

# ROV Dive Summary, EX-22-06, Dive 03 August 09, 2022

## General Location Map



## Dive Information

Site Name	Dive 03 - Azores Plateau Mid-water
General Area Descriptor	Azores Plateau
Science Team Leads	Joana Xavier (Biology), Deb Glickson (Geology)
Expedition Coordinator	Kasey Cantwell
ROV Dive Supervisor	Levi Unema



38.018000124315165 ; -26.779684199887058

End: 14:54:31

38.01970739496559 ; -26.77835388975648

Duration: 0:45:13

Depth: 1201.0 m

Transect 3

Start: 15:15:24

38.019747644282056 ; -26.778523233211544

End: 16:00:10

38.01991280070224 ; -26.778643219929776

Duration: 0:44:45

Depth: 901.0 m

Transect 4

Start: 16:18:29

38.01991267036667 ; -26.778618549388884

End: 17:03:07

38.01989954686881 ; -26.77869746770379

Duration: 0:44:38

Depth: 700.0 m

Transect 5

Start: 17:15:29

38.01997288993402 ; -26.778578968552576

End: 17:45:39

38.0196059797602 ; -26.778285044020624

Duration: 0:30:09

Depth: 601.0 m

Transect 6

Start: 17:54:39

38.01989917237897 ; -26.77863156709237

End: 18:13:07

38.019764799391815 ; -26.778765

Duration: 0:18:28

Depth: 501.0 m

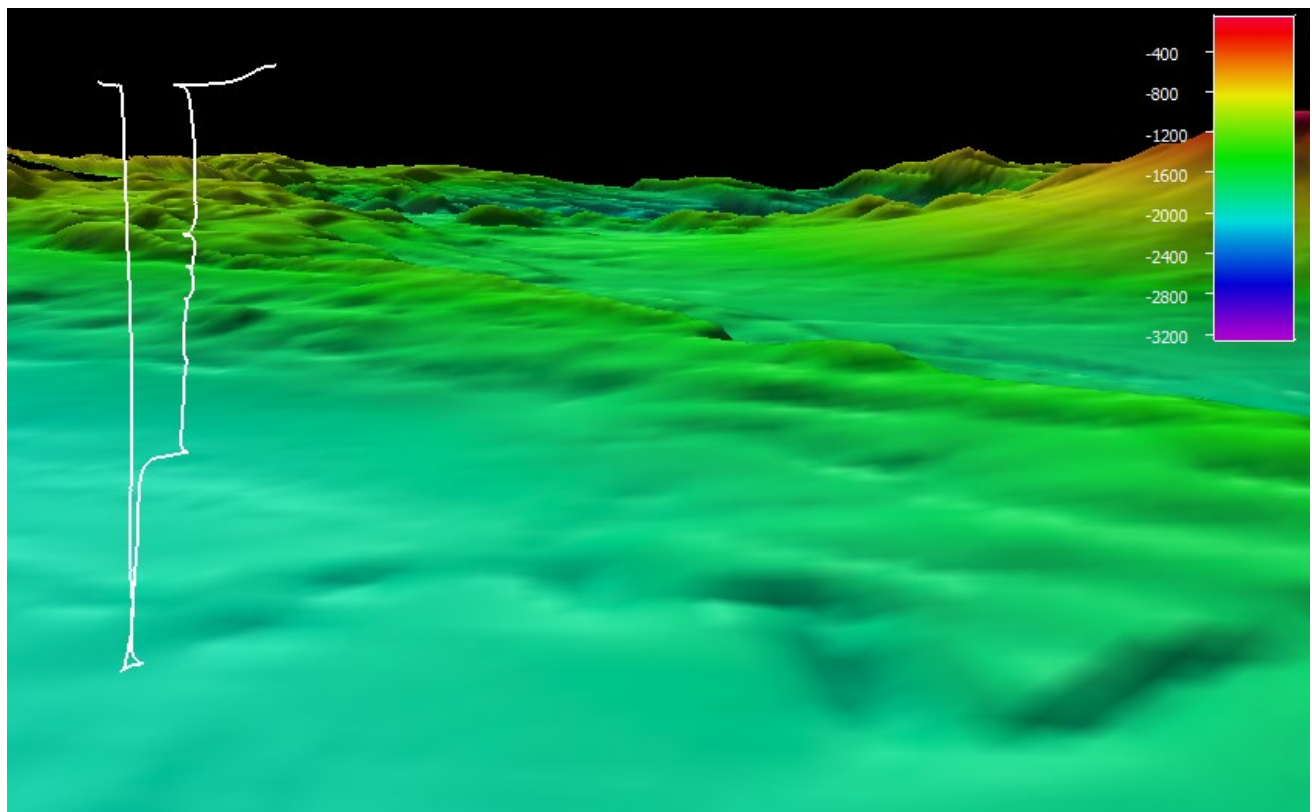
<p>Dive Description</p>	<p>The primary objective of this dive was to explore and characterize the midwater in the Azores. The dive transects were at: 1900 (approximately 10 m off bottom to target the benthopelagic layer), 1200, 900, 700, 600, 500, and 300 m. We did not make it to the 300m layer on this dive. The deep scattering layer (DSL) was captured in the 500-600 m transects.</p> <p>During our 45 minute benthopelagic transect at ~1900 m, we saw many classic midwater taxa (such as <i>Bathocyroe</i> and cydippid ctenophores, hydrozoans, larvaceans, chaetognaths, and siphonophores), but also encountered a large number of benthic/demersal taxa (including munnopsid isopods, alepocephalid and macrourid fishes, sleeper sharks, and a large number of benthic holothurians). Next, we targeted the bathypelagic zone during a 45 minute transect at 1200 m where we saw calycophoran siphonophores, a <i>Halicreas minimum</i> jellyfish, <i>Bathocyroe</i> ctenophores, several forams, larvaceans, chaetognaths, a <i>Limacina helicina</i> pteropod, shrimps, copepods, and <i>Cyclothone</i> (bristlemouths).</p> <p>The remaining transects explored the mesopelagic zone, with 3 transects at standard midwater transect depths (900, 700, and 500 m) and an additional transect through where the backscatter was the highest in the deep scattering layer (DSL) around 600 m. Due to time constraints, transects 5 and 6 were shortened to 30 minutes. During the 900 m transect, we encountered hydrozoans and scyphozoans (including an <i>Atolla</i>, a <i>Nausithoe</i>), several siphonophores, ctenophores (including several <i>Bathocyroe</i> and a yellow <i>Lampocteis</i> sp.), several forams, salps, larvaceans, copepods, shrimps (including <i>Sergia</i> sp.), numerous chaetognaths and <i>Cyclothone</i> (bristlemouths), one alepocephalid fish and one squaliform shark.</p> <p>We encountered a higher diversity and number of gelatinous zooplankton during the 700 m transect, noting several siphonophores (including 4 physonects), an <i>Atolla</i>, a <i>Periphylla</i>, 5 <i>Solmissus</i>, 2 <i>Botrynema</i>, 3 <i>Colobonema</i>, and 2 <i>Haliscera</i> jellyfishes. We also observed numerous ctenophores (including 4 <i>Bathocyroe</i> and 8 cydippids), chaetognaths, polychaetes, larvaceans, doliolid colonies, copepods, <i>Cyclothone</i>, and a <i>Chauliodus danae</i> (viperfish).</p> <p>For our 30 minute, 600 m transect within the DSL, we observed primarily gelatinous zooplankton, including jellyfishes (two rhopalonematids, two <i>Colobonema</i>, several <i>Halicreas</i>, <i>Haliscera</i>, and <i>Solmissus</i>), siphonophores (a Prayinae, Physonectidae and Hippopodiidae), ctenophores (Cydippida, <i>Bathocyroe</i>, and <i>Thalassocalyce</i>), doliolids, larvaceans, two <i>Tomopteris</i> polychaetes, and several midwater fishes.</p> <p>For the final transect, we spent 35 min surveying 500 m (standard midwater transect depth), where we saw a <i>Hippopodius</i> siphonophore, a <i>Bathocyroe</i> ctenophore, a larvacean, a chaetognath, copepods, numerous <i>Cyclothone</i>, and 1 hatchetfish (Sternoptychidae).</p> <p>During the dive we collected water samples for eDNA at 1898, 1200, 900, 700, and 600 m. We also collected two cydippid ctenophores (at 1895 and 700 meters) and had an unintentional collection of a swimming benthic holothurian at 1898 meters.</p>
<p>Notable Observations</p>	<p>horned ctenophores, black cydippid ctenophore, amber-colored <i>Lampocteis</i> sp., <i>Solmissus</i>, <i>Chauliodus danae</i></p>

Community and habitat observations	Corals and Sponges - Absent Chemosynthetic Community - Absent High biodiversity Community - Present Active Seep or Vent - Absent Extinct Seep or Vent - Absent Hydrates - Absent
CMECS Feature Type(s)	Marine oceanic
SeaTube Link (science annotation system)	<a href="https://data.oceannetworks.ca/SeaTubeV3?resourceTypeId=600&amp;resourceId=2673">https://data.oceannetworks.ca/SeaTubeV3?resourceTypeId=600&amp;resourceId=2673</a>

## Equipment Deployed

ROV	<i>Deep Discoverer</i>
Camera Platform	<i>Seirios</i>
ROV Measurements	The following ROV measurements, data streams and equipment are used on each ROV deployment: CTD, depth, scanning sonar, USBL position, altitude, heading, attitude, high-resolution cameras, low resolution cameras, manipulator arms, suction sampler, sample drawers and thrusters. The section below notes if any of these sensors were malfunctioning or not operational
Equipment Malfunctions	There was an issue with the USBL that delayed the beginning of the dive, but it was resolved.

## Close-up Map of Main Dive Site



Smoothed ROV dive track in white on a 25 m resolution bathymetric grid, 2x vertical exaggeration, depths in meters.

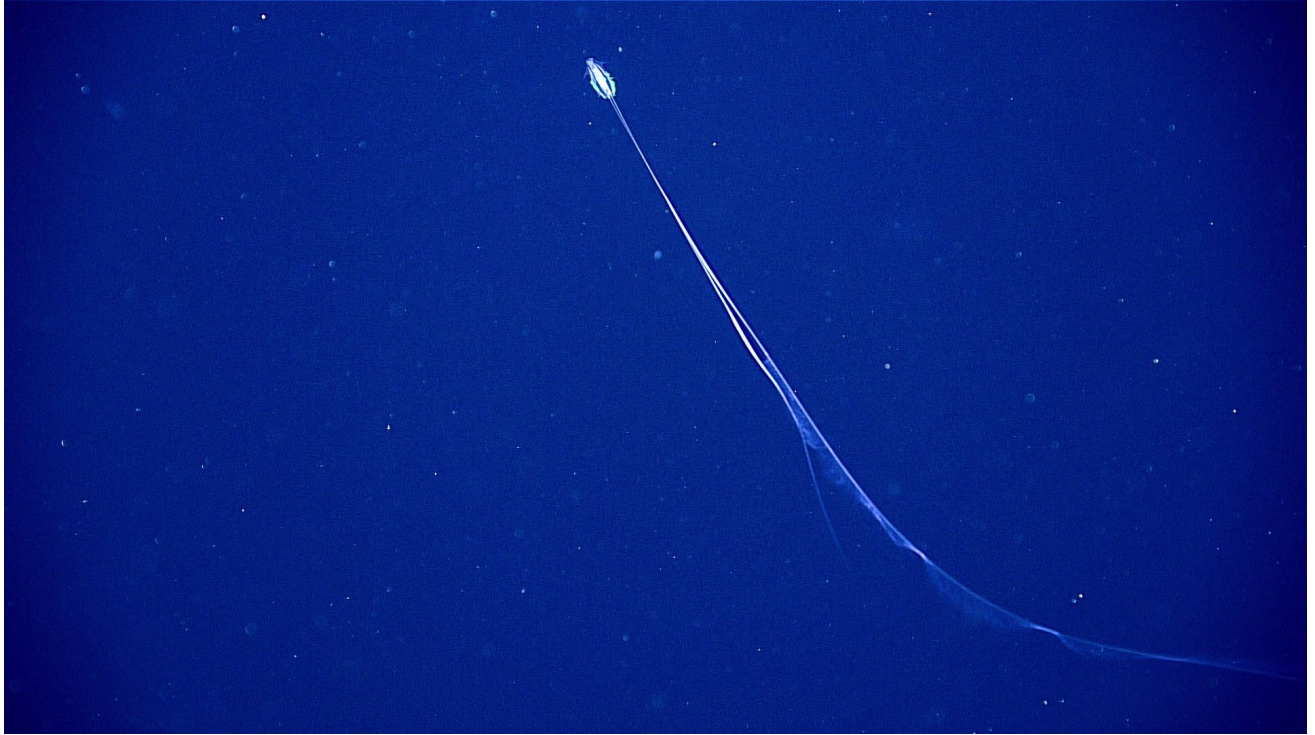




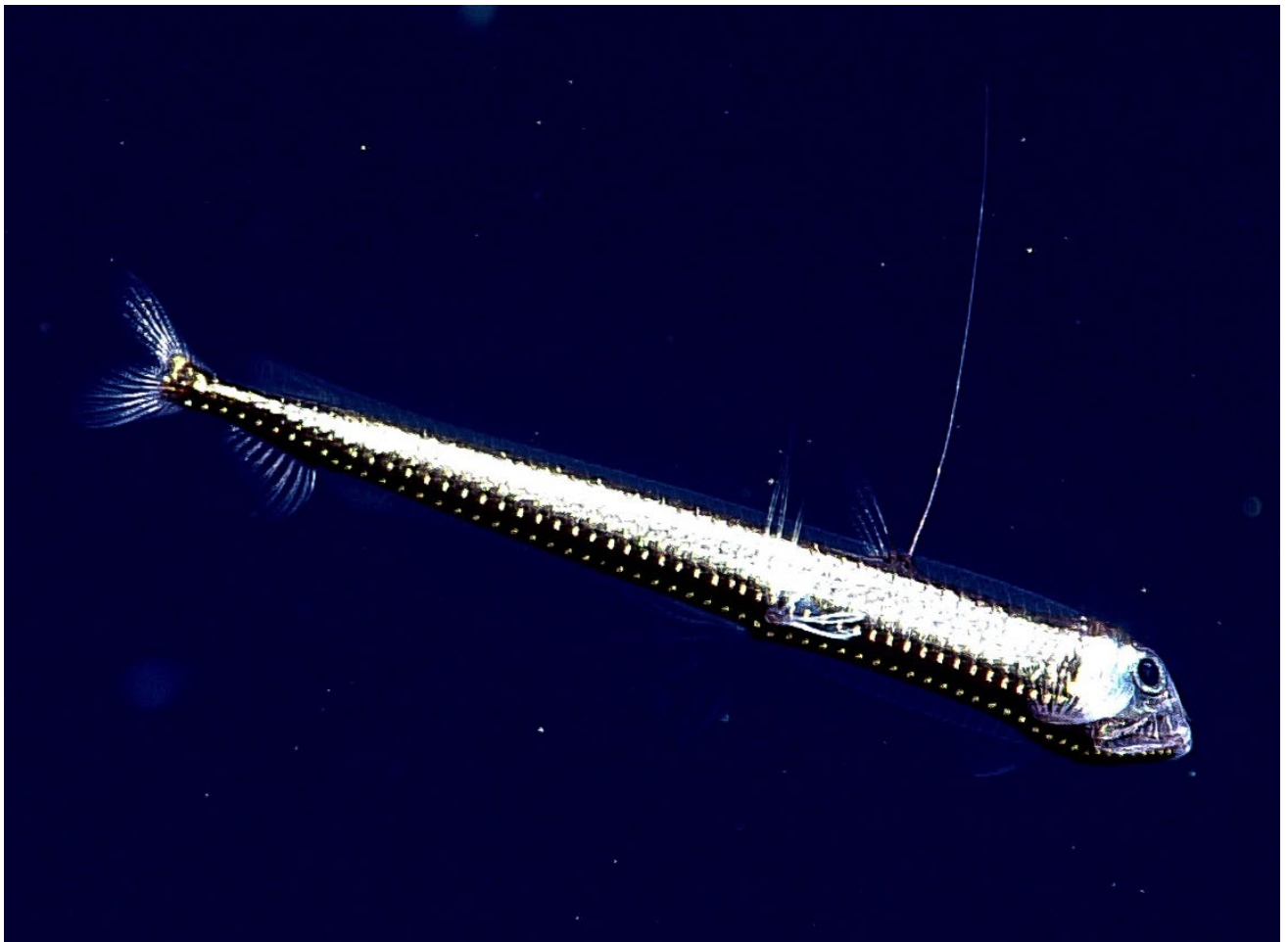
*Solmissus* jellyfish.



Black cydippid ctenophore, likely an undescribed species in the family Mertensiida.



“Horned” ctenophore, aka “Ctenoceros”, an undescribed species.



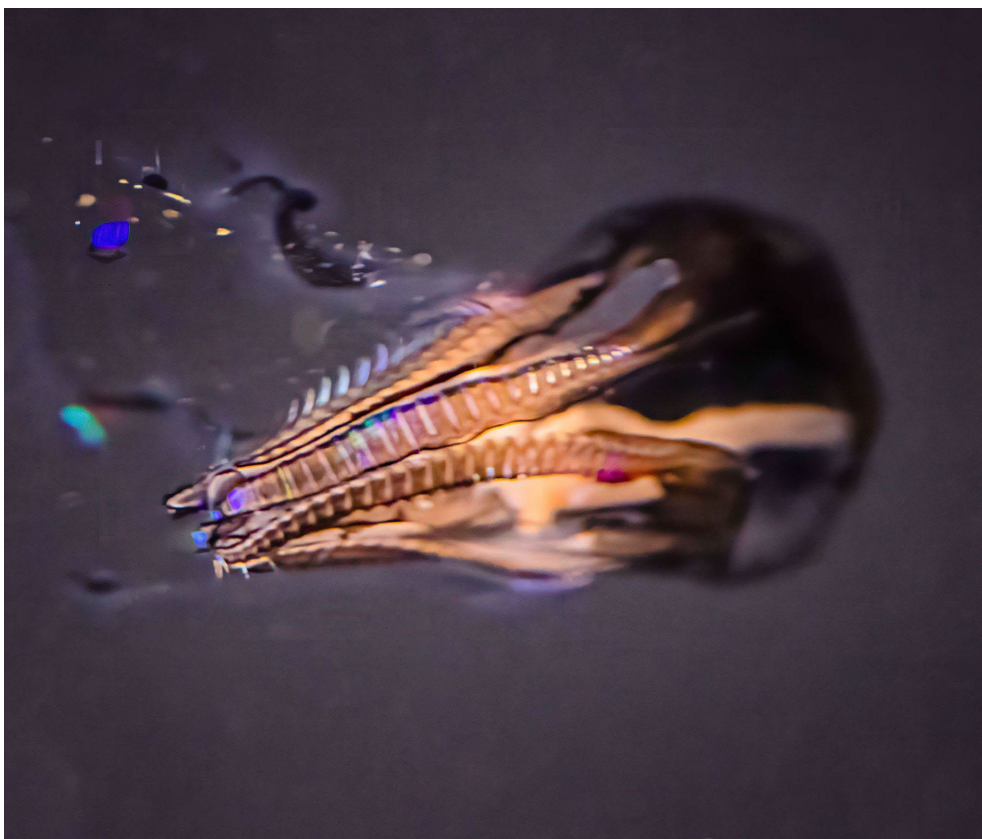
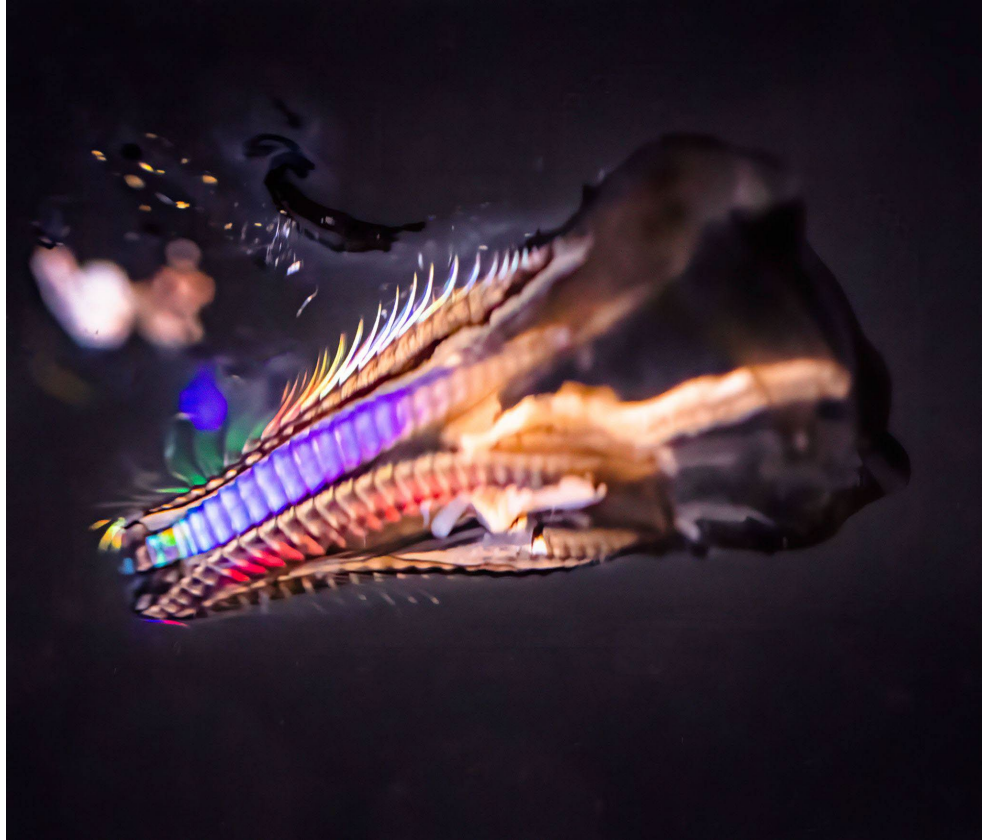
Viperfish, *Chauliodus danae*



## Samples Collected



Sample ID	EX2206_D03_02B
Date (UTC)	20220809
Time (UTC)	132632
Depth (m)	1895.848
Latitude (decimal degrees)	38.016960
Longitude (decimal degrees)	-26.780750
Temp. (°C)	3.951
Field ID(s)	Holothurian - Amperina?
Comments	Sample volunteer.



Sample ID	EX2206_D03_03B
Date (UTC)	20220809

Time (UTC)	133255
Depth (m)	1895.059
Latitude (decimal degrees)	38.0169
Longitude (decimal degrees)	-26.780700
Temp. ( °C)	3.952
Field ID(s)	Ctenophore - Cydippid
Comments	1 cm "Bloodbelly" in good condition, alive at surface.





Sample ID	EX2206_D03_07B
Date (UTC)	20220809
Time (UTC)	162611
Depth (m)	699.867
Latitude (decimal degrees)	38.01989
Longitude (decimal degrees)	-26.77863
Temp. (°C)	10.398
Field ID(s)	Horned ctenophore
Comments	1cm, alive at surface, 6 shimmering rows

## Niskin Sampling Summary

Sample ID	EX2206_D03_01W
Date (UTC)	20220809
Time (UTC)	113824
Depth (m)	404.914
Latitude (decimal degrees)	38.158090
Longitude (decimal degrees)	-26.23597
Bottle number	NISKIN 1
Temperature (°C)	12.445
Dissolved Oxygen (ml/L)	6.639
Treatment	eDNA

Sample ID	EX2206_D03_04W
Date (UTC)	20220809
Time (UTC)	140608
Depth (m)	1201.513
Latitude (decimal degrees)	38.017910
Longitude (decimal degrees)	-26.779780
Bottle number	NISKIN 2
Temperature (°C)	7.15
Dissolved Oxygen (ml/L)	6.728
Treatment	eDNA

Sample ID	EX2206_D03_05W
Date (UTC)	20220809
Time (UTC)	151431
Depth (m)	901.078
Latitude (decimal degrees)	38.01971
Longitude (decimal degrees)	-26.7784

Bottle number	NISKIN 3
Temperature (°C)	9.706
Dissolved Oxygen (ml/L)	5.653
Treatment	eDNA

Sample ID	EX2206_D03_06W
Date (UTC)	20220809
Time (UTC)	161428
Depth (m)	701.052
Latitude (decimal degrees)	38.019900
Longitude (decimal degrees)	-26.77855
Bottle number	NISKIN 4
Temperature (°C)	10.4
Dissolved Oxygen (ml/L)	5.841
Treatment	eDNA

Sample ID	EX2206_D03_08W
Date (UTC)	20220809
Time (UTC)	171517
Depth (m)	601.171
Latitude (decimal degrees)	38.01997
Longitude (decimal degrees)	-26.7786
Bottle number	NISKIN 5
Temperature (°C)	11.035
Dissolved Oxygen (ml/L)	6.041
Treatment	eDNA

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