EXPEDITION PROFILE

April 16 – May 3, 2017 aboard DISCOVERY Yacht SAM

The International SeaKeepers Society partnered with the University of Florida's Whitney Laboratory for Marine Bioscience to collect plankton samples in the Pacific Ocean. A researcher along with crew members spent two weeks aboard D/Y Sam collecting samples daily.

The purpose of the expedition was to collect a genomic snapshot of the biodiversity present in the water column at various sites between Baja California Sur, Mexico, and Oahu, Hawaii. Data collected at each site contributes to a global perspective on the network of organisms present in the world today. This data can be compared to past observations and future replicates (in combination with anthropomorphic and natural fluctuations in the climate and marine environment) to characterize the changes in planktonic marine diversity and interactions over time. Recent scientific innovations have provided a new technique called metabarcoding, in which researchers can take a sample containing thousands of tiny organisms and purify a few genes of interest from each organism. The genes are sequenced all at once to rapidly inventory every specimen in the entire sample.

Each site was chosen based on weather conditions and crew availability, but samples were collected at least once a day for the duration of the crossing. In total, 21 sites were sampled, for which the date, time, GPS coordinates, duration, and conditions were recorded. For every site, at least one net (500 micron mesh plankton tow net) was deployed, and for the majority of the sites, an 80 micron mesh net was also deployed.

Samples were then screened for organisms of particular interest for individual processing and a selection of larvae were photographed and preserved individually for further analyses. Preliminary notes indicate that representative organisms from at least 15 phyla were identified, including ctenophores (comb jellies), echinoderms (like starfish, sea urchin, and sea cucumber larvae), cnidarians (jelly fish), mollusks (sea slug larvae, and juvenile squids and octopuses), arthropods (crustaceans like crabs, amphipods, etc.), chordates, and hemichordates.

This was a great opportunity, not only to collect and observe these organisms in their natural environment, but also to teach non-scientists about the importance of this work in the context of ecology and conservation.

This was the first SeaKeepers expedition aboard D/Y SAM and one of numerous trips with the Whitney Laboratory for Marine Bioscience of the University of Florida conducting genome sequencing. This trip also marked the first time that two research trips were conducted for the same lab simultaneously. D/Y Harle of Fleet Miami supported another SeaKeepers expedition with researchers from the Whitney Lab collecting plankton samples in the Atlantic from April – May 2017.

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