

Summer Zooplankton Research in the Gulf of Mexico

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The TCRF funds supported the zooplankton research of my lab in the northern Gulf of Mexico in the summer of 2019. The objective of this project is to develop time series data of zooplankton to seek future external funding from NSF and NOAA. We collected data of zooplankton and associated environmental factors off Galveston coast in June, July and August 2019 and on a two-week cruise over the continental shelf of the Gulf of Mexico. The TCRF funds also supported a graduate student (Jillian Gilmartin) in the summer 2019 to conduct the sampling cruises and sampling processing for her dissertation project and the ongoing NSF project.

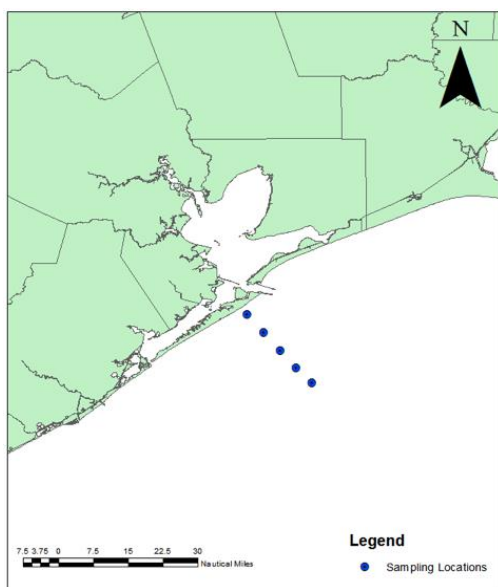


Figure 1: Galveston Observation Line Cruise Stations

Cruises were conducted in the summer of 2019 to survey the zooplankton community up to 25 nautical miles offshore of Galveston Island on June 10, July 19 and August 16 (Figure 1). 45 zooplankton samples were collected using plankton nets of 100 μ m and 202 μ m mesh size at the five stations by horizontal tows and vertical tows. Temperature, salinity, Chl-a and dissolved oxygen were collected from the upper 5m of water column. A CTD (Conductivity-Temperature-Depth) was deployed at each station to get a full vertical profile of temperature and salinity along the sampling line. A two week offshore sampling cruise was conducted in the northern Gulf of Mexico from August 1 to August 14 (Figure 2). A total of 36 vertical zooplankton samples were collected over 14 days with a plankton net of 202 μ m mesh size. CTD profiles were taken at each station to get profiles of temperature, salinity, and dissolved oxygen along transects. Graduate student Jillian Gilmartin has submitted a manuscript

on the distribution patterns of Chaetognaths in the northern Gulf of Mexico and currently been doing revisions of the paper to be submitted to another journal. Graduate student Chengxue Li has submitted a manuscript on modeling growth rates of English sole off Oregon coast and has drafted another paper about modeling spatial patterns of jellyfish blooms in the northern Gulf of Mexico.

Research on zooplankton and climate change is well aligned with the lines of inquiry in the NSF. The fifth year sampling supported by TCRF stretched the time series from 2015 to 2019, which is valuable for seeking external funds from NSF and NOAA in the near future.

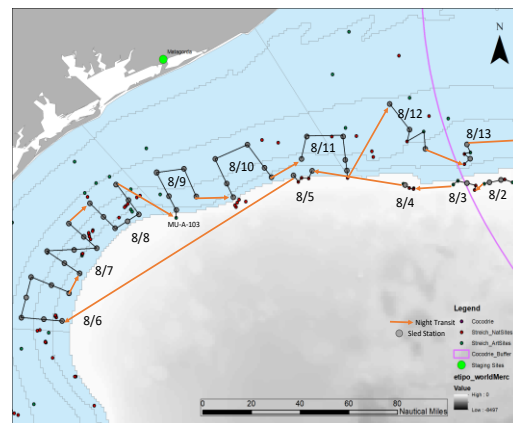


Figure 2: Offshore Gulf of Mexico Cruise Stations