1. Data and Information Types

A. Provide a contextual description of the data stream.

Data collection from pier mounted instruments measuring oceanographic variables at the Trinidad and Humboldt Chevron Shore Stations was supported by multiple awards to California Polytechnic State University, Humboldt and an award from NOAA's Integrated Observing System to the Central and Northern California Ocean Observing System at the Monterey Bay Aquarium Research Institute (NA21NOS0120090).

The Trinidad Pier shore station is maintained by California PolytechnicState University, Humboldt. The station has been operational since 2012 and consists of fixed water quality station in Trinidad, CA. The sensors provide near-real-time observations of ocean water salinity, temperature, dissolved oxygen, chlorophyll fluorescence, turbidity, and pH. Water depth at this location ranges from approximately 2 to 3 meters. The Trinidad shore station data is collected and provided by California Polytechnic State University, Humboldt.

The Humboldt shore station is located on the Chevron dock and is also maintained by California Polytechnic State University, Humboldt. The current station has been active since November 2012 and is the replacement system of the previous water quality station at Dock B. The sensor provides near-real time measurements of: water temperature, salinity, pH, turbidity, chlorophyll fluorescence, depth, photosynthetically active radiation (PAR) (since August 2015), and radiation (since August 2015). Historic data from 2003 to 2012 has also been made available from the nearby previous station located on Dock B. This dataset includes observations of: water temperature, salinity, pH, turbidity, chlorophyll fluorescence, and depth.

The stations can be accessed through the CeNCOOS data portal: https://l.axds.co/3VhTxlJ

B. How many station locations are there for this data stream?

There are 2 station locations:
Trinidad (tdp) 41.0550° N, 124.1471° W
Humboldt (Formerly Dock B Shore Station) (HBC) 40.7775° N, 124.1966° W

C. What are the specific variables of the data.

The variables for station Trinidad (tdp) include:
sea_surface_height_above_sea_level,sea_water_pressure,mass_concentration_of_chlorophyll_in_sea_water,sea_water_temperature,sea_water_electrical_conductivity,mass_concentration_of_oxygen_in_sea_water_optical,mass_concentration_of_oxygen_in_sea_water,fractional_saturation_of_oxygen_in_sea_water_optical,fractional_saturation_of_oxygen_in_sea_water,sea_water_practical_salinity,sea_water_ph_reported_on_total_scale,turbidity

The variables for station Humboldt Dock B Shore Station (HBC) include:
sea_water_practical_salinity,sea_water_temperature,sea_water_electrical_conductivity.

D. Provide information about the sampling platform or instrumentation.

The Trinidad Pier shore station station has been operational since 2012 and consists of subsurface YSI Sonde 6600v2 sensor mounted in a 4" still well on the Trinidad Fishing Pier. The sensors provide near-real-time observations of ocean water salinity, temperature, dissolved oxygen, chlorophyll fluorescence, turbidity and pH. Water depth at this location ranges from approximately 2 to 3 meters.

The Humboldt Shore station (located at 40.7775° N, 124.1966° W) (formerly located at Dock B 2008-2012) is maintained by Humboldt State University since 2013. The station consists of subsurface YSI Sonde 6600v2 sensor mounted in a 4" still well on the Chevron Fueling dock. Since 2015, a Li-200 Pyranometer and Li-190 Quantum have also be added to the instrument package. The sensors provide near-real-time observations of ocean water salinity, temperature, dissolved oxygen, chlorophyll fluorescence, turbidity, pH, PAR (since August 2015) and radiation (since August 2015). For sensor details refer to: https://www.cencoos.org/data/shore/humboldt

See CeNCOOS shorestation Standard Operating Procedure (SOP) for more information: https://www.cencoos.org/wp-content/uploads/2020/03/cencoos_Standard_Operating_Procedures.pdf

2. Data Pathway

A. Is a data sharing agreement required?

The data may be used and redistributed for free but is not intended for legal use, since it may contain inaccuracies. Neither the data Contributor, ERD, NOAA, nor the United States Government, nor any of their employees or contractors, makes any warranty, express or implied, including warranties of merchantability and fitness for a particular purpose, or assumes any legal liability for the accuracy, completeness, or usefulness, of this information.

B. In which format(s) was data received by CeNCOOS?

Data are retrieved and archived instruments using the instrument manufacturers (YSI) proprietary software and subscription service, Storm Central (formerly ECONet). Data are ingested by Axiom directly from the Storm Central.**How can the information be accessed?**

The data are available through the CeNCOOS data portal, where it can be downloaded or explored through interactive visualizations. Specifically, data are available from two unique access points:

- File Downloads (CSV)
- ERDDAP

C. What file formats will be used for sharing data, if different from the original?

Data are shared as CSV and through ERDDAP via the CeNCOOS data portal. Data are also available for exploration in the CeNCOOS portals via interactive, graphical visualizations. Data are available from web harvest via the CeNCOOS website to the originator's THREDDS site.

D. Describe how the data is ingested(e.g. the flow of data from source to CeNCOOS data portals) and any transformations or modifications made to share data in the CeNCOOS data portal.

Data are retrieved via FTP from the YSI Storm Central cloud service as CSV files and are transformed into NetCDF using custom python scripts. Custom Java, Scala, and Python scripts are used to convert data formats suitable for internal and external interoperability services. Data are made available in the CeNCOOS portals through the access points and via graphic displays generated through internal JSON-format data requests from these services.

Graphic displays include a mapping service, customized interactive visualizations, and time-series plots of the unit values wherein each parameter is graphed independently. Back-end scripts handle the conversion of visualized data from CF standards to other, non-CF units that may be requested by the user. Data files may be downloaded by the user from the CeNCOOS data portal. A user request for a CSV file request pulls the data from the server cache. A user request for ERDDAP pulls data from the ERDDAP service using the same cache. For this data, no CF-standard names or units exist, therefore custom names of abundance_of_{scientific_name} were used.

Summary statistics generated within the interactive graphical displays may be requested by the user. Summary statistics may include minimum, maximum and mean values. Seasonal statistics, available on time series longer than 3 years, include mean, and 10th and 90th percentiles. Note: the number of points visually available to interactive users from the source data are limited when necessary using temporal binning, such as daily, weekly, monthly, seasonally and yearly.

E. What metadata or contextual information is provided with the data?

Metadata are shared in the CeNCOOS portals with descriptive narratives describing the data and linking back to the originator's site. Metadata are also available via ERDDAP:
Trinidad (tdp): https://erddap.cencoos.org/erddap/tabledap/edu_humboldt_tdp.html
Humboldt Dock B Shore Station (HBC):
https://erddap.cencoos.org/erddap/tabledap/edu_humboldt_humboldt.html

F. Are there ethical restrictions to data sharing?

No

a. **If so, how will these be resolved?**

N/A

H. Who holds intellectual property rights (IPR) to the data?

California Polytechnic State University, Humboldt and CeNCOOS

I. Describe any effect of IPR on data access.

None

3. Data Source and Quality Control

A. Indicate the data source type (i.e. Federal, Non-Federal, University, State Agency, Local Municipality, Military Establishment (branch), private industry, NGO, non-Profit, Citizen Science, Private individual)

University

a. If Federal data source, were changes applied to the data?

N/A

b. If Yes, describe any changes to the data that require documentation?

N/A

B. Indicate the data reporting type (e.g. real-time, historical).

Real-time: Trinidad (tdp)
Historical: Humboldt Dock B Shore Station (HBC)

C. If real-time, list the QARTOD procedures that are currently applied.

The QARTOD tests that have been applied to the data by CeNCOOS are: timing gap, syntax, location, gross range, climatology, spike, rate of change, flat line, and attenuated signal test. Refer to CeNCOOS Data Management System plan for details.

D. If real-time, list the QARTOD procedures that are planned for implementation.

No further QARTOD tests are planned for the data.

E. What is the status of the reported data? (e.g. raw, some QC, incomplete, delayed mode processed but not QC'd)

QARTOD applied by Axiom.

F. Describe the data control procedures that were applied by the originator.

No explicit QC flags are assigned by the originator. Data are monitored by the originator to determine if sensors have failed and when to swap instrumentation.

a. Provide a link to any documented procedures.

N/A

G. Describe the data control procedures that were applied by CeNCOOS.

Refer to Section 3.C of the CeNCOOS Data Assembly Center and Data Management Plan.

a. Provide a link to any documented procedures.

N/A

H. List the procedures taken for data that could not be QC'd as directed.

N/A

4. Stewardship and Preservation Policies

A. Who is responsible for long-term data archiving?

Data was aggregated for visualization and exploration with other layers in the CeNCOOS data portal. If the data provider chooses to archive these data at a national archive in the future, they may do it directly, or using the CeNCOOS-facilitated pathway to NCEI.

B. Which long-term data storage facility will be used for preservation?

Real-time and near real-time data are automatically archived to NCEI from CeNCOOS. Archived datasets can be viewed at https://www.ncei.noaa.gov/access/integrated-ocean-observing-system/

For more information about CeNCOOS archival practices see DMP Section 4.8 Data Archival

C. Describe any transformation necessary for data preservation.

Data are formatted to NCEI specifications for archival. See DMP Appendix H1.1 NCEI Archival Agreement for descriptions of NCEI archival methods.

D. List the metadata or other documentation that will be archived with the data.

N/A