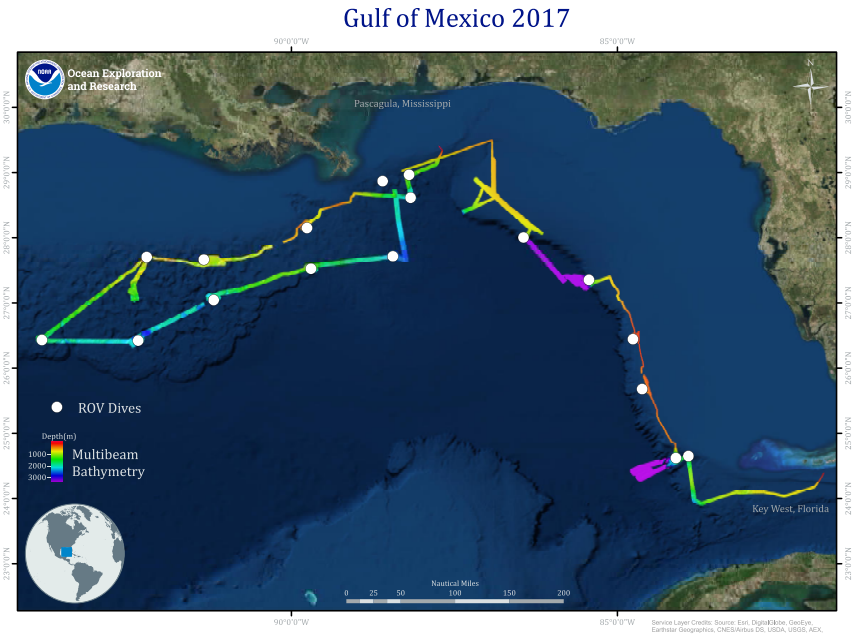
Ocean Exploration and Research

Okeanos Explorer ROV Dive Summary

Dive Information	
General Location	
General Area Descriptor	Gulf of Mexico
Site Name	Penchant Basin (GC276)
Science Team Leads	Diva Amon and Charles Messing
Expedition Coordinator	Brian Kennedy
ROV Dive Supervisor	Dan Rogers
Mapping Lead	Mike White
ROV Dive Name	
Cruise	EX1711
Leg	-
Dive Number	DIVE14
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 5

Equipment Malfunctions	none

ROV Dive Summary (from processed ROV data)

Dive Summary: EX1711_DIVE14

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In Water:	2017-12-17T16:07:04.722000
	27°, 39.987' N ; 091°, 20.620' W
Out Water:	2017-12-17T22:52:33.485000
	27°, 39.472' N ; 091°, 20.671' W
Off Bottom:	2017-12-17T21:56:53.224000
	27°, 39.804' N ; 091°, 21.054' W
On Bottom:	2017-12-17T16:49:17.825000
	27°, 39.899' N ; 091°, 20.624' W
Dive duration:	6:45:28
Bottom Time:	5:7:35
Max. depth:	805.4 m

Special Notes	none

Scientists Involved (please provide name, location, affiliation, email)

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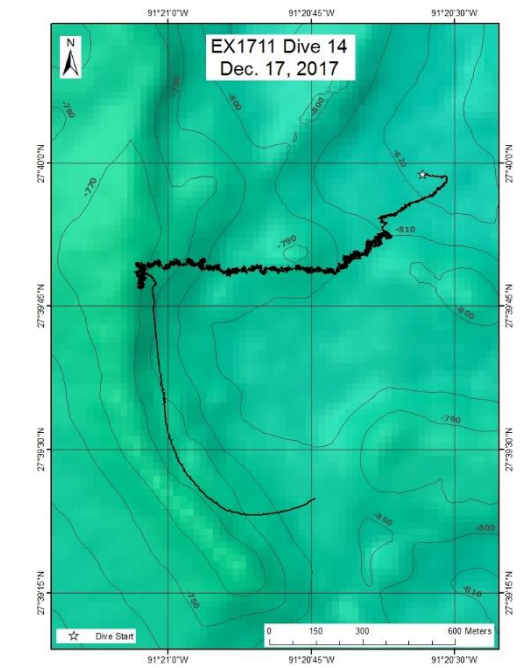
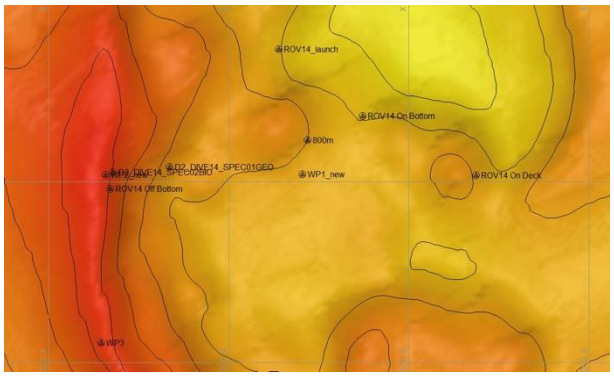
Purpose of the Dive	The dive site was located in a geologically active area where a number of BOEM seismic anomalies were detected, including oil and seeps. Additionally, surveys by the NOAA Ship *Okeanos Explorer* in 2012 and 2014 detected a number of gas plumes, indicative of possible chemosynthetic habitats. The primary objective for this dive was to acquire baseline information on the distribution and abundance of benthic fauna, in particular at chemosynthetic habitats and for corals. This aided in gaining insight into the diversity, biogeography, and connectivity of these communities, which has management implications. Improving the geological understanding of the composition and origin of the area was also of importance.		
Description of the Dive	The ROV touched down on the sedimented seafloor at 800 m in 'Penchant Basin', where there was an abundance of bentho-pelagic fauna. This included many fish species, as well as several *Bathocyroe* sp. and *Benthocodon* sp. This trend continued throughout the dive with many (>10) *Periphylla periphylla* and a pink siphonophore observed actively swimming into the seafloor. This was suggested to be a response to the bright lights of the ROV; these individuals attempted to move into deeper waters away from the light. A Rhodaliidae sp. benthic siphonophore was also observed		

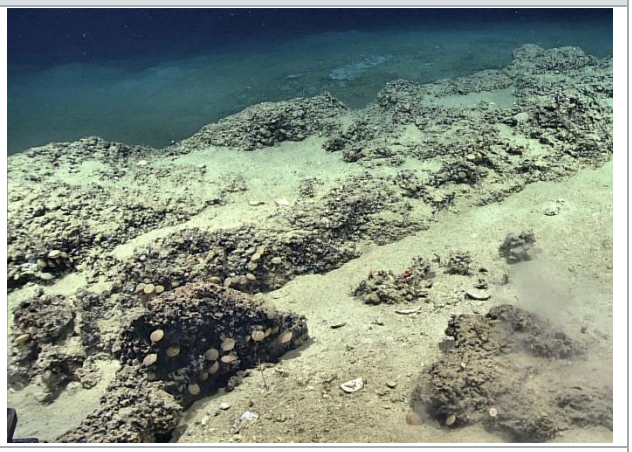
	attached the seafloor, as well as an *Apolemia rubriversa* or an undescribed *Apolemia* species in the water column towards the end of the dive. Moving upslope, the seafloor was covered with many burrows and mounds. Arthropod species observed within burrows and sediment were *Trichopeltarion* sp., *Bathynomus giganteus*, *Neolithodes*? sp., *Nephropsis* sp., *Acanthacaris caeca*, *Glyphocrangon* sp., and Paguroidea with colonial Zoanthidae sp. growing in place or on top of the shell. There were also small areas of reduced sediments observed in shallow depressions. These were inhabited by bacterial mats, empty vesicomyid shells, two species of live gastropods (*Kanoia meroglypta* and *Phymorhynchus* sp.), *Siboglinum* sp. and *Monomitopus* sp. The ROV also came across a dead or moulted *Chaceon quinquedens* scavenged by >10 *Phymorhynchus* sp. with a small *Lycenchelys paxillus*? underneath the carcass. Towards the summit of the slope, two straight-edged elongated carbonate ridges were observed. The first was colonized by hundreds of brachiopods, Zoanthidae sp., one *Acesta* sp., several *Rochinia crassa*, and encrusting demosponges, The second outcrop observed at the top of the feature had a light purple Plexauridae sp., solitary cup corals, a yellow *Paramuricea* sp. with commensal *Ophiocreas* sp. and aplacophorans, a purple/yellow *Paramuricea* sp. with commensal Asteroschematidae sp., a *Swiftia koreni*, a *Sibopathes macrospina*, *Acanthogorgia* sp., *Acesta* sp. bivalves, encrusting demosponges and brachiopods (although not as many as before). One of the most interesting observations for the dive was >20 elasmobranch egg cases (hatched, unhatched and only attachment threads) attached to the above octocorals and antipatharians, indicating that these corals are a nursery for elasmobranchs in the area. Many of the egg cases had been overgrown by coral tissue with polyps. Fish observed throughout the dive included *Pseudophichthyes perturbator*, *Dicrolene kanazawai*, *Synaphobranchus affinis*, *Bathypterois viridensis* with parasites, *Coryphaenoides mexicanus*, two juvenile *Hydrolagus alberti*, *Argentina striata*, *Synaphobranchus brevidorsalis*, *Nezumia aequalis*, *Notacanthus bonapartei*, *Epigonus pandionus*, *Gadomus arcuatus* and *G. longifilis*. Notable observations including many that were firsts for this expedition were a Polychelidae sp., the first dark red pteropod, a possible Edwardsiidae sp. and a tumbling *Gaza* sp.
Overall Map of the ROV Dive Area	Close-up Map of Main Dive Site



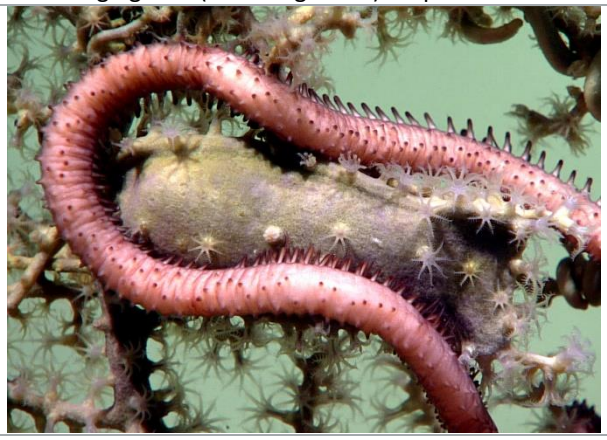


Representative Photos of the Dive

Juvenile Gulf Chimaera, *Hydrolagus alberti*, at a depth of 793 m.



A narrow, tilted carbonate rock outcrop with numerous rhynchonelliform brachiopods anchored on an overhanging face (left foreground). Depth: 785 m.



Phymorhynchus sp. snails (Rachitomidae) feast on the molted exoskeleton of a deep-sea red crab, *Chaceon quinquidens*, which also hosts numerous small scalpellid gooseneck barnacles. Depth: 767 m.	An empty elasmobranch egg case overgrown with polyps of the *Paramuricea* sp. octocoral to which it anchored. The pink snake-like structure is the arm of an asteroschematid snake star coiled on the octocoral. Depth: 761 m.

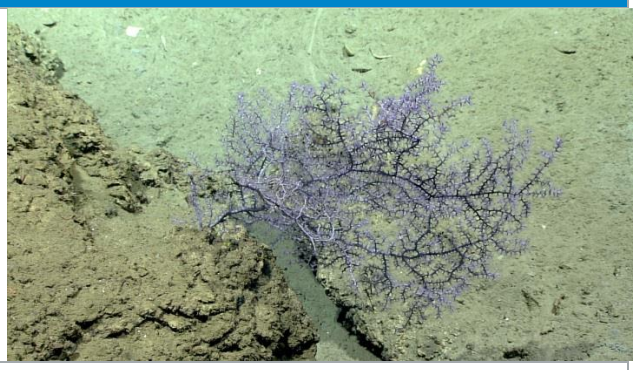
Samples Collected

Sample

Sample ID	EX1711_20171217T200237_D2_DIVE14_SPEC01GEO
Date (UTC)	20171217
Time (UTC)	200237
Depth (m)	785.22
Temperature (°C)	5.83
Field ID(s)	Carbonate Rock
Commensal ID and Field Identification	Brachiopoda A N=2 Porifera N=1 Brachiopoda B N=3
Comments	

Sample

Sample ID	EX1711_20171217T210642_D2_DIVE14_SPEC02BIO
Date (UTC)	20171217
Time (UTC)	210642
Depth (m)	761.25
Temperature (°C)	5.91
Field ID(s)	Plexauridae
Commensal ID and Field Identification	Amphipoda N=1
Comments	



Please direct inquiries to:

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