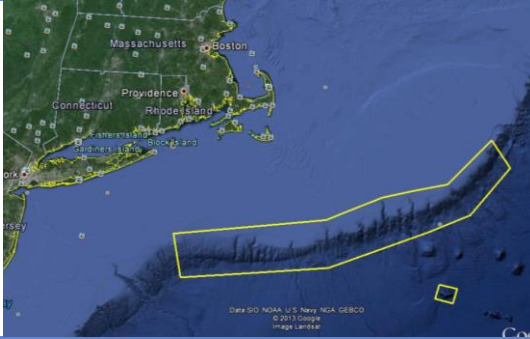


# OKEANOS EXPLORER ROV DIVE SUMMARY

<b>Site Name</b>	New England Seep 3			
<b>ROV Lead/Expedition Coordinator</b>	Brian Bingham/ Kelley Elliott			
<b>Science Team Leads</b>	Tim Shank (shore) Andrea Quattrini (ship)			
<b>General Area Descriptor</b>	Northwest Atlantic Ocean; Northeast U.S. Canyons			
<b>ROV Dive Name</b>	Cruise Season	Leg	Dive Number	
	EX1304	1	DIVE03	
<b>Equipment Deployed</b>	ROV:	Deepwater Discoverer		
	Camera Platform:	Seirios		
<b>ROV Measurements</b>	<input checked="" type="checkbox"/> CTD	<input checked="" type="checkbox"/> Depth	<input checked="" type="checkbox"/> Altitude	
	<input checked="" type="checkbox"/> Scanning Sonar	<input checked="" type="checkbox"/> USBL Position	<input checked="" type="checkbox"/> Heading	
	<input checked="" type="checkbox"/> Pitch	<input checked="" type="checkbox"/> Roll	<input checked="" type="checkbox"/> HD Camera 1	
	<input checked="" type="checkbox"/> HD Camera 2	<input checked="" type="checkbox"/> Low Res Cam 1	<input checked="" type="checkbox"/> Low Res Cam 2	
	<input checked="" type="checkbox"/> Low Res Cam 3	<input checked="" type="checkbox"/> Low Res Cam 4	<input checked="" type="checkbox"/> Low Res Cam 2	
<b>Equipment Malfunctions</b>	Port Vertical Thruster not Operational			
<b>ROV Dive Summary (From processed ROV data)</b>	In Water at:	2013-07-11T12:40:02.333000 39°, 54.116' N ; 069°, 15.320' W		
	Out Water at:	2013-07-11T20:32:36.531000 39°, 54.091' N ; 069°, 15.702' W		
	Off Bottom at:	2013-07-11T19:41:23.870000 39°, 54.243' N ; 069°, 15.434' W		
	On Bottom at:	2013-07-11T13:30:18.195000 39°, 54.063' N ; 069°, 15.435' W		
	Dive duration:	7:52:34		
	Bottom Time:	6:11:5		
	Max. depth:	1139.0 m		
<b>Special Notes</b>				
<b>Scientists Involved</b> <i>(please provide name / location / affiliation / email)</i>	<p style="text-align: center;"><b>Primary</b></p> <p style="text-align: center;">Tim Shank, Woods Hole (shore-based science team lead), WHOI, <a href="mailto:tshank@whoi.edu">tshank@whoi.edu</a>          Andrea Quattrini, EX (onboard science team lead), Temple, <a href="mailto:Andrea.Quattrini@temple.edu">Andrea.Quattrini@temple.edu</a>          Brendan Roark, EX, TAMU, <a href="mailto:broark@geos.tamu.edu">broark@geos.tamu.edu</a>          Peter Etnoyer, Charleston, NOAA, <a href="mailto:Peter.Etnoyer@noaa.gov">Peter.Etnoyer@noaa.gov</a>          Taylor Heyl, Woods Hole, MA; WHOI, <a href="mailto:theyl@whoi.edu">theyl@whoi.edu</a>          Santiago Herrera Woods Hole, MA; WHOI, <a href="mailto:sherrera@whoi.edu">sherrera@whoi.edu</a>          Scott France, Lafayette, LA, U. Louisiana at Lafayette, <a href="mailto:france@louisiana.edu">france@louisiana.edu</a>          Bob Carney, Baton Rouge, LA; LSU, <a href="mailto:rcarne1@lsu.edu">rcarne1@lsu.edu</a>          AJ Turner, Charleston, NOAA, <a href="mailto:aj.turner@noaa.gov">aj.turner@noaa.gov</a>          Amanda Demopoulos, Gainesville, FL; USGS SE Ecological Science Center, <a href="mailto:ademopoulos@usgs.gov">ademopoulos@usgs.gov</a>          Carolyn Ruppel, ISC, USGS Woods Hole, <a href="mailto:cruppel@usgs.gov">cruppel@usgs.gov</a>          Bernie Ball, Beaufort, NC; Duke, <a href="mailto:bernieb@duke.edu">bernieb@duke.edu</a></p>			

### Passive

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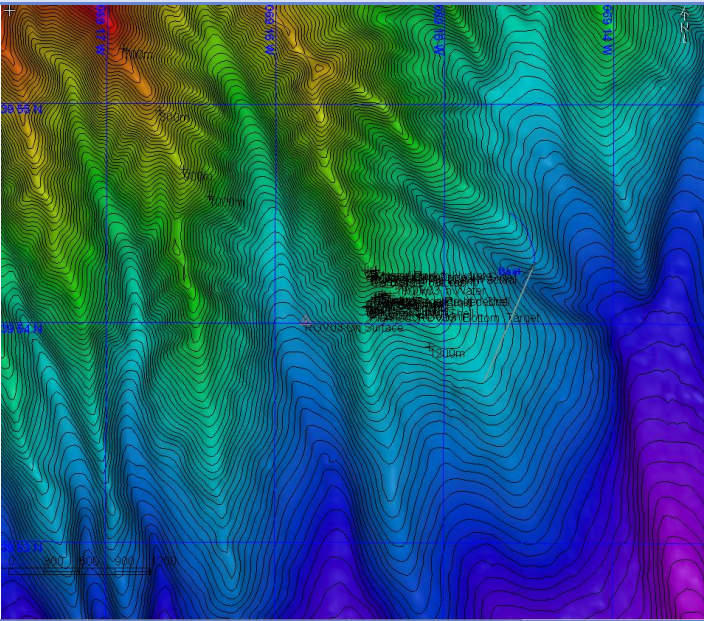
### Purpose of the Dive

The purpose of the dive was to investigate 4 potential seep sites that were identified based on bubbles plumes seen during 2012 multibeam mapping on the Okeanos explorer. The primary purpose of the dive was to determine if there are methane seeps within the region and to describe both their geology (vigor and extent of seepage, distribution of authigenic carbonates, relationship of seeps to seafloor geology) and their ecology (community structure, distribution of live and dead animals, similarity to faunal assemblages at Veatch seep).

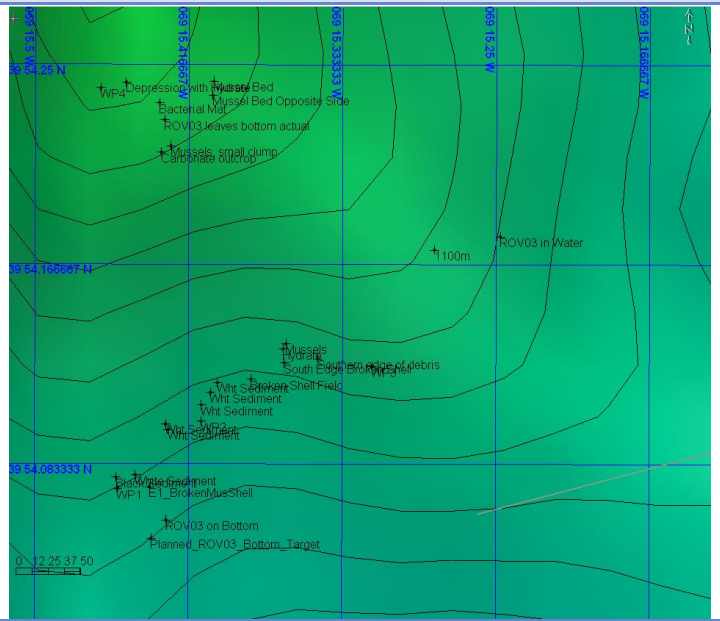
### Description of the Dive:

The ROV D2 was launched at 12:33 UTC and reached bottom at 13:30 UTC at a depth of 1137 m, where the surrounding sediment was mostly silt and silty clays. The ROV moved slightly upslope to the northwest through three waypoints. Along this transit multiple sightings of stained sediment and white sediment (indicative of bacterial mats) occurred along with varying patches of dead mussel shells, shell fragments and carbonate rubble. Moving away from WP3 upslope to WP4 along the ~1120 m contour toward the Northeast we encountered a good amount of carbonate in a line like a small outcrop ledge associated with dead mussel shells. Turning back to the Northwest and waypoint 4 we again encountered more carbonate material, mussels in small clumps, as well as several white bacterial mats. Methane hydrates were observed at 16:59 at a depth of 1124 m. As we continued upslope towards waypoint 4, a medium-sized mussel bed was encountered at 1065 m ~18:25 UTC, confirming an active chemosynthetic community in this area. At the mussel beds, we took several close up images and obtained a good overview of the area using the Seirios vehicle. Of note, we did not observe community associates that are commonly observed in chemosynthetic habitats. After exploring the mussel bed, we continued to waypoint 4 where we found another hydrate patch in a depression ~ 12 m to the east of waypoint 4. Methane hydrates were observed again at 18:54 upslope at a depth of 1054 m. All these discoveries were within the area around the bubble plums identified in the seabeam mapping, although we were not able to see any active bubbling from the seafloor. Common fauna observed along the dive track included an abundance of cutthroat eels (*Synaphobranchidae*), red crabs (*Chaceon quinque-dens*), eelpout (*Lycenchelys* sp.) and witch flounder (*Glyptocephalus cynoglossus*). Xenophyophores were also common in this area. Of note, a commensalism was observed between a sea urchin and a juvenile cusk eel (*Barathrites*), which was noted on previous explorations of the NE Seamounts. The ROV left the seafloor at 19:32 UTC at a depth of 1053 m.

**Overall Map of ROV Dive Area**



**Close-up Map of Main Dive Site**



**Representative Photos of the Dive**



Methane hydrate observed at a depth of 1055 m, time 18:56.



A large bed of live *Bathymodiolus* mussels were observed upslope at a depth of 1065 m.

**Please direct inquiries to:**

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