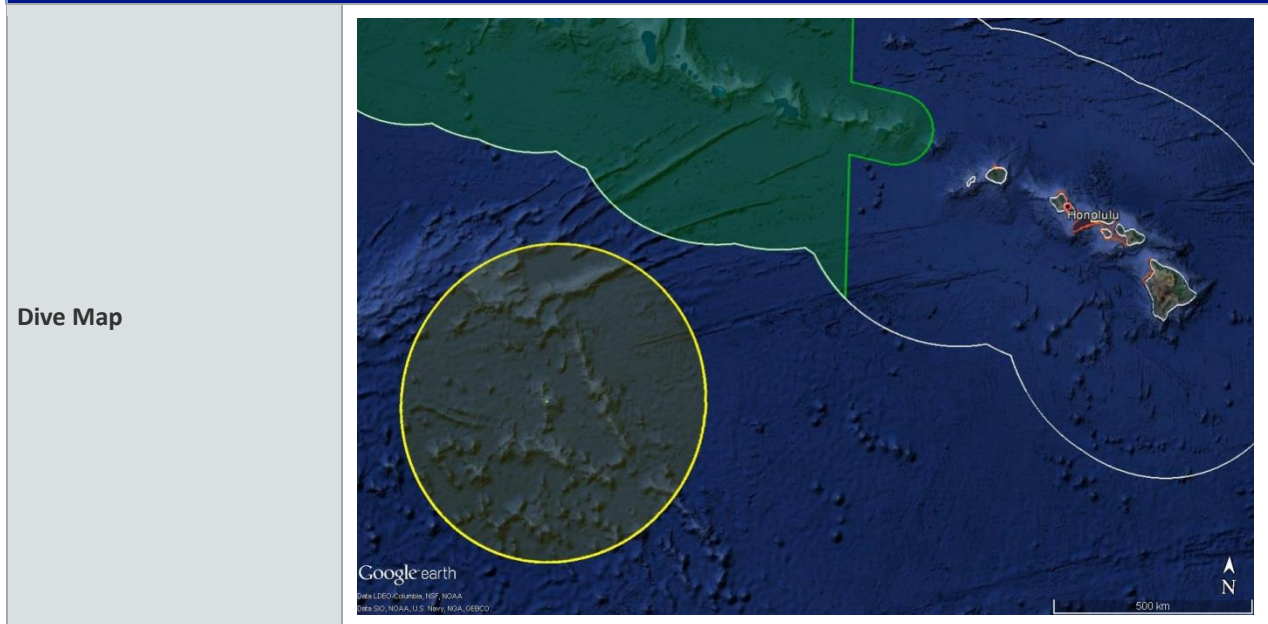




Okeanos Explorer ROV Dive Summary

Dive Information



Site Name	"Keli" Ridge Seamount
ROV Lead(s)	Dan Rogers
Expedition Coordinator(s) / Mapping Lead	Kelley Elliott / Mashkoor Malik
Science Team Lead(s)	Chris Kelley & Chris Mah
General Area Descriptor	Johnston Atoll Unit of PRIMNM

ROV Dive Name

Cruise	EX1706
Leg	
Dive Number	6

Equipment Deployed

ROV	Deep Discoverer (D2)		
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

Purpose of the Dive

Most dives in 2015 were at depths of 2000 m or greater (exceptions were on the slopes of Johnston Atoll or on cones). There are few areas with shallower topography, and it may be interesting to explore what is available in this depth range. Scott France proposed a pair of dives for the 2015 expedition along a N-S trending ridge on one of the most rugged of the Johnston seamounts. The intent was to explore a wide depth interval from \approx 2700m to 1300 m; only the deeper dive was conducted (Dive 05 from 2436 to 2090 m). Here I propose to sample the same ridge at the shallower depth range, ending at the local high. The primary objective for this dive is to characterize the distribution and abundance of benthic fauna, in particular corals and sponges. The dive satisfies CAPSTONE science themes to "Acquire data to support priority monument and sanctuary science and management needs" and to "Identify and map vulnerable marine habitats – particularly high-density deep-sea coral and sponge communities.



Description of the Dive

The ROV D2 was deployed at 8:45 am and reached bottom a little over an hour later at a depth of 1232 m. The substrate was relatively flat and composed of Mn encrusted cobbles, boulders, and light to moderate (30-50%) sediment cover between rocks. Relatively small lobed Mn encrusted pillow lavas were encountered further upslope and two rocks were sampled in this area for geologic aging.

Individual organisms were widely spaced at this dive site and included primarily sponges and colonial cnidarians. Consistently encountered throughout the day were several colonies of the primnoid octocoral (*Narella* sp), each of which hosting a commensal euryalid ophiuroid (i.e., snake star that appeared to be the same species). Other colonial octocorals included an unbranched bamboo coral (Isididae), a coralliid (*Hemicorallium* sp), *Anthomastus tahinodus* (over 15 cm in height), a small colony of an unidentified member of the same genus, and the sea pen *Umbellula* sp. Other cnidarians included a giant solitary hydroid in the family Corymorphidae found in a sandy bottom "pool" among Mn coated rocks, a very large hydrozoan colony in the genus *Solanderia* extending nearly 10 feet across was observed under a basalt overhang, tube anemones (*Ceriantharia*), and a venus flytrap anemone (Hormathiidae).

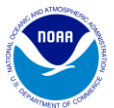
Glass sponges included the stalked euplectellid *Bolosoma* sp, a vase-shaped euplectellid (*Dictyaulus* sp), *Tretopleura* sp in the family Uncinateridae, a paper thin eurentid (*Chonelasma* sp) as well as an unidentified species in that family, and a very unusual glass sponge that was collected and later identified by microscopic spicules as being in the family Tretodictyidae, possibly in the genus *Tretodictyum*. Several colonies of this sponge were encountered and they all hosted other invertebrate species, including rarely seen benthic ctenophores, a large squat lobster, a gastropod, and several hydroid commensals.

Echinoderms included a comatulid crinoid, as well as several asteroids, one being a large, prominent goniasterid identified in the field as *Atelorias* based on size and arm shape. However based on closer study of the image, it appears likely that this was a new genus and species. A white "cookie" type goniasterid, possibly *Bathyceramaster*, was observed feeding on a glass sponge. Two others were documented including a species in the genus *Hymenaster*, and a species of *Leptycaster*. Ophiacanthid ophiuroids were also imaged on dead sponge stalks along with a synallactid holothurian.

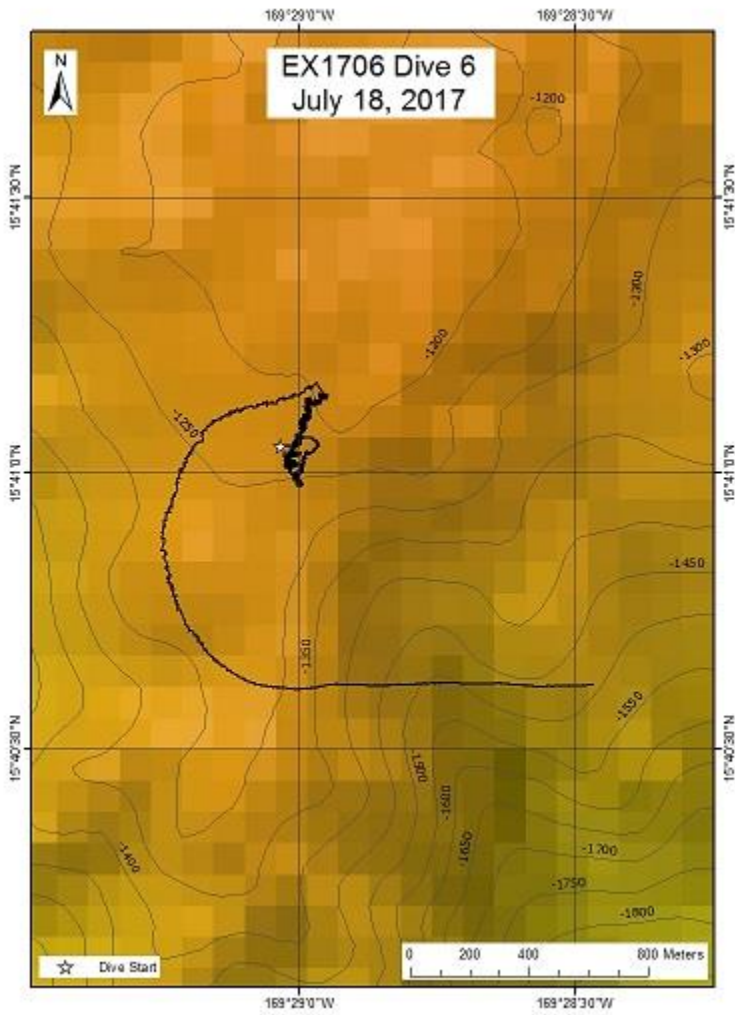
The highlights of the arthropod observations were a large solitary archaeobalanid barnacle in the genus *Chirona* and a homolid crab (genus *Lomoha*) carrying an anemone in its hind legs. Other arthropods included squat lobsters and shrimp.

Fish were observed throughout the dive, including at least 3 "cusk eels" that included several large individuals of *Lamprogrammus* sp and a very small transparent individual that appeared to be a juvenile of a different species. Several synaptobranchid eels as well as a grenadier (*Coryphaenoides* sp) were also observed.

At approximately 1:15 pm HST, power was lost to the D2 and recovery of the D2 began immediately which ended the dive.

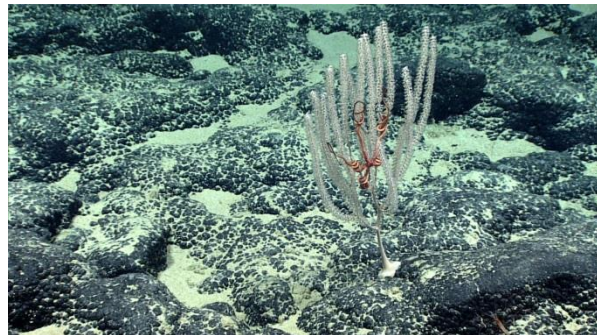
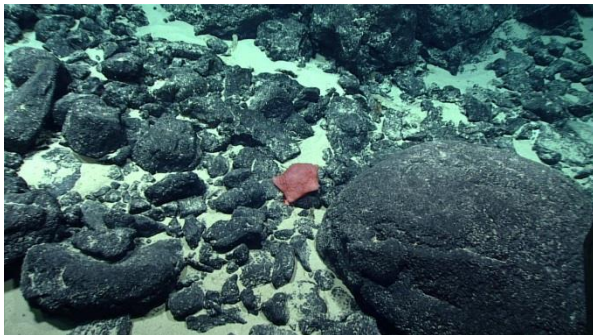


Overall Map of the ROV Dive Area



Note: the dive tracking data was not available due to the ROV power issue.

Representative Photos of the Dive



Hymenaster seastar seen on a mixed sediment, cobble, and boulder substrate that predominated the dive site.

Primnoid coral (*Narella* sp) with an snake star attached to Mn crusted pillow lava formations.

Samples Collected

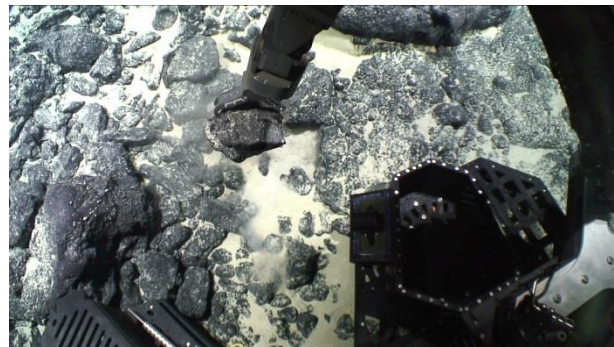
Sample

Sample ID	D2_DIVE_SPEC01GEO
Date (UTC)	20170718
Time (UTC)	203320
Depth (m)	1245
Temperature (°C)	
Field ID(s)	Mn crusted rock
Comments	




Sample

Sample ID	D2_DIVE_SPEC02GEO
Date (UTC)	20170718
Time (UTC)	212917
Depth (m)	1220
Temperature (°C)	
Field ID(s)	Mn crusted rock
Comments	



Sample



Sample ID	D2_DIVE_SPEC03BIO	
Date (UTC)	20170718	
Time (UTC)	223446	
Depth (m)	1214	
Temperature (°C)		
Field ID(s)	Unidentified hexactinellid sponge	
Comments	Initially identified as a potential calcaracean sponge in the genus Clathrina. A bleach prep was conducted on a small piece after the specimen was brought on board and the sponge was determined to be a very unusual glass sponge with a morphology of anastomosing tubes.	

Please direct inquiries to:

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