

NANOOS Asset List

1 National Oceanic and Atmospheric Administration

1.1 The CoastWatch West Coast Regional Node

<http://coastwatch.pfel.noaa.gov>

Daily – Monthly composites of satellite observations

- Sea Surface Temperature (GOES & POES)
- Ocean Color (MODIS and SeaWiFS)
- Ocean Winds (QuikSCAT)

1.2 The National Data Buoy Center

<http://seaboard.ndbc.noaa.gov/maps/Northwest.shtml>

6 Minute – Hourly buoy observations

- Meteorological Observations (Air Temp., Pressure, Wind Speed and Direction)
- Ocean Observations (Water Temp., Wave Height, Period and Direction)

1.3 The Center for Operational Oceanographic Products and Services

<http://tidesandcurrents.noaa.gov>

<http://opendap.co-ops.nos.noaa.gov/content>

6 Minute near-shore station observations

- Meteorological Observations (Air Temp., Pressure, Wind Speed and Direction)
- Ocean Observations (Water Temp., Water Level)

1.4 NOAAWatch

<http://www.noaawatch.gov>

Information related to ongoing environmental events

- NOAAWatch themes include Air Quality, Droughts, Earthquakes, Excessive Heat, Fire, Flooding, Harmful Algal Blooms (HABs), Oil Spills, Rip Currents, Severe Weather, Space Weather, Tsunamis, and Volcanoes

1.5 National Weather Service

<http://www.weather.gov>

Environmental observations and forecasts

- Coastal and Marine Forecasts
- Weather Warnings

- Surface Pressure Maps
- Coastal and Marine Observations (Wind, Visibility, Sky Conditions, Temperature, Dew Point, Relative Humidity, Atmospheric Pressure, Pressure tendency)
- GOES Satellite Observations (Visible, Infrared, Water Vapor: <http://www.goes.noaa.gov>)
- Pacific Tsunami Warning Center (<http://www.prh.noaa.gov/pr/ptwc>)

1.6 Environmental Modeling Center

<http://polar.ncep.noaa.gov/waves/index2.shtml>

Four times daily wind and wave forecast information

Wave Watch III: <http://polar.ncep.noaa.gov/waves/wavewatch/wavewatch.html>

- Wind Speed and Direction
- Significant Wave Height, Wind Sea Wave Height, Primary Swell Wave Height, Secondary Swell Wave Height, Peak Wave Period, Wind Sea Period, Primary Swell Period, Secondary Swell Period
- Note: The Fleet Numerical Meteorology and Oceanography Center and NCEP (National Centers Environmental Prediction) are also running WWIII.

1.7 NCEP Central Operations

<http://www.nco.ncep.noaa.gov>

Four times daily meteorological forecast model output graphics for 12 models covering 6 regions

- North American Mesoscale (NAM)
- Global Forecast System (GFS)
- Nested Grid Model (NGM)
- Short Range Ensemble Forecast (SREF)
- Rapid Update Cycle (RUC)
- High Resolution Window (HRW) Weather Research and Forecast (WRF)
- Global Ensemble Forecast System (GEFS)
- Real Time Mesoscale Analysis (RTMA)

1.8 Coastal Services Center

http://www.csc.noaa.gov/csp/pacific_nw/coastal_waves.html

SWAN Model

Through the Coastal Storms Program, the National Weather Service (NWS) has adapted a high-resolution wave model, the SWAN model (Simulating Waves Nearshore) for the Columbia River and the nearby coastal waters of Washington, Oregon, and Northern California. This model provides guidance to NWS forecasters in the preparation of marine forecasts, bar condition reports, and sea-state warnings.

2 Oregon Health and Sciences University

<http://www.stccmop.org/datamart>

2.1 CORIE observation network

<http://www.stccmop.org/corie>

1 minute observations for the Columbia River Estuary and Plume

- 18 fixed stations and 2 buoys (http://www.stccmop.org/corie/observation_network)
- Water temperature, salinity, and water levels, oxygen
- Current profiles and acoustic backscatter
- Exact variables available depend on period of interest.

2.2 SATURN vertical profiling stations

<http://www.stccmop.org/datamart/saturn01>

- Salinity, temperature, turbidity, fluorescence, oxygen
- ~4Hz; 13MB/day

2.3 CMOP Cruise

<http://www.stccmop.org/datamart/cruises>

Variables collected depend on cruise/mission

- CTD Casts (<http://www.stccmop.org/datamart/access/casts>)
 - salinity, temperature, oxygen, PAR, pH, fluorescence/chlorophyll, turbidity
- Flow-through System (<http://www.stccmop.org/datamart/access/flowthrough>)
 - salinity, temperature, PAR
- Acoustic Doppler Profilers (<http://www.stccmop.org/datamart/access/adcp>)
- Meteorology (<http://www.stccmop.org/datamart/access/met>)
 - Wind speed, direction, precipitation, pressure, PAR
- Microbiology Water Samples (http://www.stccmop.org/datamart/cruises/sample_inventory)
 - Total DNA, mRNA, population profiles, gene expression data
- Chemical Water Samples
 - nitrates, carbon dioxide

2.4 Modeling at CMOP

- Models:
 - ELCIRC: Eulerian Lagrangian Circulation model
 - SELFE Semi-Implicit Eulerian Lagrangian Finite Element model
- Variables: salinity, temperature, 3D circulation, elevation
- Space:
 - REF Grid covers Alaska to the Baja peninsula, with high resolution around the Columbia River Estuary
 - DB16 grid focused on Estuarine dynamics; does not include ocean waters

- Time:
 - Hindcasts cover 10+ years of history, including some pre-development models from the 1800s
 - Forecasts available about 24 hours in advance. Some experiments for longer-term forecasts underway.
- Scale:
 - Hindcasts occupy 40+TB
 - Forecasts are purged after 10 days to make room
- Unstructured grids: NetCDF is not sufficient
- Modes:
 - Forecasts: ~15 forecasts optimized for various bays and inlets in the Northwest and around the world.
 - Hindcasts: 3+ “databases” covering 10+ years. Used for climatology studies, “what if” scenarios, and inter-model comparisons.

2.5 Other NANOOS Data Served via OHSU Cyberinfrastructure

<http://www.ccalmr.ogi.edu/nanoos>

- Washington Department of Ecology
 - 4 sites with temperature, salinity, conductivity, dissolved oxygen at ~15 minute intervals. Example: <http://www.ccalmr.ogi.edu/nanoos/network/puget/bud01>
- Oceanic Remote Chemical Analyzer (ORCA) Buoys (<http://orca.ocean.washington.edu>)
 - 4 vertically profiling stations with temperature, salinity, PAR, Oxygen, NO₃, chlorophyll, (E.g.: <http://www.ccalmr.ogi.edu/nanoos/orca/?platform=Twanoh>)
- South Slough National Estuarine Research Reserve (SSNERR)
 - 5 sites, no real time data currently
- Monterey Bay Aquarium Research Institute LOBO sensors
 - 5 sites, NITRATE ,SALINITY ,TEMPERATURE ,OXYGEN,CDOM, CHLOROPHYLL ,TURBIDITY
- NOAA-COOPS stations
 - Elevation – Just redirecting requests currently

3 University of Washington

3.1 Oceanic Remote Chemical Analyzer (ORCA) Buoys

<http://orca.ocean.washington.edu>

Hourly buoy observations for the Hood Canal and Puget Sound

- Currents, Salinity, Temperature, Turbidity, Nitrate, Ammonium, Met. Observations, Irradiance, Dissolved O₂

3.2 Environmental & Marine Science Seahurst Observatory

<http://iop.apl.washington.edu/seahurst/index.php>

Cabled observatory monitoring the Puget Sound

- 5 minute conductivity, water temperature and pressure observations
- Analog underwater camera with integral LED lighting. Full-rate video is captured and archived when motion is detected

3.3 Pacific Northwest MM5 Weather Forecasts

<http://www.atmos.washington.edu/mm5rt/info.html>

Meteorological forecast (72 hrs) model output

- Atmospheric Pressure, Temperature, Winds, Relative Humidity, Solar Radiation, Precipitation
- Fields are made available at 3 hour intervals

4 Oregon State University

4.1 CODAR

<http://bragg.coas.oregonstate.edu>

Daily Mapping Oregon Coastal Ocean Currents

- Surface Currents

4.2 NH10 Mooring

<http://agate.coas.oregonstate.edu/data/nh10.html>

10-Min Buoy Observations

- Meteorological Observations (Air Temp., Relative Humidity Pressure, Wind Speed and Direction)
- Ocean Observations (Surface and Sub-Surface (~70 m) Water Temp. and Salinity, Current Profiles)

4.3 Slocum Gliders

NRT Ocean Observations

- Physical Observations (Conductivity, Temperature, Depth, DO)
- Optical Observations (Fluorometer, PAR, Spectrophotometer, Backscatter, Transmissometer)

4.4 Remote Sensing Ocean Optics (ORSOO) Group

<http://sugar.coas.oregonstate.edu/MODIS>

Satellite Observations

- Ocean Color (1km MODIS)

4.5 Oregon Coastal Ocean Simulator Group

<http://www-hce.coas.oregonstate.edu/~orcoss/SSCforecast.html>

Daily ROMS Ocean forecast model output for the Oregon coastal ocean

- Temperature, Salinity, Currents

4.6 Coastal Imaging Lab

<http://cil-www.oce.orst.edu>

Argus Beach Monitoring Station

- Photographs of Agate Beach, OR updated hourly (<http://cil-www.oce.orst.edu/agate.html>)

5 South Slough NERR

5.1 SSNERR Observation Network

<http://cdmo.baruch.sc.edu>

15 minute buoy observations for the South Slough Reserve, OR

- Water Quality Data (Water Temperature, Specific Conductivity, Percent Saturation, Dissolved Oxygen, Depth, pH, Turbidity)
- Meteorological Data (Air Temperature, Relative Humidity, Barometric Pressure, Wind Speed and Direction, Solar Radiation, Precipitation)
- Nutrient Data (Orthophosphate, Ammonium, Nitrite, Nitrate, Chlorophyll a)

6 WET Labs

6.1 LOBO (Land/Ocean Biogeochemical Observatory) System

<http://yaquina.satlantic.com>

Hourly Buoy Observations for the Yaquina Bay Estuary, OR

- Water Temperature, Salinity, Nitrate, Turbidity, Dissolved O₂, Dissolved Organics, O₂ Saturation, Chlorophyll

7 Coastal Data Information Center (CDIP)

http://cdip.ucsd.edu/?nav=recent&sub=observed&units=metric&tz=UTC&pub=public&map_stati=1

30 minute buoy observations

- Meteorological Observations (Air Temp., Pressure, Wind Speed and Direction)
- Ocean Observations (Water Temp., Wave Height, Period and Direction)

8 Olympic Coast National Marine Sanctuary

OCNMS Buoy Array in nearshore

9 US Army Corps of Engineers

9.1 Adult Fish Counts

<https://www.nwp.usace.army.mil/op/fishdata/home.asp>

Daily adult fish counts at the following locations, Bonneville Dam, the Dalles, John Day, McNary, Ice Harbor, Lower Monumental, Little Goose, and Lower Granite.

10 Oregon Department of Fish and Wildlife

10.1 Oregon Fish Counts

http://www.dfw.state.or.us/fish/fish_counts

Monthly fish counts at the following locations, Willamette Falls, Gold Ray Dam, Winchester, and the Columbia River.

11 Washington Department of Fish and Wildlife

- Periodically updated demoic acid levels in razor clams along the outer Washington coast (<http://www.wdfw.wa.gov/fish/shelfish/razorclm/levels/levels.htm>)

12 Washington Department of Ecology

Puget Sound and Willapa Bay

http://www.ecy.wa.gov/programs/eap/mar_wat/moorings.html

15 minute buoy observations

- Willapa Bay moorings (near-surface, mid-channel water temperature, salinity, density and chlorophyll data)
- Puget Sound moorings (near-shore, near-bottom water temperature, salinity, density, and dissolved oxygen data)

13 Washington State Department of Health

- Periodically updated health status report, in terms of marine biotoxins, for Washington State beaches
(<http://ww4.doh.wa.gov/scripts/esrimap.dll?name=bioview&Cmd=Map&Listing>)

14 Oregon Department of Agriculture Food Safety Division

- Periodically updated Shellfish safety closure report for the Oregon coast
(http://www.oregon.gov/ODA/FSD/shellfish_status.shtml)

15 Other Potential Periodic Data Providers

15.1 NOAA Coastal Services Center:

- Topographic LIDAR Data (<http://maps.csc.noaa.gov/TCM/>)

- Coastal Storms Program: Oregon Coastal Inundation Visualization Tool (<http://www.csc.noaa.gov/cspPNW/mapping.html>). This tool contains the following information: coastal inundation data, dune toe line, beach profile points, aerial photographs, and the mean high water line.

15.2 NOAA National Geophysical Data Center (NGDC):

- NGDC Tsunami Database (<http://www.ngdc.noaa.gov/seg/hazard/tsu.shtml>)
- NRT Dart II observations are available from NDBC (<http://www.ndbc.noaa.gov/dart.shtml>)

15.3 NOAA Center for Tsunami Research

- Tsunami Modeling and Research (<http://nctr.pmel.noaa.gov/model.html>)

15.4 US Geological Survey:

- USGS Tsunami Program (<http://walrus.wr.usgs.gov/tsunami/index.html>), which includes information on significant tsunamis, and tsunami modeling

15.5 University of Southern California Tsunami Research Center:

- Tsunami modeling and significant tsunami event archive (<http://www.usc.edu/dept/tsunamis/2005/index.php>)

15.6 Oregon Department of Geology and Mineral Industries

DOGAMI has generated several tsunami inundation maps for the Oregon coast, including one complete coastwide inundation map and several more detailed site specific maps for Newport, Seaside, Gold Beach, Coos Bay, Alsea Bay. It is presently working on the next generation of mapping standards for Cannon Beach based on a reevaluation of Cascadia source ruptures.

DOGAMI periodically releases the results of its geologic studies in a variety of ways including CD-ROM disks, computer files, and publications such as maps, books, open-file reports, special papers and brochures.

(<http://www.oregongeology.com/sub/pub%26data/pub%26data.htm>)

15.7 US Army Corps of Engineers (USACE):

Historical aerial photos: USACE Portland has complete 1939 (earliest flight) coverage of the OR coast (non-rectified).

15.8 Oregon Geospatial Data Clearinghouse

Aerial photos for 1994, 2000, & 2005 that are orthorectified and digital elevation model file all of which are available online

(<http://www.oregon.gov/DAS/EISPD/GEO/sdlibrary.shtml>)

15.9 California Coastal Records Project

An aerial photographic survey of the California Coastline

(<http://www.californiacoastline.org/>)

15.10 Oregon Beach and Shoreline Mapping and Analysis Program:

Provides beach profile information

(<http://www.oregongeology.com/sub/nanoos1/index.htm>)

15.11 Washington Department of Ecology Beach Monitoring Program:

The beach monitoring program collects the following data sets: cross-shore beach profiles, three dimensional topographic surface maps, sediment samples, and nearshore bathymetry.

(http://www.ecy.wa.gov/programs/sea/swces/research/change/monitoring/maps/bp_mapindex.htm). The Southwest Washington Coastal Erosion Study website also contains

beach profile information

(<http://www.ecy.wa.gov/programs/sea/swces/products/data.htm>).

15.12 NOAA Northwest Fisheries Science Center (NWFSC)

Hake and Groundfish Survey Data (<http://www.nwfsc.noaa.gov/> and <http://pacoos.coas.oregonstate.edu/>)

15.13 The Pacific States Marine Fisheries Commission

<http://www.psmfc.org/>

StreamNet provides data and data services in support of the Pac NW Fish and Wildlife Program and other efforts to manage and restore the region's aquatic resources

(<http://query.streamnet.org/Request.cfm?cmd=BuildCriteria&NewQuery=BuildCriteria;> <http://map.streamnet.org/criticalhabitat/viewer.htm>)

16 Coastal Atlases

Oregon (<http://www.coastalatlas.net/>)

Washington (<https://fortress.wa.gov/ecy/coastalatlas/viewer.htm>)

Humboldt Bay (<http://www.humboldtбай.org/gis/interactivemap.html>)