Oregon Offshore Wind Energy Planning Data Review Workshop

August 4, 2021

Whitney Hauer, Ph.D.
Bureau of Ocean Energy Management (BOEM) Pacific Regional Office

Andy Lanier
Oregon Department of Land Conservation and Development (DLCD)

Facilitated by Jamie Damon, Kearns & West

For help with technical difficulties, please contact Ariella Dahlin (aDahlin@kearnswest.com, 541-659-5852) for assistance.
Webinar will be recorded.

Agenda

Time	Topic
9:00 am	**Welcome**
9:05 am	**Overview of Oregon Offshore Wind Energy Planning**
9:15 am	**Module 1: Physical Datasets** Data review and public input
9:55 am	**Break**
10:00 am	**Module 2: Human Uses Datasets** Data review and public input
10:50 am	**Break**
11:00 am	**Module 3: Biological Datasets** Data review and public input
11:50 am	**Summary and Next Steps**

Meeting Participation Tips

Please join audio by either phone or computer, not both.

<u>During data review presentation</u>

- Turn off your video and stay on mute

<u>During the public input section</u>, use "Raise Your Hand" button to get in the queue; if joined by phone, press *9 to raise hand

- Facilitator will call on you
- Turn on your video
- Say your name and affiliation before speaking

For Zoom technical issues, email aDahlin@kearnswest.com or call 541-659-5852

Meeting recording and presentation will be posted at www.boem.gov/oregon-virtual-meeting-room

Meeting Participation Ground Rules

Raise comments for discussion during the public input session.

Be respectful of speaking time during the public input session.

Respect differences of opinion and perspectives.

Listen and speak with respect.

Overview of Oregon Offshore Wind Energy Planning

Whitney Hauer, Ph.D., Renewable Energy Specialist
BOEM Pacific Regional Office

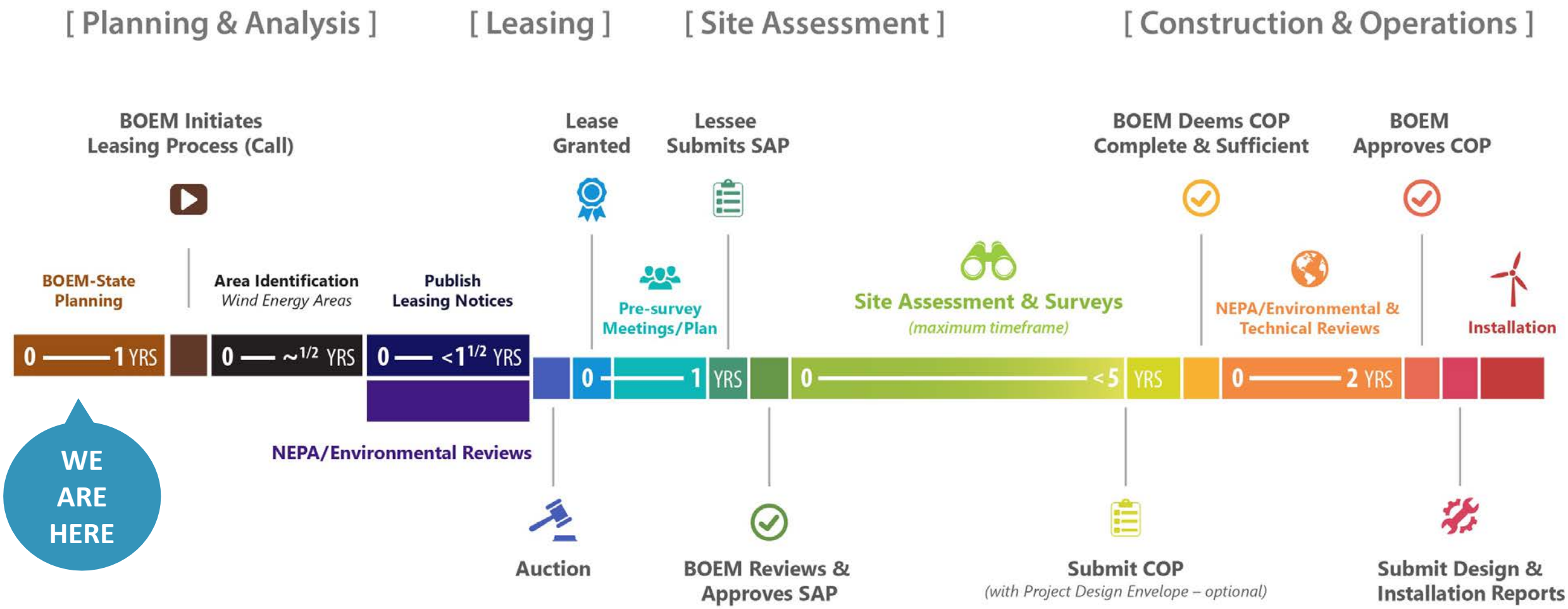
Bureau of Ocean Energy Management (BOEM)

Mission: Manage the development of U.S. Outer Continental Shelf (OCS) energy and mineral resources in an environmentally and economically responsible way.

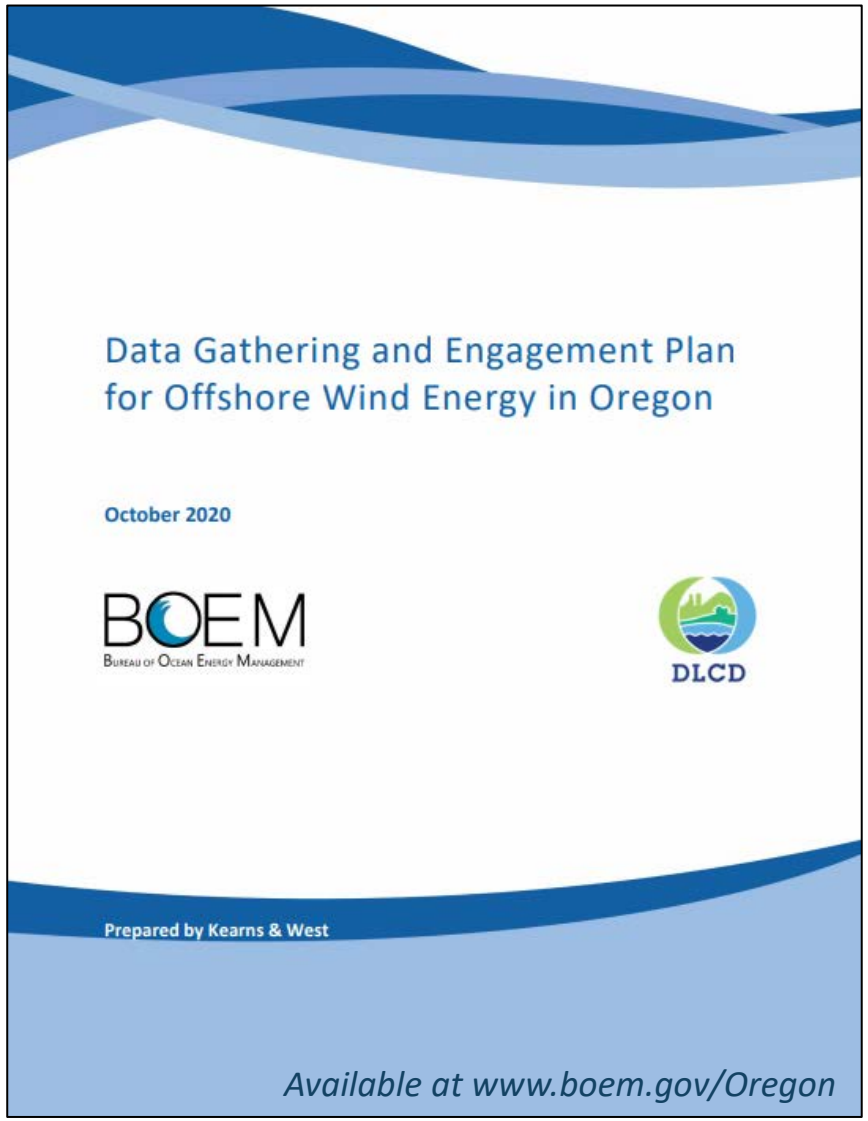
Jurisdiction on the U.S. West Coast

- Federal waters from 3 to 200 nautical miles (i.e., the OCS)
- Excludes National Marine Sanctuaries

BOEM Offshore Wind Energy Authorization Process



BOEM Oregon Intergovernmental Renewable Energy Task Force



Provides coordination with governmental bodies and input into BOEM's renewable energy leasing process

September 2019 meeting: discussed planning approach

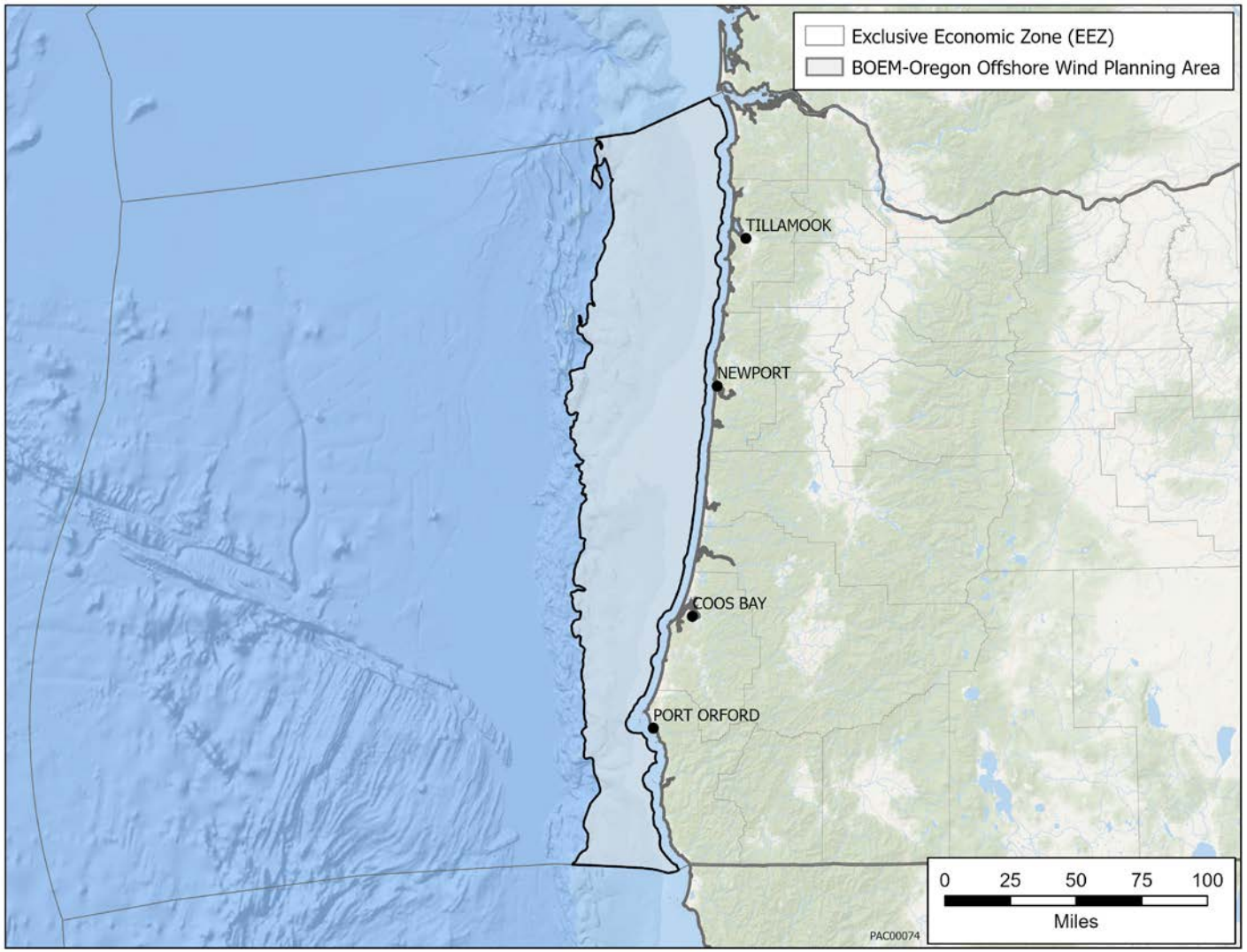
- Result: BOEM and DLCD drafted data gathering and engagement plan
- Oregon Ocean Policy Advisory Council (OPAC) letter to the Governor supports planning

June 2020 meeting: discussed draft plan

- Result: BOEM and the State of Oregon committed to offshore wind energy planning

October 2020: BOEM and DLCD finalized "Data Gathering and Engagement Plan for Offshore Wind Energy in Oregon"

Oregon Offshore Wind Energy Planning



OROWindMap Launched in 2020

Potential Area for Leasing:

- Federal waters offshore Oregon
- Water depths <1,300 m (4,625 ft)
- Average wind speed >7 m/s (13.6 knots)

Planning Area: State and federal waters, and onshore with pertinent data and information

Oregon Offshore Wind Energy Planning Public Webinars

OROWindMap Introductory Webinar (March 2021)

- Functionality of OROWindMap

Oregon Offshore Wind Energy Planning Public Webinars (May 2021)

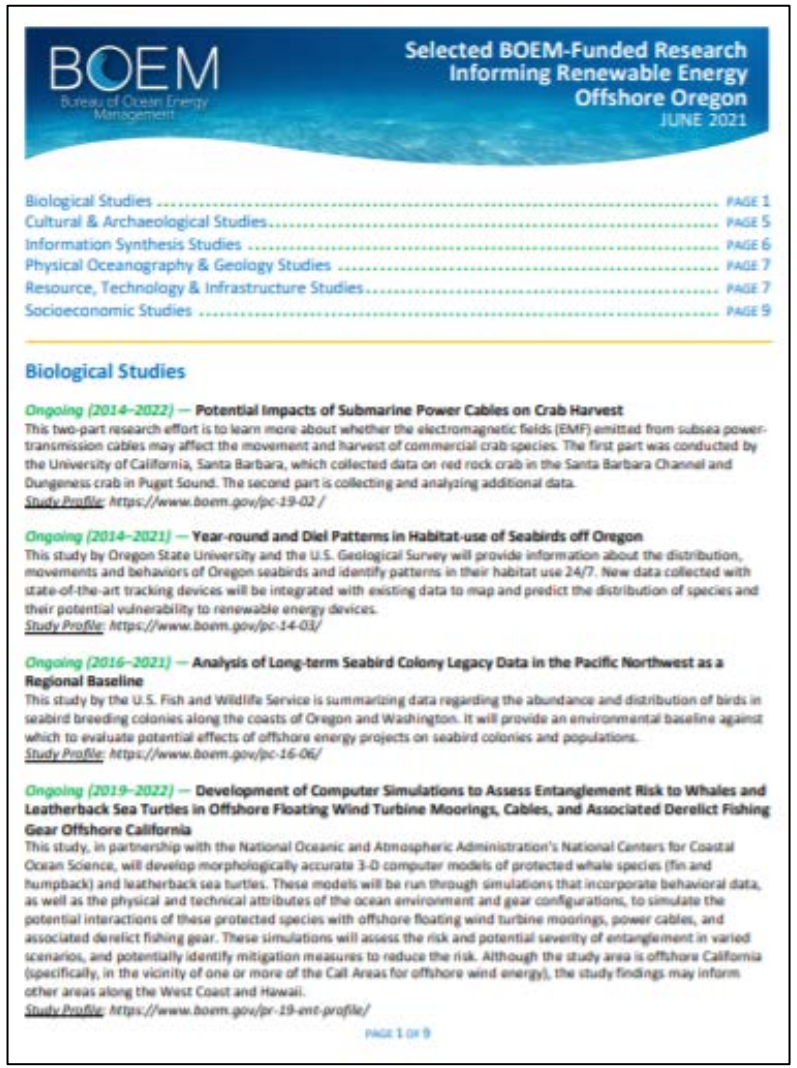
- Provide an overview and update of planning effort
- Gather feedback

Data Review Virtual Workshops (August 2021)

- Provide an overview of the datasets in OROWindMap
- Gather feedback/input on datasets
- Today – Physical, human use, and biological data review
- August 11, 2021 – Fisheries-related data review

Webinar materials and recordings available at www.boem.gov/Oregon

Selected Studies to Inform Wind Energy Planning on the West Coast



BOEM
Bureau of Ocean Energy Management

Selected BOEM-Funded Research Informing Renewable Energy Offshore Oregon
JUNE 2021

Biological Studies

Ongoing (2014–2022) — **Potential Impacts of Submarine Power Cables on Crab Harvest**
This two-part research effort is to learn more about whether the electromagnetic fields (EMF) emitted from subsea power-transmission cables may affect the movement and harvest of commercial crab species. The first part was conducted by the University of California, Santa Barbara, which collected data on red rock crab in the Santa Barbara Channel and Dungeness crab in Puget Sound. The second part is collecting and analyzing additional data.
Study Profile: https://www.boem.gov/pc-19-02 /

Ongoing (2014–2021) — **Year-round and Diel Patterns in Habitat-use of Seabirds off Oregon**
This study by Oregon State University and the U.S. Geological Survey will provide information about the distribution, movements and behaviors of Oregon seabirds and identify patterns in their habitat use 24/7. New data collected with state-of-the-art tracking devices will be integrated with existing data to map and predict the distribution of species and their potential vulnerability to renewable energy devices.
Study Profile: https://www.boem.gov/pc-14-03/

Ongoing (2016–2021) — **Analysis of Long-term Seabird Colony Legacy Data in the Pacific Northwest as a Regional Baseline**
This study by the U.S. Fish and Wildlife Service is summarizing data regarding the abundance and distribution of birds in seabird breeding colonies along the coasts of Oregon and Washington. It will provide an environmental baseline against which to evaluate potential effects of offshore energy projects on seabird colonies and populations.
Study Profile: https://www.boem.gov/pc-16-06/

Ongoing (2019–2022) — **Development of Computer Simulations to Assess Entanglement Risk to Whales and Leatherback Sea Turtles in Offshore Floating Wind Turbine Moorings, Cables, and Associated Derelict Fishing Gear Offshore California**
This study, in partnership with the National Oceanic and Atmospheric Administration's National Centers for Coastal Ocean Science, will develop morphologically accurate 3-D computer models of protected whale species (fin and humpback) and leatherback sea turtles. These models will be run through simulations that incorporate behavioral data, as well as the physical and technical attributes of the ocean environment and gear configurations, to simulate the potential interactions of these protected species with offshore floating wind turbine moorings, power cables, and associated derelict fishing gear. These simulations will assess the risk and potential severity of entanglement in varied scenarios, and potentially identify mitigation measures to reduce the risk. Although the study area is offshore California (specifically, in the vicinity of one or more of the Call Areas for offshore wind energy), the study findings may inform other areas along the West Coast and Hawaii.
Study Profile: https://www.boem.gov/pr-19-ent-profile/

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Available at www.boem.gov/Oregon

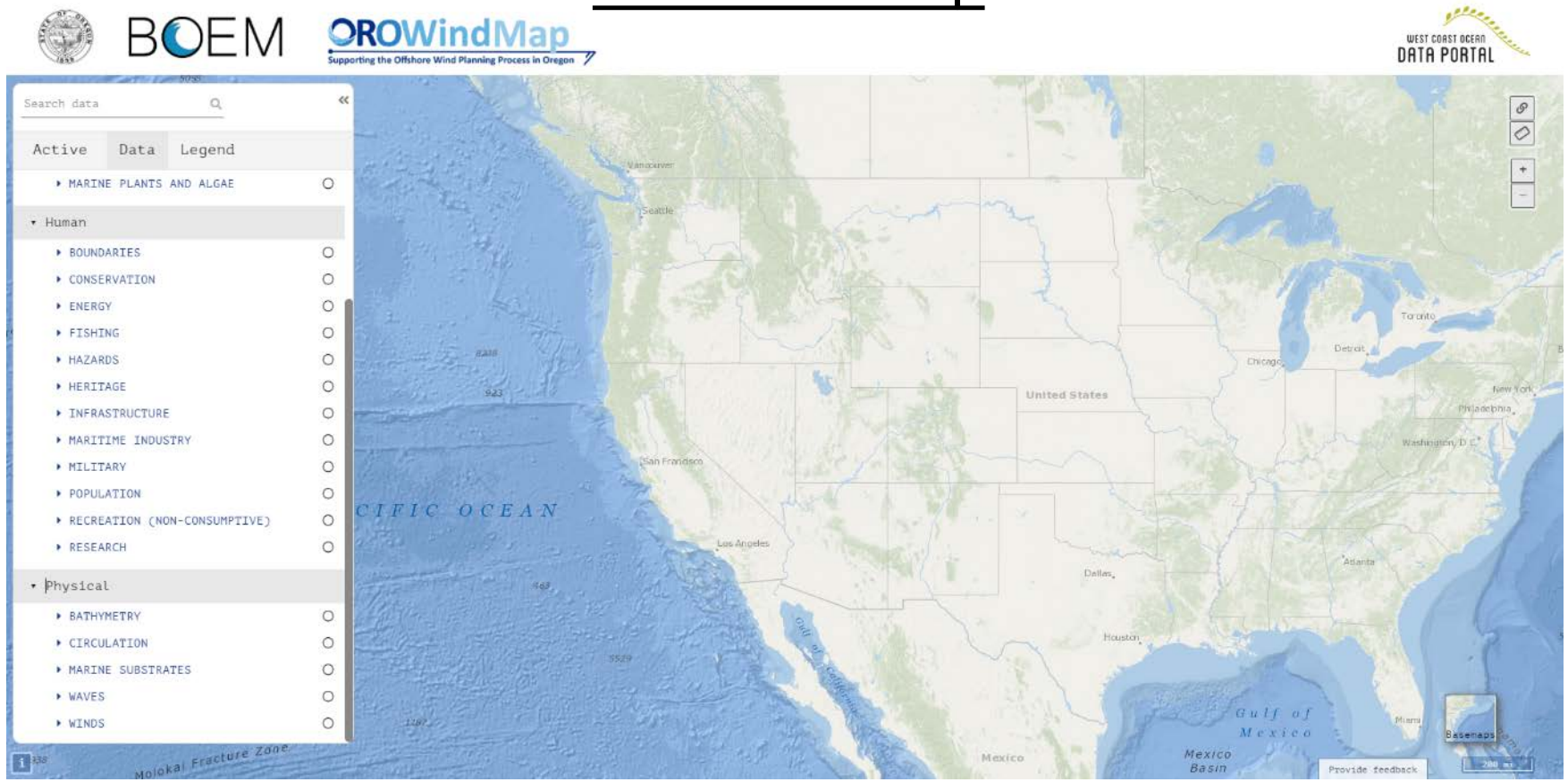
- **Passive acoustic monitoring** to understand the distribution of marine mammals
- **Whale movement video animation around floating offshore wind** and **simulations to inform entanglement risk** to whales
- **Seafloor mapping and site characterization surveys**
- **Metocean resource data collection** with LIDAR buoys in California
- **Oregon offshore wind grid integration** to inform the potential value of offshore wind energy to the Oregon power system
- **Floating offshore wind resource and costs** to inform planning efforts

Module 1
Physical Datasets

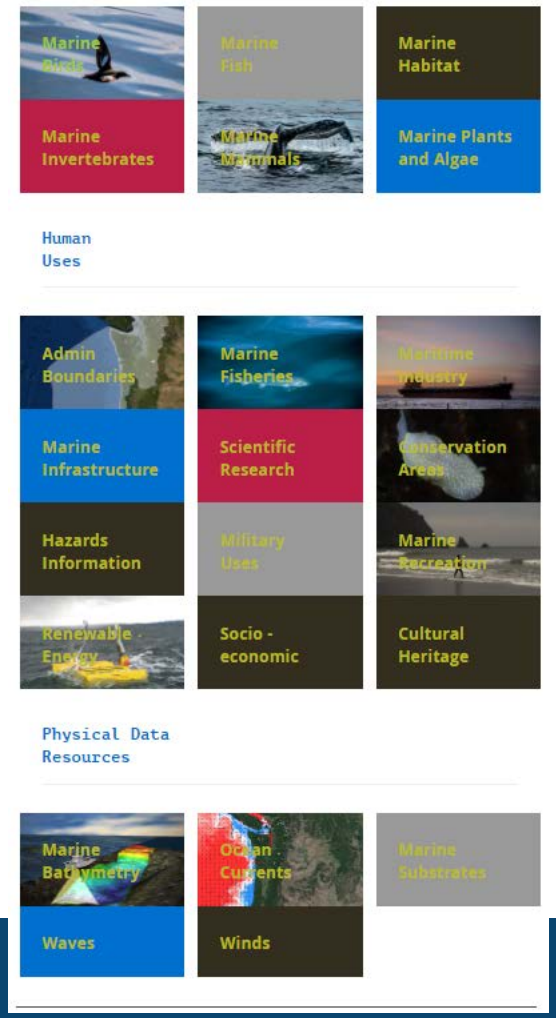
Andy Lanier, Marine Affairs Coordinator
Oregon Department of Land Conservation and Development

Offshore Wind Data Visualization Tool and Data Catalog

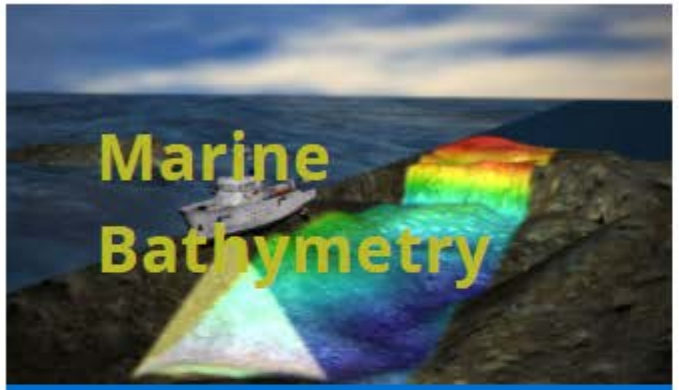
OROWindMap



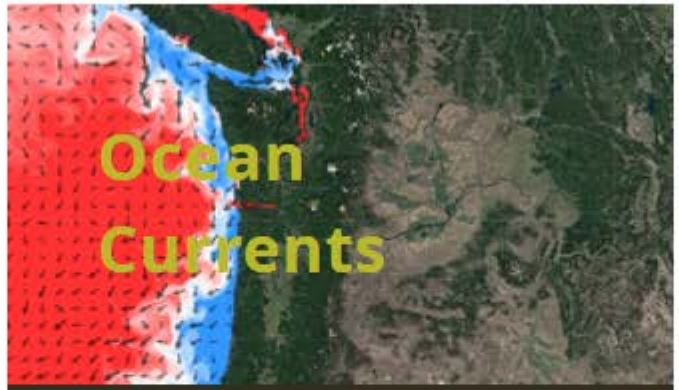
Data Catalog



Physical Data



Waves



Winds

Marine
Substrates

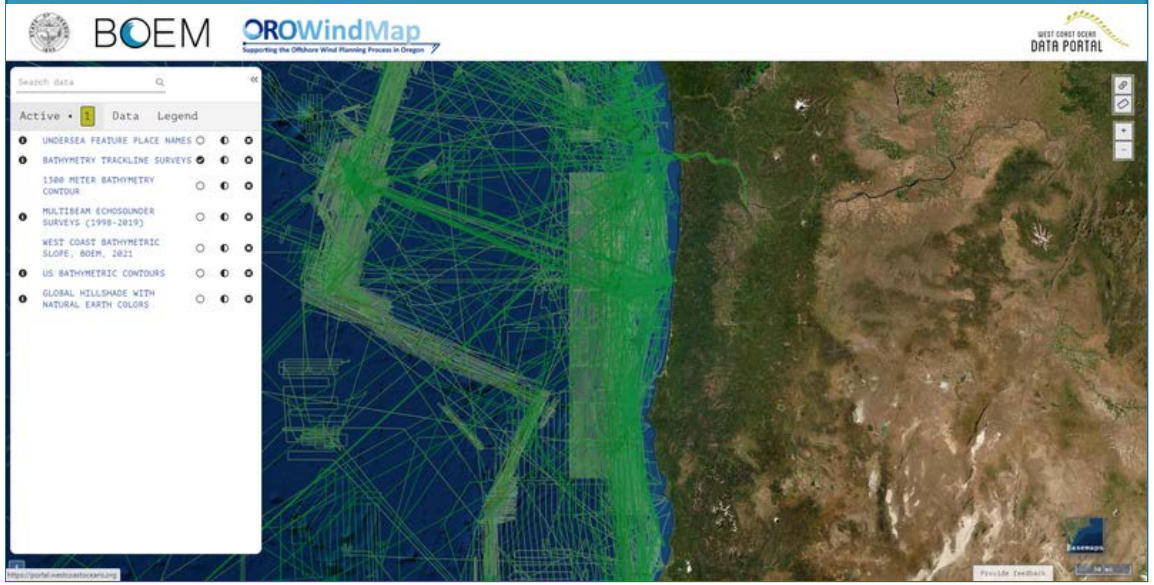
Marine Bathymetry

Bathymetry is the elevation of the Earth's surface beneath a body of water, especially the ocean, typically determined by measurements of depth from the water surface at mean lower low water.

Data Layers in the Catalog

- Bathymetric Contours, NOAA, 2018
- 1300 Meter Bathymetry Contour, BOEM, 2020
- West Coast Seafloor Slope, BOEM, 2021
- MultiBeam Echosounder Survey footprints (1998-2019), NOAA, 2020
- Bathymetry Trackline Surveys, NOAA, 2020
- Global Earth DEM Hillshade with Natural Colors, NOAA, 2020

View in OROWindMap



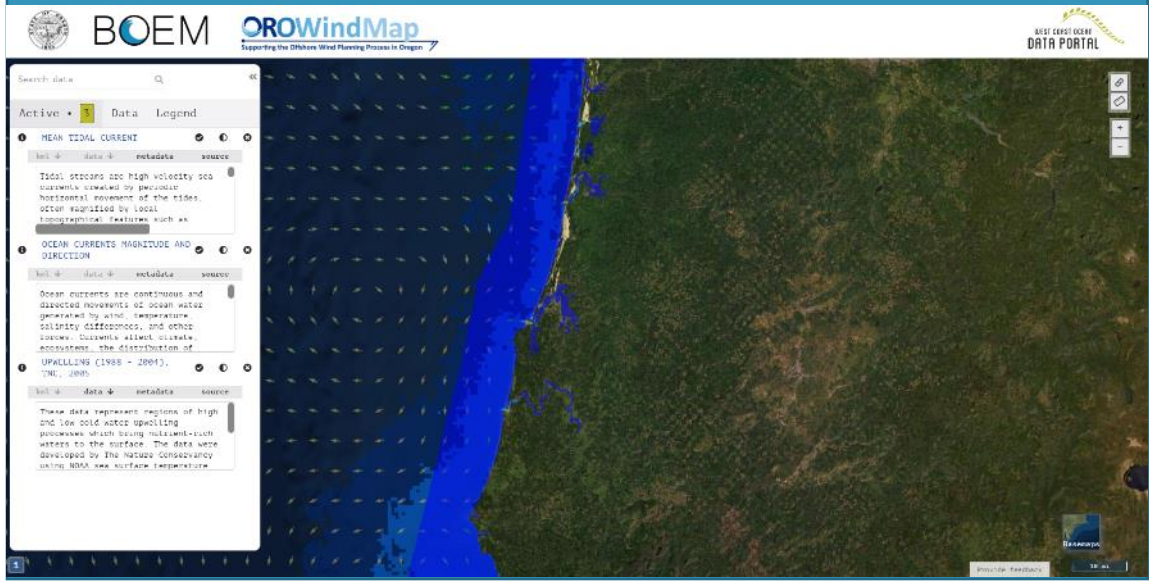
Ocean Currents

“Ocean Currents” refers to relatively constant directional flows of large water masses, which can be driven by a variety of dynamic forces.

Data Layers in the Catalog

- Current Magnitude and Direction
  Catalog|OROWindMap
- Mean Tidal Current, Georgia Tech
  Catalog|OROWindMap
- Upwelling (1988 - 2004), TNC, 2005
  Catalog|OROWindMap

View in OROWindMap



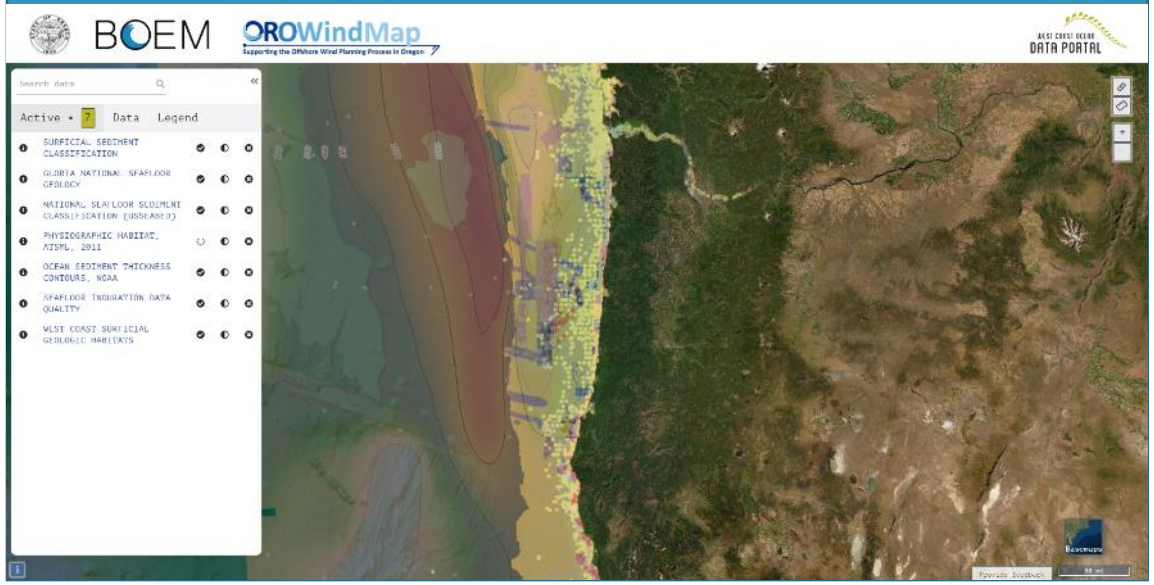
Marine Substrates

“Substrate” represents the character and composition of the surface and near surface of the sea floor in subtidal or intertidal areas, as defined in the Substrate Component of CMECS or in similar classification systems.

Data Layers in the Catalog

- National Seafloor Sediment (usSEABED)
- GLORIA National Seafloor Geology
- Ocean Sediment Thickness Contours, NOAA, 2013
- Physiographic Habitat, ATSML, 2011
- Surficial Sediment Classification
- Surficial Geological Habitat v.4.0

View in OROWindMap



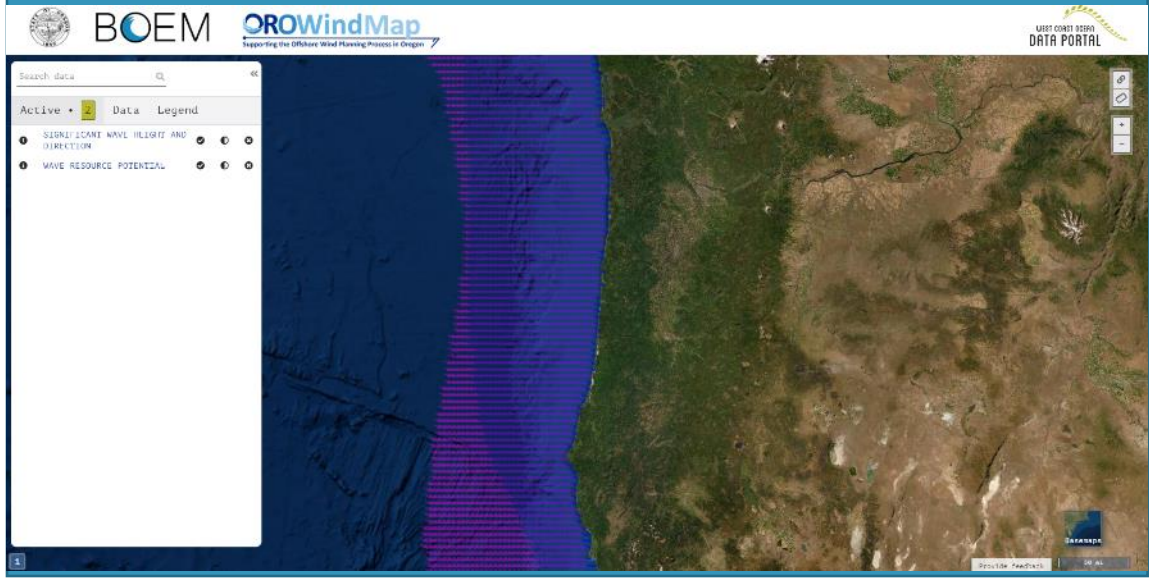
Wave Resources

Waves are formed by energy moving through the water. Wave resource potential refers to the potential generation of electricity from wave power by using fixed or floating wave energy capture devices, for which estimates focus on mean wave power density.

Data Layers in the Catalog

- **Wave Resource Potential, NREL, NCEP, EMRI, Virginia Tech, 2011**
  Catalog|OROWindMap
- **Significant Wave Height and Direction**
  Catalog|OROWindMap

View in OROWindMap



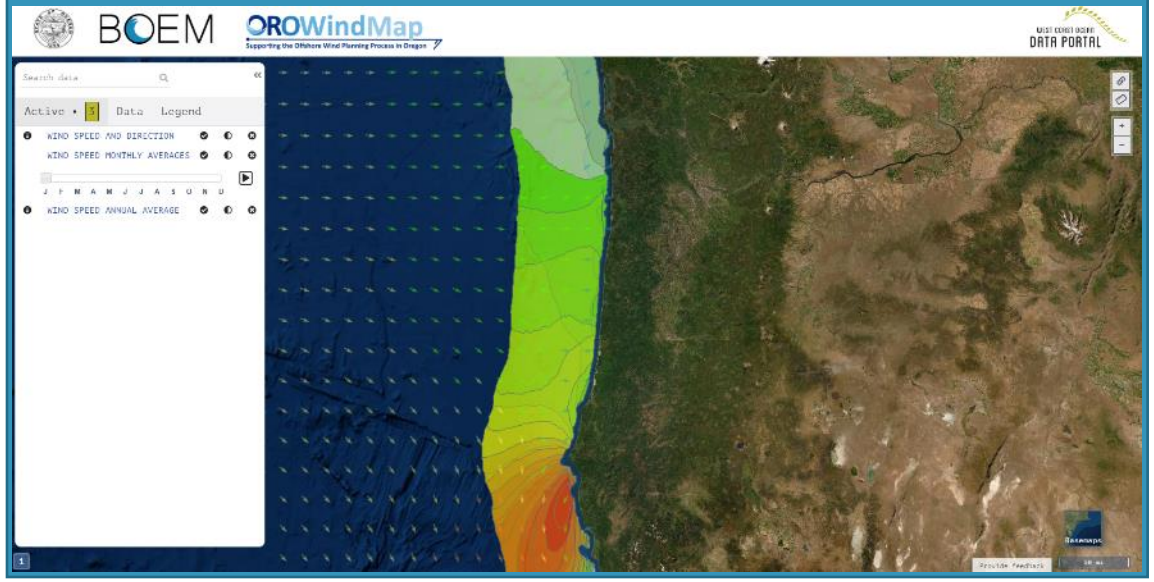
Wind Resources

Wind Resource data "Wind" refers to the natural movement of air in horizontal currents. Distributions are maps of wind climatology and observations of wind speed, direction, and variability in the lower atmosphere as a function of location, time, or elevation.

Data Layers in the Catalog

- Wind Speed Monthly Averages, NREL, 2015
  - January
  - February
  - March
  - April
  - May
  - June
  - July
  - August
  - September
  - October
  - November
  - December
- Wind Speed Annual Average, NREL, 2015
- Wind Speed and Direction, NOAA, 2018

View in OROWindMap



Physical Datasets – Next Steps

Explore OROWindMap (offshorewind.westcoastoceans.org) and OROWindMap Catalog (portal.westcoastoceans.org/OROWindMap-data-themes)

- Provide written feedback on the content of the data review workshop, email renewableenergypocs@boem.gov by Aug 18, 2021
  - Include “Oregon Data Review Feedback Aug 4” in the subject line
- Share relevant data (see www.boem.gov/OROWindMapInfo)

Stay informed and connected about Oregon offshore wind activities and any scheduled Task Force meetings at www.boem.gov/Oregon

- Sign up for announcements at www.boem.gov/OregonUpdates

Contact Whitney Hauer (whitney.hauer@boem.gov) and Andy Lanier (andy.lanier@dlcd.Oregon.gov) with names of other organizations, groups, or members of the public that should engage in offshore wind energy planning

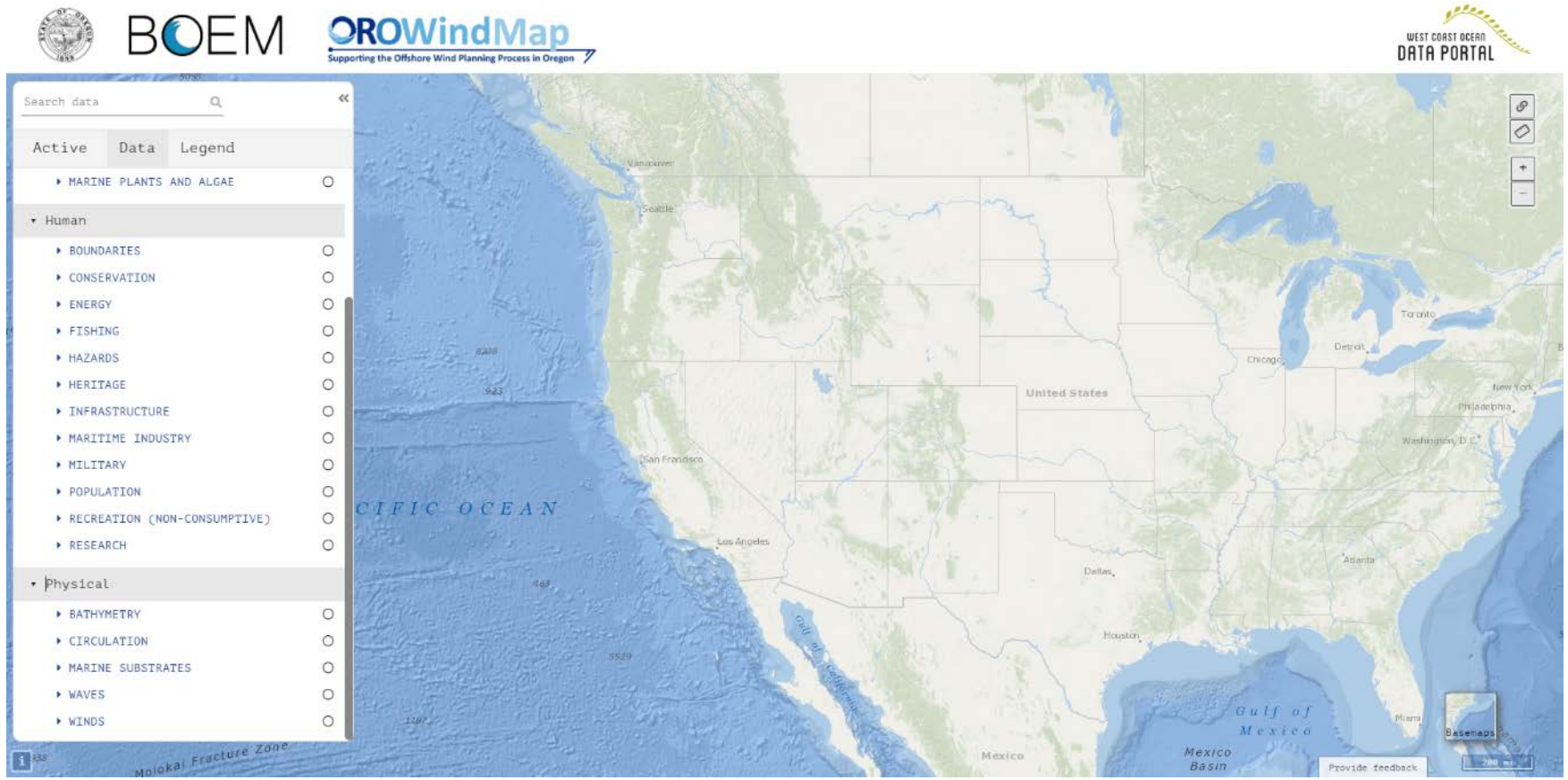
Oregon Offshore Wind Energy Planning Data Review Workshop

Up next: Module 2 Human Uses Datasets

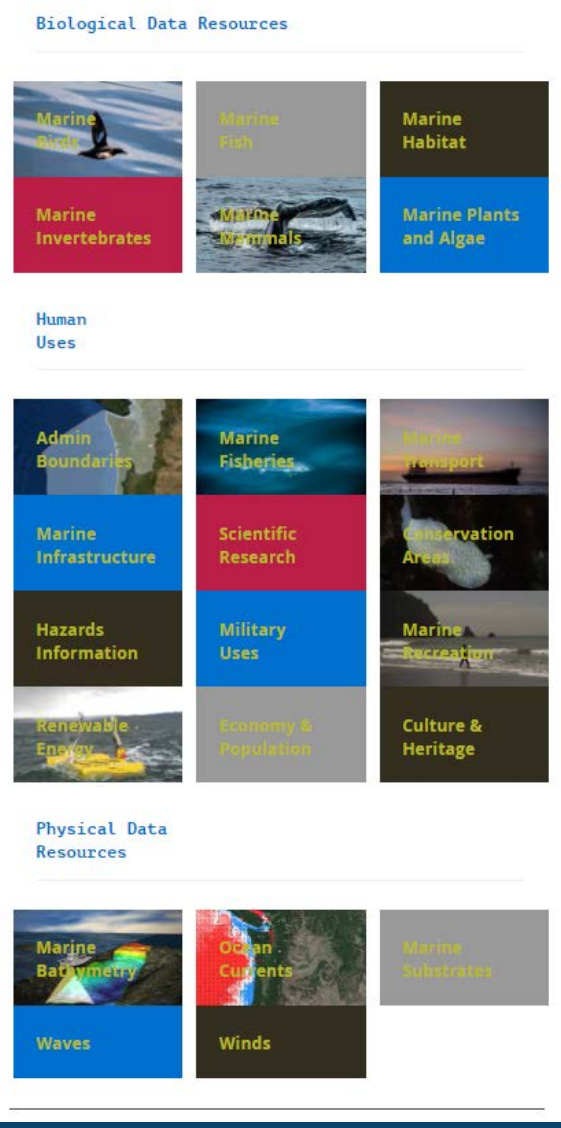
Meeting will resume at 10:00 am

Offshore Wind Data Visualization Tool and Data Catalog

OROWindMap



Data Catalog



Human Use Data

Marine Infrastructure

Scientific Research

Hazards Information

Military Uses

Economy & Population

Culture & Heritage

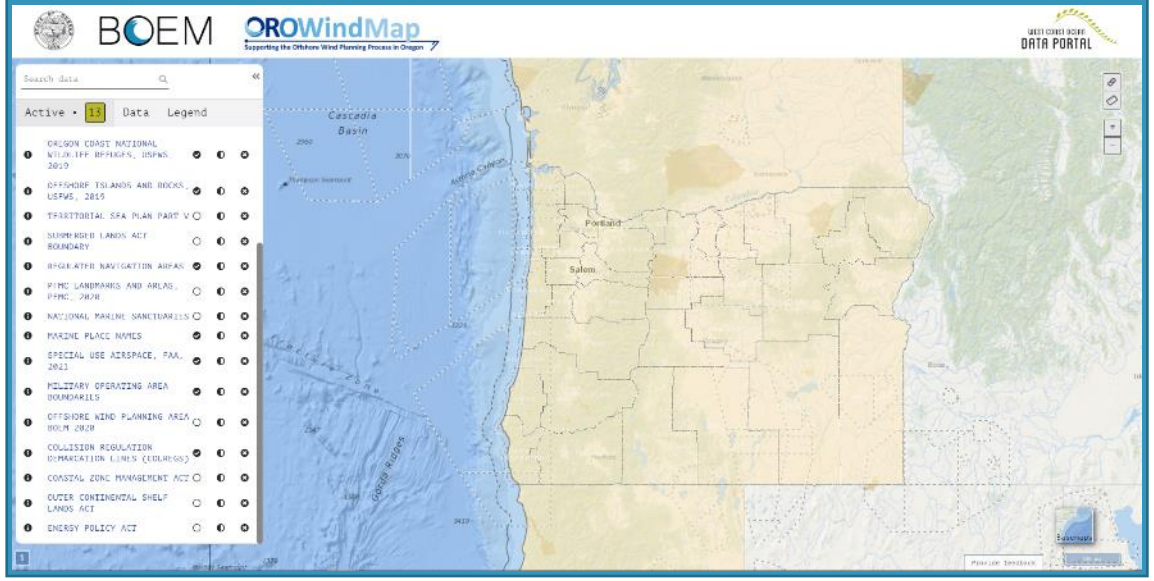
Administrative Boundaries

Administrative boundaries represent the boundaries of geographic areas that are defined for governmental, administrative, or management purposes.

Data Layers in the Catalog (1)

- City Limits, ODOT, 2020
- Oregon Counties, BLM
- Coastal Ports, Ecotrust, 2011
- Coastal Populated Places, NOAA, 2018
- Coastal Tribal Lands, NOAA, 2013
- Unofficial State Lateral Boundaries, BOEM
- Federal and State Waters, NOAA, 2021
- Federal Consistency Geographic Location Descriptions, NOAA, 2018
- Outer Continental Shelf Lands Act, BOEM
- Coastal Zone Management Act, NOAA, 2018
- Energy Policy Act, NOAA, 2016

View in OROWindMap



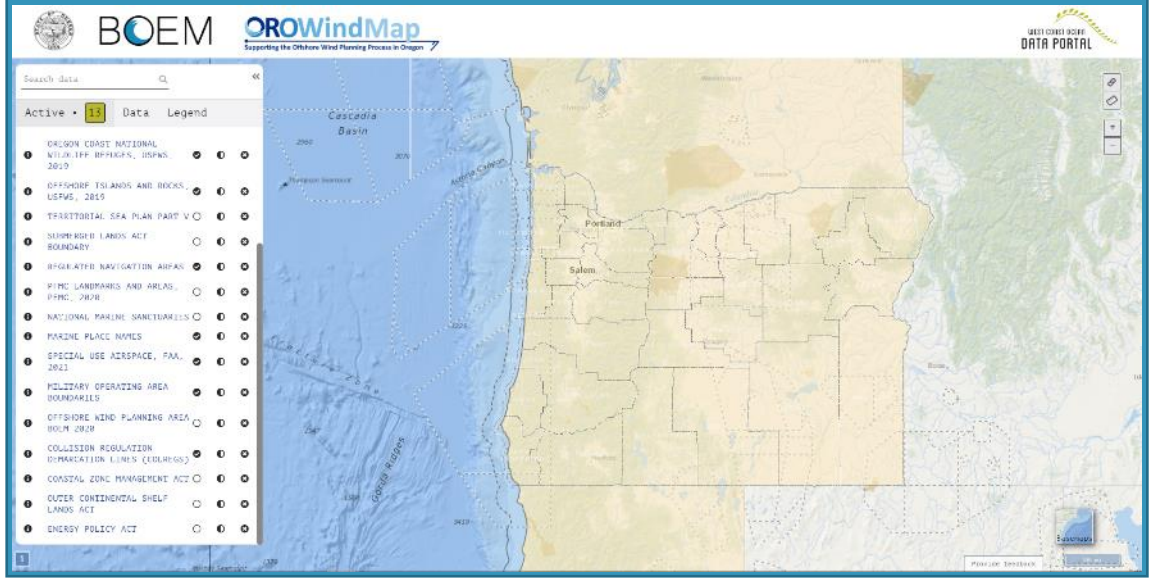
Administrative Boundaries

Administrative boundaries represent the boundaries of geographic areas that are defined for governmental, administrative, or management purposes.

Data Layers in the Catalog (2)

- Submerged Lands Act Boundary, NOAA, 2016
- Marine Place Names, NOAA, 2019
- Collision Regulation Demarcation Lines (COLREGS), NOAA, 2019
- Military Operating Area Boundaries, NOAA, 2019
- Regulated Navigation Areas, NOAA, 2018
- Special Use Airspace, FAA, 2021
- Oregon Coast National Wildlife Refuges, USFWS, 2019
- Oregon Offshore Islands and Rocks, USFWS, 2019
- National Marine Sanctuaries, NOAA, 2018
- Territorial Sea Plan Part V, DLCD, 2019
- PFMC Landmarks and Areas, PFMC, 2020
- Offshore Wind Planning Area, BOEM, 2020

View in OROWindMap



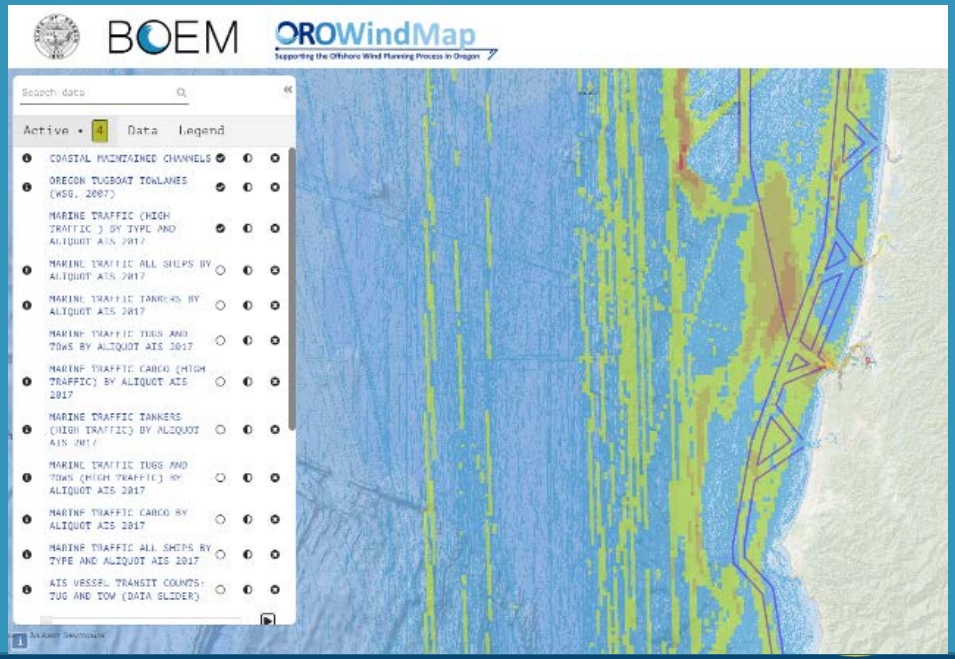
Marine Transportation

Data Layers in the Catalog

- AIS Vessel Transit Counts: All Vessels (2015), NOAA, 2018
- AIS Vessel Transit Counts: All Vessels (2016), NOAA, 2018
- AIS Vessel Transit Counts: All Vessels (2017), NOAA, 2019
- AIS Vessel Transit Counts: Cargo (2016), NOAA, 2019
- AIS Vessel Transit Counts: Cargo (2017), NOAA, 2019
- AIS Vessel Transit Counts: Fishing (2016), NOAA, 2019
- AIS Vessel Transit Counts: Fishing (2017), NOAA, 2019
- AIS Vessel Transit Counts: Passenger (2016), NOAA, 2019
- AIS Vessel Transit Counts: Passenger (2017), NOAA, 2019
- AIS Vessel Transit Counts: Pleasure Craft and Sailing (2016), NOAA, 2019
- AIS Vessel Transit Counts: Pleasure Craft and Sailing (2017), NOAA, 2019
- AIS Vessel Transit Counts: Tanker (2016), NOAA, 2019
- AIS Vessel Transit Counts: Tanker (2017), NOAA, 2019
- AIS Vessel Transit Counts: Tug and Tow (2016), NOAA, 2019
- AIS Vessel Transit Counts: Tug and Tow (2017), NOAA, 2019
- Oregon Tugboat Towlanes, WSG, 2007

The movement of people, goods, and armies by ship remains a major component of the Nation's ocean use footprint. All involve the transit far offshore by large ships over long distances, with periodic passages into shallower waters for loading, offloading, repairs, refueling, and so on.

View in OROWindMap



Marine Infrastructure

Infrastructure is a top-level category of data that represent the locations of permanent or temporary installations intended to support basic human activities or needs, including communication, transportation, shoreline protection, housing, recreation, and utilities.

Data Layers in the Catalog

- Aids To Navigation, NOAA, 2019
- Coastal Maintained Navigational Channels, NOAA, 2018
- Coastal Energy Facilities, NOAA, 2017
- Electric Power Substations, HIFLD, 2017
- Electric Power Substations, ORNL, 2020
- Electric Power Transmission Lines, ORNL, 2019
- Facilities with NPDES Permits, EPA, 2019
- Coastal Ports, Ecotrust 2011
- Pipeline Areas, NOAA, 2018
- Research SubSea Cables, OFCC, 2020
- Telecommunication SubSea Cables, OFCC, 2020

View in OROWindMap

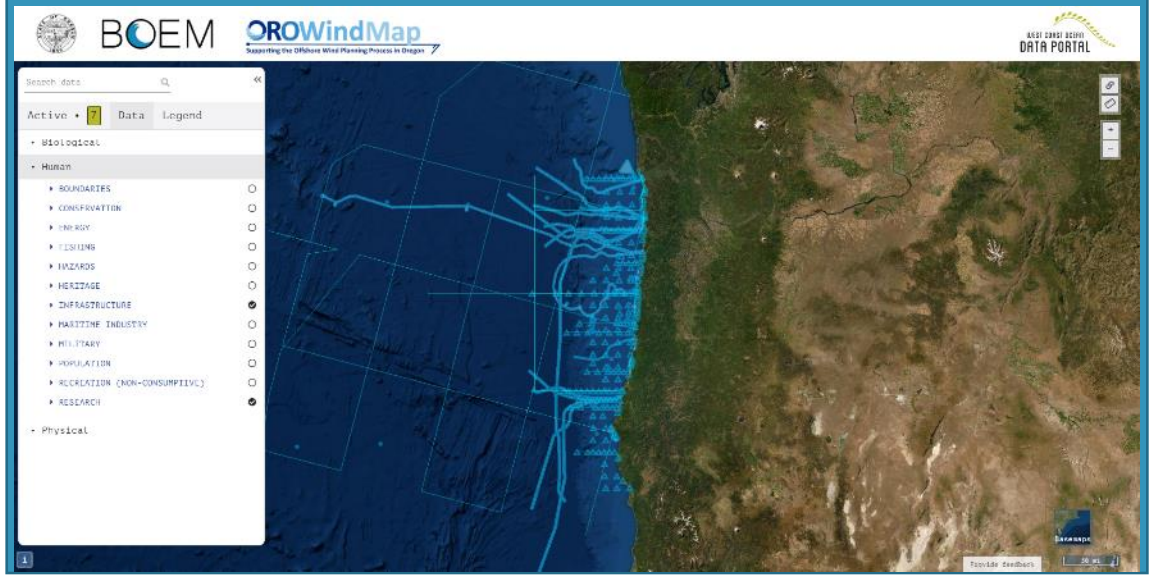
Research

The pursuit of knowledge in the ocean is facilitated through use of the ocean to monitor, observe, and analyze information that is collected using scientific principles and design. Data in this category provide areas of the ocean that have a pattern of use, including long-term research transects, stations, and areas that have repeated observations.

Data Layers in the Catalog

- Nearshore Research Inventory Areas, OCMP, 2012
- Nearshore Research Inventory Lines, OCMP, 2012
- Nearshore Research Inventory Points, OCMP, 2012
- Nearshore Research Inventory Stations, OCMP, 2012
- Nearshore Research Inventory Transects, OCMP, 2012
- Marine Reserve Comparison Study Areas, ODFW, 2020
- Research SubSea Cables, OFCC, 2020

View in OROWindMap



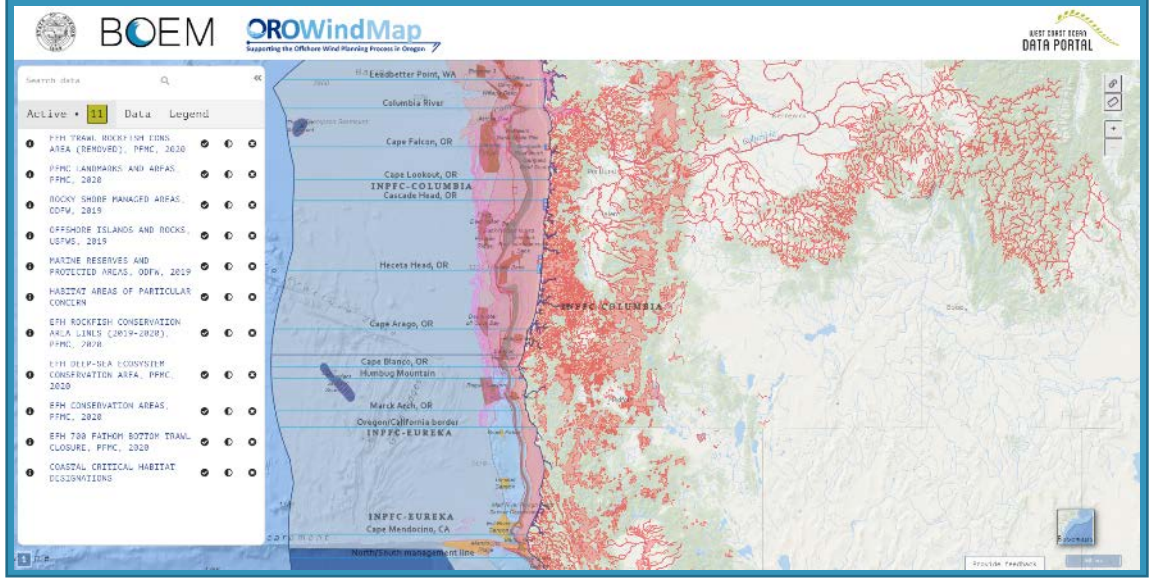
Conservation Areas

Data that delineate areas where some or all of the natural and cultural resources are given a heightened level of protection through regulation or other effective means in order to achieve conservation or societal goals.

Data Layers in the Catalog

- Coastal Critical Habitat Designations, NOAA, 2018
- EFH 700 fathom Bottom Trawl Closure, PFMC, 2020
- EFH Conservation Areas, PFMC, 2020
- EFH Deep-sea Ecosystem Conservation Area, PFMC, 2020
- Groundfish Habitat Areas of Particular Concern, PFMC, 2006
- Trawl Rockfish Conservation Area
- Trawl Rockfish Cons. Area (removed), PFMC, 2020
- EFH Rockfish Conservation Area lines (2019-2020), PFMC, 2020
- Rocky Shore Managed Areas, ODFW, 2019
- Marine Reserves and Protected Areas, ODFW, 2019
- Offshore Islands and Rocks, USFWS, 2019

View in OROWindMap



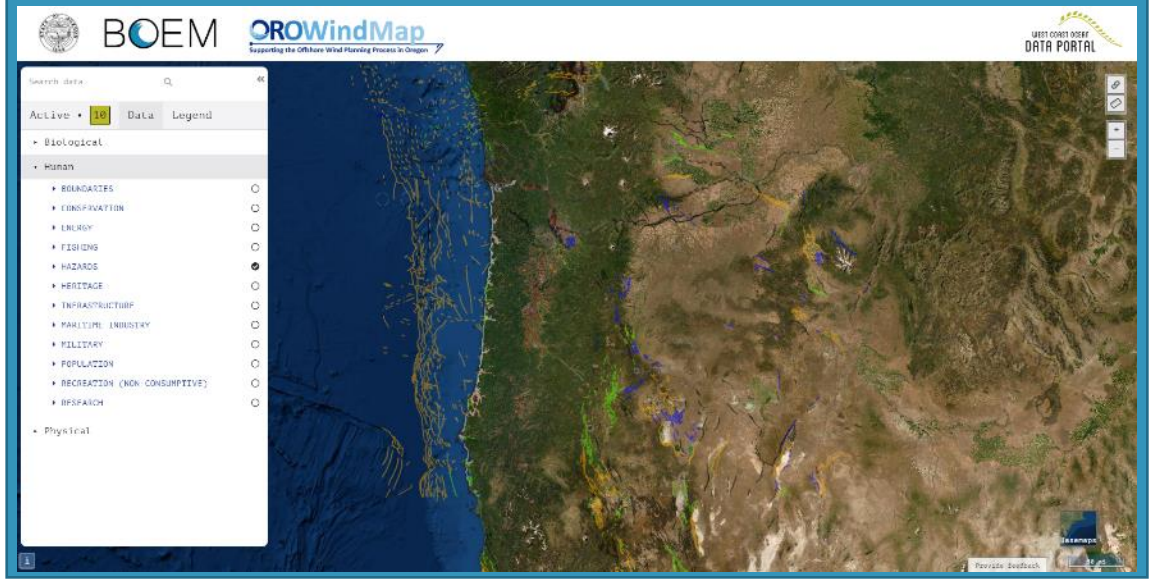
Hazards Information

This data theme includes information related to geographic areas and their vulnerability or resilience to the effects of human uses, natural hazards, and global climate change.

Data Layers in the Catalog

- Oregon 100-yr Flood Zones, Oregon GEO, 2013
- Oregon 500-yr Flood Zones, Oregon GEO, 2013
- Oregon Fault Lines, Oregon GEO, 2009
- Quaternary Fault Lines Offshore Oregon, USGS, 2020
- Tsunami Regulatory Line, DOGAMI, 2014
- Wrecks and Obstructions, NOAA, 2021
- Estuary Sea Level Rise, 2030 Scenario (.75ft), OCMP, 2017
- Estuary Sea Level Rise, 2050 Scenario (1.5ft), OCMP, 2017
- Estuary Sea Level Rise, 2100 Scenario (4.6ft), OCMP, 2017
- Ocean Disposal Sites, NOAA, 2021

View in OROWindMap



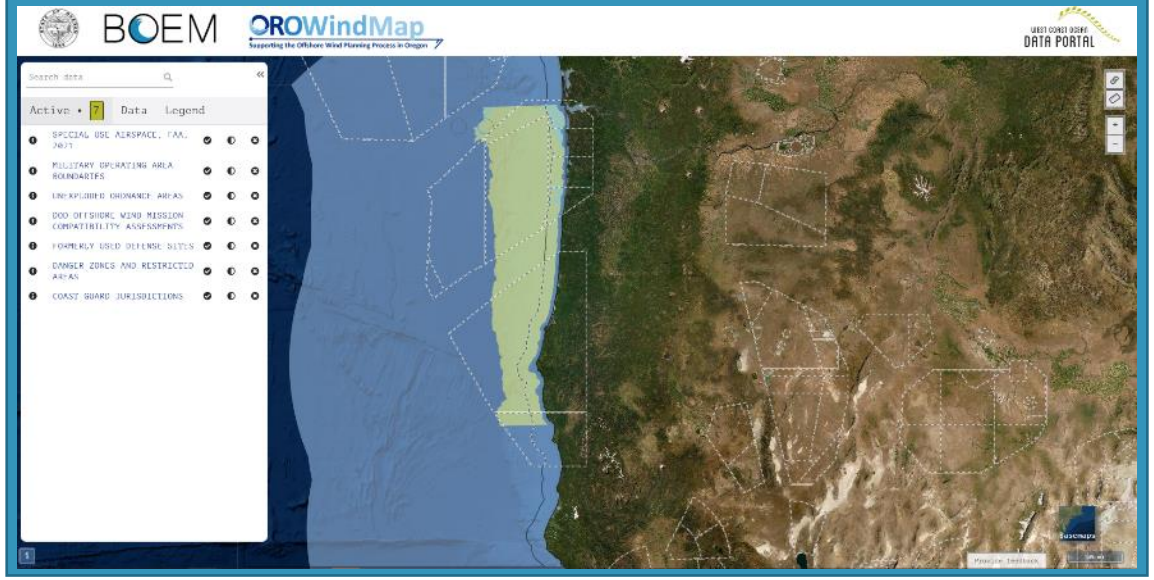
Military Uses

This data theme includes areas of the ocean and air space used for the transit of military vessels or aircraft related to training activities, homeland security, search and rescue, ship and submarine maneuvers, and war games.

Data Layers in the Catalog

- Coast Guard Jurisdictions, NOAA, 2020
- Danger Zones and Restricted Areas, NOAA, 2017
- DoD Offshore Wind Mission Compatibility Assessments, NOAA, 2014
- Formerly Used Defense Sites, NOAA, 2018
- Unexploded Ordnance Areas, NOAA, 2018
- Military Operating Area Boundaries, NOAA, 2019
- Special Use Airspace, FAA, 2021

View in OROWindMap



Marine Renewable Energy

Data in this theme include “Energy Resources” which refers to natural features that provide a capacity to do work through combustion, movement, radiation, or heat; these resources include oil, natural gas, coal, wind, sun, currents, tides, and natural heat gradients. Also included is information related to planning for offshore energy.

Data Layers in the Catalog

- BOEM Block Aliquots, BOEM, 2020
- BOEM Limit of OCSLA 8(g) zone, BOEM, 2020
- BOEM OCS Lease Blocks, BOEM, 2020
- DoD Offshore Wind Mission Compatibility Assessments, NOAA, 2021
- Offshore Wind Technology Depth Zones, NOAA, 2021
- Distance to Shore, BOEM, 2021
- Permitted Marine Hydrokinetic Projects, NOAA, 2018
- Oregon Offshore Wind Planning Area, BOEM, 2020
- Territorial Sea Plan Part V, DLCD, 2019

View in OROWindMap

Marine Recreation

Data in this theme include activities pursued by individuals or groups for the purposes of recreation, exercise, sport, cultural traditions, or spiritual renewal. Many involve people in, on, or under the water, often with a small vessel or dive gear.

Data Layers in the Catalog

- AIS Vessel Transit Counts: Pleasure Craft and Sailing, NOAA, 2016
- AIS Vessel Transit Counts: Pleasure Craft and Sailing, NOAA, 2017
- Oregon Recreation Wildlife Viewing, Surfrider, 2010

View in OROWindMap

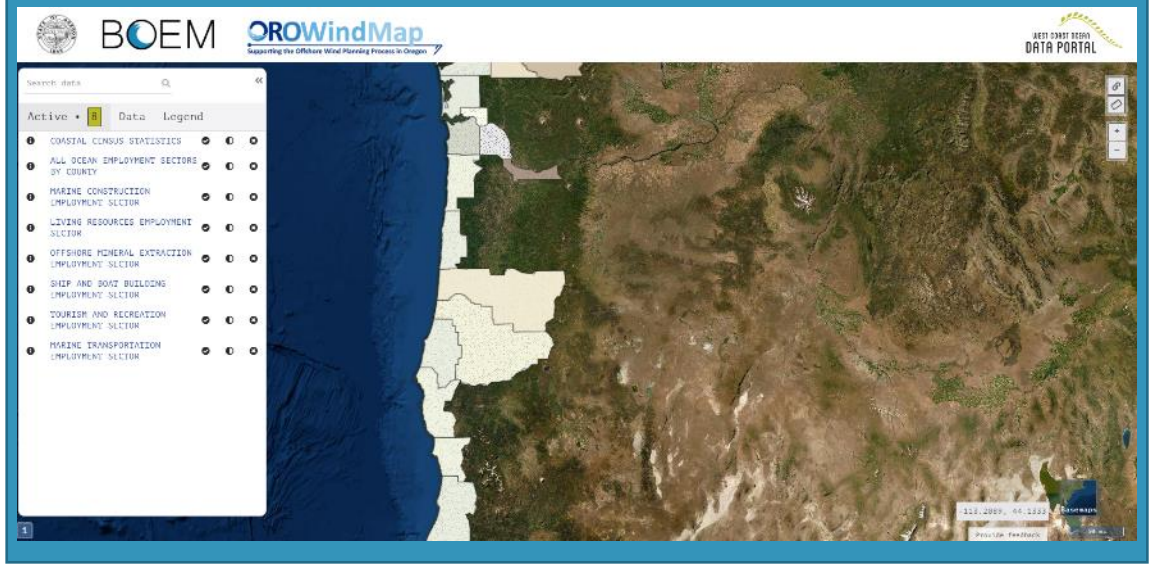
Economy & Demographics

This data theme includes information on coastal population demographics, and analysis of the impact of the marine environmental on the coastal counties.

Data Layers in the Catalog

- Coastal Census Statistics, NOAA, 2018
- All Ocean Employment Sectors by County
- Marine Construction Employment Sector
- Living Resources Employment Sector
- Offshore Mineral Extraction Employment Sector
- Ship and Boat Building Employment Sector
- Tourism and Recreation Employment Sector
- Marine Transportation Employment Sector

View in OROWindMap



Culture & Heritage

Cultural Use includes traditional and current use of specific ocean, coastal, and shoreline areas by tribal and indigenous communities, based on the area's inherent cultural, spiritual, or aesthetic values and significance; it excludes activities that can be classified in other "Ocean Use" categories.

Maritime heritage includes not only physical resources such as historic shipwrecks and prehistoric archaeological sites, but also archival documents, oral histories, and the stories of indigenous cultures that have lived and used the ocean for centuries

Data Layers in the Catalog

- National Register of Historic Places, NPS, 2021
- US Historic Lighthouses, NOAA, 2018
- TSP Visual Resource Management, Scenic Class Value Viewsheds, OCMP, 2019
- TSP Visual Resource Management, Scenic Quality Evaluations, OCMP, 2019
- TSP Visual Resource Management, Special Area Viewsheds, OCMP, 2019
- TSP Visual Resources Management, Special Area Viewpoints, OCMP, 2019
- Wrecks and Obstructions, NOAA, 2021

View in OROWindMap

Human Uses Datasets – Next Steps

Explore OROWindMap (offshorewind.westcoastoceans.org) and OROWindMap Catalog (portal.westcoastoceans.org/OROWindMap-data-themes)

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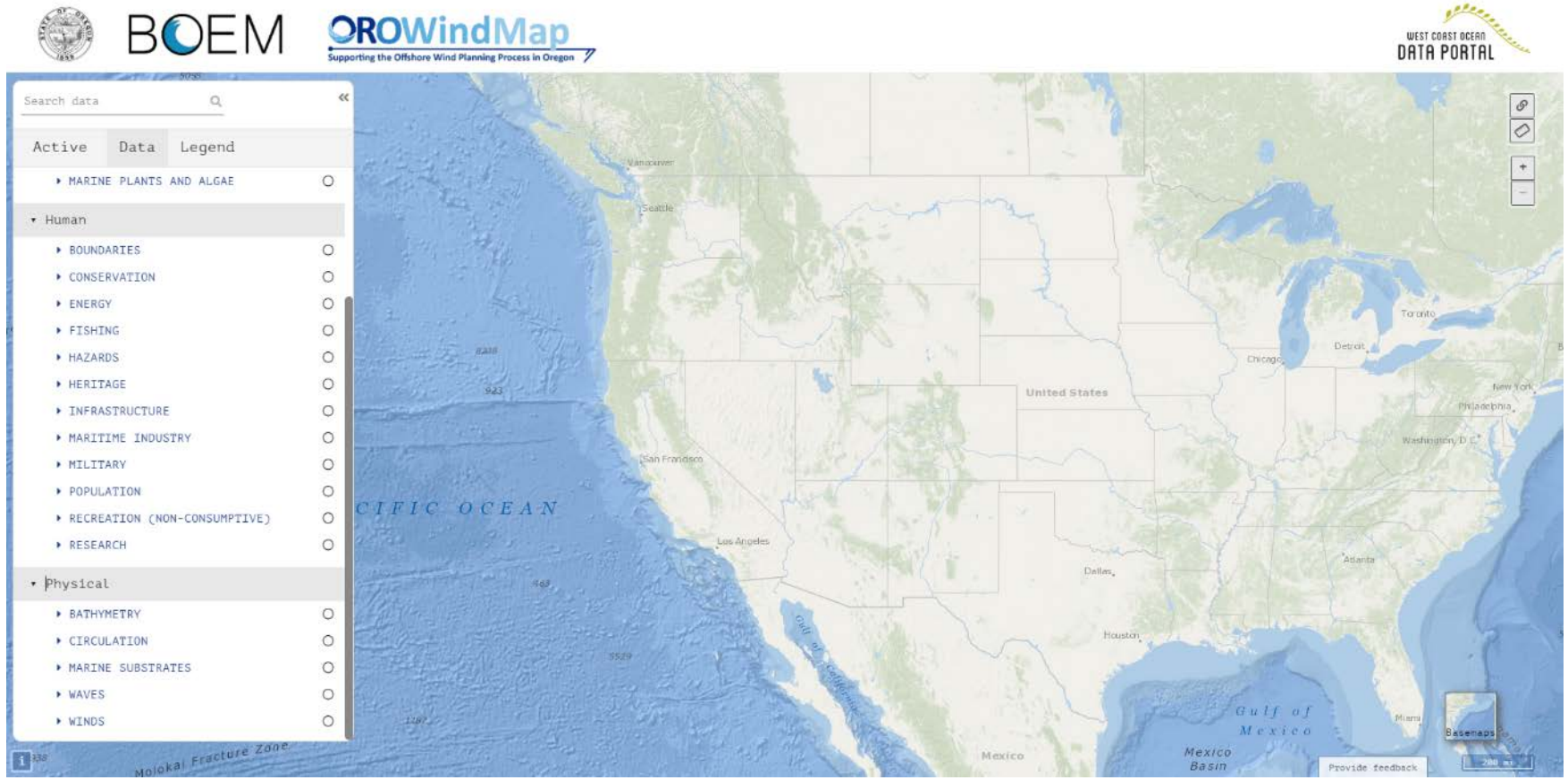
Oregon Offshore Wind Energy Planning Data Review Workshop

Up Next: Biological Datasets

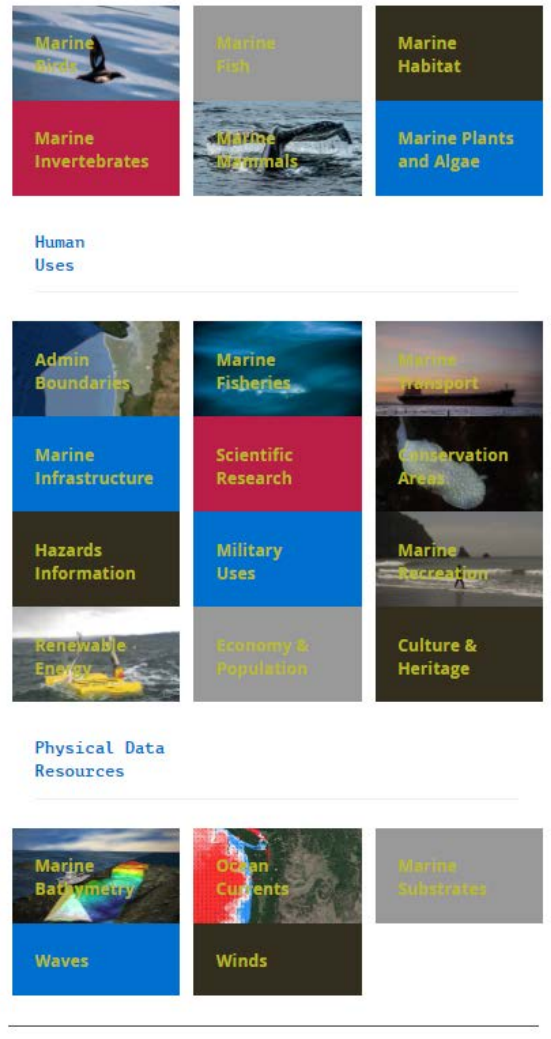
Meeting will resume at 11:00 am

Offshore Wind Data Visualization Tool and Data Catalog

OROWindMap



Data Catalog



Biological Data

Marine
Invertebrates

Marine
Fish

Marine
Habitat

Marine Plants
and Algae

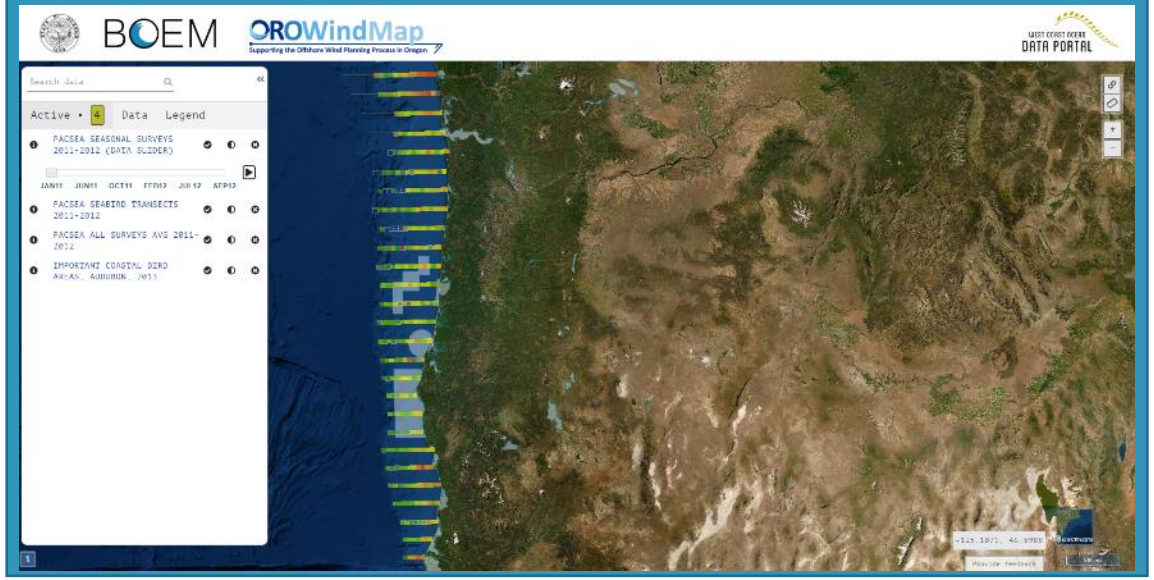
Marine Birds

Marine Birds data theme includes information on avian fauna, including flying and nonflying forms.

Data Layers in the Catalog (1)

- Important Coastal Bird Areas, Audubon, 2013
  Catalog|OROWindMap
- PaCSEA All Surveys Avg 2011-2012
  Catalog|OROWindMap
  - PaCSEA Jan 2011
    Catalog|OROWindMap
  - PaCSEA June 2011
    Catalog|OROWindMap
  - PaCSEA Oct 2011
    Catalog|OROWindMap
  - PaCSEA Feb 2012
    Catalog|OROWindMap
  - PaCSEA July 2012
    Catalog|OROWindMap
  - PaCSEA Sep 2012
    Catalog|OROWindMap
  - PaCSEA Seabird Transects 2011-2012
    Catalog|OROWindMap

View in OROWindMap



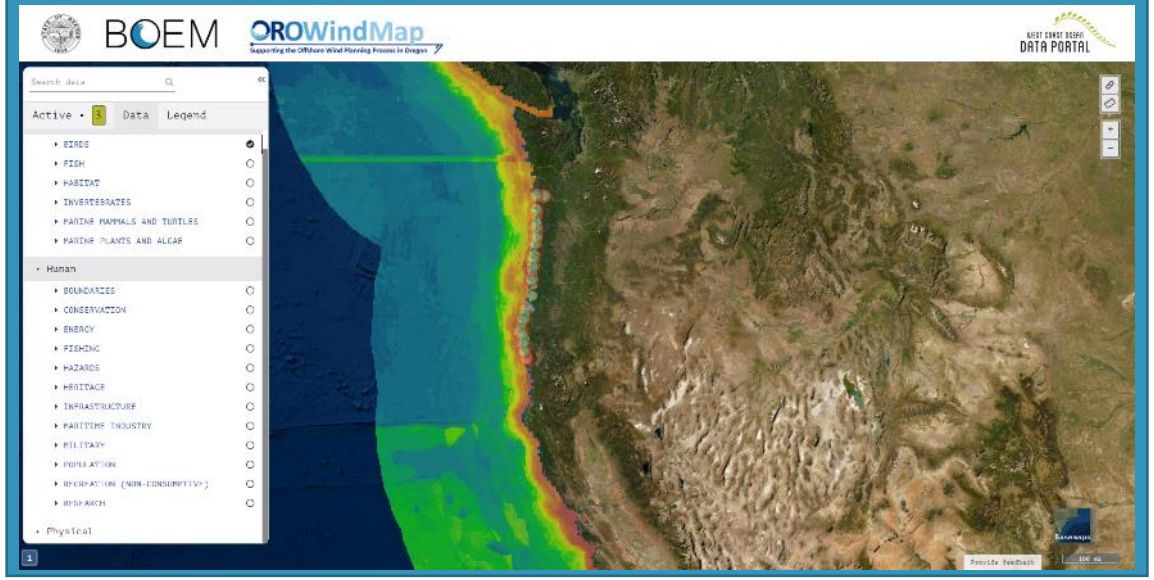
Marine Birds

Marine Birds data theme includes information on avian fauna, including flying and nonflying forms.

Data Layers in the Catalog (2)

- Seabird Colony Relative Ecological Importance, USFWS, 2017
  Catalog|OROWindMap
- Predicted Seabird Abundance for 16 Species in the California Current System, PRBO, 2011
  Catalog|OROWindMap
  - Predicted Seabird Abundance by Season, PRBO, 2011
    - Winter
      Catalog|OROWindMap
    - Spring
      Catalog|OROWindMap
    - Summer
      Catalog|OROWindMap
    - Fall
      Catalog|OROWindMap

View in OROWindMap



Marine Birds

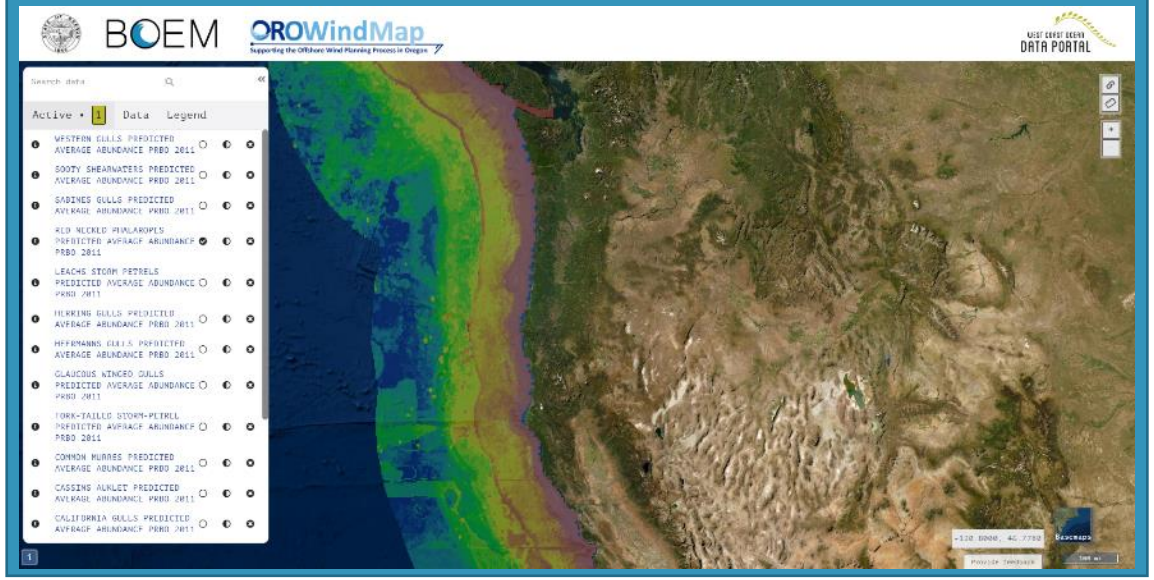
Marine Birds data theme includes information on avian fauna, including flying and nonflying forms.

Data Layers in the Catalog (3)

- Predicted Seabird Abundance for 16 Species in the California Current System, PRBO, 2011
  Catalog|OROWindMap

- Black-footed Albatross
  Catalog|OROWindMap
- Bonaparte's Gulls
  Catalog|OROWindMap
- Brandt's Cormorants
  Catalog|OROWindMap
- Brown Pelicans
  Catalog|OROWindMap
- California Gulls
  Catalog|OROWindMap
- Cassin's Auklets
  Catalog|OROWindMap
- Common Murres
  Catalog|OROWindMap
- Fork-tailed Storm Petrels
  Catalog|OROWindMap
- Glaucous-winged Gulls
  Catalog|OROWindMap
- Heermann's Gulls
  Catalog|OROWindMap
- Herring Gulls
  Catalog|OROWindMap
- Leach's Storm Petrels
  Catalog|OROWindMap
- Red-necked Phalaropes
  Catalog|OROWindMap
- Sabine's Gulls
  Catalog|OROWindMap
- Sooty Shearwaters
  Catalog|OROWindMap
- Western Gulls
  Catalog|OROWindMap

View in OROWindMap



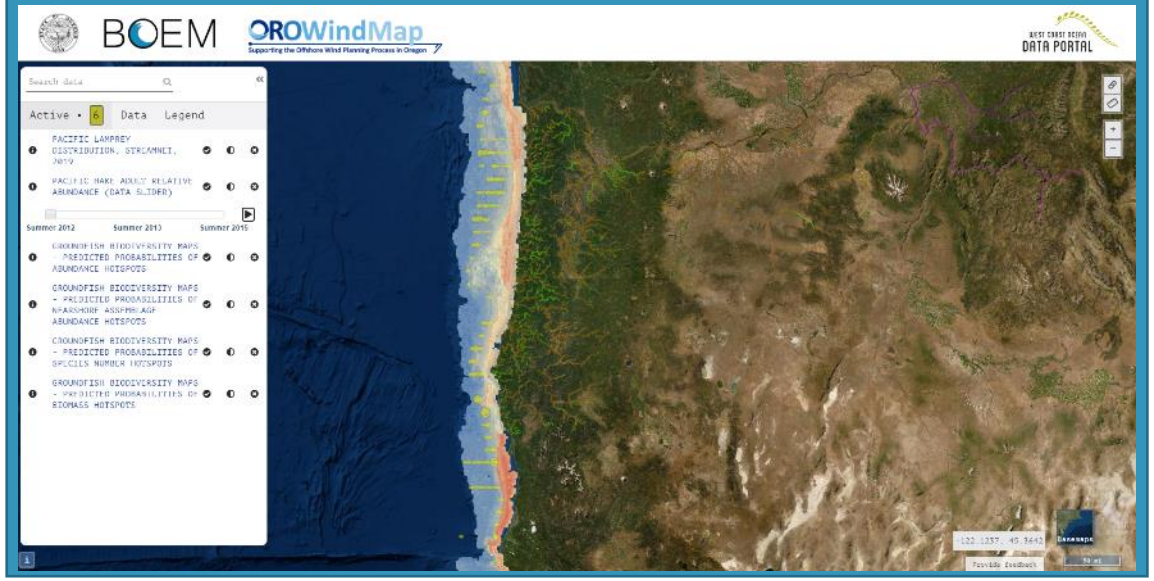
Marine Fish

This data theme includes information from observations, and models from paired oceanographic and biological monitoring of bony and cartilaginous fishes, including primitive fish-like chordates.

Data Layers in the Catalog (1)

- Groundfish Biodiversity Maps, NCCOS, 1971-2010
  - Predicted probabilities of abundance hotspots
    Catalog|OROWindMap
  - Predicted probabilities of biomass hotspots
    Catalog|OROWindMap
  - Predicted probabilities of nearshore assemblage abundance hotspots
    Catalog|OROWindMap
  - Predicted probabilities of species number hotspots
    Catalog|OROWindMap
- Pacific Hake Adult Relative Abundance
  OROWindMap Data Slider
  - Summer 2012 Catalog
  - Summer 2013 Catalog
  - Summer 2015 Catalog

View in OROWindMap



Marine Fish

This data theme includes information from observations, and models from paired oceanographic and biological monitoring of bony and cartilaginous fishes, including primitive fish-like chordates.

Data Layers in the Catalog (2)

- Albacore Tuna Average Quarterly Predictions, NOAA SWFSC, 2019
  OROWindMap Data Slider
  - o January - March , April – June, July – September, October - December
- Anchovy Average Quarterly Predictions, NOAA SWFSC, 2019
  OROWindMap Data Slider
  - o January – March, April – June, July – September, October – December
- Pacific Sardines Average Quarterly Predictions, NOAA SWFSC, 2019
  OROWindMap Data Slider
  - o January – March, April – June, July – September, October - December
- Blue Shark Habitat Suitability, NOAA SWFSC, 2018
  OROWindMap Data Slider
  - o September, October, November, December, January
- Pacific Shortfin Mako Shark Habitat Suitability, NOAA SWFSC, 2018
  OROWindMap Data Slider
  - o September, October, November, December, January
- North Pacific Swordfish Habitat Suitability, NOAA SWFSC, 2018
  OROWindMap Data Slider
  - o September, October, November, December, January
- Pacific Common Thresher Shark Habitat Suitability, NOAA SWFSC, 2018
  OROWindMap Data Slider
  - o September, October, November, December, January

View in OROWindMap

Marine Habitat

Marine Physical Habitats includes measures of the geologic and structural characteristics of the coast or sea floor, such as the features defined in the Geoform Component of the Coastal and Marine Ecological Classification Standard.

Data Layers in the Catalog

- CMECS Ecological Marine Units, NCCOS, 2019
  Catalog|OROWindMap
- Current and Historical Estuary Extent, PMEP, 2019
  Catalog|OROWindMap
- Physiographic Habitat, ATSML, 2011
  Catalog|OROWindMap
- West Coast Estuarine Biotic Habitats, PMEP, 2019
  Catalog|OROWindMap
- West Coast Surficial Geologic Habitats
  Catalog|OROWindMap

View in OROWindMap

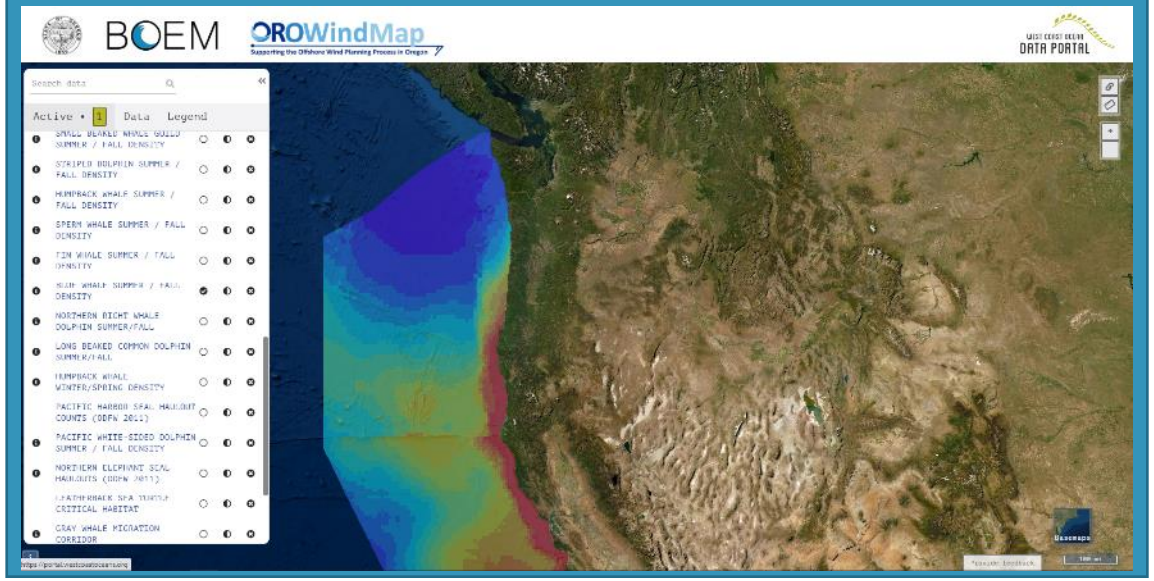
Marine Mammals & Turtles

Marine Mammals includes cetacean and pinniped species for West Coast resident and migratory populations, related to density, migration, location, critical habitat, and biologically important areas.

Data Layers in the Catalog (1)

- Biologically Important Areas for Cetaceans - Feeding
  Catalog|OROWindMap
- Biologically Important Areas for Cetaceans - Migration
  Catalog|OROWindMap
- Biologically Important Areas, CETMAP, 2015
  - Gray Whale
    Catalog|OROWindMap
  - Harbor Porpoise
    Catalog|OROWindMap
  - Humpback Whale
    Catalog|OROWindMap
- Blue Whale Core Areas of Use, MMI, 2019
  Catalog|OROWindMap
- Blue Whale Home Ranges, MMI, 2019
  Catalog|OROWindMap
- California Sea Lion Haulout Counts, ODFW, 2011
  Catalog|OROWindMap
- Gray Whale Migration Corridor
  Catalog|OROWindMap
- Humpback Whale Proposed Critical Habitat, 2019
  Catalog|OROWindMap
- Humpback Whale Proposed Critical Habitat Exclusions, 2019
  Catalog|OROWindMap

View in OROWindMap



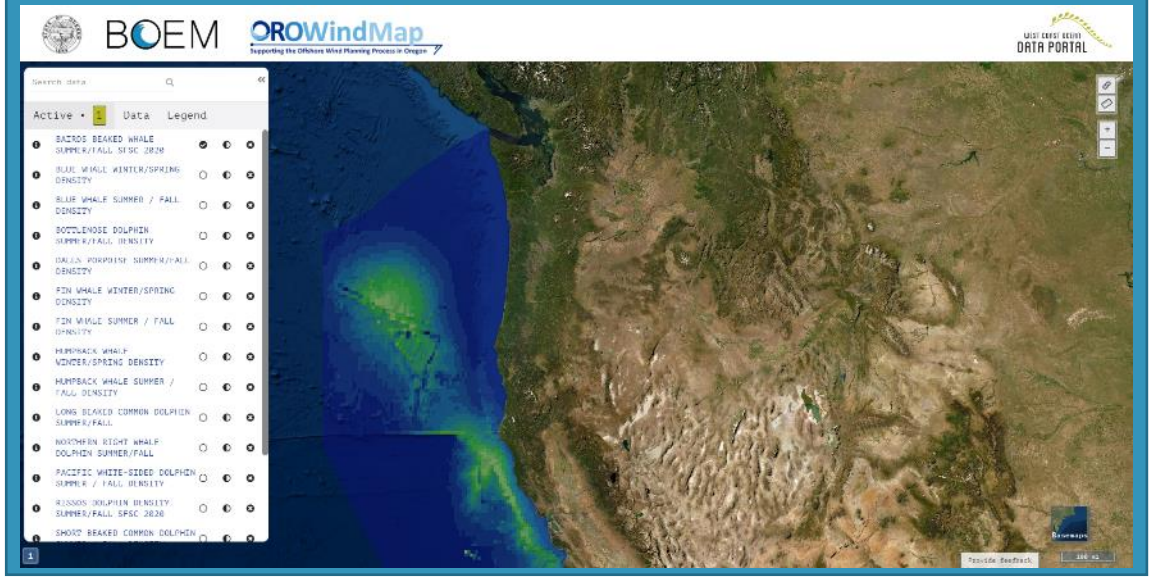
Marine Mammals & Turtles

Marine Mammals includes cetacean and pinniped species for West Coast resident and migratory populations, related to density, migration, location, critical habitat, and biologically important areas.

Data Layers in the Catalog (2)

- NOAA SWFSC Density Estimates by Species and Season
  - Baird's Beaked Whale Summer / Fall Density, 2020 Catalog|OROWindMap
  - Blue Whale Winter / Spring Density, Catalog|OROWindMap
  - Blue Whale Summer / Fall Density, Catalog|OROWindMap
  - Bottlenose Dolphin Summer / Fall Density, SWFSC, 2020 Catalog|OROWindMap
  - Dall's Porpoise Summer / Fall Density, SWFSC, 2020 Catalog|OROWindMap
  - Fin Whale Winter / Spring Density Catalog|OROWindMap
  - Fin Whale Summer / Fall Density, Catalog|OROWindMap
  - Humpback Whale Winter / Spring Density, Catalog|OROWindMap
  - Humpback Whale Summer / Fall Density, Catalog|OROWindMap
  - Long-beaked Common Dolphin Summer / Fall Density, Catalog|OROWindMap
  - Northern Right Whale Dolphin Summer / Fall Density, Catalog|OROWindMap
  - Pacific White-sided Dolphin Summer / Fall Density, Catalog|OROWindMap

View in OROWindMap



  - Risso's Dolphin Summer / Fall Density, SWFSC, 2020 Catalog|OROWindMap
  - Short-beaked Common Dolphin Summer / Fall Density, Catalog|OROWindMap
  - Small Beaked Whale Guild Summer / Fall Density, Catalog|OROWindMap
  - Sperm Whale Summer / Fall Density, Catalog|OROWindMap
  - Striped Dolphin Summer / Fall Density, Catalog|OROWindMap

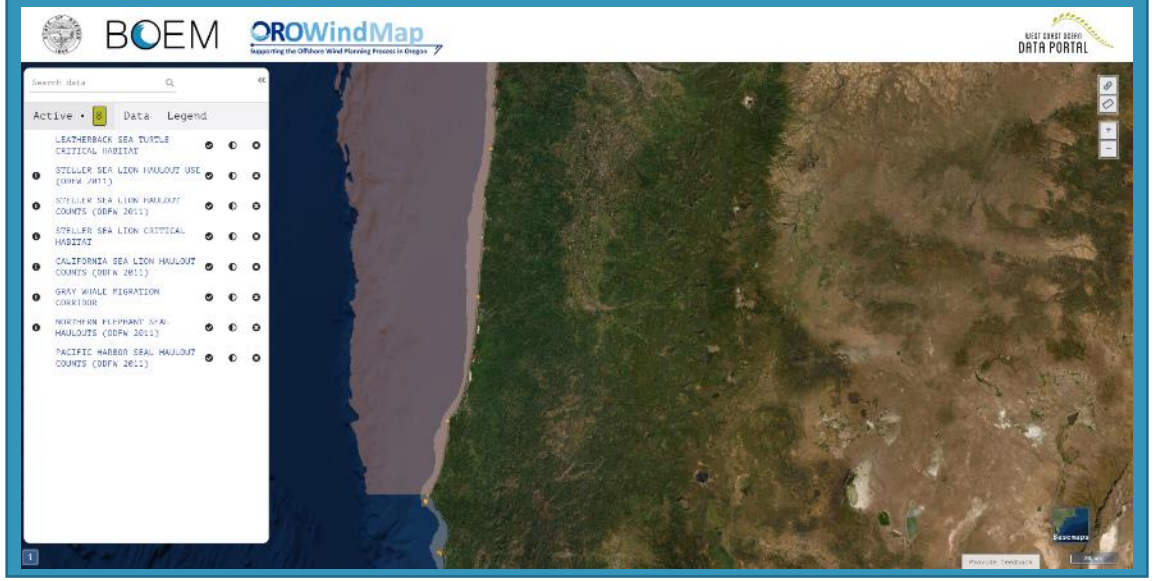
Marine Mammals & Turtles

Marine Mammals includes cetacean and pinniped species for West Coast resident and migratory populations, related to density, migration, location, critical habitat, and biologically important areas.

Data Layers in the Catalog (3)

- Northern Elephant Seal Haulouts, ODFW, 2011
  Catalog|OROWindMap
- Pacific Harbor Seal Haulout Counts, ODFW, 2011
  Catalog|OROWindMap
- Steller Sea Lion Critical Habitat
  Catalog|OROWindMap
- Steller Sea Lion Haulout Counts, ODFW, 2011
  Catalog|OROWindMap
- Steller Sea Lion Haulout Use, ODFW, 2011
  Catalog|OROWindMap
- Leatherback Sea Turtle
  Catalog|OROWindMap

View in OROWindMap



Marine Invertebrates

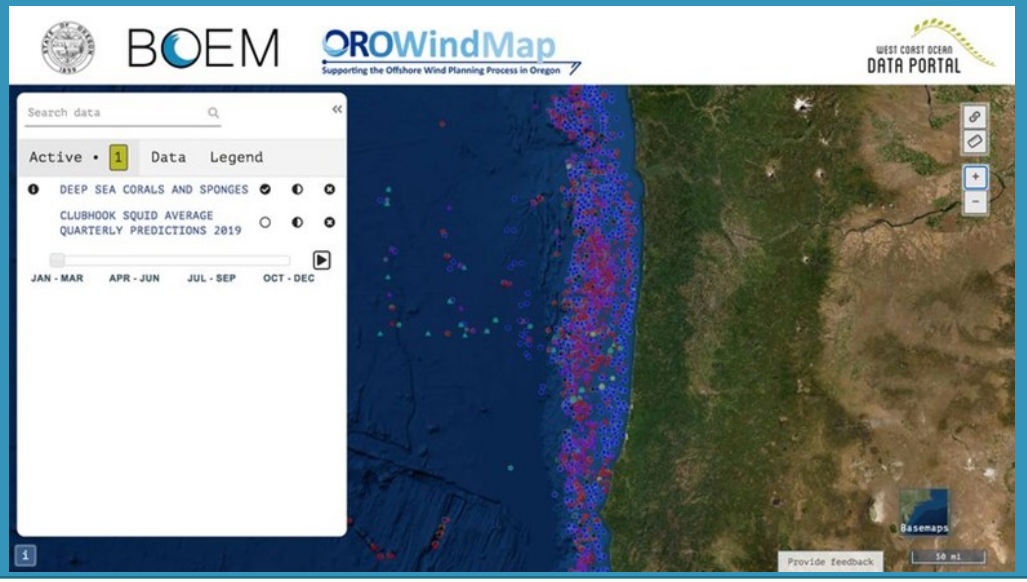
Invertebrate fauna, including primitive non-fishlike chordates and taxa regionally identified as shellfish.

Data Layers in the Catalog

- Clubhook Squid Average Quarterly Predictions, NOAA SWFSC, 2019
  - January - March
    Catalog|OROWindMap
  - April - June
    Catalog|OROWindMap
  - July - September
    Catalog|OROWindMap
  - October - December
    Catalog|OROWindMap

Deep Sea Corals and Sponges, NOAA, 1842-present
Catalog|OROWindMap

View in OROWindMap



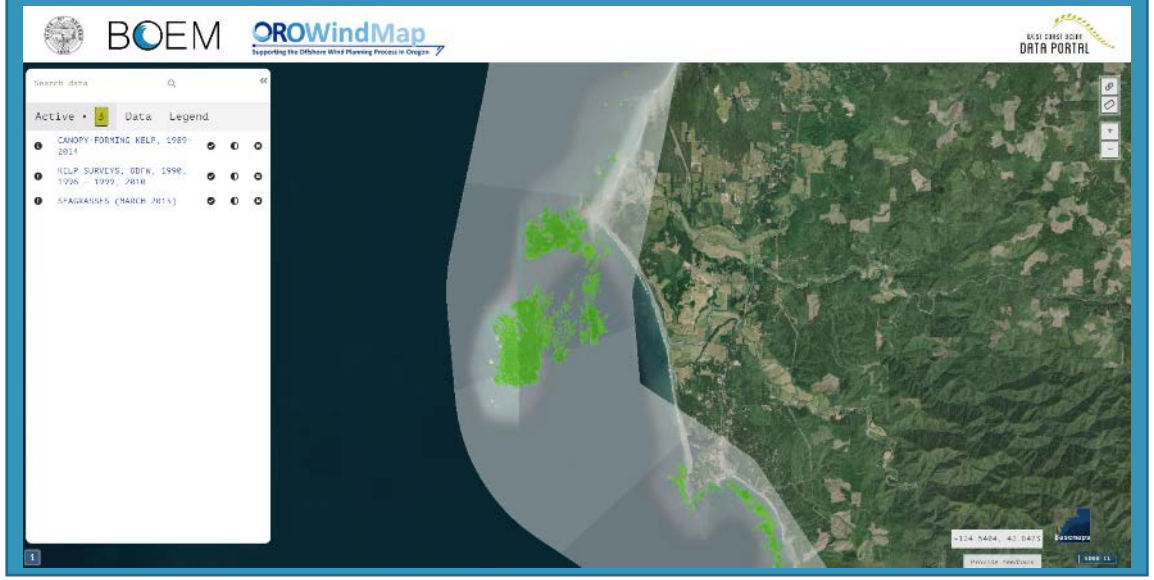
Marine Plants and Algae

Marine Plants and Algae includes vascular plants, macroalgae, phytoplankton, or microbial communities.

Data Layers in the Catalog

- Canopy-Forming Kelp, 1989-2014
  Catalog|OROWindMap
- Kelp Surveys, ODFW, 1990, 1996 - 1999, 2010
  Catalog|OROWindMap
- Seagrasses, NOAA OCM, 2015
  Catalog|OROWindMap

View in OROWindMap



Biological Datasets – Next Steps

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Summary and Next Steps

Whitney Hauer, BOEM

Anticipated Next Steps

Fisheries Data Review Virtual Workshop on August 11, 2021

- See www.boem.gov/oregon-virtual-meeting-room

Continue data gathering and engagement throughout BOEM's authorization process

Fall 2021: BOEM Oregon Task Force Meeting

- Present the results of the 12-month effort
- Seek input from the Task Force

Winter 2021-2022: BOEM Oregon Task Force Meeting

- Review draft Call Area(s) with the Task Force

Following the Task Force Meetings

- BOEM to publish Call for Information and Nominations (Call) in the *Federal Register*
  - Describes geographically distinct areas (Call Area(s))
  - Requests comments and information relevant to BOEM's review to identify Wind Energy Areas which are subject to environmental review prior to leasing
  - Invites submission of nominations of interest for commercial wind leases

Whitney Hauer, Ph.D. | BOEM Oregon Task Force Coordinator
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