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

Locations:	Lat	Long	m	X	у
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 2	104)
Mvent	9 50.97	104 17.53	2500 (	Jason 2	014)

- 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.
15:30	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 Sneet	
Alvin Dive# 4898 Date 01 May 17 Logged by Kevin Becker	
Port Obs. Stefan Sievert Starboard Obs. Kevin Becker Pilot Port 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 Toddy Bear	
X 4559 Y 78370 Hdg 12 Depth 2515 Alt 0 Marker (type/#)	
Comments vas a loays shoving O on my screen	
Major# black Time 16:45 Temp ICL 155°C Vent West	
x <u>4405</u> Y <u>78788</u> Hdg <u>(8</u> Depth <u>2509</u> Alt <u></u> Marker (type/#)	
Comments	
Major# Like Time (7:10 Temp ICI 77°C Vent Movent	
Major#         Lue         Time         17:10         Temp ICL         27°C         Vent         Mutent           X         UU to         Y         788         Depth         7501         Alt         Marker         (type/#)	
Comments	
Major# yellou Time 18:30 Temp ICL Vent Alvinella Mound	
( <u>(ΔΣ95</u> Y <u>78/70</u> Hdg <u>/ 44</u> Depth <u>75//</u> Alt <u></u> Marker (type/#)	
Comments (type/#)	
Major# red Time 19:20 Temp ICL 366 Vent 810 9	
( <u>U62/</u> Y <u>78000</u> Hdg <u>7</u> Depth <u>7509</u> Alt <u>16</u> Marker (type/#)	
Comments	
Major# Time Temp ICL Vent	
(Y Hdg Depth Alt Marker (type/#)	
Comments	
BIOLOGICAL SAMPLES	
Take photos before collection, in the claw (if possible), and after collection.	
f needed, make sketches with scales.	
	1
Sample # 1 Time (18:45 Temp ~6" Vent Alvinda u  X 4589 Y 78/66 Hdg 56 Depth 25.5 Alt Marker (type/#)  Sample type + 10 Riffia  Basket location Large Bio Box	noun t
X <u>US 89</u> Y <u>18(66</u> Hdg <u>56</u> Depth <u>25(5</u> Alt Marker (type/#)	
Sample type + 10 K(+4'9	
Basket location Large From Soci	

	Assoc. wate	er sample # _		Assoc	. rock sample # .		_ (type)		
					of venting				
Sample									
	X	Y	_ Hdg		_ Depth	Alt	Marker _		_(type/#)
		Sample	type _					_	
		Basket I	ocation						
	Assoc. water	er sample # _		_ Assoc	rock sample # _		_ (type)		
	Description	of associate	d fauna	&/or type	of venting				
Sample	e #	Time		Temp				Vent	
·					Depth				
/									
		Basket I	ocation						9
	Assoc. wate				rock sample # _				
					of venting				
	•			71	<u></u>				
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	Assoc. wate				rock sample # _				
					of venting				
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					Depth				
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		Sample	type						
	Assoc. wate				rock sample # _				
					of venting				
Sample	• #	Time		Temp				Vent	
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		Sample	type _			-			
		Basket	locatio	n					
	Assoc. water	er sample # _		Assoc	c. rock sample # _		(type)		
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ROCK	SAMPLES								
Take	photos befo	re collecti	on an	d in the	claw. If needed	l make	sketches	W/ 503	los
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•	x 4803	Y 7860	Hda	19	_ Depth <u>7505</u>	ΛIt 🔗	Morkor	_ vent	(1463)
	Sample type	rock so	mole		Basket location	- Lie b	Warker _		(type/#)
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ä	Descriptive of	comments	rock	\	trom Crap	0 1	_ (type)	. 11	
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ample	#	Time		Temp _				_Vent_	
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	Sample type				Basket location _				9 W 150
	Assoc. water	sample #		_ Assoc.	biol. sample #		(type)		
	Descriptive co	omments							

### **EXPERIMENT DEPLOYMENTS/RECOVERIES**

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

			Temp 12.5			
			320 Depth <u>7</u>			
Descrip	tion of asso	ciated fauna	&/or type of venting			
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			&/or type of venting			
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## MARKERS DEPLOYED

Time		Marker type		Marker #	
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Comments	S			0	
Time		Marker type _		Marker #	
X	_ Y	Hdg	Depth	Alt Marker	(type/#
Reason/ a	ssoc. sa	mple(s)			
Comments	S				

### ADDITIONAL NOTES:

AT 37-12 Sample Sheet
Alvin Dive# 4898 Date May (2017 Logged by Sievert
Port Obs Sievert Starboard Obs. Becker Pilot Hickory
Descend 13:50 At seafloor 15:11 Ascend
Major# Time 16:00 Temp ICL Man Vent Jeddy Reav
Major# Time 15 00 Temp ICL went   Vent   Garage (state   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00   150 00
Comments drypel to 70°C tauls end
Major# Time 16:41 Temp ICL 15-130 2 Vent Quet auchit 3°C
X 4435 Y 7878 Hdg 18.3 Depth 2509 Alt Marker (type/#)
Comments Beating Stone for up Alvinella
Comments Beetin strutur up Alvinellar  T meane et Tpobse 22000  Major# Blue Time 17:09 Temp ICL 27°C M pert
Major# Blue Time 17:09 Temp ICL West Vent Next
X 5927 Y 7889 Hdg 788 Depth Alt Marker (type/#)
Comments near Tay T-prober 30°C
The Suit And
Major# yellow Time 18:30 Temp ICL 196°C Vent Work Merche Moc
x 4,575 y 7817 Hdg 199 Depth 2>11 Alt Marker(type/#)
Comments Tup probe ~ 190°C
Major# Hed Time 19:24 Temp ICL 364°C Vent Bio9
Major# $\frac{19.21}{100}$ Time $\frac{19.21}{100}$ Temp ICL $\frac{309}{100}$ Vent $\frac{19.00}{100}$ Marker $\frac{19.00}{100}$ (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 # Riffix Time 18:55 Temp Vent - Kunnella Mount
x 4596 Y 816 Hdg 53 Depth 6515 Alt Marker (type/#) 1203
Sample # Riftia Time 18:55 Temp ~ 6°C Vent Republic Mount  X 4590 Y 816 Hdg 53 Depth 2515 Alt Marker (type/#) has sample type Basket location Biobox
Basket location 1310 box
Plume level 6°C, 2.3°C
The first of the f

	Assoc. wate	r sample # ˌ		Assoc	. rock sample # _	_ (type)		
	Description of	of associate	ed fauna	&/or type	of venting			
Sample	#	Time		Temp _			_ Vent	
					_ Depth			
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					of venting			
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					_ Depth			
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Sample	e #	Time		Temp			Vent	
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	Assoc. wate				. rock sample #				
					of venting				
ЭCК	SAMPLES								
ike p	hotos befo	re collectio	n and	d in the d	law. If needed,	make	sketches	w/ scal	es.
mple	# 1 Basa	UT Time		Temp _	~24°C Depth <u>2505</u>		el	Vent	Cods S
	x 4603	Y 7816	Hdg	22	Depth 2505	Alt	Marker _	F	_(type/#)
					Basket location _				
	Assoc. water	r sample # _		_ Assoc	. biol. sample #		(type)	N	
	Descriptive of	comments	Ba	Mi	y biolilm				
					/ /				
nple	#	Time		Temp				Vent	
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nple	e #	Time		Temp _				Vent	
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nple	#	Time		Temp _				_ Vent	
	X						Marker _		
	Sample type				Basket location _	y			
	Assoc. water	r sample # _		_ Assoc	. biol. sample #		(type)		
	Descriptive of	comments							
nple									
					_ Depth				
					Basket location _				
					. biol. sample # _		(type)		
	Descriptive of	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
X4559 Y7837 Hdg 1/8 Depth 25/5 Alt Marker (type/s
Description of associated fauna &/or type of venting
11/10 A
Additional assoc. samples: type/ID
Additional descriptive comments
Expt ID/# (rah Trap Time 16:24 Temp Vent Teclor Beau X4560 Y 7837 Hdg 28 Depth 2516 Alt Marker (type/#
X <u>4 S 6 0</u> Y <u>783 7</u> Hdg <u>2 8</u> Depth <u>2 5 / 6</u> Alt Marker (type/#
Description of associated fauna &/or type of venting
Additional assoc samples: type/ID
Additional assoc. samples: type/ID
Additional descriptive comments
Expt ID/# MARK Time Temp Vent
X GO Y Hdg L Depth Alt Marker (type/#
Description of associated fauna &/or type of venting Alt Marker(type/#
responded rading and type of vertiling
Additional assoc. samples: type/ID
Additional descriptive comments
Expt ID/# (rab Trap Time 18:07 Temp Vent (rab Spa) Tica x 4604 1 1816 Hdg 11 Depth 2506 Alt Marker (type/#)
x 4604 17816 Hdg 11 Depth 2506 Alt Marker
Description of associated fauna &/or type of venting
Additional assoc. samples: type/ID
Additional assoc. samples: type/ID
Additional descriptive comments
1 Knoe -
Expt ID/# CV 5 Time 19:13 Temp with Vent Bio 9
XY Hdg <u>4</u>
Description of associated fauna &/or type of venting(type/#)
Additional assoc. samples: type/ID
Additional descriptive comments
repositioned, had Hallandown
* 20° underneath
11.5° on bonesh

#### **MARKERS DEPLOYED**

Time Marker type _				Marke	Marker #		
X	Y	Hdg	Depth	Alt	Marker	(type/#)	
Reason/	assoc. sar	mple(s)					
Time		Marker type _		Marke	r #		
X	Y	Hdg	Depth	Alt	Marker	(type/#)	
Reason/	assoc. san	nple(s)				200	
Commer	nts						
Time		Marker type _		Marke	r#		
X	Y	Hdg	Depth	Alt	Marker	(type/#)	
Reason/	assoc. san	nple(s)					
	nts						

### **ADDITIONAL NOTES:**

At CUP: 15:11

Transiting by CUP: 15:27

At Teddy Boox: 15:40

Morel Ment Me for Flow Vat to Moret, placed on top of studies

(Led on CV-colonies 18:00

Check colonies at Almella mound 18:20

CV 6

Sood smouth on both

CV 4