

DIVE PLAN – Leg 1 Dive 12 Deploy Folger Deep

ROV Dive Number OE 0111

Location: **Folger Passage**

Date: *May 06, 2014*

Constraints: Weather, Visibility. CTD pump needs to be connected

Objectives

- Deploy Folger Deep IP
- Visual inspection of Folger Deep IP
- Deploy new Cable to Node
- Connect Folger Deep IP JB-14 (DeviceID: 10512)
- Deploy Hydrophone (DeviceID: 23235)
- Deploy CTD (DeviceID:10600, 23284)
- Niskin O2 sample
- Connect BPR (DeviceID: 22790)
- Survey Folger Pinnacle cable, remediate wear points (time permitting)

Ship Procedure

1. Transit to Folger Deep site, assess weather and sea state. Proceed when it is safe to do so
2. Deploy ROV USBL pole
3. Lower Folger Deep Platform to seafloor on ships wire
4. Release Folger Deep Platform and recover ships wire

ACTION	LATITUDE	LONGITUDE	DEPTH
Deploy ROV at Folger Deep IP	48°48.8310'	-125°16.8590'	98m
Recover ROV near Folger Pinnacle	48°48.51'	-125°16.84'	40m

Shore Procedure

1. Monitor communications from ship
2. Stay on stand-by for port power on Folger Passage Node (Device 10501, port S1) and topology update

ACTION	Device		Uplink			Extension Cable
	Device ID	Device Name	Device ID	Device Name	Port	
Ensure port off	10512	Folger deep JB-14	10501	Folger node	S1	77/106.EX.0002
Turn port on	10512	Folger deep JB-14	10501	Folger node	S1	77/106.EX.0002

Communications with shore

1. On-board team will tweet using the NC_operations twitter account at the beginning of the dive and post the dive plan on the cruise wiki
2. On-board team will use Skype during operations

Navigation

1. Record precise position and orientation of IP and hydrophone

Dive Chief

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

Site/Equipment IDs

ACTION	SITEID	SITENAME	DEVICE ID	DEVICENAME	LATITUDE	LONGITUDE	DEPTH	PORT	EXT CABLE
Connect	1000250	Deep_IP_2014-05	10512	Folger Deep JB-14	48°48.8310'	-125°16.8590'	98		281
Connect	1000250	Deep_IP_2014-05	10604	RDI Workhorse Monitor ADCP 300 kHz	48°48.8310'	-125°16.8590'	98	J4	170
Connect	1000250	Deep_IP_2014-05	10600	Sea-Bird SeaCAT SBE16plus V2 7026	48°48.8310'	-125°16.8590'	98	J1	279
Connect	1000250	Deep_IP_2014-05	23284	Sea-Bird SBE 63 Dissolved Oxygen Sensor 630103	48°48.8310'	-125°16.8590'	98	J1	SBE Piggyback
Connect	1000250	Deep_IP_2014-05	20020	BioSonics DT-Xu scientific echosounder	48°48.8310'	-125°16.8590'	98	J3	86
Connect	1000250	Deep_IP_2014-05	20116	Aanderaa Optode 3830	48°48.8310'	-125°16.8590'	98	J6	88
Deploy/ Connect	1000251	Deep_Hydrophone_2 014-05	23235	Ocean Sonics icListen HF Hydrophone 1266	48°48.8250'	-125°16.9170'	105	J5	210
Reconnect	100150	Deep_BPR_2011-07	22790	NRCAN BPR 5	48°48.8367'	-125°16.8670'	100	J2	85

ROV / Equipment Requirements:

1. Folger Deep Platform
2. ~~Wrist camera with light~~
3. Lasers
4. CTD
5. Node cable fitted with new gross alignment funnel from ODI
6. Niskin Bottle

ROV Procedure

On Deck

1. Connect Folger Deep Platform to working winch and acoustic release. (Ensure Nav Beacon, acoustic release are turned on.)
2. Deploy Folger Deep Platform off STBD side with ships crane
3. Payout wire at 10-20m per minute as directed
4. Release Folger Deep Platform at beacon location
5. Recover wire and acoustic release

Descent

1. Start recording, start streaming video to UVic, start dive log, confirm both are being received. Confirm
2. Descend ROV with Folger Instrument Platform below ROV

Visual inspect Folger Deep IP

1. Visual inspect for any issues with deployment
2. Obtain and record IP position: Latitude, Longitude, Depth, Tilt, Heading

Connect Folger Deep

1. Confirm power is off port S1 on Folger node (Device ID 10501)
 - a. If cable was unplugged from node:
 - i. Remove bungees from cable
 - ii. Pull cable to Node
 - iii. Open correct door to Node
 - iv. Remove and stow dust cap from port S1, then Connect to port
 - b. If cable was unplugged from Instrument Platform:
 - i. Remove plug from parking position
 - ii. Plug into instrument platform
 - iii. Stow parking position on ROV

Take O2 sample

1. Niskin bottle positioned near manipulator
2. Bottle secured to basket near to the CTD
3. Trigger bottle
4. Stow bottle

BPR connection (DeviceID: 22790)

1. Release bungees securing BPR cable on horns
2. Transit with cable to BPR
3. Connect BPR
4. Record position

Hydrophone (DeviceID: 23235)

1. Locate hydrophone stand
2. Release bungees holding Hydrophone cable on horns
3. Remove bungees securing hydrophone and lift hydrophone stand off the platform
4. Transit backwards to near extent of the cable and place stand on seabed
5. Record hydrophone Latitude, Longitude, Depth, Heading

Folger Pinnacle Cable Clean-up

1. Recover Beacon and float
2. Transit to Node (site 1501)
3. Survey cable towards Folger Pinnacle, remediate wear points along the way.

Recovery

1. Request permission for recovery from Bridge
2. Recover ROV

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
- 14) Keep the reagents at room temperature in the lab between sampling events