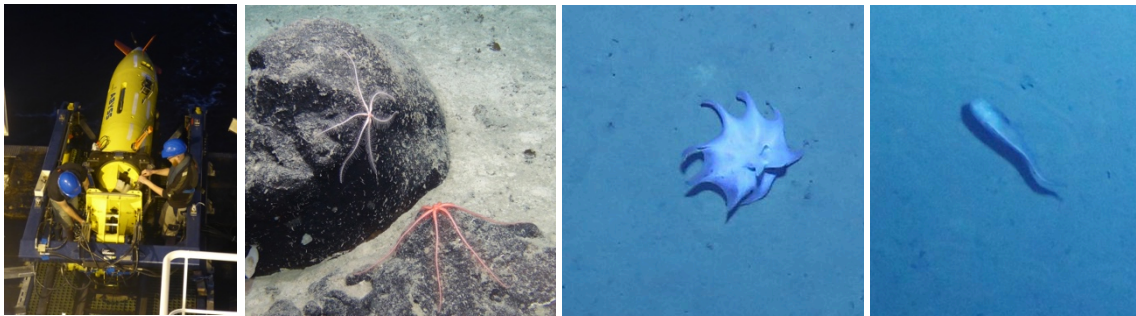


MSc Topic in Biological Oceanography



Understanding the diversity and distribution of organisms in the ocean is crucial to understanding their biology and ecology. The deep sea has traditionally been sampled with nets, which prevent reconstruction of fine scale resolution since organisms are integrated over a large area or volume. Increasingly advanced technology now allows in situ observations of animals in their natural habitat, providing high resolution data on their position and allowing the reconstruction of distribution patterns at unprecedented high resolution. However, to date most deep-sea in situ observations are opportunistic and not standardized making interpretations of biological parameters like density and distribution difficult. We can offer a student project that will work with a unique database of deep seafloor observations.

GEOMAR's autonomous underwater vehicle ABYSS has performed extensive photographic bottom surveys during two cruises on the research vessel Sonne in the Clarion Clipperton Fracture Zone in 2016. This zone on the abyssal plains of the Pacific is a potential mining area for manganese nodules. The AUV bottom surveys resulted in >500,000 images of the seafloor, covering an area of several square kilometers. To assess the megafaunal communities in this area, we provide an opportunity for a MSc student to work with these images to investigate the diversity and distribution of benthopelagic organisms including cephalopods, gelatinous fauna and fishes. The skills that the student will obtain during this project will be taxonomy of deep-sea animals, processing of imagery, working with ecologically relevant data.

The project will be co-supervised by Dr. Henk-Jan Hoving (hoving@geomar.de - Evolutionary Ecology of Marine Fishes group, GEOMAR) and Dr. Timm Schoening (tschoening@geomar.de - Deep Sea Monitoring group, GEOMAR).