

Dive Plan 4894– April 27, 2017

Port: Jeremy Rich **Starboard:** Sean O’Neill **Pilot:** Phil Forte

On Bottom Target: Crab Spa, 9 50.396 104 17.489 2505, x 4583, y 7814, hdg 355

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

Basket List

1. Large biobox w/ Crab Trap
2. 5 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, transit to Crab Spa
2. At Crab Spa, take 4 majors at warmest spot, should be around 23-25°C, there is an opening to access to the fluids that we cleared today
3. Check on Crab Trap (x4584, y7814, z 2508m).
4. Swap Trap with new one in the biobox regardless if crabs are inside
5. Move to Riftia site near Crab Spa, there is chimney forming just below Crab Spa.
6. Measure T and take major at hottest spot
7. Collect Riftia in colony around chimney
8. Before collecting Riftia, proceed with following:
 - a. Measure T at base of Riftia clump,
 - b. Make a T measurements at plume level
9. Proceed with collection and put worms in large biobox. Make sure worms fit into biobox and nothing sticks out. Don’t fold them!
10. If time permits, move north to find Teddy Bear.

Alvin Dive 4894 – AT37-12
APR 27, 2017

Pilot: Phil Forte

Port Observer: Jeremy Rich

Starboard Observer: Sean O'Neill

Notes are from Jeremy Rich and Sean O'Neill

GMT	Comments
14:00	Descending
15:30	At sea floor
15:35	Surveying microbial biofilm site (x4600 y78143 d2505) near Crab Spa
15:40	Taking temperature in small chimney with riftia and mussels at biofilm site; T=14-15°C
15:45	Continuing to survey biofilm site.
15:57	At Crab spa for major sampling; Initial temperatures were reading 20°C with basket probe. This probe was underestimating temperature by 4-5°C. Used ICL temperature probe, and it was reading 23-24°C
16:25	First major (blue) at Crab Spa; ICL T=22°C
16:33	Second major (green) at Crab Spa; ICL T=25°C
16:44	Third major (red) at Crab Spa; ICL T bad thermocouple
16:49	Fourth major (white) at Crab Spa; ICL T=23°C, second chamber did not fill, appeared jammed.
16:55	Fifth major (black) at Crab Spa; ICL T reading 15°C in ambient seawater, bad readings
17:05	Just below Crab Spa, exchanging crab trap with crab in it with empty crab trap.
17:15	Measuring temperature at Alvinella mound (x4572 y78130 d2512) near Crab Spa. T=150°C in mound; T=30-45°C in alvinella.
17:40	Sampling riftia (x4568 y78137 d2515); T=0°C at top of riftia, T=24°C at riftia base (T measured with basket probe, which was underestimating T by 4-5°C).
18:09	Heading to Teddy Bear Site
18:19	Starting to survey area south of Teddy Bear
19:13	Teddy Bear site located based on sighting of large volume pump weights
19:26	Taking T at riftia patch near Teddy Bear (x4541 y7835 d2516) using ICL probe, T=7-11°C
19:37	Taking T at riftia crack at Teddy Bear (x4545 y7836 d2516) using ICL probe, T=5-10°C
19:50	Going off axis to drop weights
19:53	Ascending
21:00	At surface

AT 37-12 Sample Sheet

Alvin Dive# 4894 Date 4/27/17 Logged by Jeremy Rich
 Start: 14 00 GMT At Seafloor 1530 End 2100
 Port Obs. Jeremy Rich Starboard Obs. Sean O'Neill Pilot Phil Forte
 et

FLUID SAMPLES

Major# ± Blue Time 1625 Temp ICL 22.0 Vent Crab Spa
 X 4590 Y 78128 Hdg 5 Depth 2506 Alt 0 Marker _____ (type/#)
 Comments _____

Major# Green Time 1633 Temp ICL 22.7 Vent Crab Spa
 X 4590 Y 78127 Hdg 5 Depth 2506 Alt 0 Marker _____ (type/#)
 Comments later in fill temp. 25.0

Major# Red Time 1644 Temp ICL NA Vent Crab Spa
 X 4586 Y 78125 Hdg 6 Depth 2506 Alt 0 Marker _____ (type/#)
 Comments bad thermocouple

Major# white Time 1649 Temp ICL 19.5 Vent Crab Spa
 X 4586 Y 78124 Hdg 5 Depth 2506 Alt 0 Marker _____ (type/#)
 Comments right side not sampling; temp observed up to 23.1
blc of jam

Major# Black Time 1655 Temp ICL NA Vent Crab Spa
 X 4583 Y 78123 Hdg 6 Depth 2506 Alt 0 Marker _____ (type/#)
 Comments readings approx 15C in seawater; bad temp readings

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 1740 Temp top 2°C, base (24°C) Vent Tica
 X 4569 Y 7813 Hdg 61 Depth 2515 Alt ∅ Marker _____ (type/#)
 Sample type Riftia
 Basket location Biobox

Temp taken with basket probe, which is under estimating temp by 2-3°C

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 _____

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.

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 _____

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.

Crab
Expt ID/# trap 1 Time 1705 Temp _____ Vent Base of Crab Spa
X 4578 Y 78127 Hdg 89.614 Depth 2508 Alt 8.5 Marker _____ (type/#)
Description of associated fauna &/or type of venting There was 1 crab in the trap. This trap was
~~Additional assoc. samples: type/ID _____~~ collected and new trap deployed
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:

1610 → Basket @ 20° ± 2 to 3° offset from window
 & basket; basket 3° cooler

1615 → utilizing 2nd temp probe → 23.5

Alt plan

All 5 majors @ Crab Spa
 Temp @ higher temp vent

Alvinella Pillar near Tika

1718, 4572x 78130y, 2512dep, a=0

h = 95, Temp = 150 C approx

1722 → Temp @ 30-45C in alvinella
 stbd PATZ

(see one more page)

4/27/17 Dive 4894 Exploring sites

9:30 am x 4607 y 78151 - south of crab spa
1530 diffuse flow microbial mats

T 14°C, - top stack with rittia +
15°C mussels

Difficult
terrain for
vent sid

- ~~70~~ 20 m east of Tica
20 m north east of crab spa

1926 x 4541 y = 7835 d = 2516 a = 0 h = 174
Near teddy bear site, rittia patch
1CL probe:
7°C, 10°C, 11°C Good for vent sid

~~1934~~

1937 x 4545 y 7836 d 2516 h = 263 a = 0
Rittia crack next to LVP weights

5 - 10°C

Good flat terrain for vent - SPD