

Ocean Exploration CTD Summary, EX2102_CTD004_20210518

This form contains metadata information summarizing CTD casts completed in support of ocean exploration objectives. All CTD data is archived with the National Centers for Environmental Information. For CTD specific or expedition specific inquiries, please contact oceanexplorer@noaa.gov. For assistance with data access, please contact ncei.info@noaa.gov.

Table 1. General Expedition and CTD information

Expedition Name	2021 Technology Demonstration
Project ID	EX-21-02
CTD Cast Date (UTC)	May, 18, 2021
CTD Cast Name	EX2102_CTD004_20210518
CTD Number	CTD004
Expedition Coordinator	Michael P. White, NOAA Ocean Exploration/Cherokee Federal
Mapping Lead	Derek Sowers, NOAA Ocean Exploration/Cherokee Federal
Science Lead	Katharine Egan, NOAA Ocean Exploration
Science Lead	Meredith Everett, NOAA Northwest Fisheries Science Center
CTD Operator	Danielle Power, NOAA Ship <i>Okeanos Explorer</i>
General Area Descriptor	U.S. Southeast
Site Name	Central Blake Plateau
CTD Purpose	Collect water samples for eDNA analysis

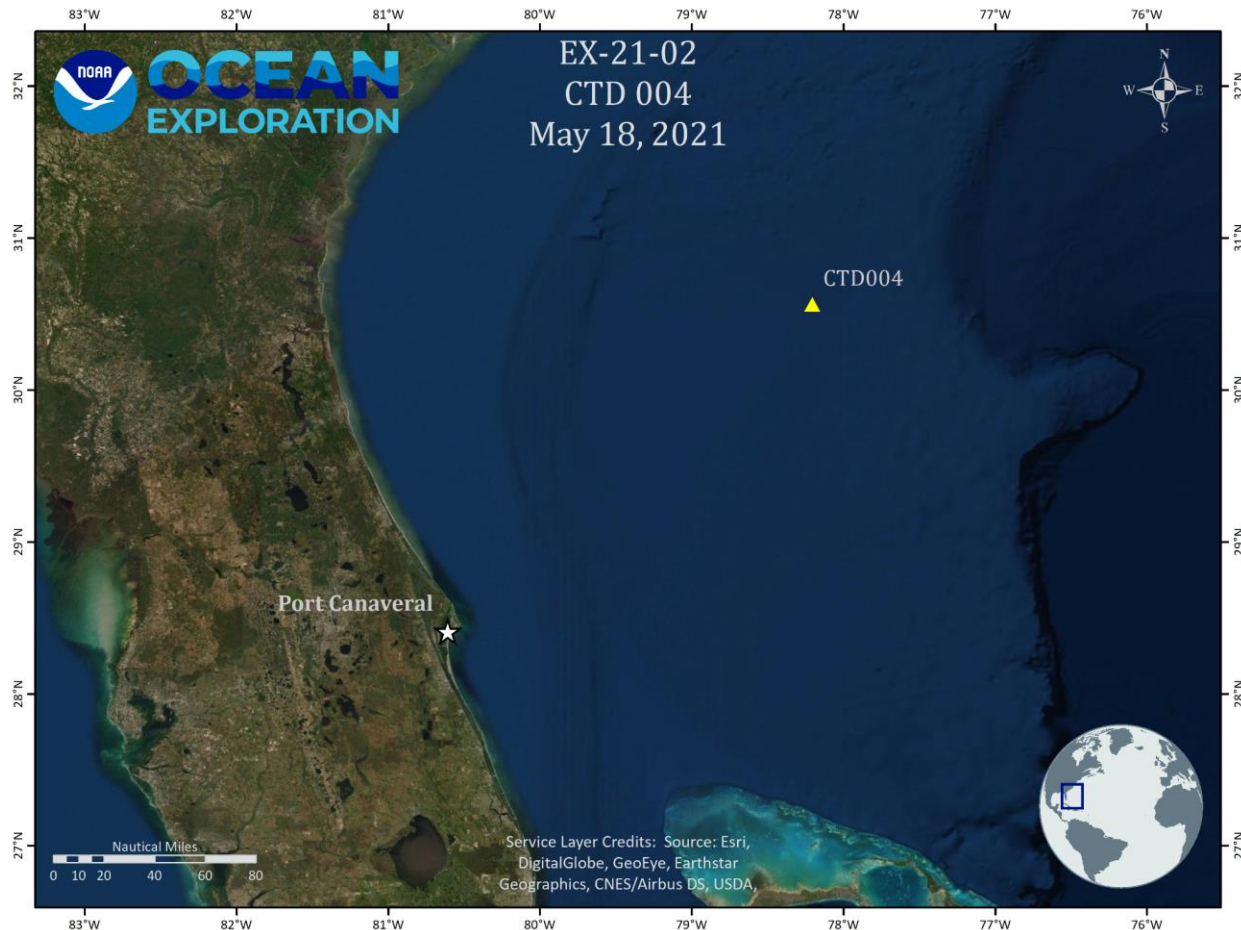


Figure 1. Map of CTD004 Location (yellow triangle).

Table 2a and 2b. CTD Cast Location, Depth, Time and Sensor Data

2a. Locations are the ship's position. Coordinates in World Geographic System 1984.

Deployment latitude/longitude (decimal degrees)	30.56503°	-78.20693°
Deployment Time (UTC)	16:25:23	
CTD Max Depth (meters)	860.346	
Recovery latitude/longitude	30.5598°	-78.20674°

(decimal degrees)		
Recovery Time (UTC)	17:23:26	

2b. Environmental Sensor Information

Sensors are calibrated yearly or more frequently as required. Calibration information and files are stored with the sensor data.

Data Type	Sensor Name	Collected (Yes/No)	Data Issues/Notes
Depth	SBE-9plus	Yes	
Conductivity 1	SBE-9plus	Yes	
Conductivity 2	SBE-9plus	Yes	
Temperature 1	SBE-9plus	Yes	
Temperature 2	SBE-9plus	Yes	
Dissolved Oxygen	SBE-43	Yes	
Turbidity	ECO-FLNTU	Yes	Lots of spikes in the turbidity data
Oxygen Reduction Potential	PMEL	Yes	

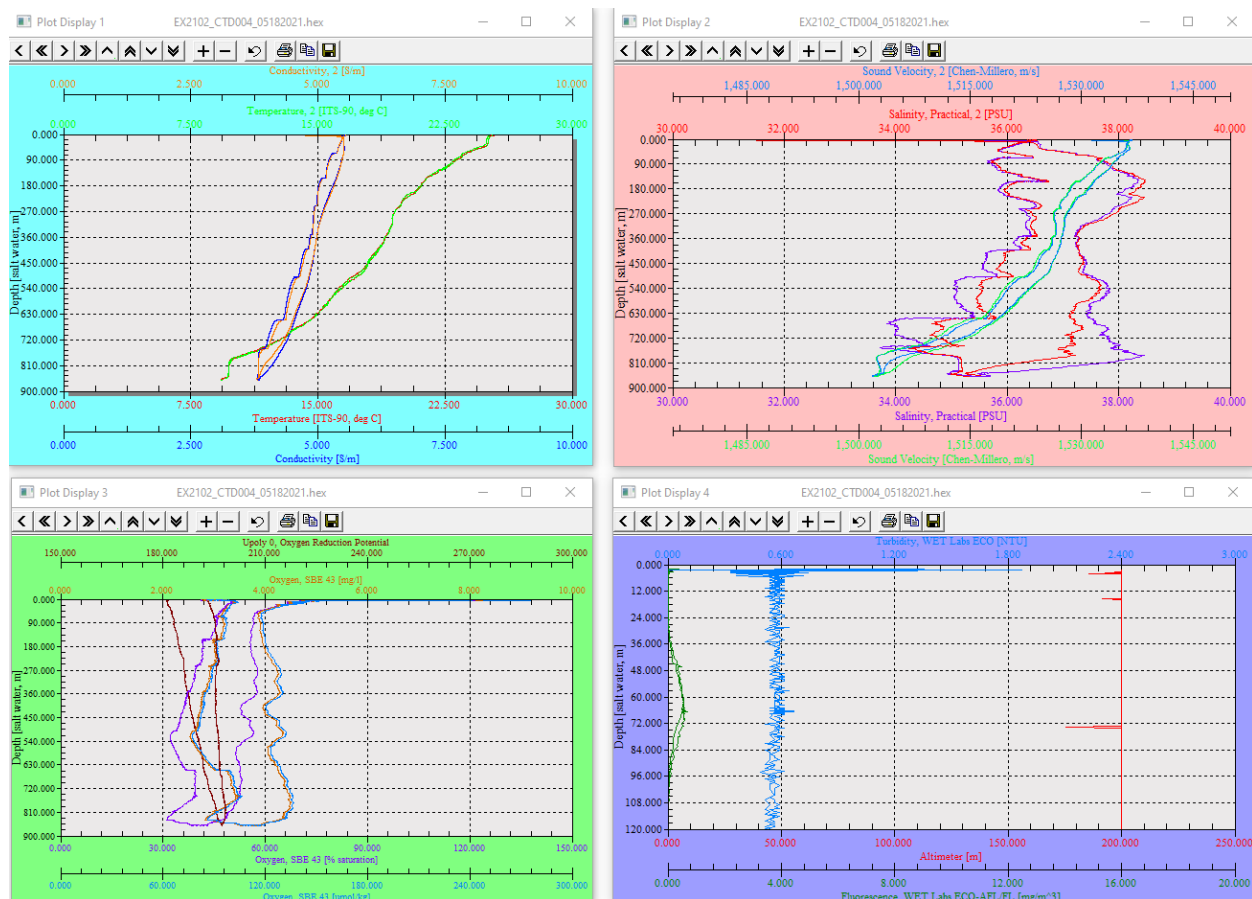


Figure 2: Plot of CTD Data. Conductivity and temperature are in the upper left, salinity is in the upper right, oxygen and oxygen reduction potential are in the lower left, and the turbidity and fluorescence are in the lower right.

Water Sample Collections

<p>Purpose of Water Sample Collection</p>	<p>Samples were collected for onshore eDNA analysis</p>
<p>Description of processing/analysis at sea</p>	<p>2 liters of seawater from each Niskin bottle were filtered through a 0.45 μm filter. Filters were stored in 5 mL Eppendorf tubes containing 3 mL of Longmire's Buffer solution.</p>

Description of at-sea storage	Sample filters were stored in a Longmire's lysis buffer solution
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Table 3. Niskin Bottles and Depth

Niskin Bottle Number	Time (UTC)	Depth (meters)	Notes
1	16:45:58	859.882	5m from the bottom. A replicate water sample was taken from within this Niskin.
2	16:47:27	850.616	
3	16:48:40	840.486	
4	16:51:44	749.502	
5	16:54:48	649.902	Below the DSL
6	16:59:19	500.356	Within the DSL. A replica water sample was taken from within this Niskin.
7	17:02:56	400.821	Above the DSL
8	17:05:34	351.05	
9	17:08:48	250.491	
10	17:12:17	152.006	
11	17:15:44	66.997	Chlorophyll max layer
12	17:20:29	3.93	Surface

Notes: Water samples were collected starting at 5 m from the bottom to target the benthos. The next two bottles fired were a gradual depth change moving away from the benthos. Bottles were fired above, within, and below the deep scattering layer (DSL) based on a visual analysis of the EK60 data. The chlorophyll max layer was also targeted based on the reading from the fluorometer. Replicate samples were taken within the same Niskin bottle for Bottles 1 and 6. Bottle 1 was targeting the benthos and bottle 6 was within the DSL. The aim of this cast was to collect samples of a coral mound, but due to surface currents, the CTD drifted and samples were collected nearby instead.

Please direct inquiries to:	NOAA Office of Ocean Exploration & Research 1315 East-West Highway, SSMC3 Silver Spring, MD 20910
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