,785                    | 19,270,252         |
| FEBRUARY 1 - 28, 2022 | 10,234,843             | 0                      | 15,154,799                   | 5,809,212                    | 20,964,011         |

### OIL SPILL TOTAL

|                       | <u>TERMINAL</u> | <u>VESSEL</u> | <u>Total</u> | <u>Gallons Spilled</u> |
|-----------------------|-----------------|---------------|--------------|------------------------|
| FEBRUARY 1 - 28, 2021 | 0               | 0             | 0            | 0                      |
| FEBRUARY 1 - 28, 2022 | 0               | 0             | 0            | 0                      |

### MARINE INVASIVE SPECIES INSPECTIONS

| <u>Percent</u> | <u>Qualified Voyages</u> | <u>Voyages Inspected</u> | <u>Goal</u> | <u>Shortfall</u> |
|----------------|--------------------------|--------------------------|-------------|------------------|
| 10%            | 384                      | 39                       | 94          | 55               |

Disclaimer: Please understand that the data is provided to the California State Lands Commission from a variety of sources; the Commission cannot guarantee the validity of the data provided to it.

By: MRA



*UNITED STATES SAIL GRAND PRIX | SAN FRANCISCO*

**SAIL GP**

**POWERED BY NATURE.™**

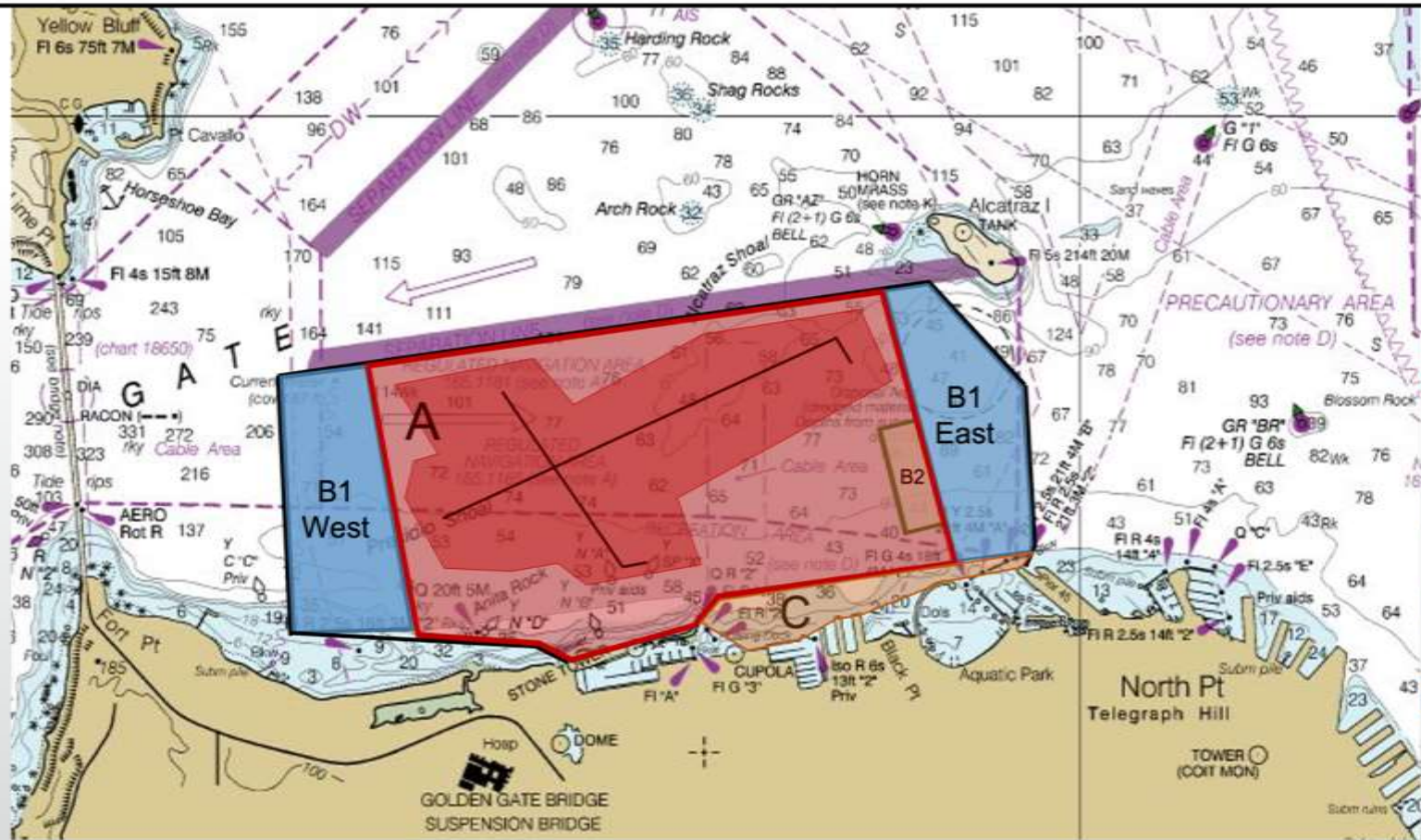
*HARBOR SAFETY COMMITTEE MEETING: MARCH 10, 2021*

# SAILING SCHEDULE

| <b>FREE SAILING</b>   | <b>REHEARSAL</b>  | <b>RACING</b>   |
|---|---|---|
| <b>MARCH 19 – MARCH 24</b>  | <b>MARCH 25</b>   | <b>MARCH 26 – 27</b>  |
| <p>NO EXCLUSION ZONE</p> <p>UP TO 8 BOATS SAILING</p> <p>TRAINING AREA: CITY FRONT OR SOUTH BAY</p> | <p><b>1200-1230</b> EXCLUSION ZONE<br/>CONTINGENCY WINDOW</p> | <p><b>1200-1230</b> EXCLUSION ZONE<br/>CONTINGENCY WINDOW</p> |
|   | <p><b>1230</b> EXCLUSION ZONE ACTIVE</p>                      | <p><b>1230</b> EXCLUSION ZONE ACTIVE</p>                      |
|   | <p><b>1400-1530</b> PRACTICE RACING</p>                       | <p><b>1400-1530</b> RACING</p>                                |
|   | <p><b>1545</b> EXCLUSION ZONE ENDS</p>                        | <p><b>1545</b> EXCLUSION ZONE ENDS</p>                        |
|   | <p><b>1545-1730</b> EXCLUSION ZONE<br/>CONTINGENCY WINDOW</p> | <p><b>1545-1730</b> EXCLUSION ZONE<br/>CONTINGENCY WINDOW</p> |

# Proposed Special Local Regulation: Sail Grand Prix 2022

## San Francisco, CA – March 26<sup>th</sup> and 27<sup>th</sup>, 2022

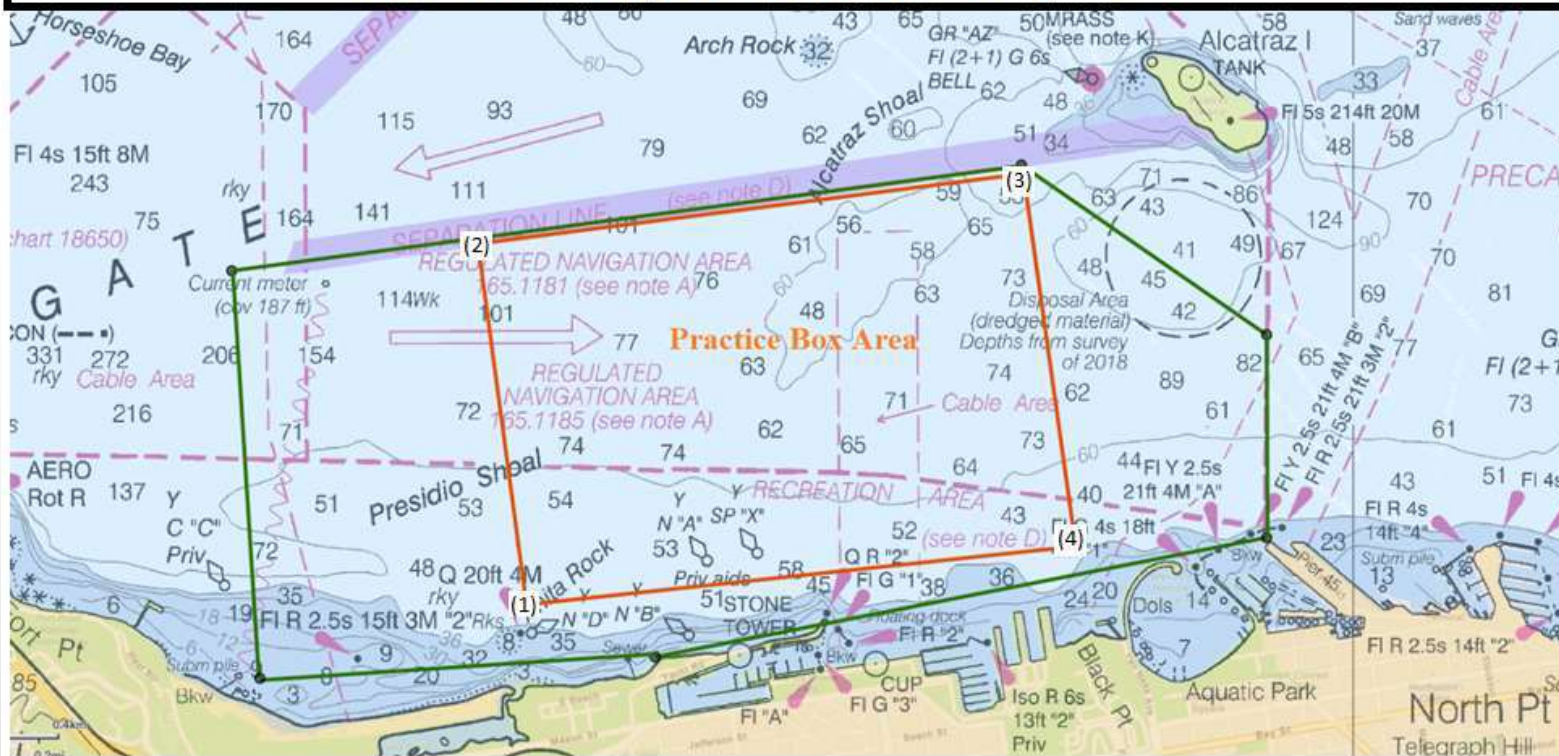


- Max Footprint
- Zone A - Race Box (Closed)
- Zone B1 - Spectator Area
- Zone B2 - Ticketed Area
- Zone C - No Loitering or Anchoring Zone



# Special Local Regulation: Sail Grand Prix (Practice Box)

## San Francisco, CA - March 24-25, 2022



- Max Footprint
- Zone A - Practice Race Box

**Rehearsal Race Day Box:**

- |  |   |
|--|---|
| (1) 37degrees49'19 N 122degrees 27'19W | (3) 37degrees48'40.9 N 122degrees 25'43.6W  |
| (2) 37degrees49'28 N 122degrees 25'52W | (4) 37degrees 48'33.6 N 122degrees 27'10.9W |

# ProtectedSeas

Data to Inform

Marine Conservation & Spatial Planning



A (seemingly) simple question



Where are the oceans  
most protected?



# ProtectedSeas: CA Business



- Headquartered in Silicon Valley, our work is funded by philanthropists who care deeply about the ocean
- Navigator tool provides a free, open resource to analyze how the ocean is protected by regs
- ProtectedSeas is not an environmental advocacy group, but rather a **‘Purveyor of Data’**



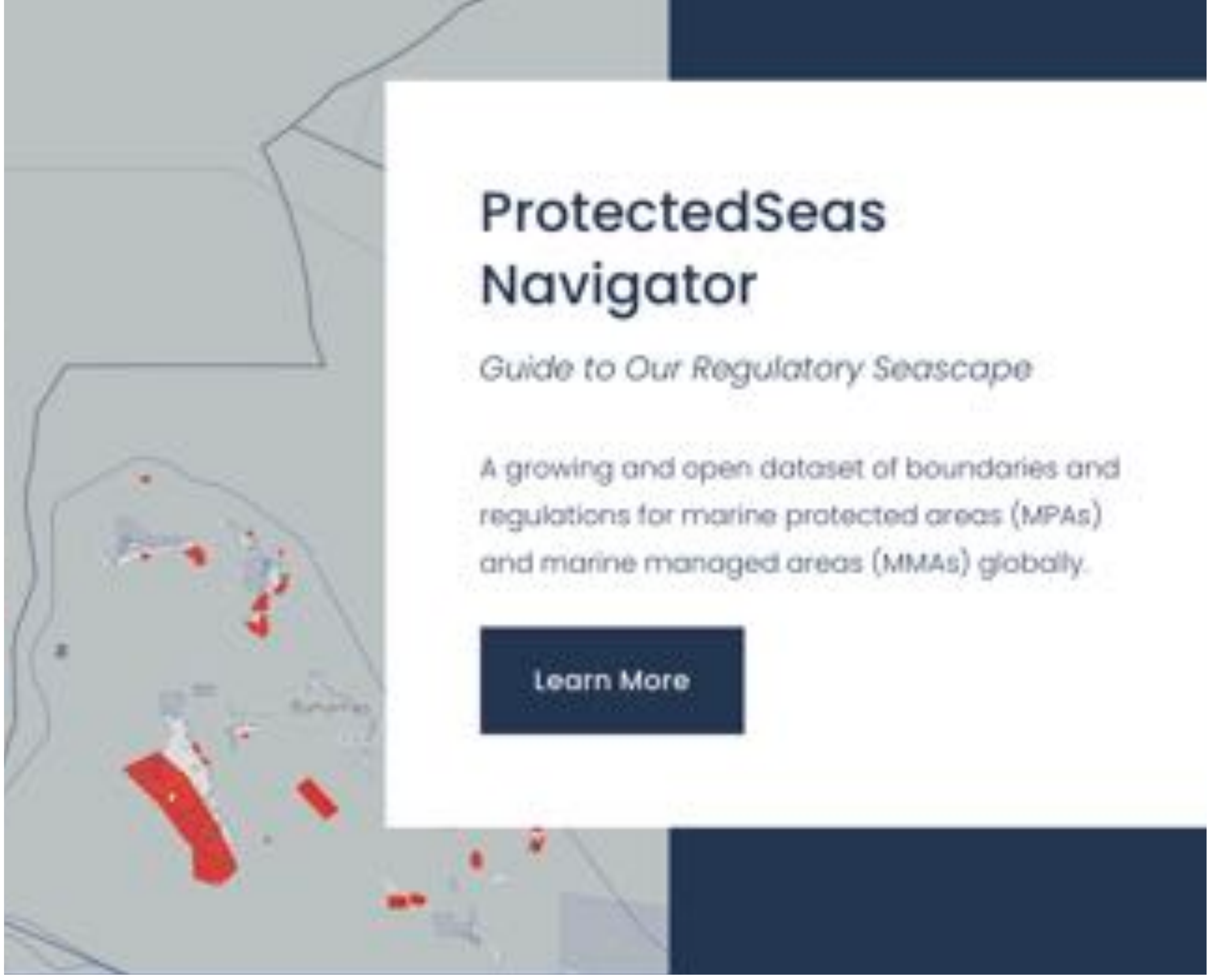
# ProtectedSeas: Key Staff



The team's unique skill set — attorneys, geographers, data analysts, system thinkers, coders, innovators, scuba divers, collaborators, GIS analysts, research assistants, strategists, tech-savvy wizards, science communicators, project managers



# Two Primary Project Areas


A screenshot of the ProtectedSeas Navigator website. The background is a map with various colored regions. A white text box is overlaid on the right side of the map. The text box contains the title 'ProtectedSeas Navigator', a subtitle 'Guide to Our Regulatory Seascape', a paragraph of text, and a dark blue button with the text 'Learn More'.

## ProtectedSeas Navigator

*Guide to Our Regulatory Seascape*

A growing and open dataset of boundaries and regulations for marine protected areas (MPAs) and marine managed areas (MMAs) globally.

[Learn More](#)

A photograph of a Marine Monitor (M2) station. It is a small, tan-colored trailer with a solar panel mounted on top. A radar antenna is mounted on a pole next to the trailer. The station is located on a grassy hill overlooking the ocean under a clear blue sky.

## Marine Monitor (M2)

Marine Monitor (M2) is a lower cost solution for monitoring near-shore Marine Protected Areas (MPAs), that uses off-the-shelf radars to provide 24/7 situational awareness.



# Navigator: Demystifying MPA Regs



Making it possible to answer questions like:

- What are the actual conservation measures in place?
- What type of activities are prohibited?
- What percentage of the ocean is fully protected?
- What else is needed?



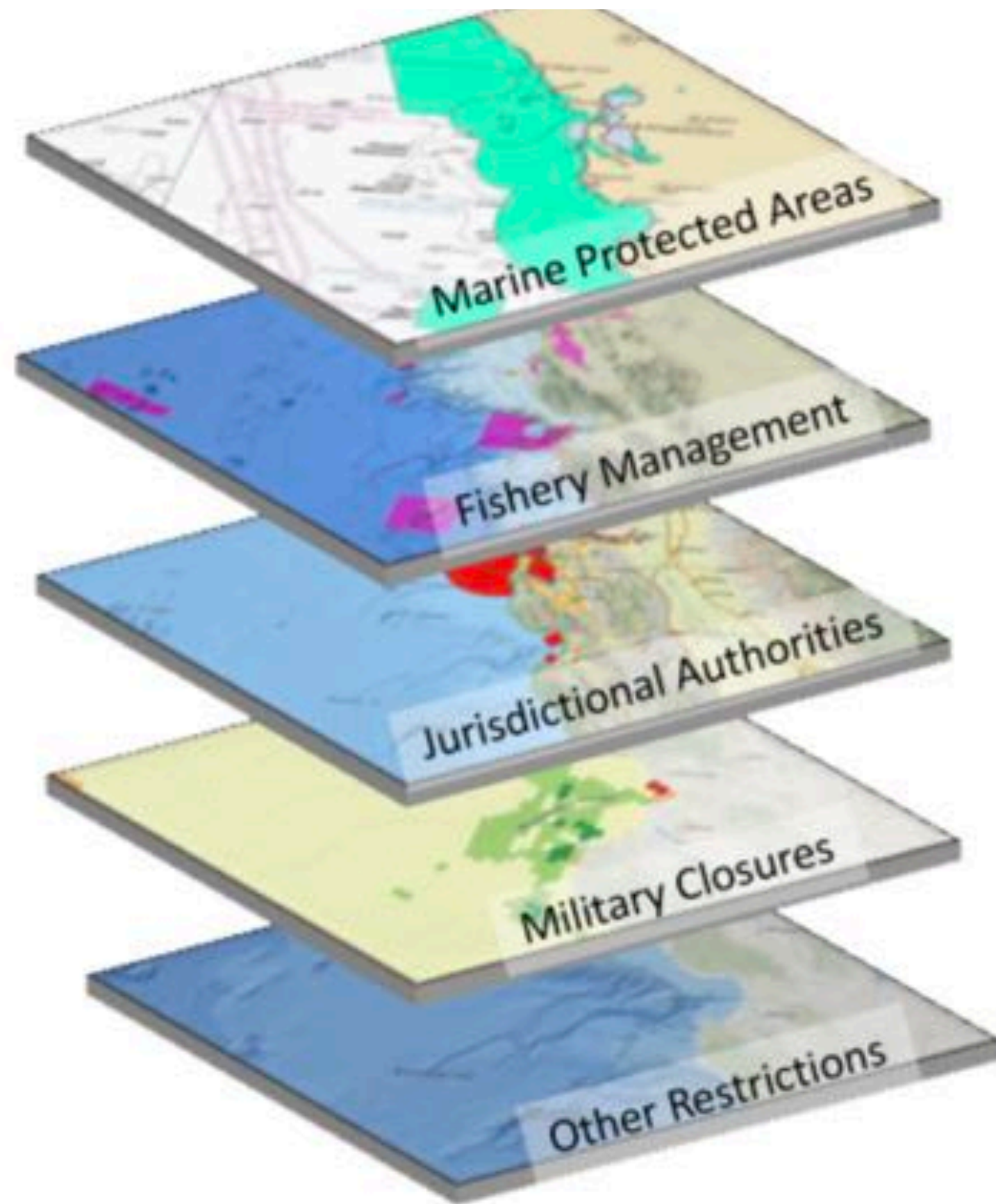
# Our Key Navigator Partner - NOAA's MPA Center



- Our staff work closely with NOAA's Marine Protected Area Center based in Monterey, California
- A formal public-private partnership since 2015 under a NOAA Memorandum of Understanding (MOU)
- NOAA - ONMS manages 600,000+ sq. nm MPAs



# Area-based Management: Through a Conservation & Regulatory Lens

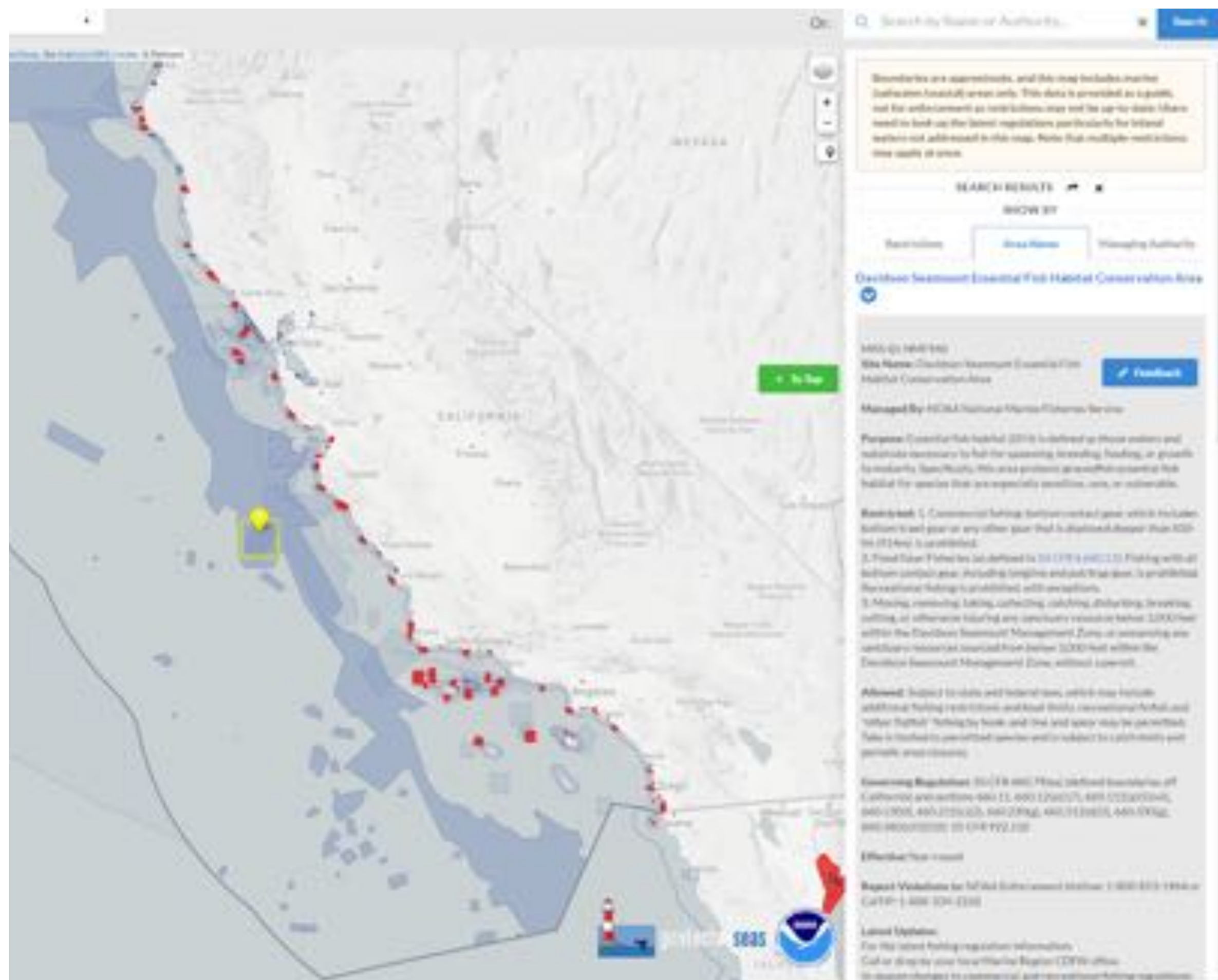


NOAA

- MPAs are not the only form of coastal protection
- There are a range of local, state, and federal protections at any particular location
- Not unusual to have 6-20 overlapping areas
- Understanding area-based ocean management is a both a metaphorical puzzle



# Navigator: Place-based Detail



- Click on nearly any place on the globe
- Identify allowed and prohibited activities
- We are extracting data/knowledge and delivering to end-users
- Explore at : [mpa.protectedseas.net](http://mpa.protectedseas.net)
- Captures the holistic regulatory management perspective
- Additional useful summary information can be found here: <https://storymaps.arcgis.com/stories/092d906d7b2b4099872925ada4d0e0a9>
- We offer this compilation of data freely and encourage wide usage. It has taken many years and an intense effort by staff to create this platform. As a scientific courtesy, when using the data, please attribute ProtectedSeas



# Navigator: Example Farallones

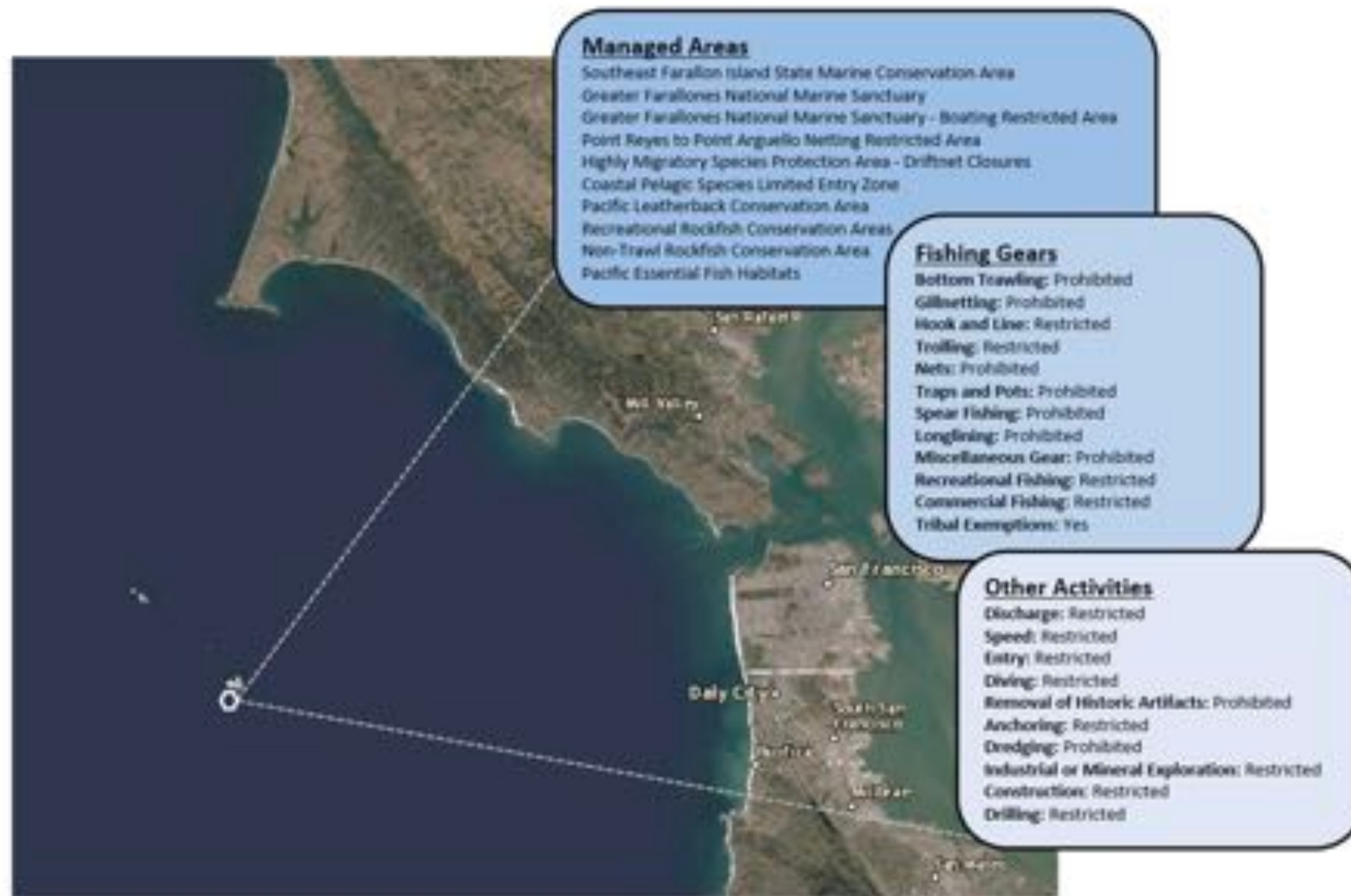


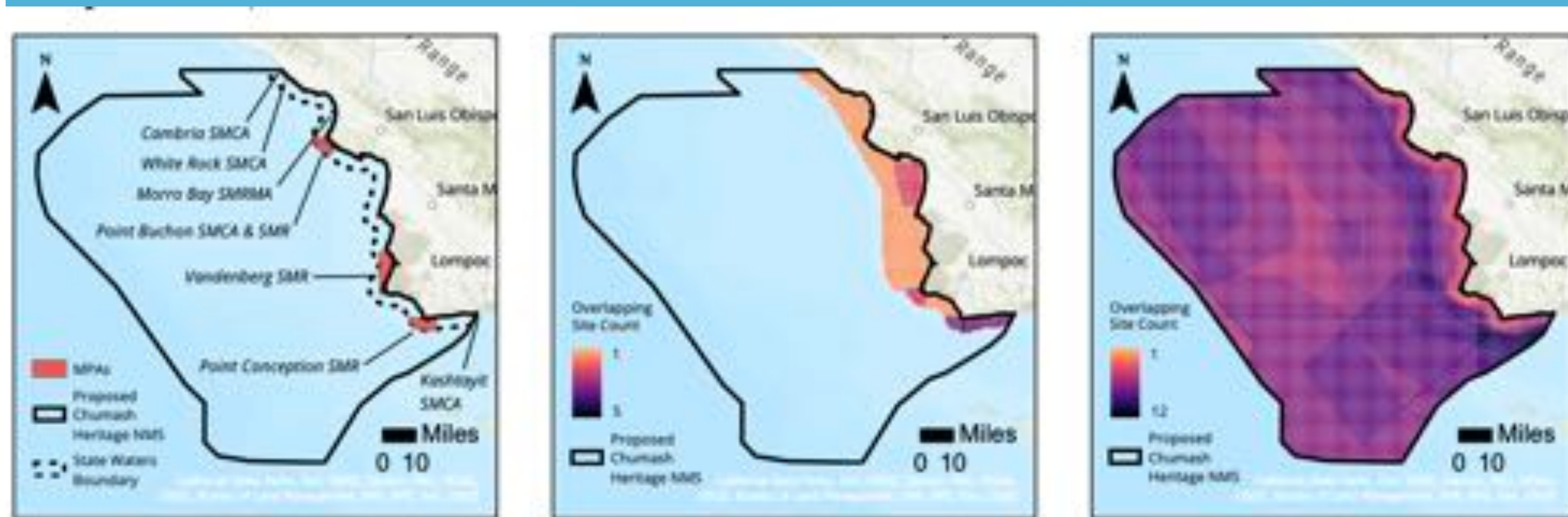
Fig. 4. Overlapping management areas and restricted fishing gears and activities within one selected 10 km<sup>2</sup> hexagon off the Farallones Islands, California (base used on Google Earth image; regulatory data from ProtectedSeas database).

- Managed Areas = 10
- Fishing Gear Restrictions = 12
- Other Restricted Activities = 10
- We have regulatory data for over **18,000 MPAs** in more than **109 Countries = 80% of the planet's MPAs**





# Forecasting: The Proposed Chumash Heritage National Marine Sanctuary



## 8 Marine Protected Areas (MPAs)

Cover ~1% of Chumash Heritage NMS

Area Designations:

- 4 State Marine Conservation Areas (SMCAs)
- 3 State Marine Reserves (SMRs)
- 1 State Marine Recreational Management Area (SMRMA)

## 9 Other State Managed Areas

Cover ~9% of Chumash Heritage NMS

Area Designations:

- 6 Gear Restricted Areas
- 1 Nature Reserve
- 1 Trawl Closure
- 1 Constitutional Amendment

## 21 Other Federal Managed Areas

Cover 100% of Chumash Heritage NMS (including state waters)

Area Designations:

- 6 Essential Fish Habitat Conservation Areas
- 6 Groundfish Conservation Areas
- 5 Closed Areas
- 2 Coastal Pelagic Species Fisheries Management Plan Areas
- 1 Conservation Area
- 1 Slow Speed Area



We offer this compilation of data freely, and encourage wide usage. It has taken many years and immense effort by staff to create this platform. As a scientific courtesy, when using the data, please attribute it to ProtectedSeas.

- Navigator helps interpret the legal code - this example has 38 areas of regulatory info
- Unravels regulatory complexity
- Provides data to make informed decisions
- Identifies what is being managed
- Informs - it's up to **you** on how you use the data to tell the story of a place
- {Recent: US Coast Guard request for public comment regarding vessel traffic patterns in the regions near Point Mugu and south of the Channel Islands in the Pacific Missile Range, offshore San Francisco, and the Bureau of Ocean Energy Management (BOEM) Humboldt Bay and Morro Bay offshore Wind Energy Areas (WEAs)}



# Assumptions



- I think we can all agree that Regulations  $\neq$  Compliance
- Knowing the Regs is an obvious first step to understanding a baseline of protection levels for various activities - it can't be discerned without it
- From there, one can certainly dig into compliance statistics, assuming they are available from resource managers



# ProtectedSeas: Marine Monitor (M2)



- Conservation solution for awareness, monitoring, & sustainability
- Land based radar system installed on coastlines typically to monitor nearshore MPAs
- Designed for MPA managers to understand how an area is being used

# Marine Monitor (M2): Hardware



- Off the shelf Furuno X-Band Radar
- Pan - tilt Camera
- Automatic Identification System (AIS) Sensor
- Weather Station
- Remote Communications
- Solar Array
- Batteries/M2 Control Center

Mobile Marine Monitor System at Pt. Bonita



# Marine Monitor (M2): Applications



- Search and Rescue / Event Response
- Marine Protected Area (MPA) Management
- Security - Aquaculture Facilities, Ports / Harbors
- Science and Research



# Marine Monitor (M2): Research Evaluating Risk of Ship Strike to Humpback Whales in SF Bay



**SAN FRANCISCO  
STATE UNIVERSITY**



The Marine  
Mammal Center.



**Goal:** Comparing overlap of humpback whales in San Francisco Bay with different vessel types. Ideally to be used to inform and prioritize management to prevent ship-strike in SF Bay

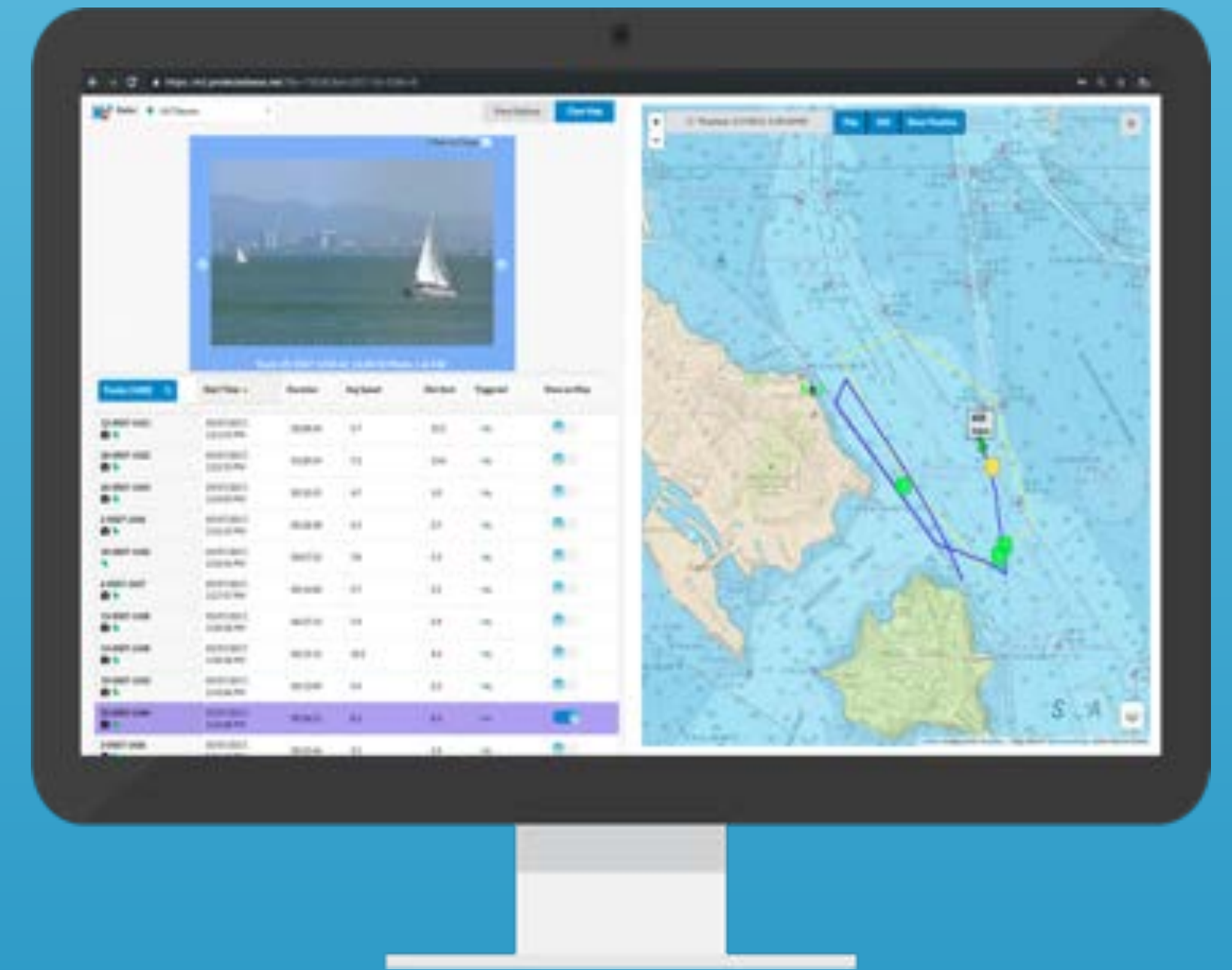
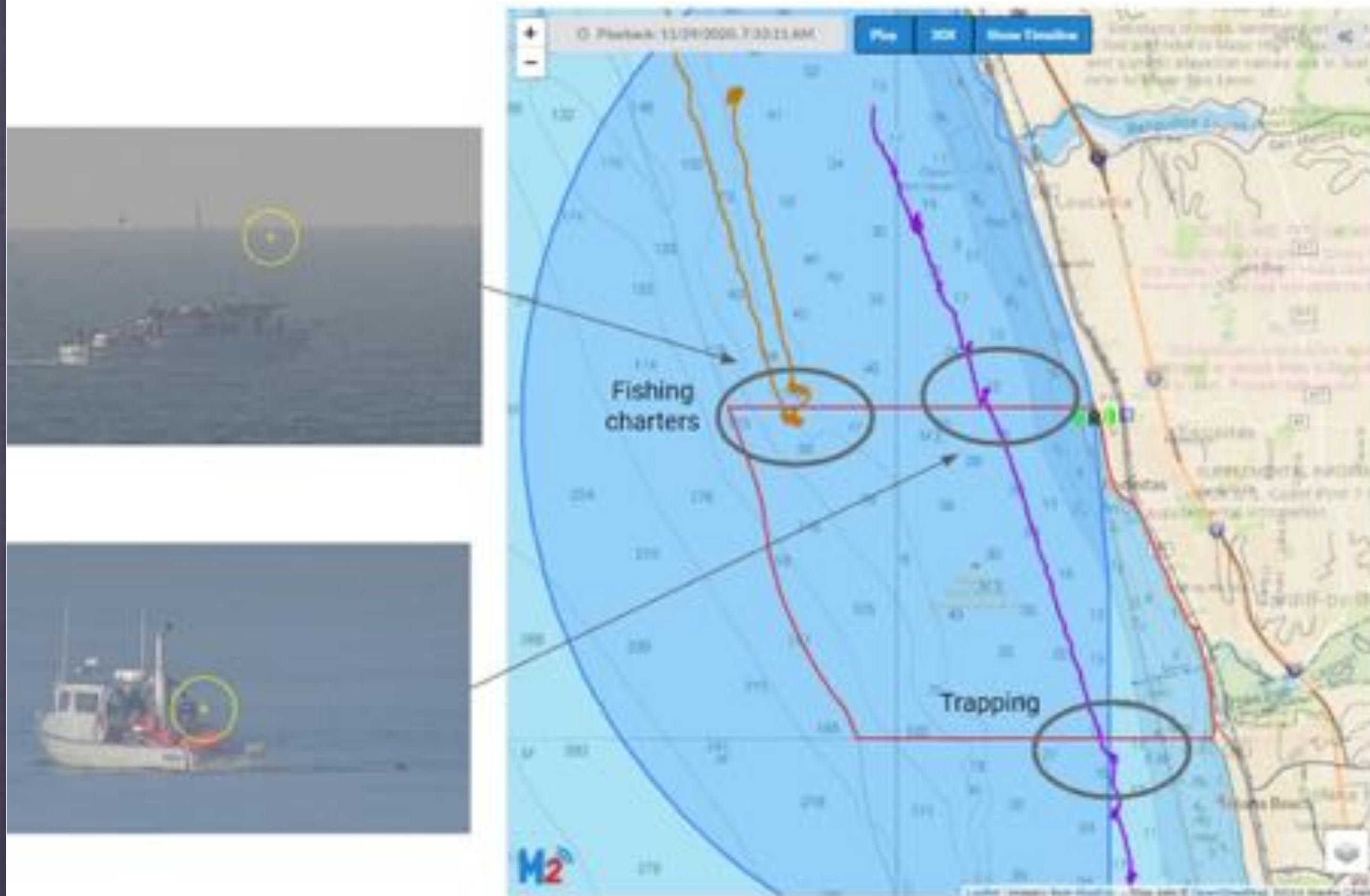
**Challenge:** Previously used AIS, however AIS excludes many types of vessels.

**Permits:** National Park Service Permit(s)  
#GOGA-2020-SCI-0019 and Scientific Research & Collecting  
Permit #GOGA-2022-SCI-0003

**Research Partners:** San Francisco State University, Estuary and Ocean Science Center and the Marine Mammal Center



# Data For MPA Managers



Radar —> Autonomously tracked —> Cloud —> Personal Computer

- Customized alarm zones based upon vessel speed and time inside MPA



# Marine Monitor Partners





# Questions on M2?



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\*\*\*

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**protectedseas**