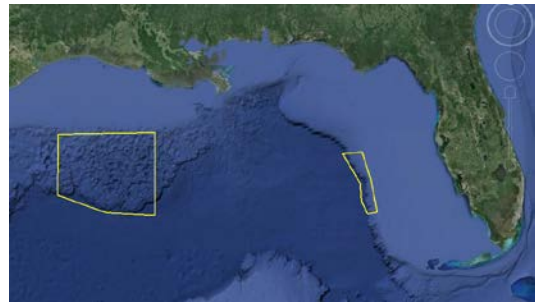
OKEANOS EXPLORER ROV DIVE SUMMARY



Site Name	NW Gulf Mid-Depth		
Expedition Coordinator/ ROV Lead	Kelley Elliott/ Brian Bingham		
Science Team Leads	Stephanie Farrington (Biology) Jamie Austin (Geology)		
General Area Descriptor	Gulf of Mexico		
ROV Dive Name	Cruise Season	Leg	Dive Number
	EX1402	3	DIVE03
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	Recovered early due to Ship's thrusters failure		
ROV Dive Summary (From processed ROV data)	Dive Summary: EX1402L3_DIVE03 ^^ In Water at: 2014-04-14T13:28:11.211000 27°, 04.736' N ; 092°, 49.007' W Out Water at: 2014-04-14T21:24:56.983000 27°, 05.165' N ; 092°, 49.544' W Off Bottom at: 2014-04-14T19:53:51.594000 27°, 04.956' N ; 092°, 48.977' W On Bottom at: 2014-04-14T14:03:44.584000 27°, 04.679' N ; 092°, 48.998' W Dive duration: 7:56:45 Bottom Time: 5:50:7 Max. depth: 1155.4 m		
Special Notes			
Scientists Involved *(please provide name / location / affiliation / email)*	Jamie Austin, EX, UT Austin, jamie@utig.ig.utexas.edu Stephanie Farrington, EX, HBOI/FAU, sfarrington@fau.edu Brendan Roark, TX, TAMU College Station, broark@geos.tamu.edu Brian Kinlan, MD, NOAA NCCOS, Brian.Kinlan@noaa.gov Erik Cordes, PA, Temple, ecordes@temple.edu Mike Vecchione, DC, SI/NMFS, VecchioM@si.edu Bob Carney, LA, LSU, rcarne1@lsu.edu Robert McGuinn, SC, NOAA NCCOS, robert.mcguinn@noaa.gov Alex DeCiccio, Alex DeCiccio, alex.deciccio@gmail.com Amanda Demopoulos, USGS, ademopoulos@usgs.gov Andrea Quattrini, Temple, andrea.quattrini@temple.edu		

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Purpose of the Dive

The third dive concentrated on assessing mid-water coral habitats, by examining first the ~30 ^{o} slope, then part of the crest, of a ~100 m high topographic high (part of a sinuous ridge) in depths of ~1150-1050 m. The dive was nominated by Brian Kinlan of NOAA's NCCOS, Center for Coastal Monitoring and Assessment. This dive represents the first of multiple dives designed to quantify models of deep-water coral habitats in the Gulf of Mexico.

Description of the Dive:

Geological Summary

The dive began on ~flat sedimented seafloor at ~1152 m. Most of the dive involved moving slowly up a steep slope, featuring scattered carbonate hardground outcrops of varying size. Many of the larger outcrops were encrusted with solitary corals and associates (see biological summary). Generally disarticulated bivalve shells were ubiquitous, suggesting the proximity of chemosynthetic communities. Some of the hardgrounds were also composed of cemented bivalve shells. Occasional live concentrations of live mussels and clams, and bacterial mats, were encountered, but escaping bubbles were observed only once (and this stream had not been predicted; no bubble stream anomaly in previously collected multibeam data had been observed). The steepness of the slope led to substantial visual evidence of downslope movement of sediment, evidenced by slide scars. In several instances, light colored outcrops were exposed in these scars that looked like hydrate, but that could not be confirmed.

Corals attached to hardground outcrops became more common at the edge of and across the crest of the topographic high at ~1052 m. The top of the high was generally characterized by a pronounced hummocky topography; some of the depressions were several meters deep. Such topography is suggestive of collapse, the result of dissolution of upwardly mobile evaporites at the seafloor.

The dive ended about an hour early as a result of failure of the bow thruster, due to overheating associated with seaweed clogging the thruster well.

Biological Summary

Specific targets of this dive included bamboo, black and paramuricea corals. Seven of the 11 predicted corals in the models were observed. A total of 6 species of gorgonian were observed – including the target species: *Chrysogorgia* and Antipatharians, but no bamboo coral (*Isididae*) was encountered.

At the base of the high near the start of the dive, swimming holothurians- *Palopatides* and *Enypniastes* sp., were observed in the water column, as well as rattail fish.

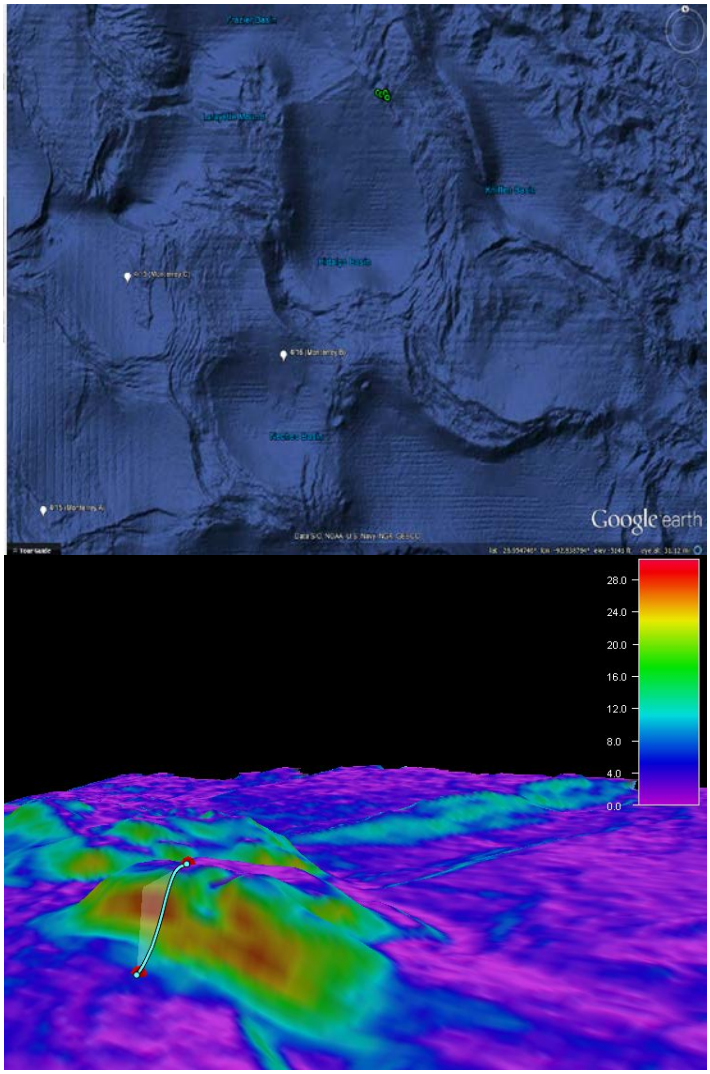
On the slope transect - Octocorals – *Acanthogorgia* and *Stoloniferous* and *Clavularia* sp. – (purple mat coral, as well as an identified white type), *Anthomastus* sp. (strawberry coral) and *Chrysogorgia* were common (some with eggs). There was an unidentified white *Primnoidae* that appeared to be new to this locality. Solitary scleractinian cup corals were common. Arthropods: crangonid shrimp and squat lobster- *Chirostylidae* - *Uroptychus nitidus*, Antipatharian – *Parantipathes* sp., *Leiopathes*, and *Sibopathes macrospina* (originally identified as *Bathypathes*- later corrected), and a comatulid crinoid, were all observed.

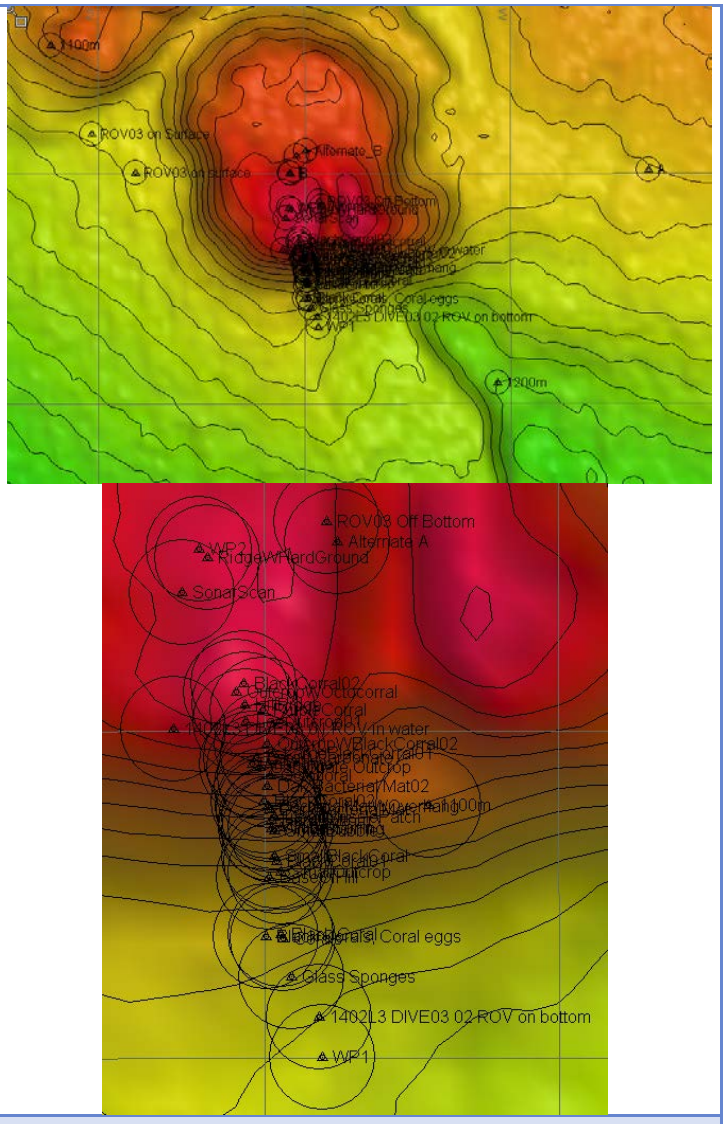
Around the one seep encountered, there was a small area with a typical seep community: bivalves - live clams; *Bathymodiolus* sp. – mussels, Shrimp – *Alvinocaris* sp., white unidentified urchins and bacterial mats.

At the top ledge of the high, there was an increase in octocorals, but a reduction in biodiversity. The observed community became restricted to: *Acanthogorgia* sp., *Chrysogorgia* and *Paramuricea*. The top of the high was generally flat and barren, with only a few *Paramuricea* on scattered hardgrounds. A golden crab - *Chaceon fenneri*, and a few *Heterocarpus* shrimp were observed.

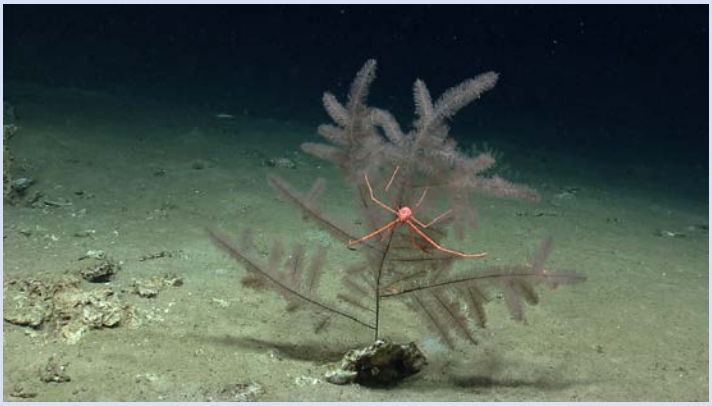
Along a sinuous depression along the east side of the high, there were: Shrimp - *Heterocarpus*, Pyrosoma, Fish – hatchetfish (Fam-*Sternoptychinae*), and cutthroat eels. Most all of the fan-shaped octocorals and antipatharians had resident symbionts living on their branches (ophioroids, shrimp and squat lobsters).

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





Representative Photos of the Dive



EX1402L3_IMG_20140414T155528Z_ROVHD_COR_SQA_SHI.jpg, a squat lobster in association with a black coral.

EX1402L3_IMG_20140414T190831Z_ROVHD_COR_SQA_SHI.jpg, a Paramuricea with brittle star associates.

Please direct inquiries to:

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