GSW Site Survey Information- PFMC

February 2024

Agenda

1. Introductions & Background
2. Proposed Surveys and Site Assessment
3. Fisheries Engagement
4. Questions and Input

1. Introductions & Background

Golden State Wind is a 50/50 JV of Ocean Winds and CPPIB, managed by OW

OCEAN WINDS

CPP investments

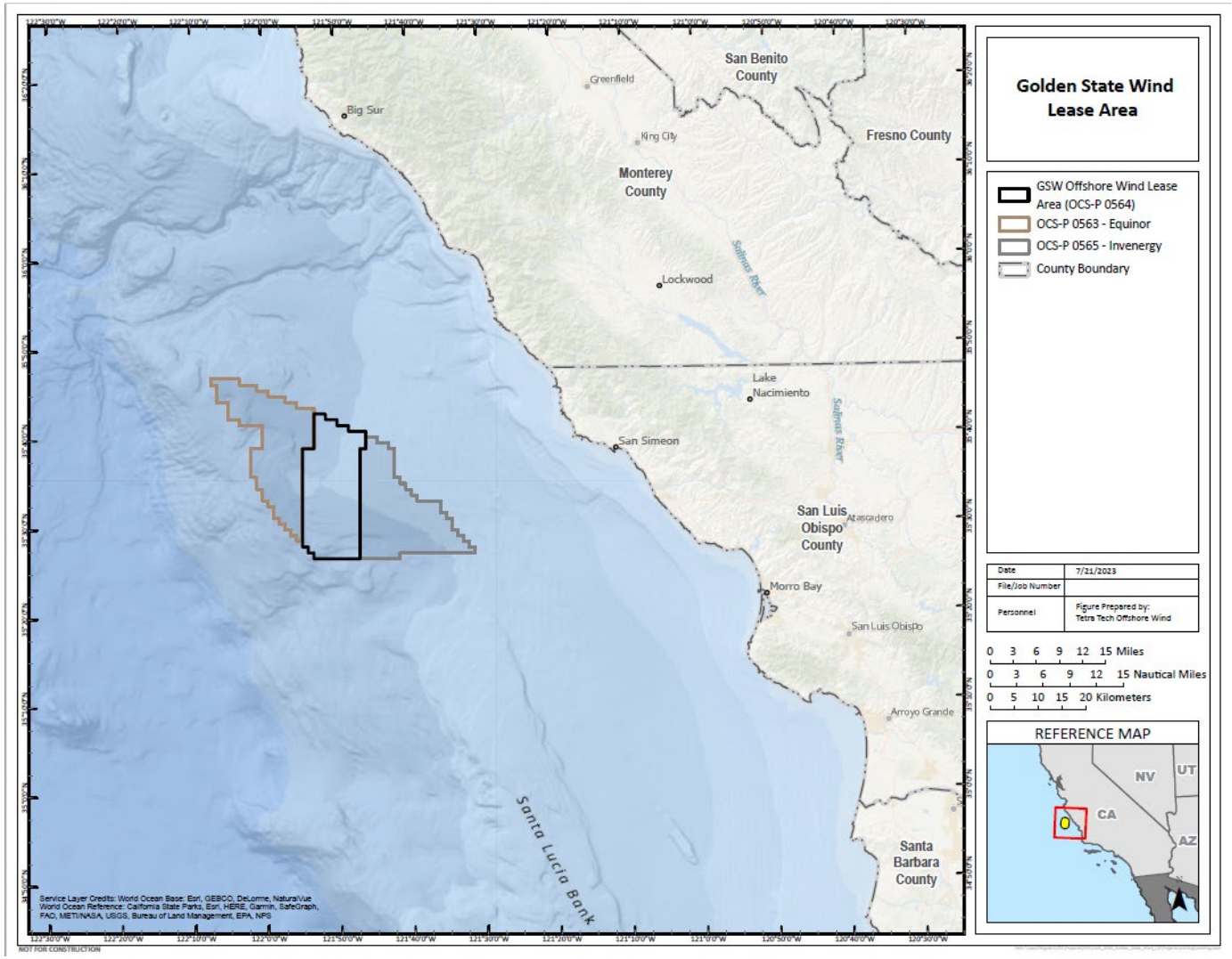
GOLDEN STATE WIND

- Morro Bay Central Lease Area (OCS-P 0564)
- OW is fully dedicated to offshore wind with a total portfolio of 16.6 GW (gross) with 15 projects in 7 geographies.
- OW is a pioneer in floating offshore wind and the developer, majority owner, and operator of the 25 MW WindFloat Atlantic Project.
- Extensive experience in developing cost-effective and comprehensive investments to support a durable, growing offshore wind industry.

Project Description and Background

Golden State Wind (OCS-P 0564)
Morro Bay Central Lease Area

- Lease Area is approximately 80,418 acres with water depths 3,120 to 4,540 ft deep, average ~3,468 ft (public data).
- Lease Area is relatively flat/simple in north and central regions, steep/complex in southernmost extent.
- Export cable routing is being developed and proposed route(s) will be identified before 2025 surveys. We will conduct Fisheries engagement prior to these surveys.
- We are in early stages of project design.



High-Level Preliminary Project Permitting Schedule

GOLDEN STATE WIND

Activity	Estimated Date
Survey Permit, Plans, and Assessment Protocol Development Agency Submission	**Summer 2023 to Spring 2025**
Lease Area Geophysical and Geotechnical Surveys	**Spring 2024 to Fall 2025**
ECR Geophysical	***Summer 2024 to Fall 2025**
Metocean Buoy Deployment	**Summer to Fall 2024**
ECR Geotechnical	**Spring to Fall 2025**
Coastal Geophysical and Geotechnical, **Benthic Survey**, Onshore Environmental and Cultural Resources Surveys	**Spring through Summer 2025**
Project Design	Ongoing through end of 2025
Federal and State Permit Submissions	2026

2. Proposed Site Assessment Surveys

Objectives

Provide useful information to PFMC about Golden State Wind's geophysical and geotechnical surveys including:

- Provide background information, equipment information, survey area, and the vessel details;
- Notification process before and during survey activities.
- Practices for proactively avoiding and minimizing fishing gear interactions and supporting positive co-ocean use;
- Processes we have in place to address a possible gear interaction.

Planned Marine Survey and Site Assessment Activities

High Resolution Geophysical (HRG) Survey (2024-2025)

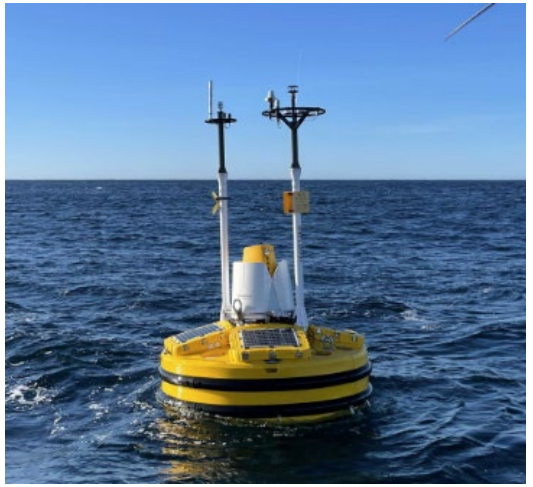
Multiple techniques and survey methods including vessels, potential autonomous underwater vehicles (AUVs), and vessel mounted or towed systems

Geotechnical Survey (2024-2025)

Multiple potential techniques inc. mixture of boring, coring, sampling and Cone Penetrometer Testing (CPT)

Metocean Buoys (2024)

Buoys will collect meteorological and oceanographic data within the Lease Area



Benthic Survey (2025)

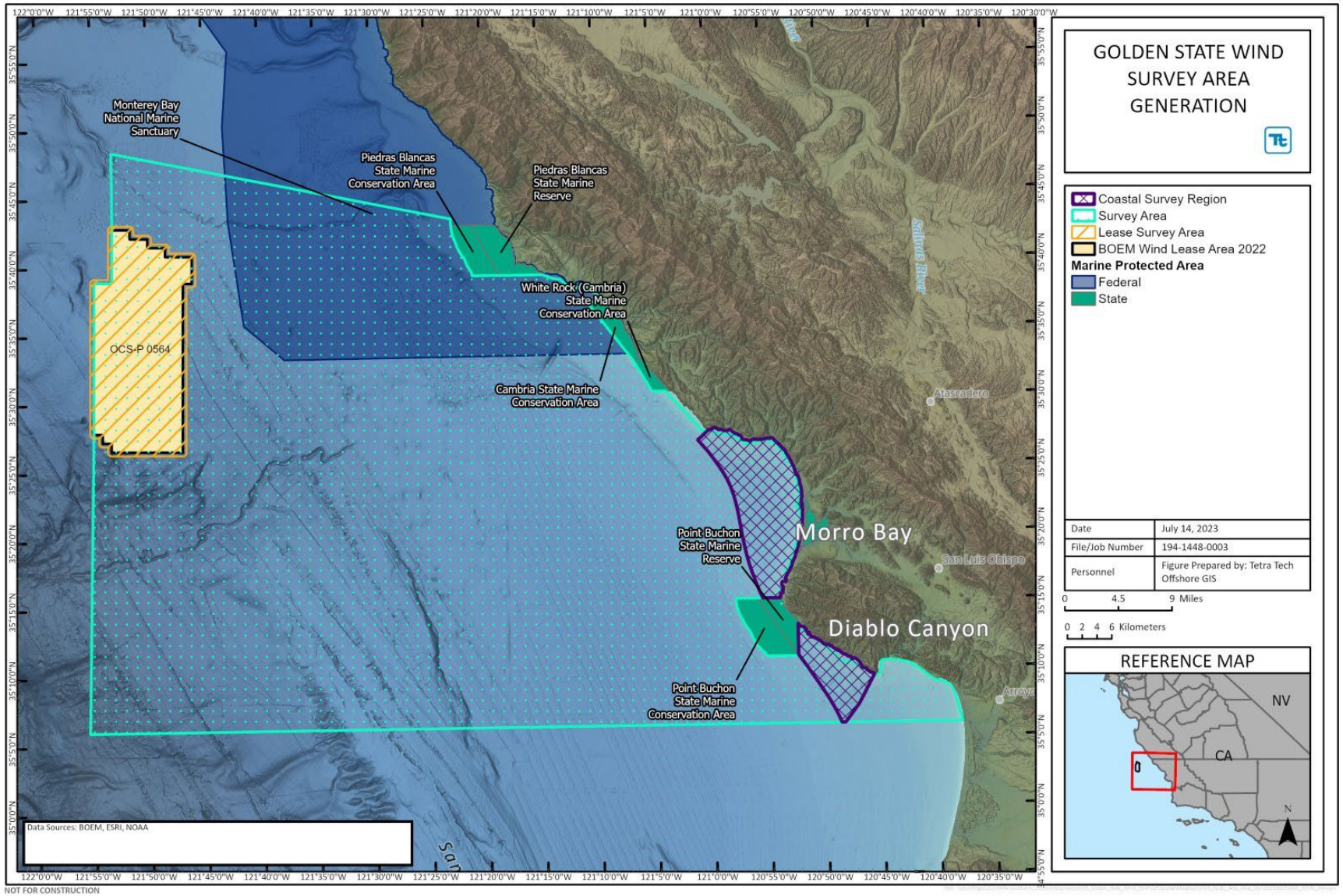
Multiple techniques for visual and other observation, both deeper water and submerged aquatic vegetation (SAV) investigation

Survey Area

Surveys in 2024 will focus mainly on geophysical and geotechnical data in the Lease Area (yellow) with potential for geophysical surveys along the export cable route in Federal waters.

Future survey area will be narrowed as potential export cable routes are identified, prior to survey. The broad extent shown is for planning purposes only.

The Lease Area is approx. 22 miles offshore at the closest point, and 53 miles offshore of Morro Bay.



Background Information on Site Surveys

Geophysical Surveys (2024-2025)

Purpose: Build an understanding of subsurface conditions and identify potential hazards without drilling or boring.

- Map the topography of the sea floor (bathymetry)
- Detect anomalies (rock outcroppings, shipwrecks, fishing gear, etc.)
- Understand the soil horizons up to 40 m.

Technology Used:

- Sub Bottom Profiler (SBP)
- Ultra Short Baseline (USBL)
- Multi Beam Echosounder (MBES)
- Side Scan Sonar (SSS)
- Transverse Gradiometer (TVG) aka Magnetometer

➢ **In >100m water depths, AUV is deployed (no towed equipment).**

➢ **In <100m water depths, these survey vessels DO tow-behind equipment.**

Geotechnical Investigations (*2024-2025)

Purpose: Determine the feasibility of building on a site through physical site investigation.

- Physically sample and test seabed characteristics including composition and horizons.
- Performed at very specific locations while the vessel stays in a constant position

Technology Used:

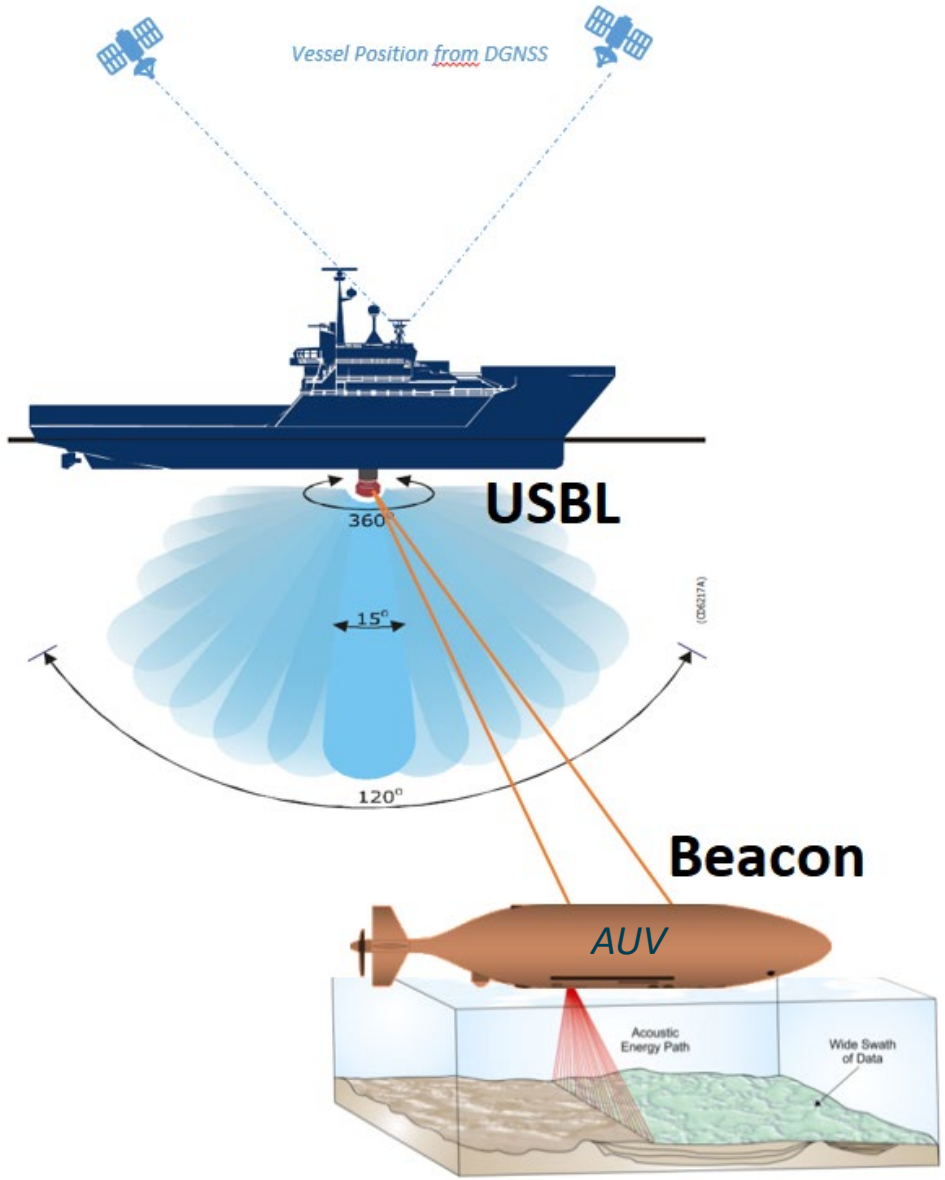
- Cone Penetrometer (CPT)
- Piston Core (PC)
- Vibracore (VC)
- Seafloor Rotary

➢ **These survey vessels DO NOT tow behind equipment and can be STATIONARY for long periods of time to drill into the sea floor.**

Geophysical Survey Equipment

2024 Geophysical surveys are anticipated to be conducted using autonomous underwater vehicles (AUVs)

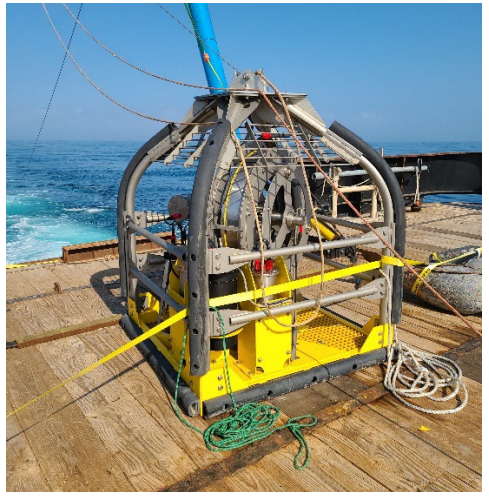
Geophysical System	Description
Autonomous Underwater Vehicle (AUV)	An untethered survey vessel which follows a predetermined survey plan about 40m off the seafloor. AUV has 36-48hr run times, where they are recovered to the host vessel for data download and battery change before being launch again.
Multibeam Echosounder (MBES)	This system maps the bathymetry of the seafloor in 3D.
Side Scan Sonar (SSS)	This creates an image of seafloor reflections in high detail.
Sub-bottom Profiler (SBP)	Images a vertical cross section of the sediment layers below the seafloor.
Ultra-short Baseline (USBL)	An acoustic system for positioning the AUV underwater during operations.
Magnetometer	Used on in depths < 100 m to detect ferrous metals or other magnetically susceptible materials.

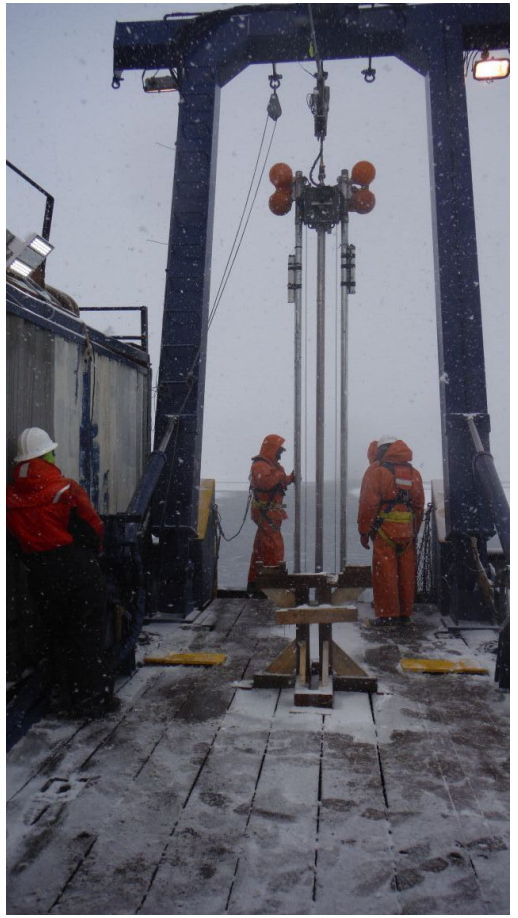


Geotechnical Survey Equipment

Geotechnical System	Description
Cone Penetrometer Test (CPT)	10-40m rod driven into sediment to measure resistance, pore pressure and other geotechnical properties
Piston Core (PC)	6-9m barrel to recover sediment core used for lab testing
Vibracore (VC)	Shorter barrel to recover sediment core used for lab testing in shallow water or areas of limited PC recovery
Seafloor Drill Rotary	Boring/drilling to recover deeper sediment cores used for lab testing
Box corer, Van Veen grab Sampling	Sediment recovery for laboratory purposes

Representative Equipment





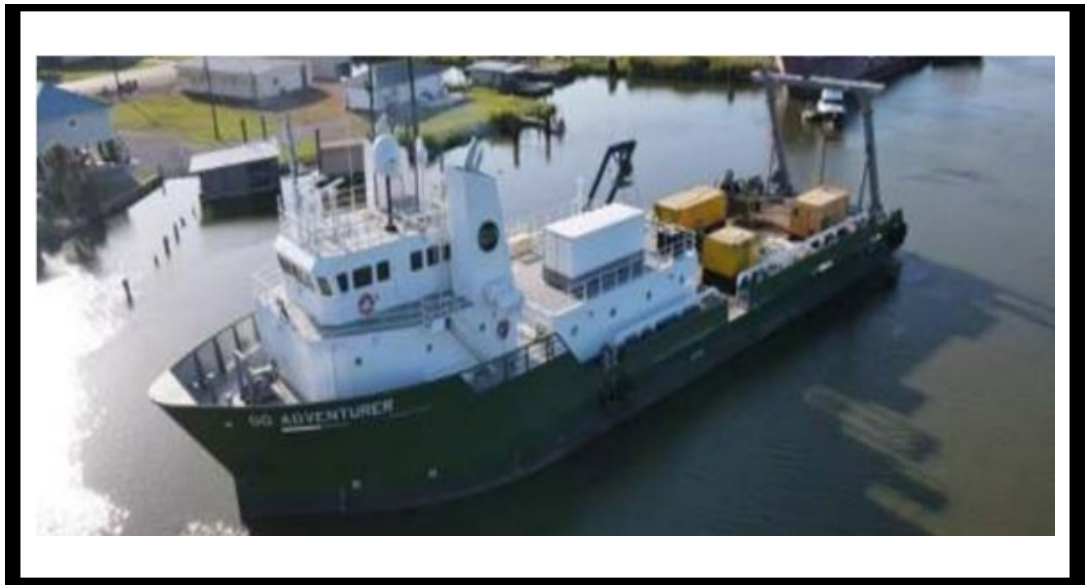
Vessel information

2024 Lease Area Survey Vessels

- For both vessels:
  - Vessels would return to port only occasionally (fuel/crew change every 28 days).
  - 24 hours/day operations.
  - <10 knots for transit to and from work sites.

- Geophysical vessel:
  - A single vessel with AUV.
  - ~200 feet in length (not yet contracted).
  - Vessel speeds 3-4 knots during survey

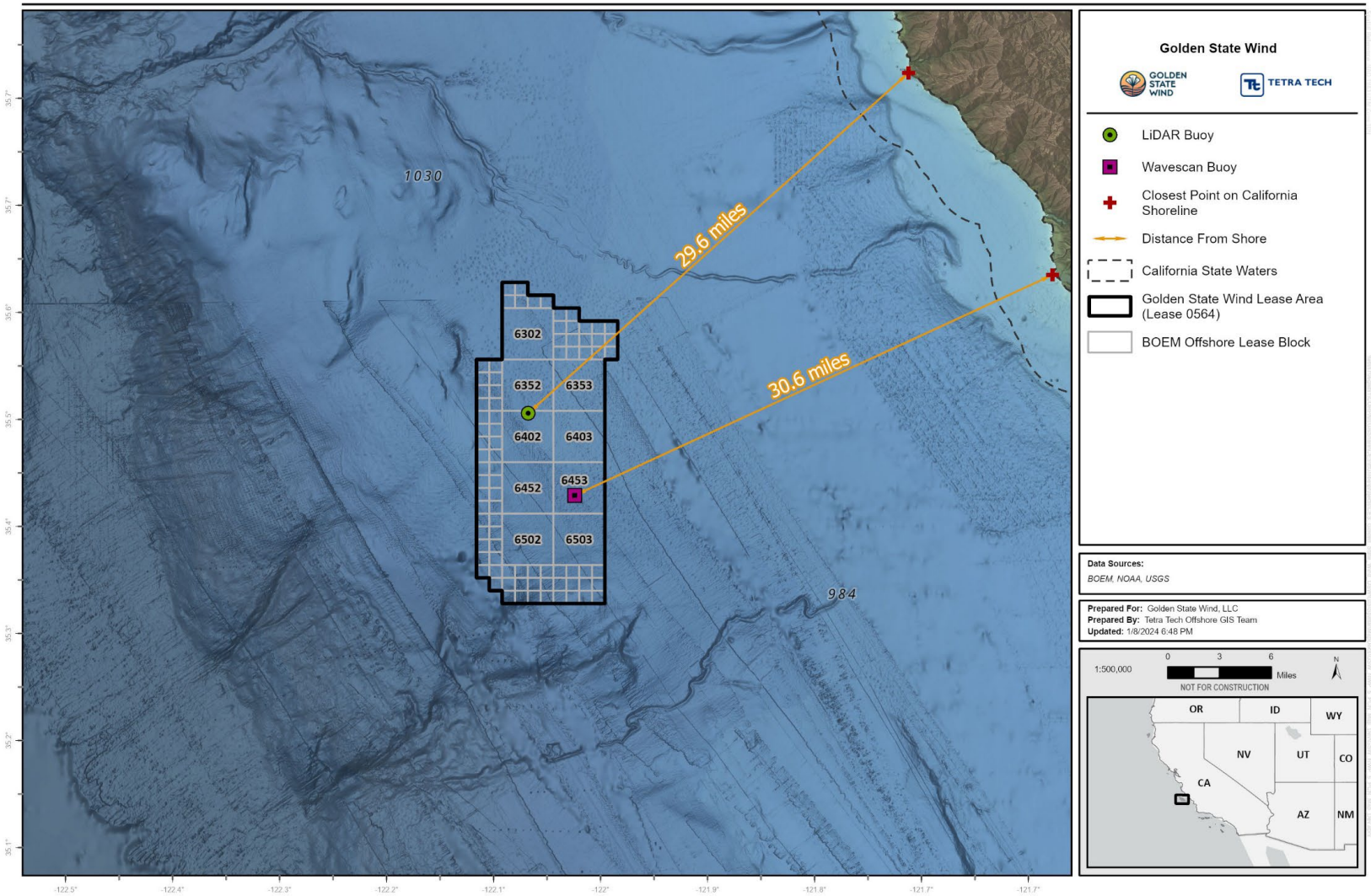
- Geotechnical vessel:
  - Single vessel
  - ~200 feet in length (not yet contracted)
  - Vessel to be stationary during data collection



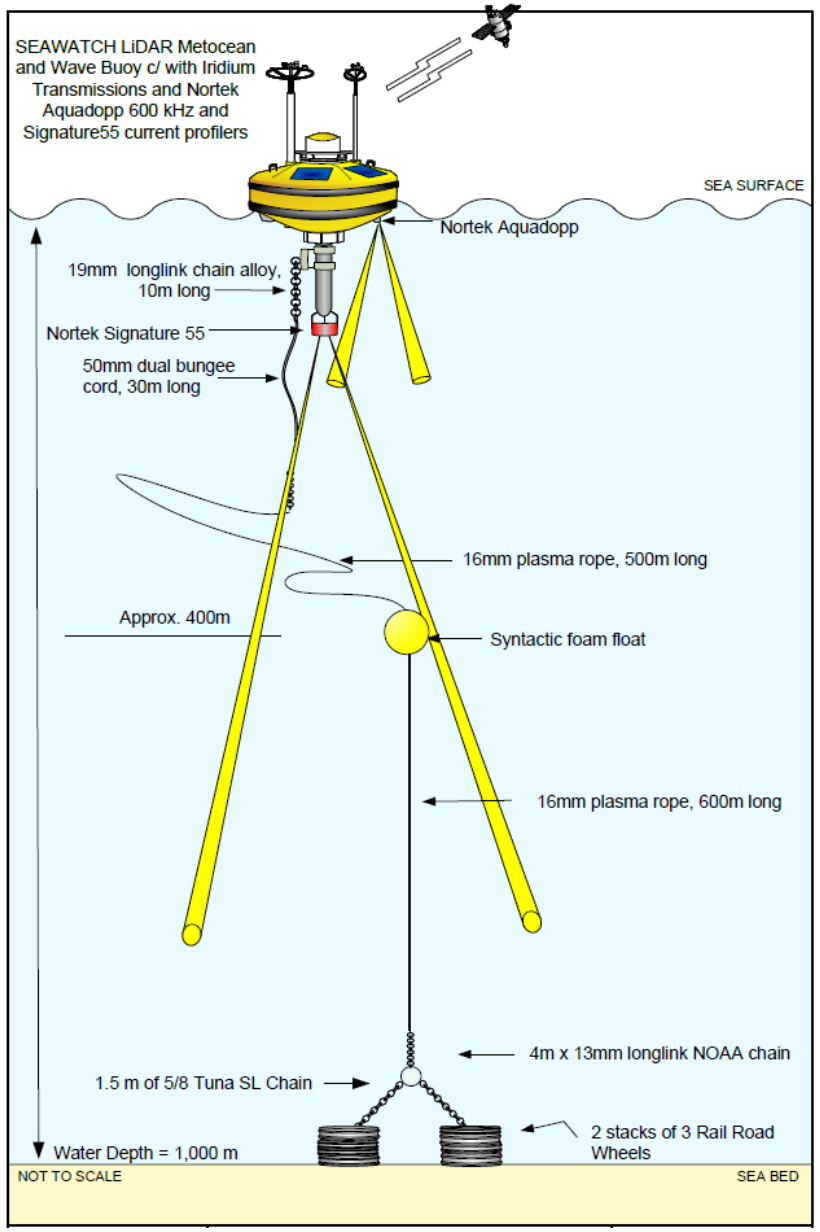
Metocean Buoy Information

Golden State Wind (OCS-P 0564) Morro Bay Central Lease Area

- Buoy locations subject to change based on results from geophysical survey, archeological, and benthic review.
- Metocean buoys collect meteorological data as part of site assessment activities.
- Two metocean buoys will be deployed within the Lease Area.
- Each buoy will be deployed for up to 24 months.
- Deployment estimated to occur summer/fall 2024.



Metocean Buoy Visualization



Lidar and Wavescan Buoys

- Uses **Lidar** (Light Waves) to measure wind speed and direction.
- **GPS** and **AIS** position
- **Data Telemetry**
- Meteorological Measurements
- Wave measurements
- **ADCP** to measure currents in the water

3. Fisheries Engagement

Engagement with Fisheries (FCP)

We recognize that fishermen and the developers will share a common space in the offshore waters of California. Interactions can be avoided or minimized with the proper planning, outreach, and communication.

Prior to Survey activities:

- Pre-survey meetings - virtual
  - Advanced notice of meeting to establish working relationships, collect baseline data for fishermen's needs, interests, concerns, and expectations.

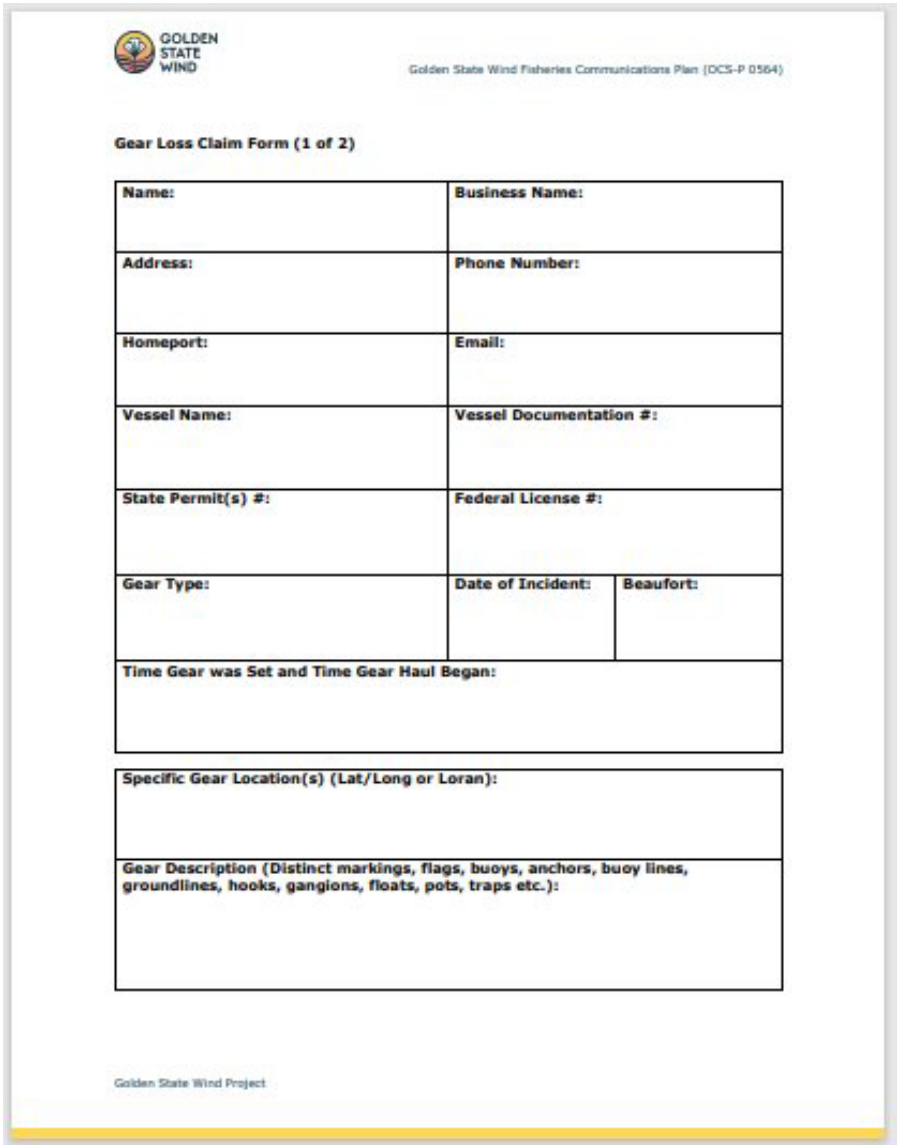
During Survey Activities:

- Fisheries Liaison will keep affected fishermen and associations up to date via listserv (email), submitting Local Notice to Mariners, phone, and posting bulletins in port.
- Exploring the use of Fishing Industry Representatives (FIR), Offshore Fisheries Liaison's OFL's, and scout vessels.

Coordinating with neighboring leaseholders, when possible, to reduce meeting fatigue is ongoing

Unintentional Gear Interaction (FCP)

- If you experience gear loss or damage you believe was caused by the result of GSW's survey activities, please:
- As soon as it is safe to do so, report the incident to the Fisheries Liaison, report the coordinates of interaction.
- Within 30 days, submit a complete, legible, executed Claim Form to the FL.
  - Claim form attached to FCP
- Expect to hear back within 30 days regarding the claim.



GOLDEN STATE WIND

Golden State Wind Fisheries Communications Plan (OCS-P 0564)

Gear Loss Claim Form (1 of 2)

Name:	**Business Name:**	
Address:	**Phone Number:**	
Homeport:	**Email:**	
Vessel Name:	**Vessel Documentation #:**	
State Permit(s) #:	**Federal License #:**	
Gear Type:	**Date of Incident:**	**Beaufort:**
Time Gear was Set and Time Gear Haul Began:		

Specific Gear Location(s) (Lat/Long or Loran):
Gear Description (Distinct markings, flags, buoys, anchors, buoy lines, groundlines, hooks, gangions, floats, pots, traps etc.):

Golden State Wind Project

4. Questions and Input

Fisheries Liaison:
Rachel Mahler
(805) 680-8138
Rachel.Mahler@oceanwinds.com
www.goldenstatwind.com/#mariners