Dive Plan 4902– May 5, 2017

**Port:** Ileana Perez-Rodriguez  **PIT:** Drew Bewley  **Pilot:** Jefferson Grau

**On Bottom Target:** LVP landing site: 9ºN 50.425 104W 17.575

Objectives:
- Bring LVP to Teddy Bear and place wand in crack
- Sample dead Riftia in Riftia colony close by
- Pick up CV 7 Alvinella Mound near Crab Spa
- Release Vent-SID at the earliest at 13:15 (19:15 GMT)!!!
- Take major at Crab Spa
- Take major at small Alvinella mound
- Pick up CV5 at Bio9
- Pick up Crab Trap at Riftia mound near Bio9
- Take major at Pvent

Basket List
1. Biobox
2. 3 Majors
3. 2 small bioboxes
4. T probe

<table>
<thead>
<tr>
<th>Locations</th>
<th>Lat</th>
<th>Long</th>
<th>m</th>
<th>x</th>
<th>y</th>
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</thead>
<tbody>
<tr>
<td>Pvent</td>
<td>9 50.276</td>
<td>104 17.474</td>
<td>2511</td>
<td>4628</td>
<td>77926</td>
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<td>Bio9</td>
<td>9 50.296</td>
<td>104 17.476</td>
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<td>Crab Spa MkF</td>
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<td>104 17.489</td>
<td>2505</td>
<td>4600</td>
<td>78147</td>
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<td>Tica</td>
<td>9 50.406</td>
<td>104 17.490</td>
<td>2505</td>
<td>4598</td>
<td>78165</td>
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<tr>
<td>Teddy Bear</td>
<td>9 50.50</td>
<td>104 17.51</td>
<td>2514</td>
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</tr>
</tbody>
</table>

1. On bottom, transit to LVP location and pick up instrument
2. Move to Teddy Bear and position instrument near weight stacks of previous deployments
3. Measure T in crack where majors where taken on dive 4900
4. Remove hose from LVP
   a. Insert wand in same spot
   b. Stabilize wand
5. Position wand of LVP in same spot
6. Move to Riftia colony ~50 m away to the North that we sampled on dive 4900

7. Look for dead Riftia in area without flow

8. Verify that there is no flow

9. Proceed with sampling **dead** Riftia and put in big biobox, around 5

10. Proceed to Alvinella mound near Crab Spa and recover CV8

11. For picking up colonizer, move extremely slowly and gently put in 1st small biobox

12. Measure T at point where colonizer was

13. Move to Crab Spa to release Vent-SID (**note**: Not before 13:15 (19:15 GMT)!!!)

14. Take major at Crab Spa

15. Move to **small** Alvinella mound close by and measure T

16. Take major

17. Proceed to Bio9 to recover CV5

18. For picking up colonizer, move extremely slowly and gently put in 2nd small biobox

19. Take major at black smoker close by to the right

20. Recover Crab Trap at Riftia mound close to Bio9
Alvin Dive 4902-AT 37-12
May 5, 2017

Pilot: Jefferson Grau
Port: Ileana Pérez-Rodríguez
PIT: Drew Bewley
Notes are from Ileana Pérez-Rodríguez

<table>
<thead>
<tr>
<th>GMT</th>
<th>Comments</th>
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<tbody>
<tr>
<td>14:01</td>
<td>Descending</td>
</tr>
<tr>
<td>15:40</td>
<td>At sea floor</td>
</tr>
<tr>
<td>16:04</td>
<td>At LVP landing site. Picked up LVP for deployment at ‘Teddy Bear’.</td>
</tr>
<tr>
<td>16:37</td>
<td>Deployed LVP at ‘Teddy Bear’. Measured temperature at seafloor crack (12.12 °C) and proceeded to place LVP wand (at the crack).</td>
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<tr>
<td>17:17</td>
<td>We moved a bit to the left of ‘Teddy Bear’ (still at the same site) to collect biofilms in basalts next to a small patch of Riftia tubeworms. We measured the temperature (8.5 °C) at the crack where Riftia were growing, and sampled a rock that looked furry and brownish. We placed rock inside of the small ‘leaky’ biobox. After, we headed north of ‘Teddy Bear’ to collect dead Riftia tubes.</td>
</tr>
<tr>
<td>17:49</td>
<td>Found a patch of Riftia tubeworms, going from healthy (to our left) to dead (to our right). Measured temperature (3.35 °C) at the base of the pile of dead Riftia tubeworms. Collected ~5-10 Riftia tubes and placed them in large biobox. Next, we headed to general ‘Crab Spa’ area.</td>
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<tr>
<td>18:50</td>
<td>We went to the Alvinella mound (‘Wedding cake’) where we collected colonizer CV8, and placed it in the small biobox (nearest to the DSV Alvin).</td>
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<tr>
<td>19:15</td>
<td>At ‘Crab Spa’. We prepared the Vent-SID for release by arranging wand and sampling hose of Vent-SID inside of the instrument.</td>
</tr>
<tr>
<td>19:23</td>
<td>Picked up yellow major for sampling at ‘Crab Spa’. ICL registered ambient temperature as 5 °C (a bit off). Both chambers fired (chamber 2 fired more slowly) and fluid samples were taken at temperatures of 26 °C. Next, we moved off-axis to release Vent-SID.</td>
</tr>
<tr>
<td>19:56</td>
<td>Released Vent-SID. One of the legs fell off and was placed inside Vent-SID’s basket. After, we headed back to the general ‘Crab Spa’ area.</td>
</tr>
<tr>
<td>20:34</td>
<td>Arrived to the small Alvinella mound (or ‘Cupcake’) next to the ‘Wedding Cake’. We picked up the red major for sampling on a sulfide orifice at the top of the small mound and proceeded to collect fluids. Both chambers fired and fluid samples were taken at temperatures of 26-30 °C. However, the red major started moving a bit off from the sampling location during fluid collection.</td>
</tr>
</tbody>
</table>
| 20:52 | Picked up black major to repeat sampling at ‘Cupcake’. Both chambers fired and fluid samples were taken at temperatures of 39 °C. After, we moved off-axis where we waited for the LVP to be secured on deck of
R/V Atlantis. Because we ran out of power we could not complete our final task of picking up the crab trap at Bio9.

21:51 Ascended.
AT 37-12 Sample Sheet

Alvin Dive# 4902  Date 05/05/2017  Logged by Ileana Perea-Rodriguez
Descend 14:01 GMT  At seafloor 15:40 GMT  Ascend 21:31 GMT

FLUID SAMPLES

Major#  Yellow  Time 19:23 GMT  Temp ICL 26°C  Vent Crab Spa
          X 4575  Y 7814  Hdg 17  Depth 2506  Alt 0  Marker (type/#)
Comments  * Ambient ICL registered 5°C (usually 2°C)
          * major 2 released slowly

Major#  Red  Time 20:34  Temp ICL 26°C  Vent Small Alvinella mound near Crab Spa
          X 4576  Y 7816  Hdg 69  Depth 2515  Alt 0  Marker (type/#)
Comments  * ICL registered 2°C for ambient temperature, /-30°C for major Red 2
          * major moved during sampling

Major#  Black  Time 20:52  Temp ICL 39°C  Vent Small Alvinella mound near Crab Spa
          X 4576  Y 7816  Hdg 75  Depth 2515  Alt 0  Marker (type/#)
Comments  * ICL registered 2°C for ambient temperatures

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

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 # 2  Time 19:49  Temp 3.35°C (base of tube worms)  Vent North of
          X 4545  Y 7838  Hdg 0.7  Depth 2514  Alt 0  Marker (type/#)
Sample type Dead Ritta tubes
Basket location collected 5-10 (tried to get hollow ones)
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) ________
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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.*

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<tr>
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<tbody>
<tr>
<td>1</td>
<td>19:17</td>
<td>8.5°C at Ruffina hole</td>
<td>Teddy Bear</td>
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<tr>
<td>X 7450 Y 7835 Hdg 107 Depth 25/6 Alt 0 Marker (type/#)</td>
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Sample type: Rocks with biofilm Basket location: Small bio box (Lucky one)

Assoc. water sample # Assoc. biol. sample # (type) Descriptive comments

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Description comments
EXPERIMENT DEPLOYMENTS/RECOVERIES

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

Expt ID/# AT37-12 DIVE:4902 Time 16:04 Temp _______ Vent Elevator Landing Site
X 742.7 Y 781.9 Hdg _______ Depth 2506 Alt 0 Marker _______ (type/#)
Description of associated fauna &/or type of venting

Additional assoc. samples: type/ID
Additional descriptive comments

Moving LVP to Teddy Bear (picked up at elevator landing site)

Expt ID/# AT37-12 DIVE:4902 Time 16:37 Temp 12.12°C Vent Teddy Bear
X 4550 Y 7885 Hdg _______ Depth 2515 Alt 0 Marker _______ (type/#)
Description of associated fauna &/or type of venting

Additional assoc. samples: type/ID
Additional descriptive comments

Deploying LVP at Teddy Bear

Expt ID/# AT37-12 DIVE:4902 Time 19:15 Temp _______ Vent Crab Spa
X 9589 Y 7819 Hdg _______ Depth 2506 Alt 0 Marker _______ (type/#)
Description of associated fauna &/or type of venting

Additional assoc. samples: type/ID
Additional descriptive comments

Stopped Vent-SID
Preparing Vent-SID for release (arranging hand off Vent-SID inside the instrument)

Expt ID/# AT37-12 DIVE:4902 Time 19:56 Temp _______ Vent Crab Spa & off-axis
X 9632 Y 7820 Hdg _______ Depth 2502 Alt 0 Marker _______ (type/#)
Description of associated fauna &/or type of venting

Additional assoc. samples: type/ID
Additional descriptive comments

Released Vent-SID (one leg 'inside basket')

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: