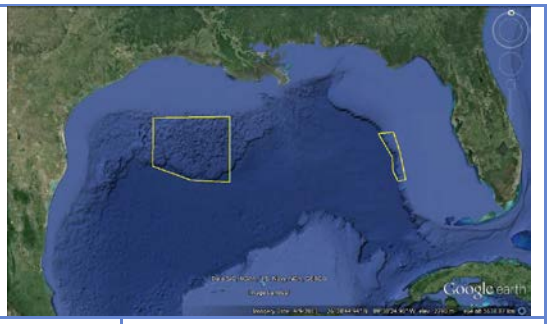
OKEANOS EXPLORER ROV DIVE SUMMARY

Site Name	Many Mounds North Shallow		
ROV Lead/Expedition Coordinator	Brian Bingham/ Kelley Elliott		
Science Team Leads	Jamie Austin (Geology) Stephanie Farrington (Biology)		
General Area Descriptor	Gulf of Mexico		
ROV Dive Name	Cruise Season	Leg	Dive Number
	EX1402	3	DIVE16
Equipment Deployed	ROV:	Deep Discoverer	
	Camera Platform:	Seirios	
ROV Measurements	☒ CTD	☒ Depth	☒ Altitude
	☒ Scanning Sonar	☒ USBL Position	☒ Heading
	☒ Pitch	☒ Roll	☒ HD Camera 1
	☒ HD Camera 2	☒ Low Res Cam 1	☒ Low Res Cam 2
	☒ Low Res Cam 3	☒ Low Res Cam 4	☒ Low Res Cam 2
Equipment Malfunctions	N/A		
ROV Dive Summary (From processed ROV data)	Dive Summary: EX1402L3_DIVE16 ^^ In Water at: 2014-04-29T14:09:46.887000 26°, 12.580' N ; 084°, 43.255' W Out Water at: 2014-04-29T21:15:14.775000 26°, 12.435' N ; 084°, 43.539' W Off Bottom at: 2014-04-29T21:07:46.985000 26°, 12.459' N ; 084°, 43.540' W On Bottom at: 2014-04-29T15:24:11.288000 26°, 12.241' N ; 084°, 43.950' W Dive duration: 7:5:27 Bottom Time: 5:43:35 Max. depth: 536.7 m		
Special Notes			
Scientists Involved *(please provide name / location / affiliation / email)*	**Primary** Jamie Austin, EX, UTIG, jamie@utig.ig.utexas.edu Stephanie Farrington, EX, FAU/HBOI, sfarrington@fau.edu Andrea Quattrini, PA, Temple, andrea.quattrini@temple.edu Bill Kiene, TX, NOAA FGBNMS, william.kiene@noaa.gov Brendan Roark, TX, TAMUG, broark@geos.tamu.edu Brian Kinlan, MD, NOAA NCCOS, Brian.Kinlan@noaa.gov Charles Messing, FL, NSUOC, messingc@nova.edu Dennis Hanisak, FL, HBOI/FAU, dhanisak@fau.edu John Reed, FL, HBOI/FAU, jreed12@fau.edu Jon Moore, VA, BOEM, James.Moore@boem.gov Joshua Voss, FL, HBOI/FAU, jvoss2@fau.edu		

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Purpose of the Dive

Dive 16 took place north of Dive 15, in a similar water depth range (~550-470 m). The objectives were the same as Dive 15, to characterize: 1) Lophelia and black coral associations on top of a number of mounds/bioherms known to occur in this vicinity and 2) to focus on golden crab occurrences in the vicinity of these corals. The dive was nominated as one of a series of dives in these water depths by Brian Kinlan and Peter Etnoyer (NOAA) and a team from CIOERT and Harbor Branch led by John Reed (and including Stephanie Farrington).

Description of the Dive:

Geological Summary

The dive began in water depth of 533 m. The first seafloor sighted was sedimented, with gentle undulations/ripples. There was also some coral rubble. The seafloor current estimated at the landing site was small, < 0.1 kt in varying directions, although surface currents at this site were ~2.9 kts (~N to S).

On the biohermal high east of the second waypoint, rippled seafloor was pronounced. Sand was also more prevalent on and around biohermal highs throughout the dive. On a small mound in this vicinity, a straight seafloor scar up the side of a small mound was clearly man-made; this scar dredged up coral rubble from the subsurface.

Farther east on a complex bioherm/topographic high, sand among coral rubble was more common than on Dive 15. This was also true on the NE side of a mound even farther east on the same complex high. Coral debris was common.

This gave way to a more eroded landscape on the next complex mound to the north (east of the sixth waypoint); fresh fracture faces of underlying (platform) carbonate became more common. A prominent submarine dune oriented E-W composed of rippled sediment occurred at a depth of 478 m on this high. Slopes to the N were more gentle, and the down-current avalanche face was steeper; a periodic current from N to S was indicated. The top of this complex high was composed of highly eroded hard substrate. The dive ended on this high at a depth of ~470 m.

Biological Summary

While transecting the mounds, there was 50-100 % cover of *Lophelia pertusa* coral rubble (normal on *Lophelia* bioherms). A few mounds were 100% covered in standing dead coral, with 50-70% live cover in parts (mostly on the peaks). When D2 passed areas of exposed hard outcrops, they occurred on the northern sides of mounds between waypoints 5 and 6. This was the only place where *Leiopathes* sp. was observed.

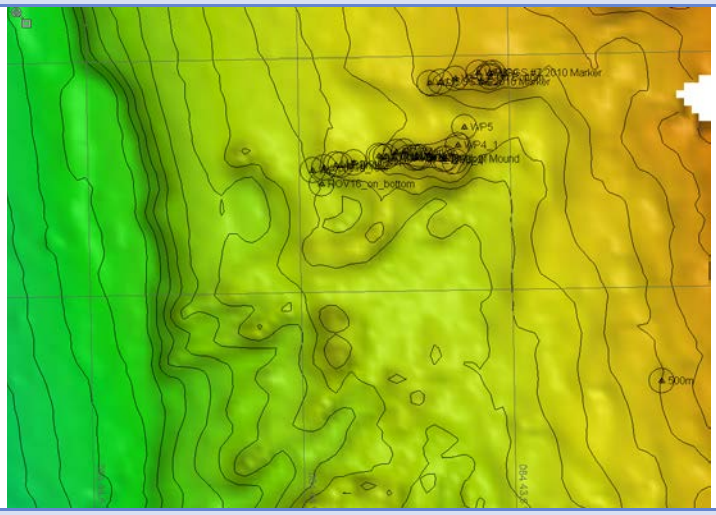
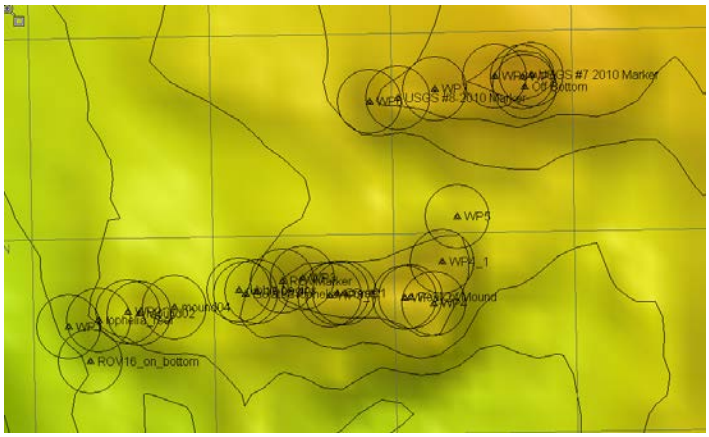
Corals observed throughout the dive included scleractinians: cup corals (abundant), *Lophelia pertusa* – live, standing dead and rubble (dominant species), and *Maderepora* sp. (common to abundant); octocorals: *Anthothela* sp., Aquaumbridae, *Acanthogorgia* sp., bamboo - "S" clade (undescribed species- very rare), *Chelidonis* sp., *Muriceides* sp., Paramuricea. Antipatharians: *Leiopathes* sp. (rare) and *Stichopathes* sp. Other cnidarians included: Pennatulacea - rare, Anthomastus, Aquaumbridae (recently discovered family of soft corals) and stylasterids.

Sponges: *Petrosida* (common) and *Aphrocallistes beatrix* (abundant, with and without yellow zoanthids colonies) and *Vazella* sp. - hexactinellid ball sponge?

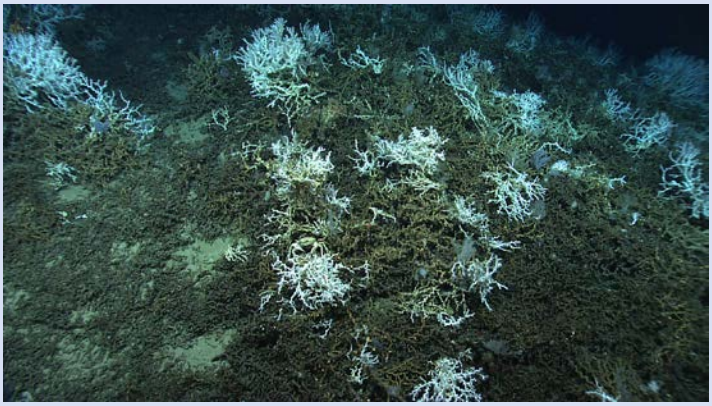
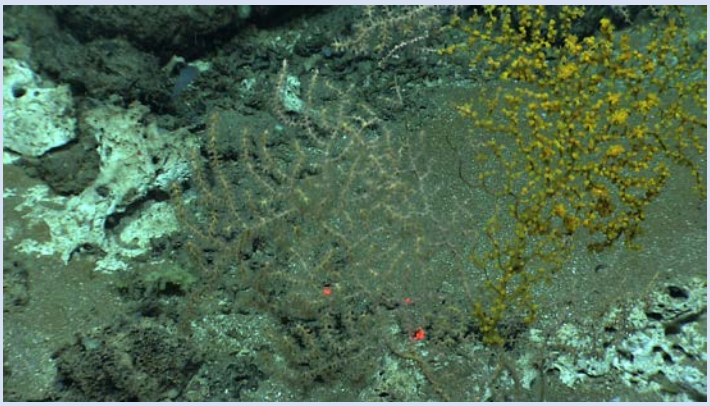
Arthropods: *Farrea* sp., *Chaceon fenneri* (common to abundant), unidentified shrimp, squat lobsters: *Emunida picta* were common on coral bushes.

Fish: Darwin's slime head - *Gephyroberyx darwini*, Goosefish - *Lophiodes beroe*, hake, rockfish - *Helicolenus*, rattail - Nazumia, scorpion fish – *Idiastion* sp., tinselfish- *Grammicolepis,* roughskin spurdog - *Squalis asper* (2)*,* chain dogfish- *Scyliorhinus retifer*, and black-bellied rosefish -*Helicolenus dactylopterus* were very common.

Echinoderms: Crinoids, Echinus? - sea urchins (rare), stars - Brisingidae (*Novodinia* sp.) and Goniasteridae - batstar.

Overall Map of ROV Dive Area	**Close-up Map of Main Dive Site**
	

Representative Photos of the Dive

	
EX1402L3_IMG_20140429T154945Z_ROVHD_COR_5_SPECIES. The top peak of a typical *Lophelia* mound was found	EX1402L3_IMG_20140429T191530Z_ROVHD_COR_ZOA_AUDIO.jpg; one of the few damaged octocorals is being overgrown by zoanthids.

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