Dive Plan 4901– May 4, 2017

Port: Jeremy Rich  Starboard: Net Charoenpong  Pilot: Pat Hickey

On Bottom Target: Crab Spa

Objectives: Deploy Vent-SID at Crab Spa, take majors, pick up Crab Trap, collect Riftia

Basket List
1. Large biobox w/ Crab Trap
2. 4 majors
3. T probe

Locations:

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<th>Location</th>
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1. On bottom, first proceed to Crab Spa to release LVP:
   a. Measure T at wand tip
   b. Take out wand and put in holster
   c. Release LVP
2. Take one major at same spot where wand was
3. Transit to Vent-SID landing site
4. Pick up Vent-SID and proceed to Crab Spa
5. At Crab Spa, position instrument (needs to be positioned w/ wand inserted by 13:45 local time, 19:45 GMT)
6. Deploy intake nozzle of Vent-SID
   a. Insert wand into same spot as for LVP wand
   b. Stabilize wand
   c. Measure T at wand tip, should read about 25ºC
7. Proceed to Bio9
8. Check on colonizer CV5, make video observations only
9. Take major at second structure next to the one where CV5 is located
10. There is a black smoker in the middle of the structure that appears to be very active.

11. Measure T and proceed with taking a major.

12. Alternatively, take major at black smoker close to Riftia mound.

13. Check on Crab Trap at Riftia Mound, but don’t pick up.

14. Move to Biovent all the way to the North and take 2 majors at black smoker.

15. Try to lure crabs into biobox.

16. Based on my recollection, there are Riftias at Biovent that can be collected.

17. If Riftias are present and of correct size, proceed with Riftia sampling.

18. Before collecting Riftia, proceed with following:
   a. Measure T at base of Riftia clump,
   b. Make a T measurements at plume level.

19. Proceed with collection and put worms in large biobox. Make sure worms fit into biobox and nothing sticks out. Don’t fold them!
Alvin Dive# 4901 (May 4, 2017), AT27-12

Pilot: Pat Hickey
Port obs: Jeremy Rich
Starboard obs: Net Charoenpong

Descend: 13:56 GMT  At seafloor: 15:16 GMT
Ascend: 19:29 GMT  At surface: 20:54 GMT

Time  Event
13:56  Descend
15:16  At bottom (x4648 y78128 d2502) and proceed to Crab Spa
15:36  Fire Green Major; T= 25.2°C, Green 1 did not fire and Green 2 might not be sealed
15:49  Fire Yellow Major, T= 23.3°C
15:57  Retrieve the Large Volume Pump (LVP) and proceeded to landing site
16:02  At landing site (x4504 y78183 d2505); release LVP; locate Vent-SID
16:13  Vent-SID found at x4437 y78188 d2506
16:18  Remove the weights from Vent-SID
16:27  Carry Vent-SID to Crab Spa
16:42  At Crab Spa
16:45  Place Vent-SID intake nozzle
16:48  Temp wand reads 21°C
16:53  Photograph the Vent-SID before leaving for Bio9
17:00  At Bio9
17:02  Inspect the colonizer CV5
17:05  Survey the black smoker
17:08  Inspect the deployed crab trap (4 crabs at 7 fishes)
17:12  Survey north side of the structure; unable to locate the smoker on this side
17:20  Leave for Biovent
18:00  At Biovent
18:06  Black smoker found
18:16  Fire Black Major and Red Major (T = 316-320°C)
18:31  Sample Riftia and crabs close to the chimney
18:52  Leave to Hobbit Hole
19:10  At Hobbit Hole and survey the vent field
19:19  Take temp at a diffuse flow (x433 y79909) = 10°C
19:25  Take temp at a diffuse flow (x433 y79909) = 8.2°C
19:29  Ascend (x4382 y79891)
20:54  At surface (x4365 y79900)
AT 37-12 Sample Sheet

Alvin Dive# 4901  Date 5/4/17  Logged by Jeremy Rich
Descend: 1400  At Seafloor: 1575  Ascend: ___________

FLUID SAMPLES

Major# green  Time 1530  Temp ICL 24.5  Vent Crab Spa
X 4574 Y 78146 Hdg 37.4  Depth 2506  Alt _______ Marker _______ (type/#)
Comments jammed no sample in either chamber
Tried 2nd position, one side opening, valve is probably still open

Major# yellow  Time 1543  Temp ICL 32°C  Vent Crab Spa
X 4574 Y 78146 Hdg 37.4  Depth 2506  Alt _______ Marker _______ (type/#)
Comments trying 2nd major at Crab Spa. First one failed.
T is +13 too high. Probe too high

Major# black  Time 1816  Temp ICL 31.9°C  Vent Biovent
X 4358 Y 79192 Hdg 1.4  Depth 2501  Alt _______ Marker _______ (type/#)
Comments Pat removed top tip to get better access to orifice of chimney

Major# red  Time 1822  Temp ICL 31.6°C  Vent Biovent
X 4358 Y 79192 Hdg 1.4  Depth 2501  Alt _______ Marker _______ (type/#)
Comments same location as black major

Major# _______ Time _______ Temp ICL _______ Vent _______
X _______ Y _______ Hdg _______ Depth _______ Alt _______ Marker _______ (type/#)
Comments _______

Major# _______ Time _______ Temp ICL _______ Vent _______
X _______ Y _______ Hdg _______ Depth _______ Alt _______ Marker _______ (type/#)
Comments _______

BIOLOGICAL SAMPLES

Take photos before collection, in the claw (if possible), and after collection.
If needed, make sketches with scales.

Sample # riftha  Time 1830  Temp blume 2.6°C  Vent Biovent
X 4356 Y 79199 Hdg 133.8  Depth 2504  Alt _______ Marker _______ (type/#)
Sample type riftha looked poor, moved to another location
Basket location biobox
on same mound.
= 3-4 crabs put in biobox at this site
| Sample # | Time | Temp | Vent | X | Y | Hdg | Depth | Alt | Marker | Assoc. water sample # | Assoc. rock sample # | (type) | (type/#) | Basket location | Description of associated fauna &/or type of venting |
|-----------|------|------|------|---|---|-----|-------|-----|--------|-----------------------|---------------------|--------|-----------|----------------|------------------|--------------------------------------------------|
| riftia    | 1845 | blume 6.2°C | base 27°C | 133.8 | 79199 | Hdg | Depth | Alt | Marker | riftia, 8-9 individuals |                        |         |           |                |                  |                                                   |
|           |      |       |      |     |     |      |       |     |        |                       | Assoc. water sample # | Assoc. rock sample # | (type) | (type/#) | Basket location | Description of associated fauna &/or type of venting |
|           |      |       |      |     |     |      |       |     |        |                       | Assoc. water sample # | Assoc. rock sample # | (type) | (type/#) | Basket location | Description of associated fauna &/or type of venting |
|           |      |       |      |     |     |      |       |     |        |                       | Assoc. water sample # | Assoc. rock sample # | (type) | (type/#) | Basket location | Description of associated fauna &/or type of venting |
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Sample type ___________________________________________
Basket location ______________________________________
Assoc. water sample # ________ Assoc. rock sample # ________ (type) ________
Description of associated fauna &/or type of venting ______________________________________

ROCK SAMPLES

Take photos before collection and in the claw. If needed, make sketches w/ scales.

Sample # ________ Time ________ Temp ___________________________ Vent ________
X ______ Y ______ Hdg ______ Depth ______ Alt ______ Marker ________ (type/#)
Sample type _______________ Basket location _________________
Assoc. water sample # ________ Assoc. biol. sample # ________ (type) ______
Descripive comments __________________

Sample # ________ Time ________ Temp ___________________________ Vent ________
X ______ Y ______ Hdg ______ Depth ______ Alt ______ Marker ________ (type/#)
Sample type _______________ Basket location _________________
Assoc. water sample # ________ Assoc. biol. sample # ________ (type) ______
Descripive comments __________________

Sample # ________ Time ________ Temp ___________________________ Vent ________
X ______ Y ______ Hdg ______ Depth ______ Alt ______ Marker ________ (type/#)
Sample type _______________ Basket location _________________
Assoc. water sample # ________ Assoc. biol. sample # ________ (type) ______
Descripive comments __________________

Sample # ________ Time ________ Temp ___________________________ Vent ________
X ______ Y ______ Hdg ______ Depth ______ Alt ______ Marker ________ (type/#)
Sample type _______________ Basket location _________________
Assoc. water sample # ________ Assoc. biol. sample # ________ (type) ______
Descripive comments __________________
EXPERIMENT DEPLOYMENTS/RECOVERIES

Take photos before and after deployment or recovery. Make sketches with scales.

Expt ID/# ____________ Time 1523 Temp 25°C Vent CrabSpa
X 4579 Y 78146 Hdg 38° Depth 2506 Alt ____ Marker ______(type/#)

Description of associated fauna &/or type of venting

Additional assoc. samples: type/ID

Additional descriptive comments

Expt ID/# ____________ Time 1650 Temp 21°C Vent CrabSpa
X 4579 Y 78146 Hdg ______ Depth 2506 Alt ____ Marker ______(type/#)

Description of associated fauna &/or type of venting

Additional assoc. samples: type/ID

Additional descriptive comments

Expt ID/# ____________ Time ______ Temp ______ Vent ______
X ______ Y ______ Hdg ______ Depth ______ Alt ____ Marker ______(type/#)

Description of associated fauna &/or type of venting

Additional assoc. samples: type/ID

Additional descriptive comments

Expt ID/# ____________ Time ______ Temp ______ Vent ______
X ______ Y ______ Hdg ______ Depth ______ Alt ____ Marker ______(type/#)

Description of associated fauna &/or type of venting

Additional assoc. samples: type/ID

Additional descriptive comments
MARKERS DEPLOYED

Time __________ Marker type __________ Marker # __________
X ______ Y _______ Hdg _______ Depth _______ Alt _____ Marker _______(type/#)
Reason/ assoc. sample(s) _____________________________________________
Comments _______________________________________________________

Time __________ Marker type __________ Marker # __________
X ______ Y _______ Hdg _______ Depth _______ Alt _____ Marker _______(type/#)
Reason/ assoc. sample(s) _____________________________________________
Comments _______________________________________________________

Time __________ Marker type __________ Marker # __________
X ______ Y _______ Hdg _______ Depth _______ Alt _____ Marker _______(type/#)
Reason/ assoc. sample(s) _____________________________________________
Comments _______________________________________________________

ADDITIONAL NOTES:

1919 Hobbit Hole T in clump of mussels with 3 dead riftia, the only sign of riftia at the site T = 9.28°C 10°C
x 4333 y 79909 d 2512.4 h 13.9

x 4353 y 79919 d 2513 h 293.1
T 8.2°C
clump of mussels near ledge
AT 37-12 Sample Sheet

Alvin Dive# 4901  Date May 4, 2017  Logged by Net Charoenpong

2502 m  2500 m  4382 m  97891

FLUID SAMPLES

Major# Green  Time 15:36:14  Temp ICL 24.5 - 25.2°C  Vent Crab Spat

X  Y  Hdg  Depth  Alt  Marker

Comments: did not go in deep enough the first time [15:33] pins jammed

Major# Yellow  Time 15:49:02  Temp ICL 25°C  Vent Crab Spat

X  Y  Hdg  Depth  Alt  Marker

Comments

Major# Black  Time 18:16:02  Temp ICL 31.9°C  Vent Biovent

X  Y  Hdg  Depth  Alt  Marker

Comments: Temp probe = 31.8°C / let the water equalize for a couple of minutes

Major# Red  Time 18:23:00  Temp ICL 31°C  Vent Biovent

X  Y  Hdg  Depth  Alt  Marker

Comments

BIological SAMPLES

Take photos before collection, in the claw (if possible), and after collection.
If needed, make sketches with scales.

Sample # 1  Time 1

X  Y  Hdg  Depth  Alt  Marker

Sample type Ritta Crabs
Basket location 4-6 Crabs
Sample type 
Basket location 
Assoc. water sample # ______ Assoc. rock sample # ______ (type) ______ 
Description of associated fauna &/or type of venting ____________

ROCK SAMPLES

Take photos before collection and in the claw. If needed, make sketches w/ scales.

Sample # __________ Time ______ Temp ___________ Vent __________
X _______ Y ______ Hdg _______ Depth _______ Alt ______ Marker ______(type/#) 
Sample type ___________ Basket location __________
Assoc. water sample # ______ Assoc. biol. sample # ______ (type) ______ 
Descriptive comments ____________

Sample # __________ Time ______ Temp ___________ Vent __________
X _______ Y ______ Hdg _______ Depth _______ Alt ______ Marker ______(type/#) 
Sample type ___________ Basket location __________
Assoc. water sample # ______ Assoc. biol. sample # ______ (type) ______ 
Descriptive comments ____________

Sample # __________ Time ______ Temp ___________ Vent __________
X _______ Y ______ Hdg _______ Depth _______ Alt ______ Marker ______(type/#) 
Sample type ___________ Basket location __________
Assoc. water sample # ______ Assoc. biol. sample # ______ (type) ______ 
Descriptive comments ____________

Sample # __________ Time ______ Temp ___________ Vent __________
X _______ Y ______ Hdg _______ Depth _______ Alt ______ Marker ______(type/#) 
Sample type ___________ Basket location __________
Assoc. water sample # ______ Assoc. biol. sample # ______ (type) ______ 
Descriptive comments ____________
13:56 GMT
15:16 Descend
15:36 At bottom (x 44° 38' y 78° 12' d = 2502m)
15:49 Failed at firing Green Major Crab Spk
15:57 Fired Yellow Major
16:02 Get Retmore LVP and move to landing site
16:07 Put LVP at landing site x 45° 04' y 78° 18' h 30' d = 2505m
16:13 Release LVP and transit to Vent-SID
16:18 Vent-SID found x 44° 37' y 78° 16' d 2506
16:27 Remove weight
16:37 Proceed to Crab Spk
16:42 Grab intake nozzle At Crab Spk
16:45 Intake nozzle in
16:48 Temp probe reads 21°C
16:53 Photograph the Vent-SID and proceed to B09
17:00 At B09
17:02 Video the colonies
17:05 Black Smoker #1
17:08 Gems-Crass Trap < 3-4 Crass
17:12 Survey the north side of B09
17:20 To B10Vart
18:00 Second Survey B10Vart
18:06 Black smoker found
18:16 Fire Black Major T = 316 - 320°C
18:23 Fire Red Major
18:31 Sample Riftia/Crass #1
18:44 #2
18:52 Off to Hobbit Hole
19:10 Arrive at Hobbit Hole
19:19 Take temp @ x 43° 35' y 79° 09' = 10°C
19:25 Take temp @ x 43° 53' y 79° 19' = 8.2°C
19:29 Start to ascend x 43° 42' y = 79° 41'
EXPERIMENT DEPLOYMENTS/RECOVERIES

*Take photos before and after deployment or recovery. Make sketches with scales.*

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Description of associated fauna &/or type of venting

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Additional assoc. samples: type/ID

Additional descriptive comments

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