



	Bottom Time: 5:52:28		
	Max. depth: 2142.2 m		
<b>Special Notes</b>			
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<b>Purpose of the Dive</b>	To explore the biology and geomorphology of Retriever Seamount		
<b>Description of the Dive:</b>			

**Setting:** Dive 5 took place on the northwestern summit of Retriever Seamount. Retriever is the farthest-offshore seamount within the US EEZ. The edifice is about 2000 m high, 7 km in diameter, and has three main summits. The dive plan initially involved climbing to the top of one of these summits but was later modified due to ongoing technical problems with the ship's thrusters.

**Exploration:** The ROV D2 was deployed at 1223 UTC to a depth of 2142 m on Retriever Seamount. The ROV settled on a fairly monotonous sandy slope. The grain size here was coarser than that seen in the canyons and included abundant dark pebbles of manganese crust likely sourced from outcrops located upslope. This sediment is likely hemipelagic, containing a fraction of terrigenous sediment supplied by currents as well as abundant pelagic carbonate. The sediment probe revealed the sediment here to be > 50 cm thick. In places the sandy slope was punctuated by isolated boulders, some surrounded by extensive excavation moats where the sediment was hollowed out by currents. There also seemed to be regular dark wavy bands in the sediment, reflecting distribution of dark pebbles by the currents. The sedimented slopes were scattered with many ophiuroids (*Ophiomusium* like and others) and in several areas we encountered dense patches of white urchins (*Echinus*); these *Echinus* were also seen on rock in other areas. Globose xenophyophores (Syringamminidae?) were abundant on the sedimented slope and often had ophiuroids associated with them; in several cases the sediments around them were scoured to form a small depression. Many sea pens colonies were seen in sedimented areas, with hook-shaped *?Anthoptilum* sp. more common than *Pennatula* sp., as well as cup corals (*Caryophyllia* sp.), including one that appeared to have captured a hydromedusae.

After several hours transiting over the sediment we began to observe more boulders and eventually reached a debris field bordering an area of hard rock outcrop. The rock outcrop had a platey, undulating surface morphology reminiscent of a lobate flow. The underlying lava flow morphology could not be confirmed because the rocks were entirely coated in ferromanganese crust. Only on one occasion did the ROV see what could have been a piece of vesicular basalt in the background, but the zoom was not sufficient to confirm this. This hard rock area also included a large amount of debris. In places a light orange-yellow staining was seen on the sides of the outcrop where pieces of Mn-crust had fallen away. In places this looked like a biological film, and in others it could have been extensive alteration of underlying basalt. The outcrop bore a high diversity of sessile fauna and associates. *Metallogorgia melanotrichos* colonies were very abundant and several "sub-adult" colonies were observed, suggesting different bouts of recruitment to the area. At least one of the *M. melanotrichos* colonies had what appeared to be hatched dumbo octopus eggs attached to the main axis. The orientation of many of the coral colonies clearly pointed to a downslope current. Other corals observed on the outcrop included *Corallium ?bathyrubrum* and *C. ?niobe*, *Paramuricea* sp., *Iridogorgia splendens* (at least one with shrimp associate) and *I. magnispiralis*, *Candidella imbricata* and an unidentified Primnoidae, bamboo corals *Lepidisis* sp. and *Acanella* sp., and black corals *Parantipathes* (branched) and *Stauropathes* (and seen further upslope on isolated rocks, *Bathypathes*). Hexactinellid sponges, stalked crinoids, hydroid colonies, galatheid crabs, a mismatched-size pair of neolithodid crabs (mating pair?), and red crab (*Chaceon quinquedens*) were also observed on the outcrop.

Following our exploration of this area, the ROV was again forced to wait for technical issues with the ship's thruster to be resolved. While waiting in the water column we made a nice observation of a beautiful siphonophore colony (Physonectid) and a phaeodarian radiolarian (IDed by Stephen Haddock, MBARI), a protozoan plankton that consumes marine snow and can form a large part of the biomass in the deep. The ship could no longer move laterally so we were forced to move forward on the ship's then current heading (about 130°). This led again over a gentle, heavily-sedimented slope with occasional debris boulders. Although we tried to move at the ship's maximum speed of 0.3 knots, in the hopes of making it to the steeper slopes of the summit cone, we ran out of dive time and had to ascend from 2003 m without exploring the geology and biology of the summit. Before ascending we did a quick scrape test of the sandy surface with the ROV and revealed that the dark material was only lying on top; the underlying sand was almost pure white.

**Other biological observations:** Fish diversity and abundance was relatively low in comparison to the previous four canyon dives. The species list provided by shore-based scientist Peter Auster follows: Cutthroat eel (*Synaphobranchus* spp. - probably 2), Halosaur (*Halisauropsis macrochir*), Halosaur (*Aldrovandia* sp), Bristlemouth (*Gonostoma* sp), Chimaera (*Hydrolagus affinis*), plus a few unidentifiable fish-like shapes up in the water column viewed from Seirious.

Several interesting Asterozoidea (Echinodermata) were observed during the dive, including a slime star (*Pteraster*), a 6-rayed species and a new geographic record for a Benthopectinidae species. We saw several hermit crabs (Paguridae) with gastropod shells, including a pair that were very mismatched in size.

Other species:

Cnidaria: anemones (*Actinerus* sp.)

Annelida: purple polynoid polychaetes

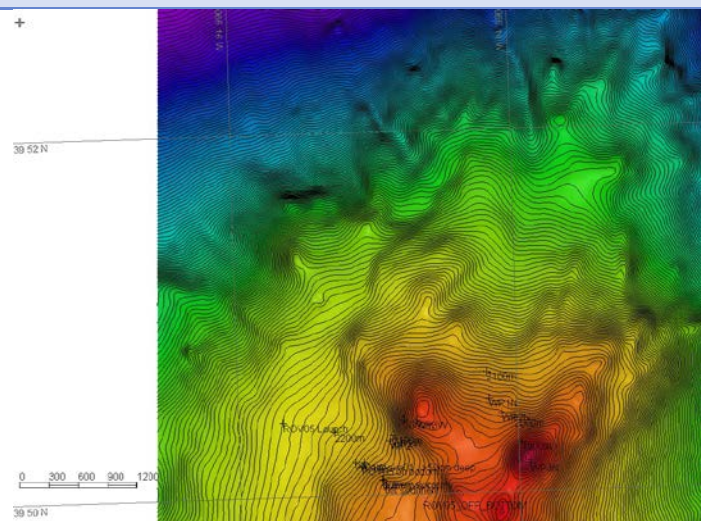
Crustacea: red crab (*Chaceon quinquedens*), king crab (*Neolithodes*), verruciform barnacles

Pycnogonida: *Colossendeis* sp.

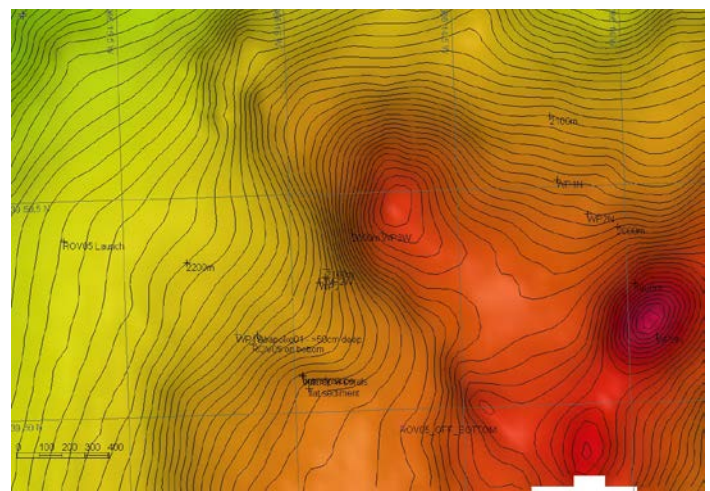
Echinodermata: Asterozoidea (*Neomorphaster* sp.); Ophiurozoidea (many different types, including associates on corals); Crinozoidea; Holothurozoidea (?*Aspidochirota*).

**Interesting highlights:** Deep excavation moats around some isolated boulders on sedimented slopes. Spectacular diversity and abundance of sessile fauna on the one major outcrop observed.

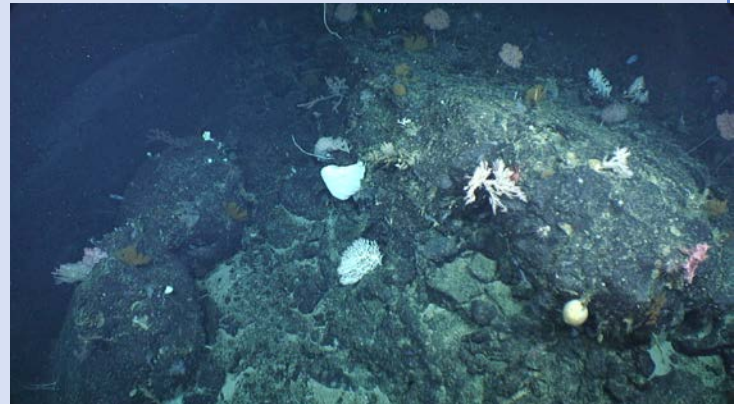
Overall Map of ROV Dive Area

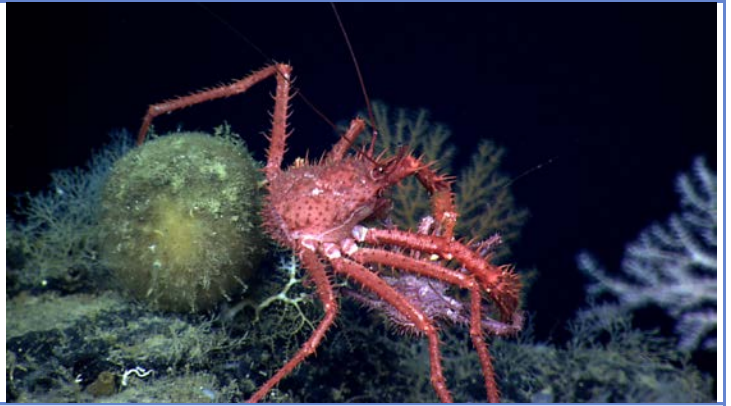


Close-up Map of Main Dive Site



Representative Photos of the Dive





**Please direct inquiries to:**

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