

DIVE PLAN – Leg 1 Dive 13 Pushcores Hydrates

ROV Dive Number: OE 0116

Location: **Barkley Canyon**

Date: May 10, 2014 PDT 15:00

Constraints: Weather, Sufficient deck space

Objectives

- Confirm Wally II cable happy
- Take 10 push cores - 2 at Waypoint #3 (48.31197, -126.06602) and 3 at Waypoint #12 (48.31197, -126.06588)
- Niskin O2 water sample

Dive Dependents

1. ROV porch grating orientation with respect to ROV heading

Ship Procedure

1. Transit to site, assess weather and sea state. Proceed only when it is safe to do so
2. Deploy ROV USBL pole

ACTION	LATITUDE	LONGITUDE	DEPTH (m)
Descend at Barkley Hydrates IP	48° 18.7266'	-126° 03.9480'	870
Ascend at Barkley Hydrates IP	48° 18.7266'	-126° 03.9480'	870

Shore Procedure

1. Monitor Twitter feed

Communications With Shore

1. On-board team will tweet using @oceanworksops twitter account at the beginning of the dive
2. Post the dive plan on the cruise website
3. On-board team will use intercoms during operations as required

Navigation

1. Record positions of the deployed platforms and satellite instruments
2. Guide visual transect
3. Record interesting positions

Dive Chief

1. Record deviations from dive plan
2. Record change to site layout diagrams

ROV/Equipment Requirements

1. Double carabineer for Wally strain relief on platform
2. Knife/cutter for strain relief
3. Milk Crate on front of ROV
4. 10 push-core tubes (already on bottom in basket)
5. Niskin bottle on ROV

ROV Procedure

Descent

1. Start recording, start streaming video to UVic, start dive log, confirm both are being received
2. Descend ROV

Check Wally II

1. Transit to Wally location.
2. Standby to monitor Wally 2 with ROV pilot directly communicating with Wally team in Germany via intercom connection to shore
3. Confirm cable is free of bends.

Push Cores

1. Transit to Marker #3 where 10 pushcores are on bottom.
2. 5 push cores at Waypoint #3 (48.31197, -126.06602) avoiding any scars/disturbances left by the previous sampling in the Falkor cruise. Always avoid Wally tracks or any disturbance
3. 5 push cores at Waypoint #12 (48.31197, -126.06588) avoiding any scars/disturbances left by the previous sampling in the Falkor cruise. Always avoid Wally tracks or any disturbance

Take O2 sample

1. Return to IP.
2. Place bottle near to and at approximately the same height as the CTD
3. Trigger bottle

Pre-Ascent Checklist

1. Wally 2 position (video and 50 m range sonar scan showing Wally relative to IP)
2. Push cores
3. Niskin bottle

Ascend

1. Request permission for recovery from Bridge
2. Recover ROV, deployment tray

Post Dive Sample Handling

Niskin O₂ water sample

Staff Scientist responsible: Fabio De Leo

Procedure for water sampling and *in situ* oxygen sample fixing

- 1) Collect water samples from desired depth with Niskin
- 2) On deck: fit silicon drawing tube with digital thermometer to spigot
- 3) Open the release valve (at the top end of the bottle) gently ... do not open all the way quickly as this might introduce bubbles into the bottle
- 4) Open the spigot with the open end of the silicon drawing tubing and check for bubbles in the tube. Remove bubbles by gently squeezing tubing and/or adjusting flow rate of water
- 5) While water is running through the tubing, place the open end at the base of the glass O₂ flask
- 6) Allow the flask to overflow 3X the total volume of the flask. Take care not to introduce bubbles
- 7) During the time it takes for (6) note the temperature
- 8) Close the spigot only after the open end of the drawing tube has been pulled from the flask
- 9) Add each of two reagents: 1mL of a) MnSO₄; and b) Na₂S₂O₃·5H₂O. These reagents will be in dispensing bottles and should be kept at hand while drawing water to the flasks.
- 10) Seal the flask with the glass stopper only AFTER reagents have been added.
- 11) The tip of the reagent dispensers should extend below the neck of the oxygen flasks, so that precipitate does not form in the excess seawater above the neck of the flasks
- 12) Once the stopper is in place; invert the flask in a vigorous fashion repeatedly for 1 minute
- 13) Make sure that the flask number and event are recorded. Place the fixed sample in the O₂ flask case; add distilled water onto the top of the flask to prevent diffusion of air during storage; and store in the cold room

Keep the reagents at room temperature in the lab between sampling events