

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

<u>Locations:</u>	Lat	Long	m	x	y
Pvent	9 50.276	104 17.474	2511	4628	77926
Bio9	9 50.296	104 17.476	2514	4624	77962
Crab Spa MkF	9 50.396	104 17.489	2505	4600	78147
Tica	9 50.406	104 17.490	2505	4598	78165
Teddy Bear	9 50.50	104 17.51	2514		

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 25°C
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
 Port Obs. Jeremy Rich Starboard Obs. Net Charoenpong Pilot Pat Hickey
 GMT Descend: 1400 At Seafloor: 1515 Ascend: _____

FLUID SAMPLES

Major# green Time 1530 Temp ICL 24.5 Vent Crab Spa
 X 4579 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 33.5 Vent Crab spa
 X 4579 Y 78146 Hdg 37.4 Depth 2506 Alt _____ Marker _____ (type/#)

Comments Trying 2nd major at Crab Spa ~~at~~ first one failed.
T is +13 too high as both bottles filling.

Major# black Time 1816 Temp ICL 319.5 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 316 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 # riffia Time 1830 Temp blume 2.6°C
base 7.4°C Vent Biovent
 X 4356 Y 79199 Hdg 133.8 Depth 2504 Alt _____ Marker _____ (type/#)

Sample type riffia looked poor, moved to another location
 Basket location biobox on same mound.

→ 3-4 crabs put in biobox at this site

basket
318°C
probe

probe
too
high

The inlet is not
long enough to
reach the sweet
spot. Bottles
too wide to fit
down in hole
in back of
chimney.

Assoc. water sample # _____ Assoc. rock sample # _____ (type) _____

Description of associated fauna &/or type of venting _____

Sample # riftia Time 1845 Temp blume 6.2°C
base 27°C Vent biovent

X 11355 Y 79199 Hdg 133.8 Depth 2505.6 Alt _____ Marker _____ (type/#)

Sample type riftia, 8-9 individuals

Basket location _____

Assoc. water sample # _____ Assoc. rock sample # _____ (type) _____

Description of associated fauna &/or type of venting _____

Sample # _____ Time _____ Temp _____ Vent _____

X _____ Y _____ Hdg _____ Depth _____ Alt _____ Marker _____ (type/#)

Sample type _____

Basket location _____

Assoc. water sample # _____ Assoc. rock sample # _____ (type) _____

Description of associated fauna &/or type of venting _____

Sample # _____ Time _____ Temp _____ Vent _____

X _____ Y _____ Hdg _____ Depth _____ Alt _____ Marker _____ (type/#)

Sample type _____

Basket location _____

Assoc. water sample # _____ Assoc. rock sample # _____ (type) _____

Description of associated fauna &/or type of venting _____

Sample # _____ Time _____ Temp _____ Vent _____

X _____ Y _____ Hdg _____ Depth _____ Alt _____ Marker _____ (type/#)

Sample type _____

Basket location _____

Assoc. water sample # _____ Assoc. rock sample # _____ (type) _____

Description of associated fauna &/or type of venting _____

Sample # _____ Time _____ Temp _____ Vent _____

X _____ Y _____ Hdg _____ Depth _____ Alt _____ Marker _____ (type/#)

Sample type _____

Basket location _____

Assoc. water sample # _____ Assoc. rock sample # _____ (type) _____

Description of associated fauna &/or type of venting _____

Sample # _____ Time _____ Temp _____ Vent _____

X _____ Y _____ Hdg _____ Depth _____ Alt _____ Marker _____ (type/#)

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.

top of Biovent black smoker chimney
 Sample # _____ Time 1810 Temp 318°C Vent Biovent
 X 4358 Y 79192 Hdg 1.4 Depth 2501 Alt _____ Marker _____ (type/#)
 Sample type chimney rock Basket location front
 Assoc. water sample # _____ Assoc. biol. sample # _____ (type) _____
 Descriptive comments top was

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 _____

EXPERIMENT DEPLOYMENTS/RECOVERIES

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

Expt ID/# Large volume pump Time 1523 Temp 25°C Vent Crab Spa
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 Releasing pump off axis at 1607

Expt ID/# Deploying vent-sid Time 1650 Temp 21°C Vent Crab Spa basket probe was as close as we could get it
X 4579 Y 78146 Hdg Depth 2506 Alt Marker (type/#)

Description of associated fauna &/or type of venting Temp probe 1-2" above and right of vent-SID so likely cooler than vent-sid inlet.

Additional assoc. samples: type/ID Vent-SID inlet looked perfectly placed in 25°C spot.

Additional descriptive comments 1620 at Vent-sid landing site pulling off weights
1628 Heading to Crab Spa

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

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 mussells with
 3 dead rittia, the only sign of rittia at the
 site T = ~~9.5°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 mussells near ledge

AT 37-12 Sample Sheet

Alvin Dive# 4901 Date May 4, 2017 Logged by Net Charoenpong
 Port Obs. Jeremy Rich Starboard Obs. Net Charoenpong Pilot Pat Hickey
 Descend: 13:56:26 GMT At Seafloor: 15:16:20 GMT Ascend: 19:29:00 GMT
 2502 m x 4148 y 78128 2500m x 4382 y 79891

FLUID SAMPLES

did not fire Major# Green Time 15:36:14 Temp ICL 24.5-25.2 Vent Crab Spa Green 1 fired but might not close
 X _____ Y _____ Hdg _____ Depth 2506 Alt 0 Marker _____ (type/#) ??
 Comments did not go in deep enough the first time [15:33] → pins jammed

ok Major# Yellow Time 15:49:02 Temp ICL ~~23.3~~ 23.3°C Vent Crab Spa
 X 4579 Y 78147 Hdg 37 Depth 2507 Alt 0 Marker _____ (type/#)
 Comments _____

ok Major# Black Time 18:16:02 Temp ICL 319.5°C Vent Biovent
 X 4358 Y 79192 Hdg 2 Depth 2501 Alt 0 Marker _____ (type/#)
 Comments Temp probe = 318.8°C / let the water equalize for a couple of minutes

ok Major# Red Time 18:23:00 Temp ICL 316°C Vent Biovent
 X 4358 Y 79192 Hdg 1 Depth 2501 Alt 0 Marker _____ (type/#)
 Comments _____

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 # 1 Time 1 Temp 7.1°C / 2.6°C Vent Biovent
 X 4356 Y 79199 Hdg 134 Depth 2504 Alt 0 Marker _____ (type/#)
 Sample type Riftia/Crab (4-6 crabs)
 Basket location 6-9 (4-6 crabs)

Assoc. water sample # _____ Assoc. rock sample # _____ (type) _____

Description of associated fauna &/or type of venting _____

Sample # 2 Time 18:41 Temp 5.5°-5.6° → 6°C / 27°C [18:42] Vent Biovent

X 4355 Y 79199 Hdg 134 Depth 2506 Alt 0 Marker - (type/#)

Sample type 8-10 RPTA / 3-4 crabs

Basket location _____

Assoc. water sample # _____ Assoc. rock sample # _____ (type) _____

Description of associated fauna &/or type of venting _____

Sample # _____ Time _____ Temp _____ Vent _____

X _____ Y _____ Hdg _____ Depth _____ Alt _____ Marker _____ (type/#)

Sample type _____

Basket location _____

Assoc. water sample # _____ Assoc. rock sample # _____ (type) _____

Description of associated fauna &/or type of venting _____

Sample # _____ Time _____ Temp _____ Vent _____

X _____ Y _____ Hdg _____ Depth _____ Alt _____ Marker _____ (type/#)

Sample type _____

Basket location _____

Assoc. water sample # _____ Assoc. rock sample # _____ (type) _____

Description of associated fauna &/or type of venting _____

Sample # _____ Time _____ Temp _____ Vent _____

X _____ Y _____ Hdg _____ Depth _____ Alt _____ Marker _____ (type/#)

Sample type _____

Basket location _____

Assoc. water sample # _____ Assoc. rock sample # _____ (type) _____

Description of associated fauna &/or type of venting _____

Sample # _____ Time _____ Temp _____ Vent _____

X _____ Y _____ Hdg _____ Depth _____ Alt _____ Marker _____ (type/#)

Sample type _____

Basket location _____

Assoc. water sample # _____ Assoc. rock sample # _____ (type) _____

Description of associated fauna &/or type of venting _____

Sample # _____ Time _____ Temp _____ Vent _____

X _____ Y _____ Hdg _____ Depth _____ Alt _____ Marker _____ (type/#)

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.

oh ✓
 Sample # 1 Time 15:47 Temp 318.8°C Vent Bio vent
 X 4379 Y 79192 Hdg 2 Depth 2501 Alt 0 Marker - (type/#)
 Sample type Chimney rock 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 _____

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

EXPERIMENT DEPLOYMENTS/RECOVERIES

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

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 _____

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 _____

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: