

# Deep-Sea Life

Issue 11, June 2018

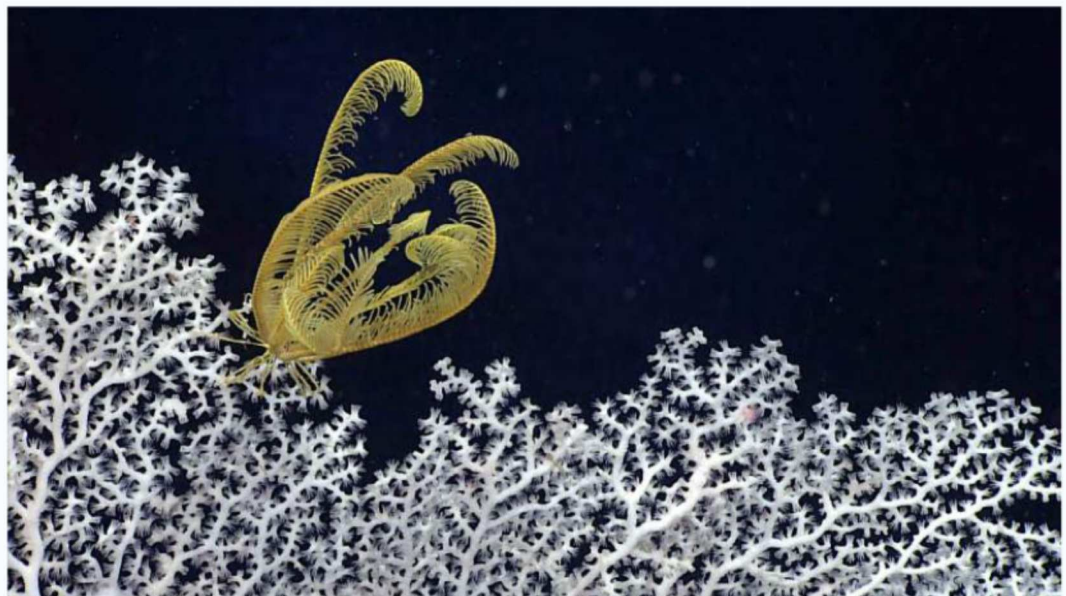
Welcome to Issue 11 of Deep-Sea Life, your friendly connection to the world of deep-sea biology.

As I alluded to in the DSL10 editorial, this and future issues of DSL will not only encompass news from community members from INDEEP (deep-sea research network) and DOSI (advancing deep-sea science in policy), but will also now be a platform for news from the Deep-Sea Biology Society (DSBS, scientific society). The DSBS Trustees will lend additional production support to DSL and enhancement in the form of web-based media elements in order to make DSL more widely-available beyond the current readership. This integration will, we hope, improve clarity and communication to the general deep-sea biology community.

Deep-Sea Life photo of issue 11 is a beautiful yellow crinoid, spotted on the Florida Escarpment Canyon ridge, and comes from Amy Bowman of NOAA (see below).

Thank you for all the submissions for DSL11 and thanks as always to Dr Abigail Pattenden (University of Limerick, Ireland) and Dr Eva Ramirez-Llodra (NIVA, Norway) for their dedication to this publication. Thanks too to our new editorial team members, Dr Paris Stefanoudis (Nekton Foundation, Oxford, UK) and Dr Adrian Glover (NHM, London) from DSBS.

Dr Maria Baker (Editor)  
INDEEP/DOSI Co-Lead  
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Above: A yellow crinoid perched on a precious coral (*Corallium niobe*) that was attached on a topographic high at a depth of 2,273 meters (7,457 feet) on the Florida Escarpment canyon ridge during Dive 14 of the Gulf of Mexico 2018 expedition. There was an abundance of bryozoans at the base of this colony. Image courtesy of the NOAA Office of Ocean Exploration and Research, Gulf of Mexico 2018.

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Figure 5. This squid, observed on an unnamed mound in EB1009 during Dive 04 of the Gulf of Mexico 2018 expedition, had many researchers stumped. It was in a strange posture and was damaged; its long tentacles were missing and the ventral arms were mostly gone. The current best guess is that it belongs to the species *Discoteuthis discus* in the family Cycloteuthidae. However, that species has never previously been observed alive, and therefore it is unknown if this contorted posture is a common behavior in this species. [Watch the video](#). Image courtesy of NOAA's Office of Ocean Exploration and Research.



Figure 6. Two *Muusoctopus* sp. appear to wrestle for space inside a previously unsurveyed shipwreck during Dive 02 of the Gulf of Mexico 2018 expedition. [Watch a video of this interaction](#). Image courtesy of NOAA's Office of Ocean Exploration and Research.

Altogether, the three expeditions collected more than 24 terabytes of data, including video and still imagery, multibeam sonar and single beam echosounder measurements, subbottom profiles, current profiles, CTD and dissolved oxygen measurements, and surface oceanographic and meteorological information. All data and samples will be made publicly available through national archives.

NOAA works with partners to identify priority areas for exploration, support innovations in exploration tools and capabilities, and encourage the next generation of ocean explorers, scientists, and engineers to pursue careers in ocean exploration and related fields. The data and information collected during these expeditions, along with other research funded by NOAA, give resource managers, the academic community, and the private sector the information they need to identify, understand, and manage ocean resources for this and future generations. The next ROV expedition, Windows to the Deep 2018: Exploration of the Southeast U.S. Continental Margin, begins on June 11, 2018, and we invite you to join us. Please visit our [website](#) for more information.

## BioMount Project: unveiling deep biodiversity of Mediterranean seamounts

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Among deep-marine environments, seamounts represent crucial habitats for conservation, due to their importance in offshore ecosystem functioning and to their high degree of vulnerability. Seamounts are widespread in Mediterranean offshore waters and account for approximately 230 structures, many of which are located in the Ligurian and Tyrrhenian seas by virtue of the complex geologic history of these basins.



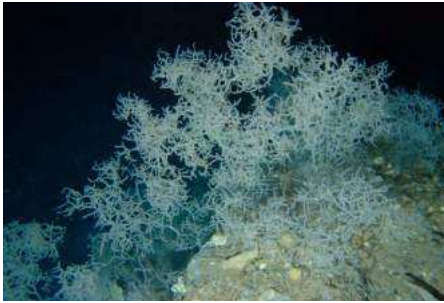


Figure 1. Forest of the black coral *Leiopathes glaberrima* on the summit of the Santa Lucia seamount, 150m.



Figure 2. The crab *Paramola cuvieri* within a gorgonian field on the top of the Ulisse Seamount, 500m.



Figure 3. The hexactinellid *Farrea* sp. on the top of the Janua seamount, 850m.

All these structures are known to represent important feeding areas for cetaceans and are recognized as productive fishing grounds supporting the occurrence of highly productive ecosystems. Unlike paleo-geological studies, however, biological explorations of these mounts are extremely limited and virtually nothing is known on the benthic ecosystems.

The first large-scale ROV exploratory survey of the Ligurian and Tyrrhenian seamounts (BioMount) carried on board of the oceanographic catamaran *Daedalus* departed La Spezia (Italy) in summer 2017, targeting 5 of the 11 summits foreseen in the project. The primary objective was to conduct a biocoenotic characterization of the megabenthic communities thriving on the top of the Ligurian seamounts (Ulisse, Penelope, Janua, Santa Lucia and Occhiali), using the GayMarine's ROV *Multip Pluto*. At the same time, the explorations aimed at assessing the vulnerability of the communities by quantifying the degree of fishing impact on each summit.



Figure 4. Freshly collected samples in the grabber of the *Multip Pluto* ROV

Rich cold-water coral and sponge ecosystems were encountered on all seamounts whose peaks are located in different bathymetric intervals, including large black coral forests on the shallower peak (Santa Lucia, 150 m), and small-sized gorgonians, soft corals and hexactinellids assemblages on the deepest peaks (450-800 m). Remarkable biological discoveries included a new species of black coral and the first Mediterranean record of a new isidid coral. Extensive traces of fishing impact in the form of lost long lines and entangled colonies were found at all depths and were mainly related to recreational fishing vessels.

The first BioMount survey ultimately completed 19 dives, recorded 18 hours HD footage, and collected 30 samples. Biological samples of the black coral *Antipathella subpinnata* were provided from seamount locations to the University of Bologna, who are leading a study on the connectivity of populations at large scale and investigating the degree of isolation of the summits.



Figure 5. Marzia Bo, Guido Gay and Martina Coppari on the vessel deck together with *Multip Pluto* ROV.

The BioMount survey successfully contributed to shedding light on the composition and biogeographic origin of vulnerable ecosystems dominated by rare or extremely longevous species on previously unexplored seamounts subjected to fishing pressure. This information, included in a comprehensive WEBGIS biological baseline dataset, will be of crucial importance to fulfil future requirements of EU Marine Strategy Standards on deep marine habitat protection in the Mediterranean Sea.

This project was financed by the Italian Ministry of University and research under the Scientific Independence of young Researchers (SIR) programme.

The second BioMount survey will start again in just a couple of weeks, destination Spinola Spur in the Ligurian Sea and five summits located in the North Tyrrhenian Sea ... stay tuned!