

Dive Plan 4898– May 1, 2017

Port: Stefan Sievert **Starboard:** Kevin Becker **Pilot:** Pat Hickey

On Bottom Target: LVP landing site: 9°N 50.425 104W 17.575

Objectives: Deploy LVP at Teddy Bear, take majors, pick up Riftia, swap Crab Trap

Basket List

1. 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		
Flea Vent	9 50.81	104 17.60	2519	(Jason 2104)	
Mvent	9 50.97	104 17.53	2500	(Jason 2014)	

1. On bottom, transit to LVP location and pick up instrument
2. Move to Teddy Bear and position instrument, close to crack with Riftia
3. Use T probe to find warmest spot
4. Take 1 major at same spot
5. Remove hose from LVP
 - a. Insert wand
 - b. Stabilize wand
 - c. Measure T at tip of wand with Alvin T probe
6. Go to Mvent and check for flow on top of structure, previously we were able to measure and sample fluids of around 40°C
7. If flow present, take one major
8. Go to Qvent and obtain one major

9. Go to Flea Vent and obtain major
10. Move to Crab Spa
11. Swap Crab Trap
12. Move to Alvinella mound, just below Crab Spa
13. Measure T and take major at hottest spot
14. Check on colonizers on Alvinella mound
15. Take Riftia around Alvinella mound
16. Before collecting Riftia, proceed with following:
 - a. Measure T at base of Riftia clump,
 - b. Make a T measurements at plume level
17. 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 4898 – AT37-12
May 01, 2017

Pilot: Pat Hickey

Port Observer: Stefan Sievert

Starboard Observer: Kevin Becker

GMT	Comments
13:50	Descending.
15:11	At seafloor.
15:20	Off-axis (x: 4447 y: 78202, hdg: 35, d: 2505) to pick up LVP.
15:40	At Teddy Bear (x: 4559, y: 78370, hdg: 12, d: 2515).
15:45	Positioning LVP at Teddy Bear.
15:59	Measuring T with probe (12.5°C) and firing green major at Teddy Bear (T ICL: 12.4°C).
16:25	Deployment of Crab Trap (x: 4650, y: 78372, hdg: 28, d: 2515). Close to Teddy Bear.
16:40	At Q Vent (x:4450, y: 78788, hdg: 18, d: 2509). Measuring T with probe: 208°C.
16:41	Firing black major (T ICL 155°C). Lower temperatures compared to probe likely because nozzle was not as deep in vent as T probe.
17:00	At M Vent.
17:09	Firing blue major (x: 4410, y: 78896, hdg: 288, d: 2501, ICL T: 27°C).
17:25	At Flea Vent (x: 4381, y: 78920, hdg: 76, d: 2522). No samples collected. Collecting marker from Flea Vent to move it to M Vent. During dive 4894 it has been found that marker "M-vent" is at the wrong place.
17:32	Placing marker at M Vent (x: 4408, y: 78899, hdg: 57, d: 2500).
18:00	Checking Colonizers near Tica (x: 4616, y: 78180, hdg: 181, d: 2503). White growth. Ready to be collected during next dive.
18:06	Collecting crab trap (x: 4604, y: 78167, hdg: 139, d: 2505). One crab inside the trap and two on the outside → three crabs collected in large biobox.
18:14	At Crab Spa (x: 4803, y: 78166, hdg: 19, d: 2505). Collecting two rock samples (basalt with biofilm).
18:20	At Alvinella mound (x: 4592, y: 78150, hdg: 90, d: 2511). Checking two colonizers. White growth. Ready to be collected during next dive.
18:30	Firing major at Alvinella mound (x: 4595, y: 78170, hdg: 144, d: 2511, T ICL: 196°C).
18:45	Riftia (~12 individuals) collected around Alvinella Mound (x: 4589, y: 78166, hdg: 56, d: 2515, T: ~6°C) and put in large biobox.
19:11	Near Bio9 (x: 4625, y: 77994, hdg 40:, d: 2509). Checking colonizers. T on surface 4°C. Replacing colonizer to nearby spot (1-2 m away from original location). T on surface of colonizer 10°C.
19:24	Measuring T with probe at Bio9 vent (316°C; x: 4620, y: 77999, hdg: 6, d: 2508). Firing red major (T ICL: 366).
19:30	Flowing past P vent.
19:40	End of dive, releasing weights.

AT 37-12 Sample Sheet

Alvin Dive# 4898 Date 01 May 17 Logged by Kevin Becker
 Port Obs. Stefan Sievert Starboard Obs. Kevin Becker Pilot Pat Hickey
 Descend: 1:50 pm GMT At Seafloor: 3:11 pm GMT Ascend: _____

FLUID SAMPLES

Major# green Time 15:59 Temp ICL 12.4°C Vent Teddy Bear
 X 4559 Y 78370 Hdg 12 Depth 2515 Alt 0 Marker _____ (type/#)
 Comments was always showing 0 on my screen

Major# black Time 16:45 Temp ICL 13.5°C Vent Q Vent
 X 4405 Y 78788 Hdg 18 Depth 2509 Alt X Marker _____ (type/#)
 Comments _____

Major# blue Time 17:10 Temp ICL 27°C Vent devent
 X 4410 Y 78896 Hdg 288 Depth 2501 Alt 0 Marker _____ (type/#)
 Comments _____

Major# yellow Time 18:30 Temp ICL ~~19.5~~ 19.5°C Vent Alvinella mound
 X 4595 Y 78170 Hdg 144 Depth 2511 Alt 0 Marker _____ (type/#)
 Comments _____

Major# red Time 19:20 Temp ICL 366 Vent Bio 9
 X 4621 Y 78000 Hdg 7 Depth 2509 Alt X 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 18:45 Temp ~6' Vent Alvinella mound
 X 4589 Y 78166 Hdg 56 Depth 2515 Alt 0 Marker _____ (type/#)
 Sample type +10 Riffia
 Basket location Large BioBox

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 # 1 Time 18:14 Temp ~25°C Vent Crab Spa
 X 4803 Y 78160 Hdg 19 Depth 2505 Alt 0 Marker _____ (type/#)
 Sample type rock sample Basket location bio box (large)
 Assoc. water sample # _____ Assoc. biol. sample # _____ (type) _____
 Descriptive comments rock sample from Crab Spa vent, basalt with bio film

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/# 1 Time 15:45 Temp 12.5°C Vent Teddy Bear
X 4561 Y 78870 Hdg 320 Depth 2515m Alt Marker (type/#)
Description of associated fauna &/or type of venting _____

Additional assoc. samples: type/ID _____

Additional descriptive comments Large volume pump, which was deployed the day before, was moved to Teddy Bear and positioned

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:

AT 37-12 Sample Sheet

Alvin Dive# 4898 Date May 1 2017 Logged by Sievert
 Port Obs. Sievert Starboard Obs. Becker Pilot Hickey
 Descend 13:50 At seafloor 15:11 Ascend _____

FLUID SAMPLES

Major# Green Time 16:00 Temp ICL 12.6°C, 13°C Vent Teddy Bear
 X 4559 Y 7837 Hdg 11.8 Depth 2515 Alt _____ Marker _____ (type/#)

Comments _____

Major# Black Time 16:41 Temp ICL 15-130°C Vent Q vent dropped to 70°C tanks and ambient 3°C
 X 4405 Y 7878 Hdg 18.3 Depth 2509 Alt _____ Marker _____ (type/#)

Comments Beehive structure w/ Alvinella

T measure at T probe 22°C

Major# Blue Time 17:09 Temp ICL 27°C Vent M vent
 X 5927 Y 7889 Hdg 288 Depth _____ Alt _____ Marker _____ (type/#)

Comments mean T w/ T-probe ~ 30°C

Major# yellow Time 18:30 Temp ICL 19.6°C Vent Alvinella Mound
 X 4595 Y 7817 Hdg 144 Depth 2511 Alt _____ Marker _____ (type/#)

Comments T w/ probe ~ 19°C

Major# red Time 19:24 Temp ICL 36.4°C Vent Bio 9
 X 4618 Y 7800 Hdg 61.5 Depth 2508 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 # Riftia Time 18:55 Temp ~ 6°C Vent Alvinella Mound
 X 4590 Y 7816 Hdg 53 Depth 2515 Alt _____ Marker _____ (type/#) near
 Sample type _____ Cub spike
 Basket location Bio box

Plume level: 6°C, 2.3°C
 Deep in: 6.5°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 # 1 Basalt Time _____ Temp ~24°C Vent Crabs Sp.
 X 4603 Y 7816 Hdg 22 Depth 2505 Alt _____ Marker F (type/#)
 Sample type _____ Basket location biobox
 Assoc. water sample # _____ Assoc. biol. sample # _____ (type) _____
 Descriptive comments Basalt w/ biofilm

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/# VP#2 Time 16:10 Temp 13°C Vent Teddy Bear
 X 4559 Y 7837 Hdg 118 Depth 2515 Alt Marker (type/#)
 Description of associated fauna &/or type of venting
 Additional assoc. samples: type/ID
 Additional descriptive comments

Expt ID/# Crab Trap Time 16:24 Temp Vent Teddy Bear
 X 4560 Y 7837 Hdg 28 Depth 2516 Alt Marker (type/#)
 Description of associated fauna &/or type of venting
 Additional assoc. samples: type/ID
 Additional descriptive comments

Expt ID/# Manila Clam Time Temp Vent
 X 460 Y Hdg 4 Depth Alt Marker (type/#)
 Description of associated fauna &/or type of venting
 Additional assoc. samples: type/ID
 Additional descriptive comments

Expt ID/# Crab Trap Time 18:07 Temp Vent Crab Spal Tica
 X 4604 Y 7816 Hdg 11 Depth 2506 Alt Marker (type/#)
 Description of associated fauna &/or type of venting
2 crabs in trap, one volunteer
 Additional assoc. samples: type/ID
 Additional descriptive comments

Expt ID/# CV 5 Time 19:13 Temp ~~11.5~~ Vent Bio 9
 X Y Hdg 41 Depth 2509 Alt Marker (type/#)
 Description of associated fauna &/or type of venting
 Additional assoc. samples: type/ID
 Additional descriptive comments
repositioned, had ~~fallen~~ fallen down

* 20° underneath
11.5° on mesh

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:

At CVP : 15:11

Transiting w/ CVP : 15:27

At Teddy Bear : 15:40

Moved Mret MC for Flea vat to Mret, placed
 on top of stutwe

Chd on CV-colonies 18:00

Chd colonies at Alucella mound 18:20

CV 6 seed growth on both

CV 4