

# ROV Dive Summary

## EX2301, Dive04, April 20, 2023

### General Location Map



### Dive Information

|                         |   |
|-------------------------|---|
| Site Name               | Trinidad Slump (Shakedown)                                    |
| General Area Descriptor | Sloped submarine slump deposit with bottom around 2330m depth |
| Science Team Leads      | Alexis Weinnig, Paige Koenig                                  |

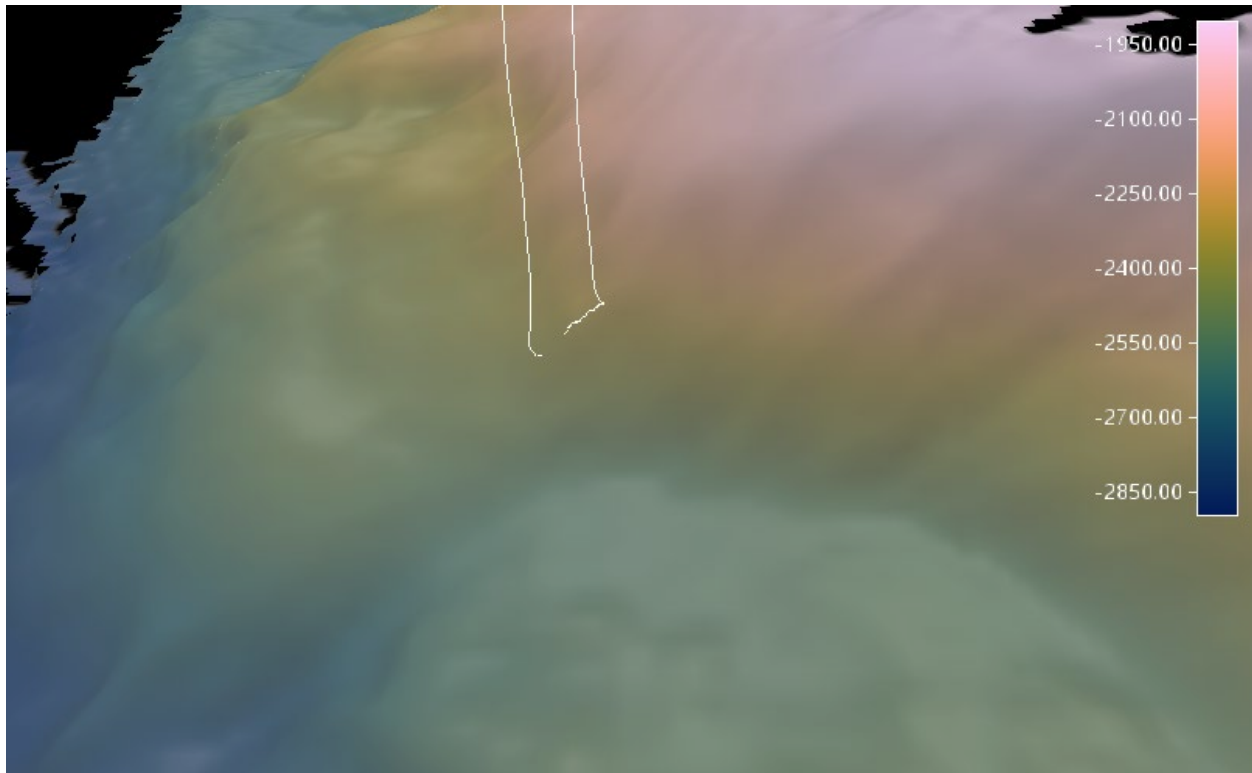


|                                    |   |
|------------------------------------|---|
| Dive Description                   | This was the fourth engineering dive of EX2301. Site has a soft sediment bottom at about 2330m depth and ~45° slope within the Cascadian continental slope. No notable changes in geologic landscape except few locations containing consolidated mud, as likely remnants of the submarine deposit. A total of three <i>Graneledone boreopacifica</i> were observed and one other species of octopus, possibly <i>Mussoctopus sp.</i> Numerous echinoderms were observed including Brisingid sea stars, <i>Hymenaster sp.</i> sea stars, <i>Zoroaster ophiurus</i> sea stars, <i>Tromikosoma panamense</i> urchins, a few different sediment-dwelling ophiuroids, and holothorians. A few small Rajidae skates were observed at the beginning of the dive. <i>Graneledone boreopacifica</i> (rattail), <i>Antimora rostrata</i> (blue hake), <i>Bathysaurus mollis</i> (lizardfish), Liparidae (snailfish), and other Coryphaenoides were observed throughout the dive. A few anemones were observed including <i>Scyonis sp.</i> , <i>Actinoscyphia aurelia</i> (flytrap anemone), and <i>Liponema sp</i> (tumbleweed anemone). One biological sample was collected - a <i>Zoroaster ophiurus</i> . Five ROV niskin bottles collected water samples on bottom prior to ascent. |
| Notable Observations               | Three sightings of <i>Graneledone</i> octopods  |
| Community and Habitat Observations | Corals and Sponges — Present<br>Chemosynthetic Community — Absent<br>High biodiversity Community — Absent<br>Active Seep or Vent — Absent<br>Extinct Seep or Vent — Absent<br>Hydrates — Absent   |
| CMECS Feature Type(s)              | Slope   |
| SeaTube Link (science annotations) | <a href="https://data.oceannetworks.ca/SeaTubeV3?resourceTypeId=600&amp;resourceId=2783">https://data.oceannetworks.ca/SeaTubeV3?resourceTypeId=600&amp;resourceId=2783</a>   |

## Equipment Deployed

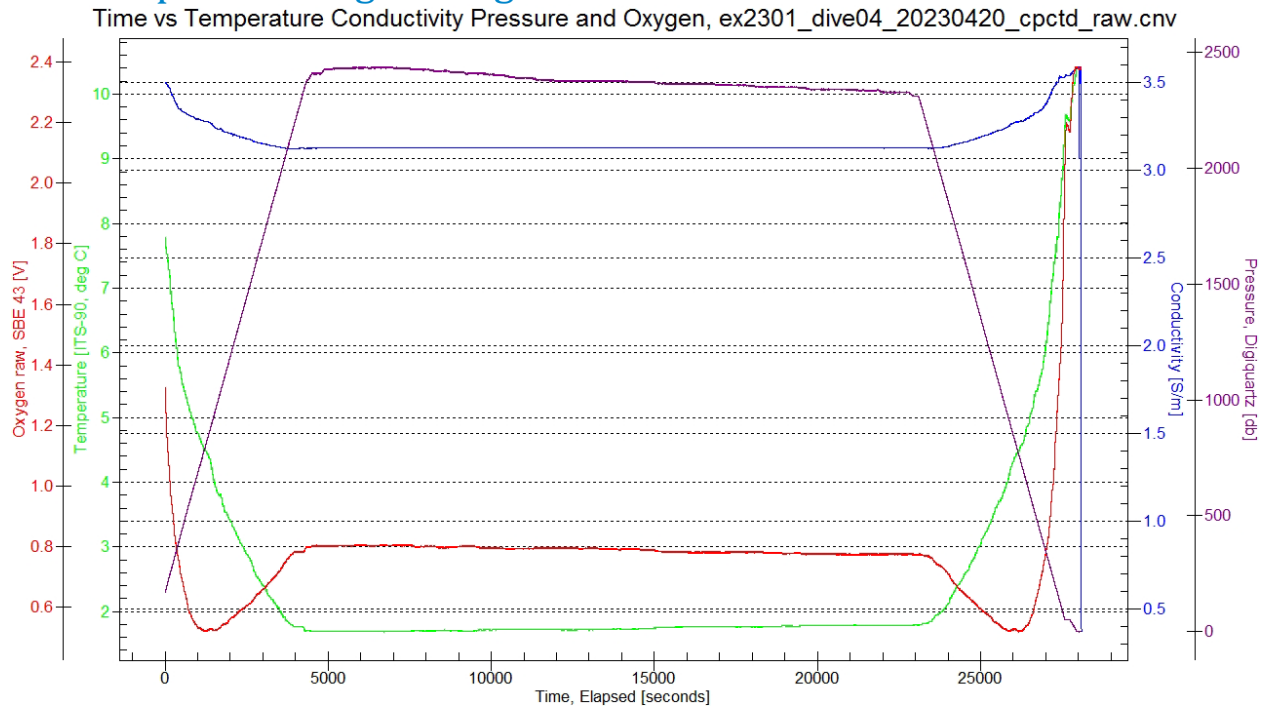
|                        |  |
|------------------------|--|
| ROV                    | <i>Deep Discoverer</i>   |
| Camera Platform        | <i>Seirios</i>   |
| ROV Measurements       | The following ROV measurements, data streams and equipment are used on each ROV deployment: CTD, depth, scanning sonar, USBL position, altitude, heading, attitude, high-resolution cameras, low resolution cameras, manipulator arms, suction sampler, sample drawers and thrusters. The following row notes if any of these sensors were malfunctioning or not operational |
| Equipment Malfunctions |  |

## Close-Up Map of Main Dive Site



Main dive site for ROV shakedown on 50m bathymetry, depth in meters. 2X vertical exaggeration.

## Sound Speed Manager Image of ROV CTD Profile

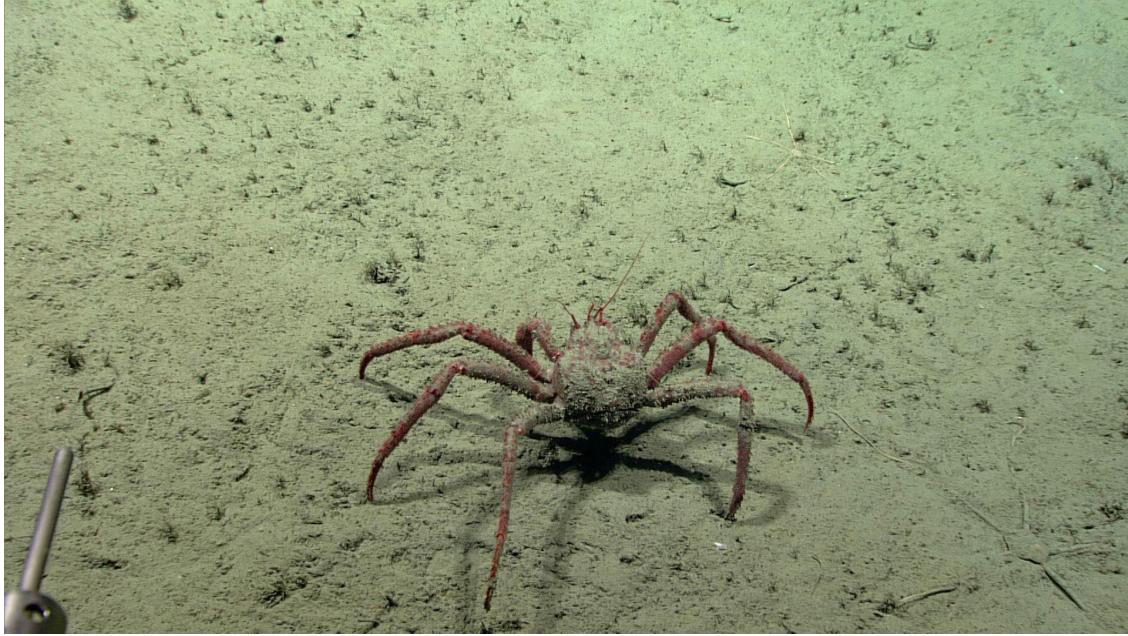


ROV CTD profiles for Dive 01

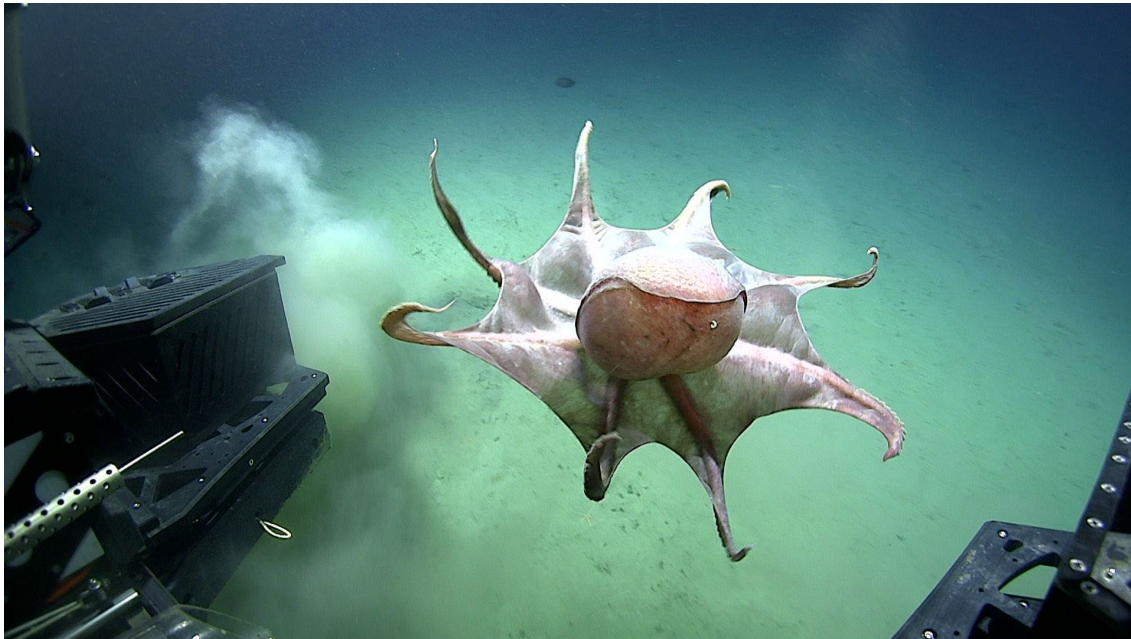
## Representative Photos of the Dive



Juvenile female Rajidae skate. Two were spotted at the beginning of the dive.



Crab covered in muddy bottom sediment.

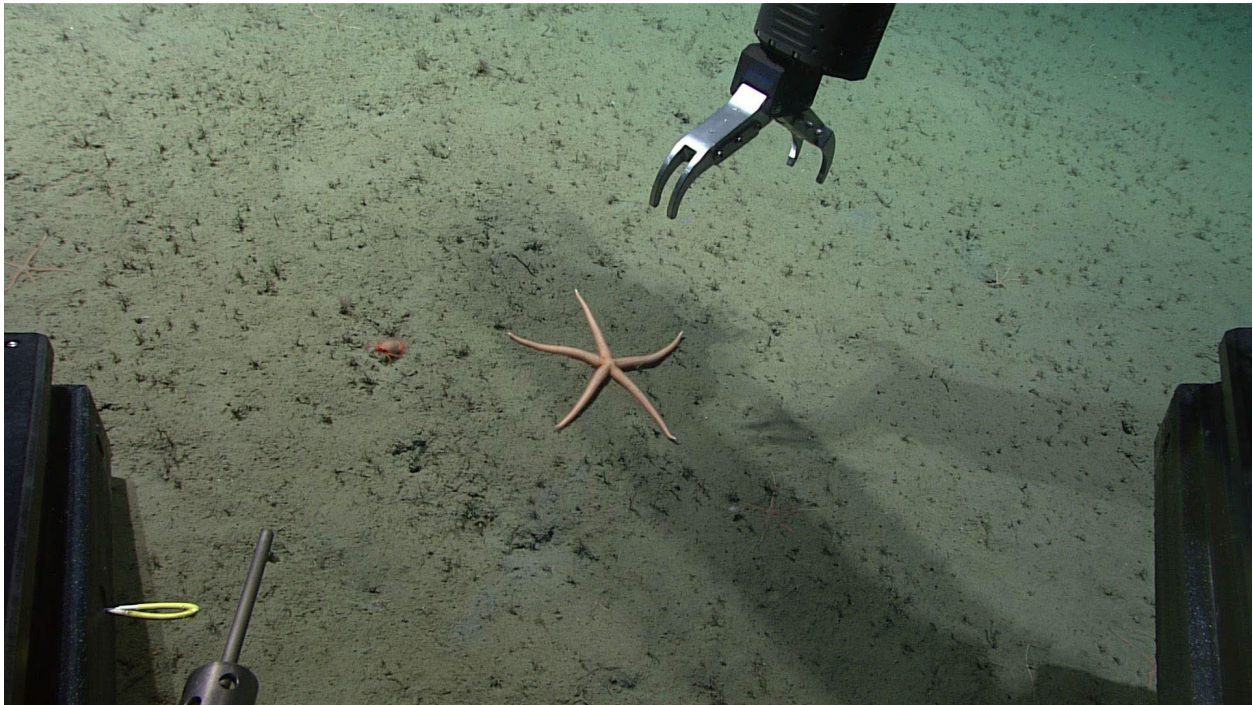


Active *Graneledone boreopacifica* octopus swimming in front of D2.

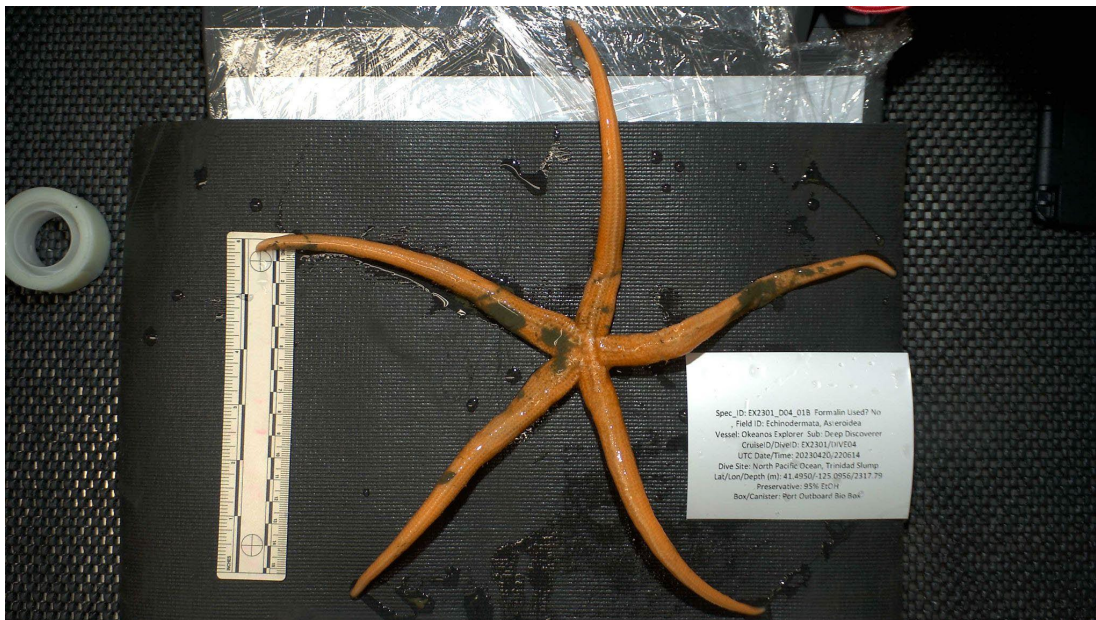


Tumbleweed anemone on sedimented bottom.

## Samples Collected



In situ image of *Zoroaster ophiurus* prior to collection



Lab photo of *Zoroaster ophiurus*. Dorsal view of whole organism





Lab photo of the ventral side of *Zoroaster ophiurus*. Close up image of tube feet.

|                             |   |
|-----------------------------|---|
| Sample ID                   | EX2301_D04_01B  |
| Date (UTC)                  | 20230420  |
| Time (UTC)                  | 220614  |
| Depth (m)                   | 2317.789  |
| Latitude (decimal degrees)  | 41.494971   |
| Longitude (decimal degrees) | -125.095559   |
| Temp. (°C)                  | 1.785   |
| Field ID(s)                 | Zoroasteridae <i>Zoroaster ophiura</i>  |
| Comments                    | Mucousy. Orange in color. Relatively equal length arms. Arm length ~15cm. Genetic subsample is tube feet. |

| Associates Sample ID | Field Identification | Count |
|----------------------|----------------------|-------|
| n/a                  |                      |       |

## Niskin Sampling Summary

|                             |   |
|-----------------------------|---|
| Sample ID                   | EX2301_D04_02W  |
| Date (UTC)                  | 20230420  |
| Time (UTC)                  | 220739  |
| Depth (m)                   | 2316.36   |
| Latitude (decimal degrees)  | 41.4949531555176  |
| Longitude (decimal degrees) | -125.095573425293   |
| Bottle Number               | 1   |
| Temperature (°C)            | 1.80400002002716  |
| Dissolved Oxygen (ml/L)     | 2.46600008010864  |
| Treatment                   | 1.75 L collected, 1 L filtered through 0.22µm filter. Filter stored in freezer. |

|                             |   |
|-----------------------------|---|
| Sample ID                   | EX2301_D04_03W  |
| Date (UTC)                  | 20230420  |
| Time (UTC)                  | 220847  |
| Depth (m)                   | 2314.02   |
| Latitude (decimal degrees)  | 41.4949684143066  |
| Longitude (decimal degrees) | -125.095436096191   |
| Bottle Number               | 2   |
| Temperature (°C)            | 1.78699994087219  |
| Dissolved Oxygen (ml/L)     | 2.44300007820129  |
| Treatment                   | 1.75 L collected, 1 L filtered through 0.22µm filter. Filter stored in freezer. |

|            |                |
|------------|----------------|
| Sample ID  | EX2301_D04_04W |
| Date (UTC) | 20230420       |
| Time (UTC) | 220942         |
| Depth (m)  | 2315.56        |

|                             |   |
|-----------------------------|---|
| Latitude (decimal degrees)  | 41.4948806762695  |
| Longitude (decimal degrees) | -125.095413208008   |
| Bottle Number               | 3   |
| Temperature (°C)            | 1.78600001335144  |
| Dissolved Oxygen (ml/L)     | 2.45499992370605  |
| Treatment                   | 1.75 L collected, 1 L filtered through 0.22µm filter. Filter stored in freezer. |

|                             |   |
|-----------------------------|---|
| Sample ID                   | EX2301_D04_05W  |
| Date (UTC)                  | 20230420  |
| Time (UTC)                  | 221033  |
| Depth (m)                   | 2313.87   |
| Latitude (decimal degrees)  | 41.4949226379395  |
| Longitude (decimal degrees) | -125.095420837402   |
| Bottle Number               | 4   |
| Temperature (°C)            | 1.80499994754791  |
| Dissolved Oxygen (ml/L)     | 2.50099992752075  |
| Treatment                   | 1.75 L collected, 1 L filtered through 0.22µm filter. Filter stored in freezer. |

|                             |   |
|-----------------------------|---|
| Sample ID                   | EX2301_D04_06W  |
| Date (UTC)                  | 20230420  |
| Time (UTC)                  | 221110  |
| Depth (m)                   | 2315.15   |
| Latitude (decimal degrees)  | 41.4948883056641  |
| Longitude (decimal degrees) | -125.095283508301   |
| Bottle Number               | 5   |
| Temperature (°C)            | 1.78999996185303  |
| Dissolved Oxygen (ml/L)     | 2.49300003051758  |
| Treatment                   | 1.75 L collected, 1 L filtered through 0.22µm filter. Filter stored in freezer. |

|            |  |
|------------|--|
| Sample ID  | EX2301_D04_B LW  |
| Date (UTC) | 20230420   |
| Treatment  | 500 mL filtered through 0.22µm filter. Filter stored in freezer. |

## Scientists Involved

| Name              | Email                     | Affiliation  |
|-------------------|---------------------------|--|
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|                   |                           |  |

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