

Dive Plan 4895– April 28, 2017

**Port:** Horst Felbeck      **Starboard:** Carolyn Tepolt      **Pilot:** Pat Hickey

**On Bottom Target:** Crab Spa 9 50.396 104 17.489 2505

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

**Basket List**

1. Large biobox w/ Crab Trap
2. 3 Majors
3. 2 Small Bioboxes (one with 2 colonizers)
4. T probe
5. Niskin

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

1. On bottom, transit to Crab Spa
2. Swap Trap with new one in the biobox regardless if crabs are inside
3. Move to site just below Crab Spa, there is chimney forming
4. Measure T and take major at hottest spot
5. Take sample of Alvinella with sulfide and put in small empty biobox, measure T afterwards
6. Deploy colonizer at structure, ideally in 40°C flow
7. Measure T after deployment on top of mesh to make sure flow is going through it
8. Move to site with microbial mats identified today, near Crab Spa
9. Put out colonizer in area with microbial mat
10. Measure T after deployment on top of mesh to make sure flow is going through it

11. Sample rocks with microbial mats and put in small biobox that previously had colonizers
12. Move to Bio9
13. Check on colonizer CV2. Take video.
14. Find black smoker emitting highT fluids, previously we measured 350-370°C
15. Take major
16. Close to Pvent, there is a huge Riftia mount. Good spot for collecting Riftia
17. Before collecting Riftia, proceed with following:
  - a. Measure T at base of Riftia clump,
  - b. Make a T measurements at plume level
18. Proceed with collection and put worms in large biobox. Make sure worms fit into biobox and nothing sticks out. Don't fold them!
19. Proceed to Pvent
20. Find black smoker emitting highT fluids, previously measured 325°C
21. Take major
22. Go off axis and before ascending fire Niskin to get bottom seawater

**Alvin Dive 4894 – AT37-12**  
**APR 28, 2017**

**Pilot: Pat Hickey**

**Port Observer: Horst Felbeck**

**Starboard Observer: Carolyn Tepolt**

**Notes are a mix from both observers**

<b>GMT</b>	<b>comments</b>
13:50	in the water
15:10	at the bottom
15:28	deploy first crab trap on a clump of Riftia (x4593, y: 78172, depth 2506, h 159)
15:37	crushed mussel, put into biobox, facilitating entry of crabs into biobox using sub arm, current status "trap 1, Pat 5 crabs")
15:46	retrieved crab trap from "dining table", no crabs inside
15:50	arrived at crab spa
15:53	green major sample in effluent of big diffuser, (only one spring #1 triggered), ICL 110, basket Temp: 190, x:4581 y 78170, h: 83, depth 2512, temp varies within 60 and 190 within very close distances)
16:09	broke off chunks of tube accumulations containing Alvinella, put in small biobox (temp. 18-20, x:4580 y:78170, h 81, d 2511)
16:26	deploy colonizer on protrusion of large diffuser, difficult because the diffuser slopes are very steep (temp 12 on top of colonizer, fluctuated between 10-40 within short distances, x4582 y78168, h 35, d 2512)
16:42	arrive at microbial mat area, large area of hairiness), few areas with some flow, anemone at 16:45
16:58	colonizer deployed (03-2017), x4600 y78180, h90,d2505, temp above colonizer 14C)
17:10	furry rock collected, top of small hairy tower, into biobox (x4604 y 78185, h181,d2505)
17:14	arrive at Bio9
17:23	video of previously deployed colonizer (CV 2), white and hairy growth
17:35	starboard temp probe malfunctioning while in black smoker, port probe shows 291 (far too low, i.e. also malfunctioning)
17:46	second black smoker (temp probes still malfunctioning), white major malfunctions, blue major (temp 358, x4606 y 78005, h12, d2511)
18:04	at P-vent, temp. probe still malfunction, no sample since no major, Pat states P=vent good for sampling with caution), riftia too big for science use, great animal shape
18:35	collect Riftia at Tika, temp. 5.2 head, 28 bottom)
18:10	Carolyn drives the sub off axis
19:07	Niskin bottle fired (x4666 y78558, h264, d2507)
19:20	arrive at M-vent, vent on top is dead, observe fish inside a hole at the bottom of the mound. Marker on adjacent venting area stating "M-vent" is at the wrong place according to Pat, it is on "flea vent")
19:37	release weights

## AT 37-12 Sample Sheet

Alvin Dive# 4895 Date 28 Apr. 2017 Logged by C. Tepolt  
 Port Obs. Harst Felbeck Starboard Obs. Carlynn Tepolt Pilot Pat Hickey  
 Descend: 13:50 At Seafloor: 15:10:30 Ascend: 19:37

## FLUID SAMPLES

Major# green Time 15:53 Temp ICL 190+2 Vent Tica/chimney below crab spa  
 X 4581 Y 78170 Hdg 83 Depth 2512 Alt 0 Marker \_\_\_\_\_ (type/#)

Comments temp varied b/n 60-190 depending on probe position  
Rspng working, R not blue NO green #2

Major# white Time 17:49 Temp ICL 366 Vent Bio 9  
 X 4606 Y 78005 Hdg 12 Depth 2511 Alt 0 Marker \_\_\_\_\_ (type/#)

Comments Black smoker  
NEITHER chamber fired for white! Dred for blue

Major# \_\_\_\_\_ Time \_\_\_\_\_ Temp ICL \_\_\_\_\_ Vent \_\_\_\_\_  
 X \_\_\_\_\_ Y 78005 Hdg \_\_\_\_\_ Depth \_\_\_\_\_ Alt 0 Marker \_\_\_\_\_ (type/#)

Comments \_\_\_\_\_

Major# N/A Time 18:14 Temp 290°C\* Vent P-vent  
 X 4666 Y 77954 Hdg 358 Depth 2511 Alt 0 Marker \_\_\_\_\_ (type/#)

Comments P-vent black smoker \*probe prob. reading v. low (as it  
did @ Bio 9) - Pat has measured 2360°C in pit.

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 # Alvella + chimney Time 16:09 Temp 18-20°C Vent Tica / low chimney  
 X 4580 Y 78170 Hdg 81 Depth 2511 Alt 0 Marker \_\_\_\_\_ (type/#)

Sample type Sulfide chimney piece

Basket location small bio box nearest Alvin

Assoc. water sample # \_\_\_\_\_ Assoc. rock sample # \_\_\_\_\_ (type) \_\_\_\_\_

Description of associated fauna &/or type of venting \_\_\_\_\_

Sample # Microbial mat rock Time 17:10 Temp \_\_\_\_\_ Vent Crab Soga micro. mat field  
X 4604 Y 78185 Hdg 181 Depth 2505 Alt 0 Marker \_\_\_\_\_ (type/#)

Sample type Rock w/ microbial mat

Basket location small biobox furthest from Alvin

Assoc. water sample # \_\_\_\_\_ Assoc. rock sample # \_\_\_\_\_ (type) \_\_\_\_\_

Description of associated fauna &/or type of venting Micro. mat, sparse worms, Rifa, mussels, crabs, squat lobsters

Sample # Riftia Time 18:35 Temp 5°C @ plume; 2.8 @ base Vent Tica  
X 4562 Y 78171 Hdg 353 Depth 2514 Alt 0 Marker \_\_\_\_\_ (type/#)

Sample type live Riftia

Basket location large biobox

Assoc. water sample # \_\_\_\_\_ Assoc. rock sample # \_\_\_\_\_ (type) \_\_\_\_\_

Description of associated fauna &/or type of venting Riftia w/ mussels, worms, crusts, Gsh

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 \_\_\_\_\_

- 15:15:30 nice shrimp  
 15:17:20 mudiopsis, crabs  
 15:32 crusty mussels to low crabs into biobox  
 16:51 Mudiopsis swims by corner of screen / amphipod swarm  
 17:13 head to Bio9  
 18:23 video of CV2 colonizer  
 17:33<sup>ish</sup> Stbd temp probe malfunctioned - read 'no data' in smoker  
 ↳ switched to port temp probe. ↓ No, it's too low  
 → possible issue of port probe as well - No, it's OK!

1<sup>st</sup> smoker waxed out @ 290°C, looking for a diff. one

- 15:47 diff smoker, sure high temp.  
 Pat ~~sa~~ has surveyed this smoker several times, says it  
 has always been > 300°C. Will check if major ICL.  
 ↳ Major ICL reads ≈ 370°C, temp probe is off.  
 18:04 @ P-vent, Pat checked smoker for stability. says  
 it looks OK.

19:07 Niskins shot 46666, 78558 d=2507 h=264

End of dive - went to M-vent area, found Flea Vent or  
 Robin's Roost (labeled M-vent by prev. cruise - Pat says  
 they labeled the wrong vent since we were in the ASC +  
 M-vent is at the top)

EXPERIMENT DEPLOYMENTS/RECOVERIES

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

Expt ID/# Crab Trap #3 deploy Time 15:29:45 Temp \_\_\_\_\_ Vent Tica / crab spa  
 X 4593 Y 78172 Hdg \_\_\_\_\_ Depth 2506 Alt 0 Marker \_\_\_\_\_ (type/#)  
 Description of associated fauna &/or type of venting trap on top of Riftia bed - 1 end free, 1 end on Riftia  
 Additional assoc. samples: type/ID Riftia, Munidopsis, Bythograea, fish  
 Additional descriptive comments Trap on top of Riftia - new location

Expt ID/# Crab Trap Recovered Time 15:46 Temp \_\_\_\_\_ Vent Tica / crab spa / dining table  
 X \_\_\_\_\_ Y \_\_\_\_\_ Hdg \_\_\_\_\_ Depth \_\_\_\_\_ Alt \_\_\_\_\_ Marker \_\_\_\_\_ (type/#)  
 Description of associated fauna &/or type of venting Saw Munidopsis in trap originally, but gone when returned  
 Additional assoc. samples: type/ID \_\_\_\_\_  
 Additional descriptive comments "Dining table"

Expt ID/# Colonizer 1 Time 16:30 Temp 12 Vent Tica / new chimney  
 X 4582 Y 78168 Hdg 35 Depth 2512 Alt 0 Marker \_\_\_\_\_ (type/#)  
 Description of associated fauna &/or type of venting On Alvinella chimney sulfide, side of chimney  
 Additional assoc. samples: type/ID \_\_\_\_\_  
 Additional descriptive comments A few good places for colonizer - put it in only flat-ish place - depth fluctuated based on result as it position (how close by)

Expt ID/# Colonizer 2 Time 16:58 Temp 17-18 Vent Tica / microbial mat  
 X 4600 Y 78180 Hdg 90 Depth 2505 Alt 0 Marker 03-2017 ? (type/#)  
 Description of associated fauna &/or type of venting Microbial mat area, some crustaceans, mussels, worms <sup>alvinellid?</sup> Riftia, anemones - but sparse  
 Additional assoc. samples: type/ID visible microbial mat  
 Additional descriptive comments 14% coming out of top

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# 4895 Date 7/28/17 Logged by HORST FELBERG  
Port Obs. HF Starboard Obs. CAROLYN Pilot PAT HICKEY  
Descend: 13:50 GMT At Seafloor: 15:10 Ascend: 19:38

FLUID SAMPLES

Major# green pair Time 16:00 Temp ICL 190 Vent large diffuses Tika

X 4581 Y 4097 Hdg \_\_\_\_\_ Depth \_\_\_\_\_ Alt \_\_\_\_\_ Marker \_\_\_\_\_ (type/#)

Comments right corner up (green #1); green #2 does not fire

Major# \_\_\_\_\_ Time 17:40 Temp ICL 295 Vent Bio 9

X 4895 Y 7801 Hdg 75 Depth 2509 Alt 5-1 Marker \_\_\_\_\_ (type/#)

Comments \_\_\_\_\_

Major# double blue Time 17:45 Temp ICL 358(w) Vent Bio 9

X 4606 Y 7800 Hdg 12 Depth 2511 Alt 3-1 Marker \_\_\_\_\_ (type/#)

Comments did not fire (double white)

Major# \_\_\_\_\_ Time 18:06 Temp ICL 290(?) Vent Bio 9 P-vent

X 4616 Y 7795 Hdg 348 Depth 2511 Alt \_\_\_\_\_ 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 16:10 Temp see above Vent Tika

X 4581 Y 7817 Hdg 77 Depth 2512 Alt \_\_\_\_\_ Marker \_\_\_\_\_ (type/#)

Sample type Alvinellid

Basket location diffuse flow Tika

Assoc. water sample # \_\_\_\_\_ Assoc. rock sample # \_\_\_\_\_ (type) \_\_\_\_\_

Description of associated fauna &/or type of venting \_\_\_\_\_

Sample # \_\_\_\_\_ Time 18-35 Temp 41.53° beach base Vent Taken  
 X 4562 Y 7817 Hdg 353 Depth 25TY Alt \_\_\_\_\_ Marker \_\_\_\_\_ (type/#)  
 Sample type Puffin small-medium  
 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.

Expt ID/# \_\_\_\_\_ Time 15:30 Temp \_\_\_\_\_ Vent TURK  
 X 4593 Y 7817 Hdg 159 Depth 2506 Alt \_\_\_\_\_ Marker \_\_\_\_\_ (type/#)  
 Description of associated fauna &/or type of venting crab tray deployed  
Replica etc.  
 Additional assoc. samples: type/ID \_\_\_\_\_  
 Additional descriptive comments crushed some mussels, put in Liobone  
6 mussels in Liobone immediately

coloniser  
Alvinella  
pallid  
large

Expt ID/# 2 Time 16:24 Temp \_\_\_\_\_ Vent \_\_\_\_\_  
 X 4582 Y 7816 Hdg 35 Depth 2512 Alt \_\_\_\_\_ Marker \_\_\_\_\_ (type/#)  
 Description of associated fauna &/or type of venting \_\_\_\_\_  
12°C going through after deploy  
 Additional assoc. samples: type/ID \_\_\_\_\_  
 Additional descriptive comments only Alvinella in Rockat

no

Expt ID/# 3 Time 16:42 Temp 17-19 Vent microbial mat  
 X 4602 Y 7815 Hdg 39 Depth 2504 Alt \_\_\_\_\_ Marker \_\_\_\_\_ (type/#)  
 Description of associated fauna &/or type of venting \_\_\_\_\_  
 Additional assoc. samples: type/ID \_\_\_\_\_  
 Additional descriptive comments f

sea  
anemone  
hole

Expt ID/# 4 Time 16:45 Temp 11 Vent micro mat  
 X 4603 Y 7818 Hdg 174 Depth 2505 Alt \_\_\_\_\_ Marker \_\_\_\_\_ (type/#)  
 Description of associated fauna &/or type of venting \_\_\_\_\_  
 Additional assoc. samples: type/ID \_\_\_\_\_  
 Additional descriptive comments flow visible; temp at  
17:00  
micro mat

Expt ID/# 5 Time 17:02 Temp 17-18 Vent \_\_\_\_\_  
 X 4600 Y 7818 Hdg 90 Depth 2505 Alt \_\_\_\_\_ Marker \_\_\_\_\_ (type/#)  
 Description of associated fauna &/or type of venting \_\_\_\_\_  
mussels (→ removed); top removed  
 Additional assoc. samples: type/ID \_\_\_\_\_  
 Additional descriptive comments coloniser deployed 17:05  
14°C after deploy above

## MARKERS DEPLOYED

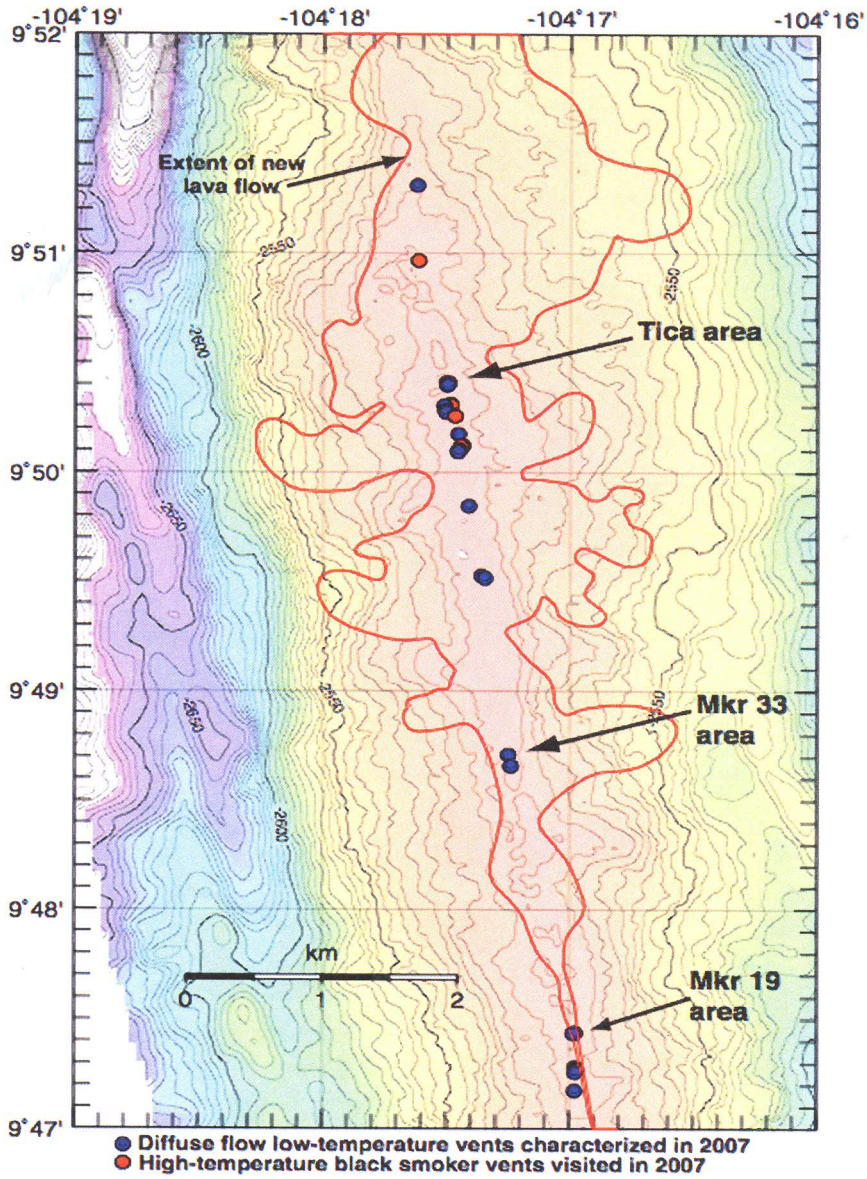
Time \_\_\_\_\_ Marker type \_\_\_\_\_ Marker # \_\_\_\_\_  
 X \_\_\_\_\_ Y \_\_\_\_\_ Hdg \_\_\_\_\_ Depth \_\_\_\_\_ Alt \_\_\_\_\_ Marker \_\_\_\_\_ (type/#)  
 Reason/ assoc. sample(s) \_\_\_\_\_  
 Comments \_\_\_\_\_

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:

15:25 deploy water trap  
 15:50 arrived at big diffuser  
 temp probe reads 2°C below window  
 17:14 to Bio 9  
 17:28 ~~28~~ <sup>24-26</sup> sides of coloniser  
 17:28 Bio 9 black smelter  
 went to 14-vent → fish in spa  
 saw pla-vent w. marker  
 active



1 1/2 mags  
 ~4-6 crabs  
 ~8 pifia  
 Minella crab  
 deployed 2 colonizers  
 video of crust. colonizers  
 MISKIN  
 1 funny rock from mat area