

# Steep and deep: Habitat associations of prawns in Southern California

Rhiannon McCollough, Ashley Knight and James Lindholm  
Institute for Applied Marine Ecology at California State University, Monterey Bay

## Background:

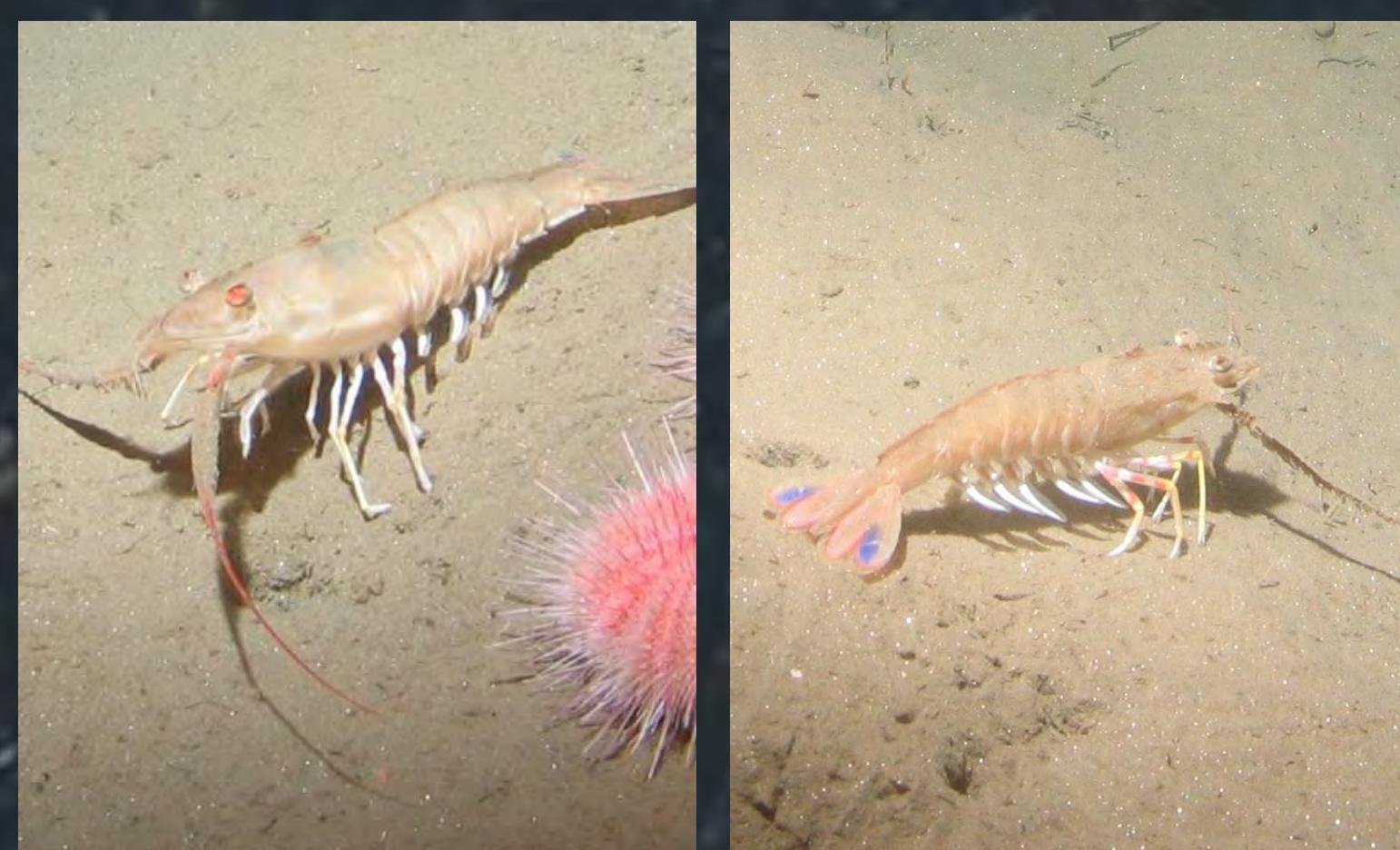
Previous research regarding the relationship between commonly exploited prawns in southern California and their benthic habitats is limited to trawl and trap studies where specific habitats cannot be observed. However, *in situ* observations from a remotely operated vehicle (ROV) provide the opportunity to directly observe individual organisms in the habitats in which they occur. These data in turn provide a stronger foundation for management of prawns, particularly where spatial management regimes such as marine protected areas (MPAs) are either in place or planned.

## ROV-based imagery collection:

As part of the South Coast MPA Baseline Characterization Project, video imagery was collected, using a remotely operated vehicle (ROV), across 11 transects in November 2011 at MPAs off the coast of La Jolla, California. Precisely geo-referenced positions of individual prawns were extracted from the video and overlaid on the habitat factors (depth, slope, rugosity) taken from multibeam data.

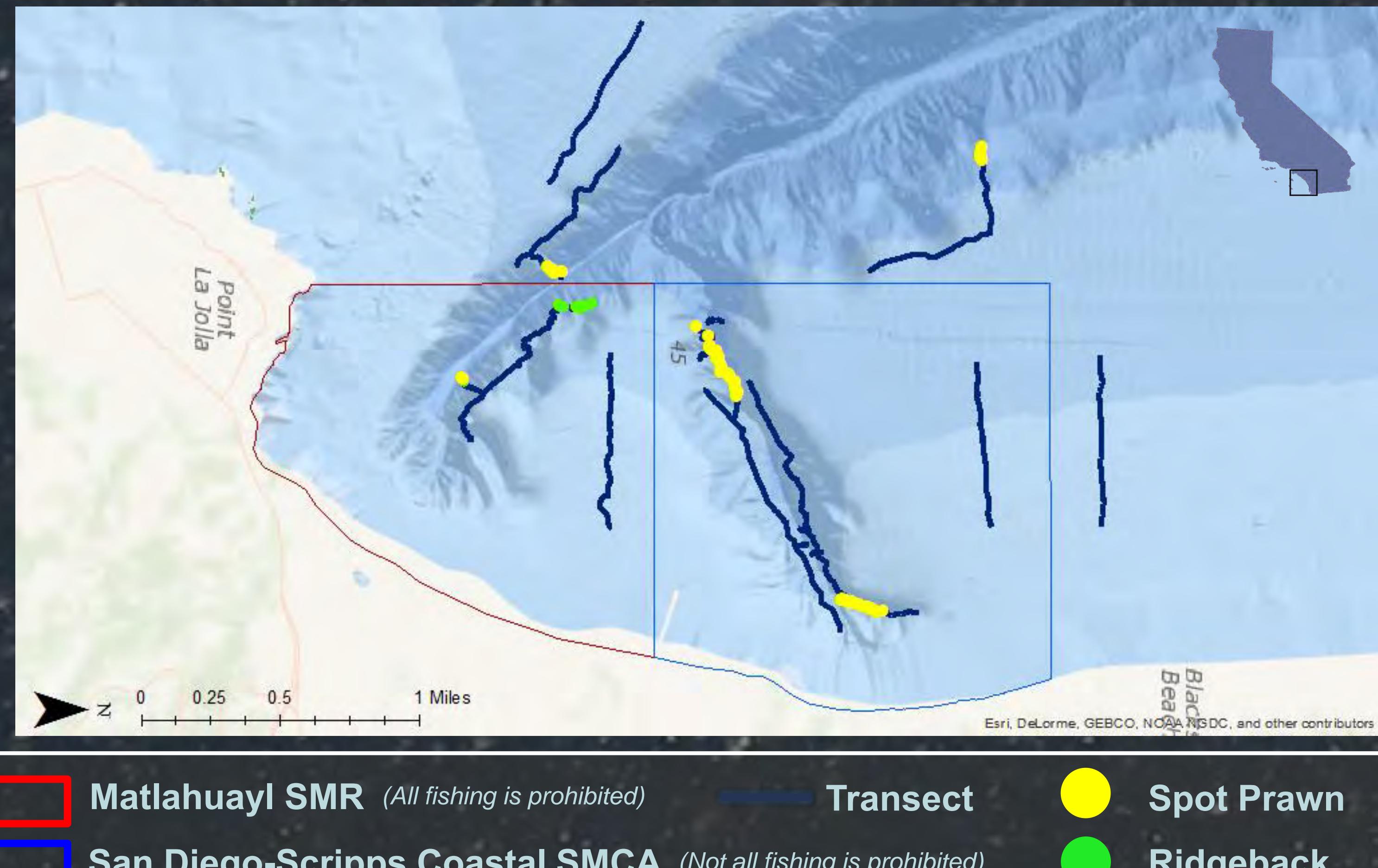


## The Ridgeback Prawn (*Sicyonia ingentis*)

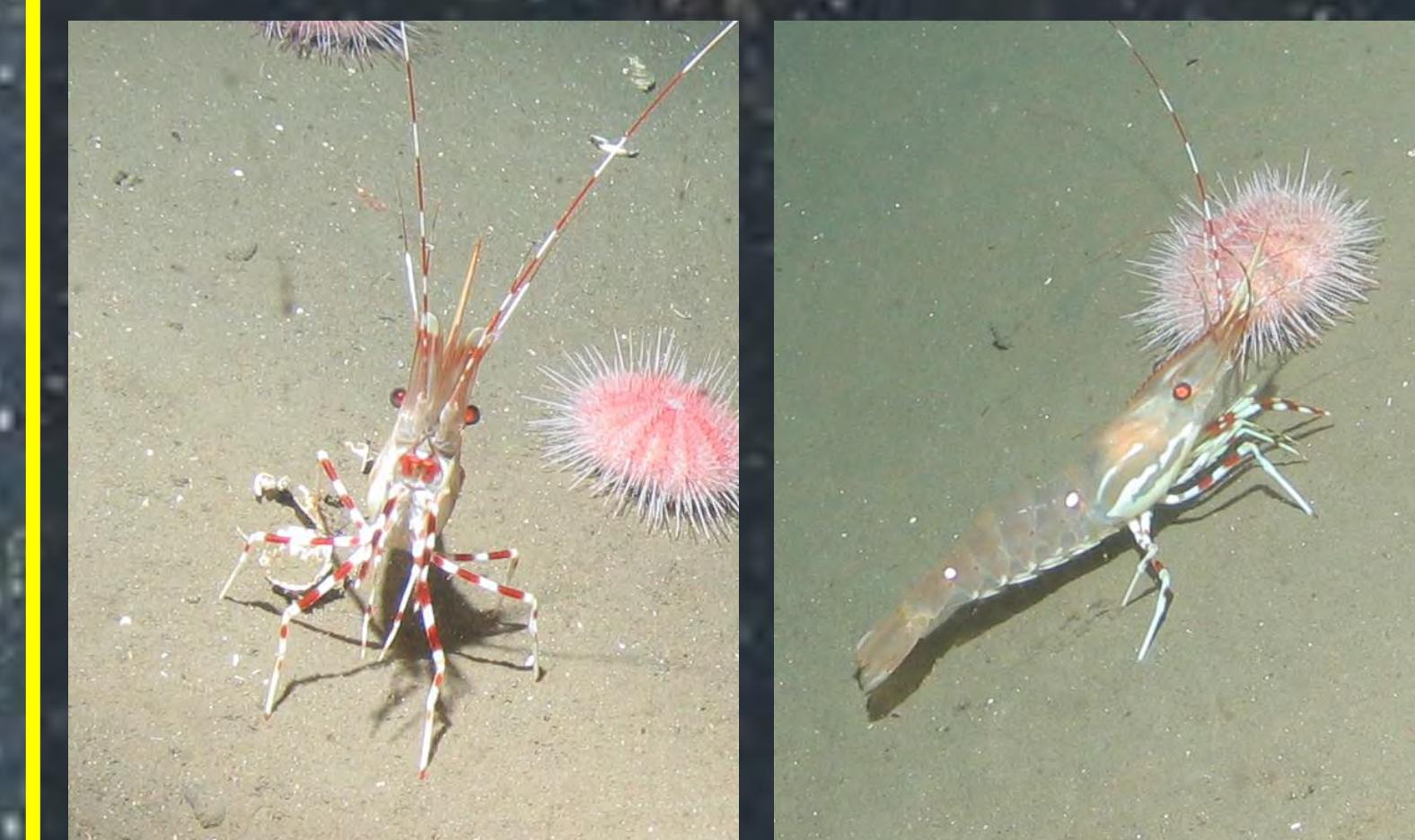


- Total count: 683
- Depth range: 80-182m
- Slope range: 13-47°
- Ruggedness range: 0.001-0.3

## La Jolla Prawns:

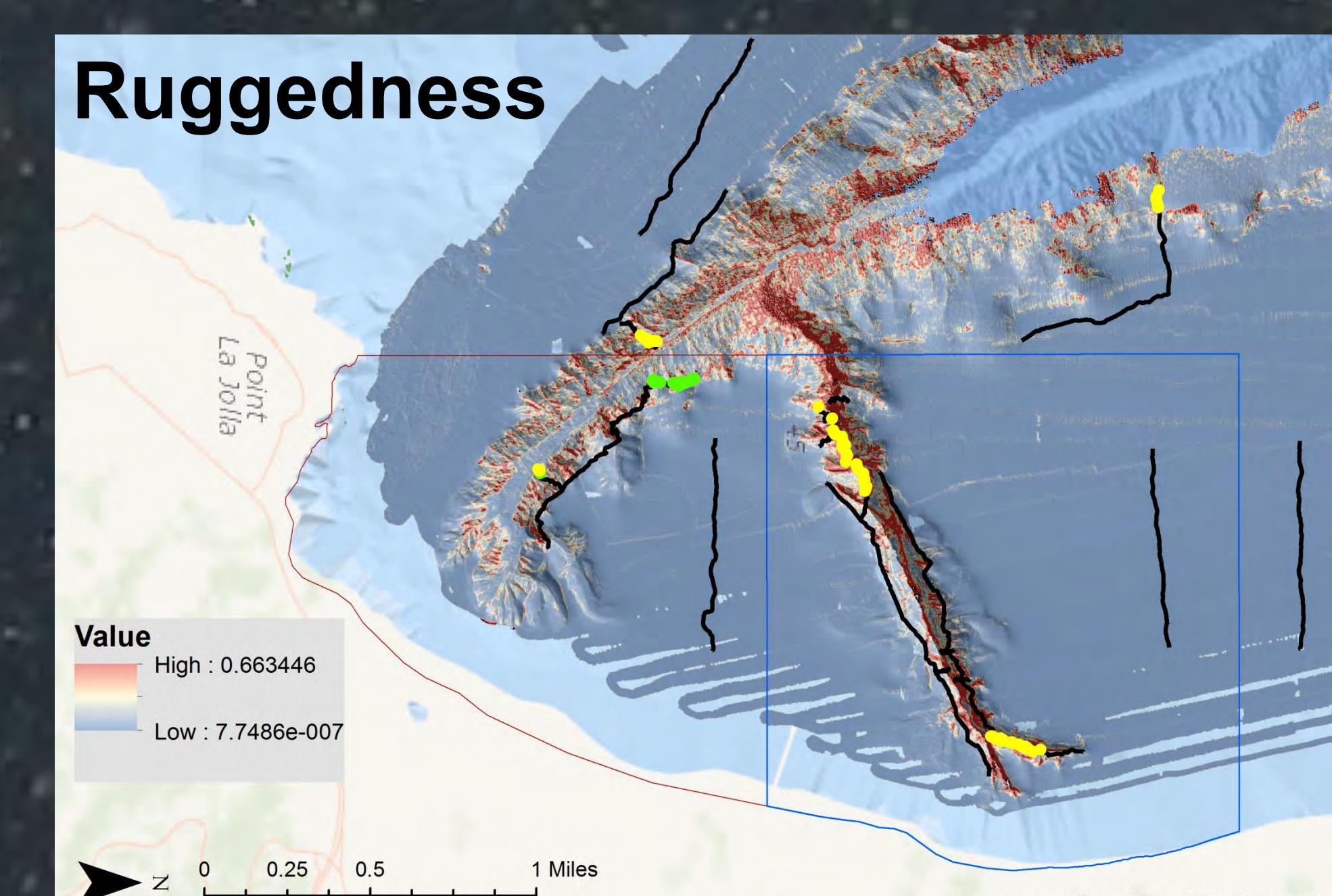
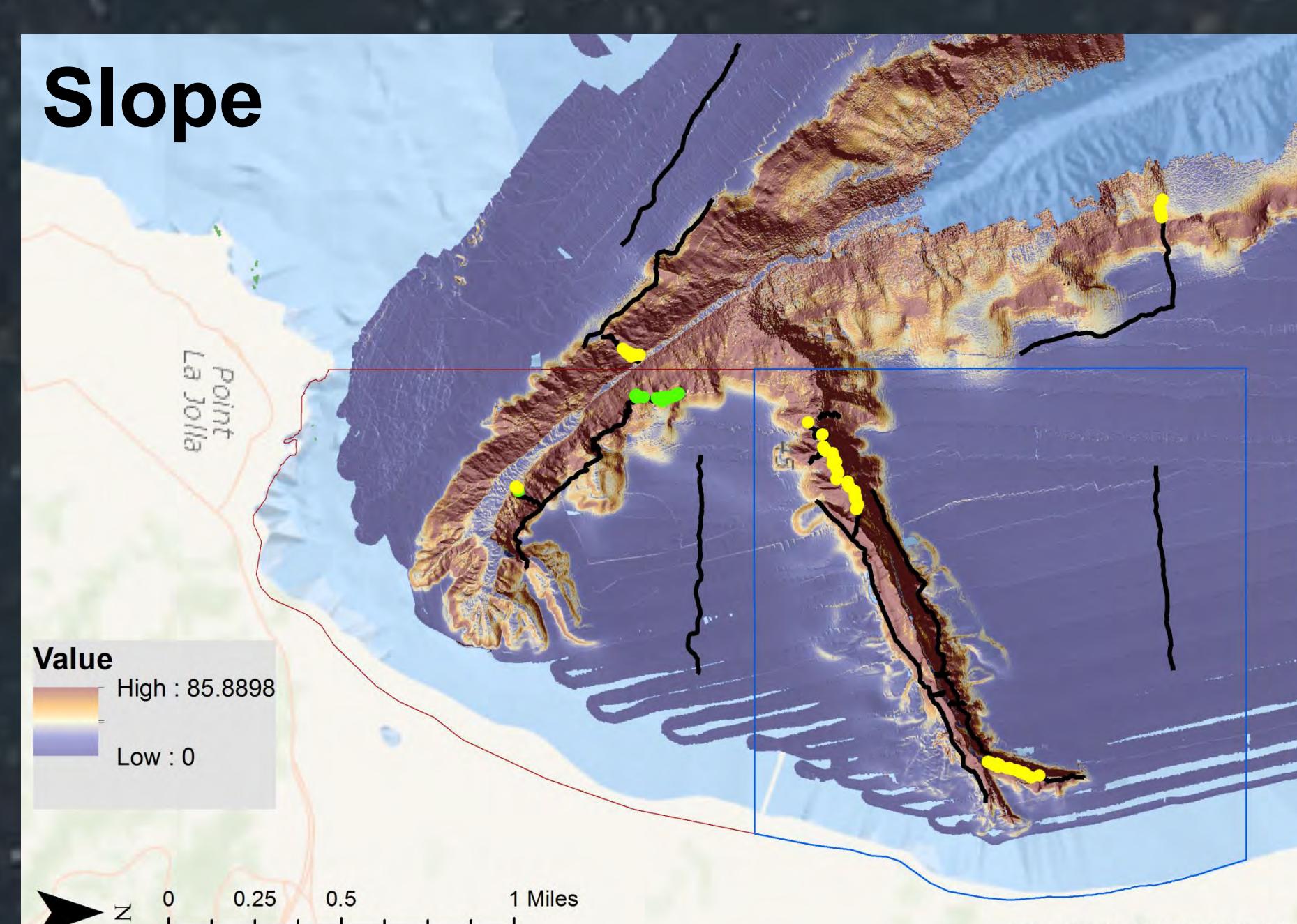
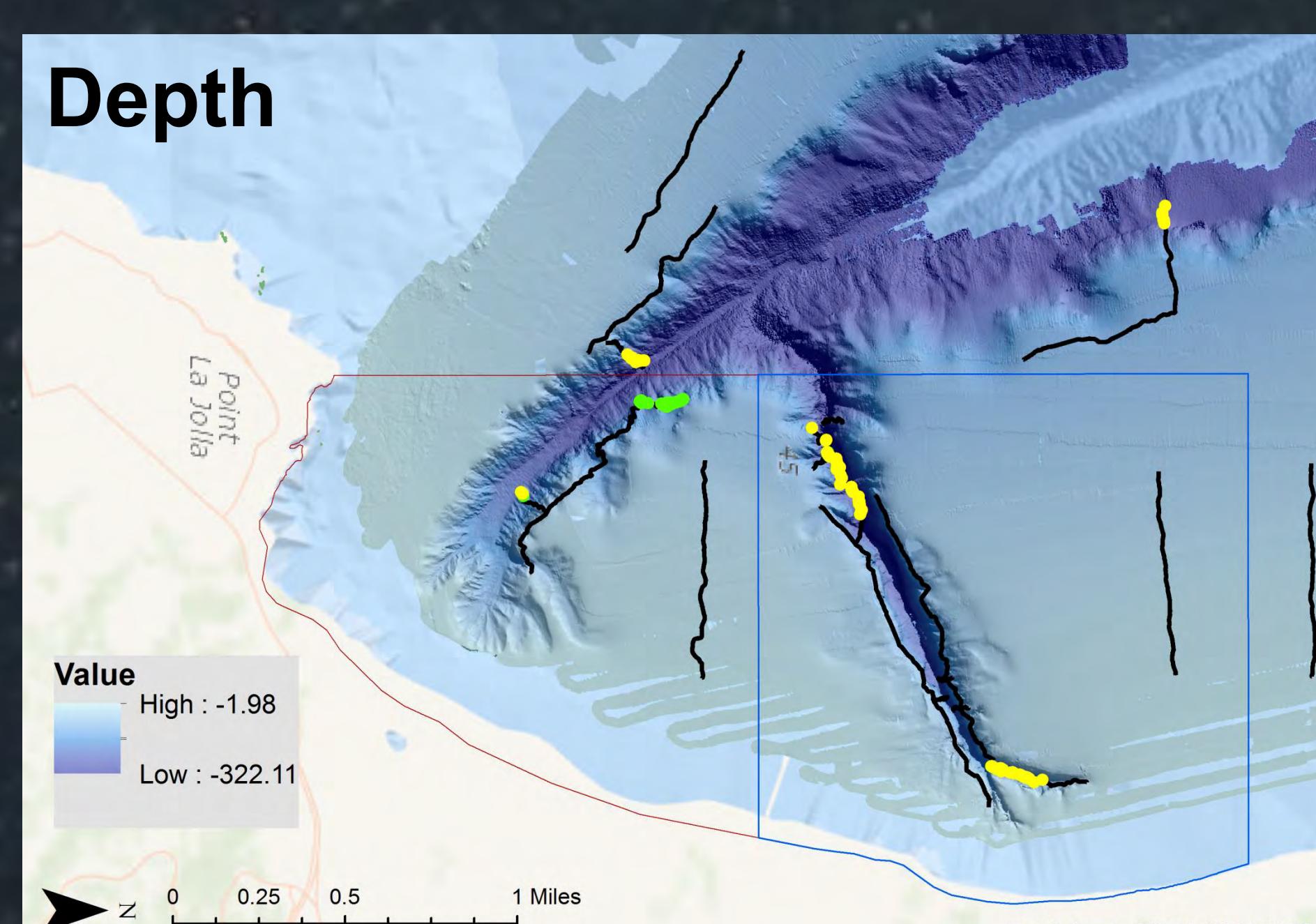


## The Spot Prawn (*Pandalus platyceros*)

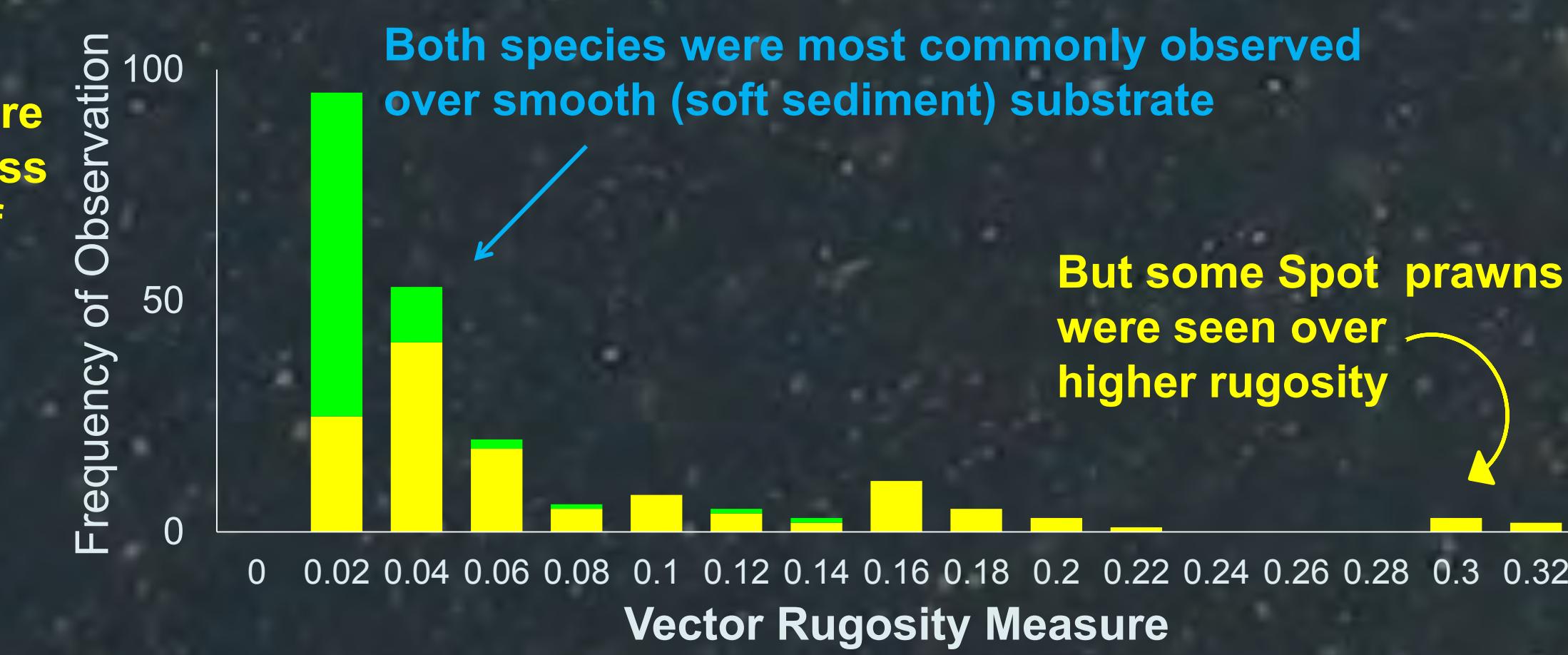
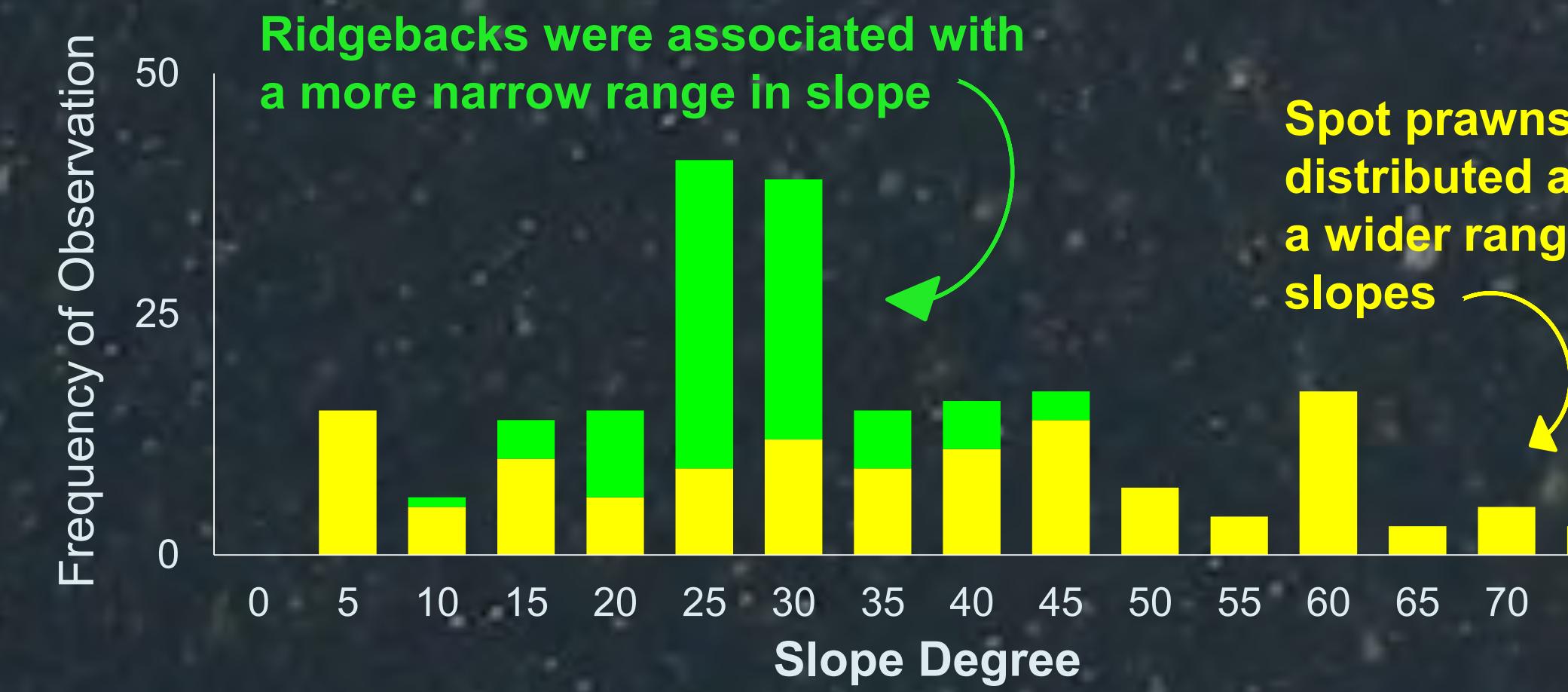
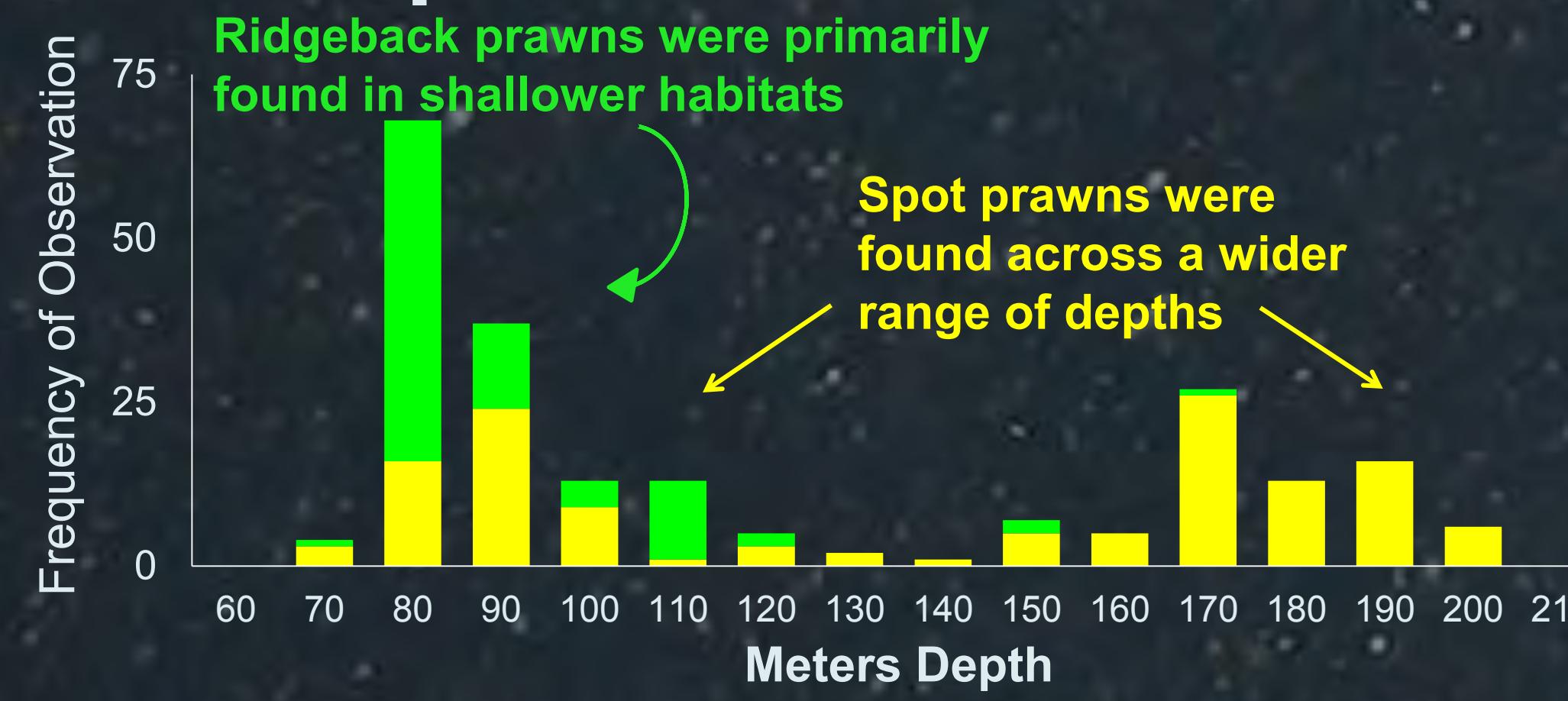


- Total count: 359
- Depth range: 70-190m
- Slope range: 0.4-72°
- Ruggedness range: 0.02-0.3

## Multibeam-derived rasters represent habitat attributes

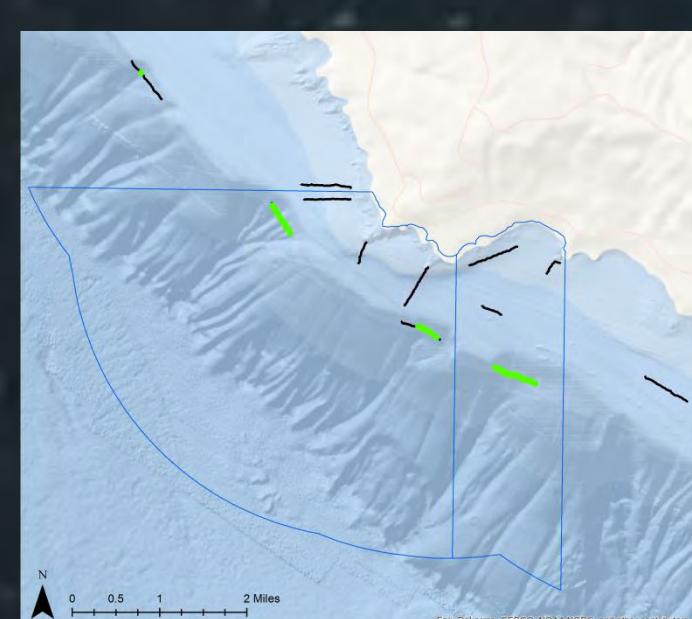


## Prawn species differed in habitat associations



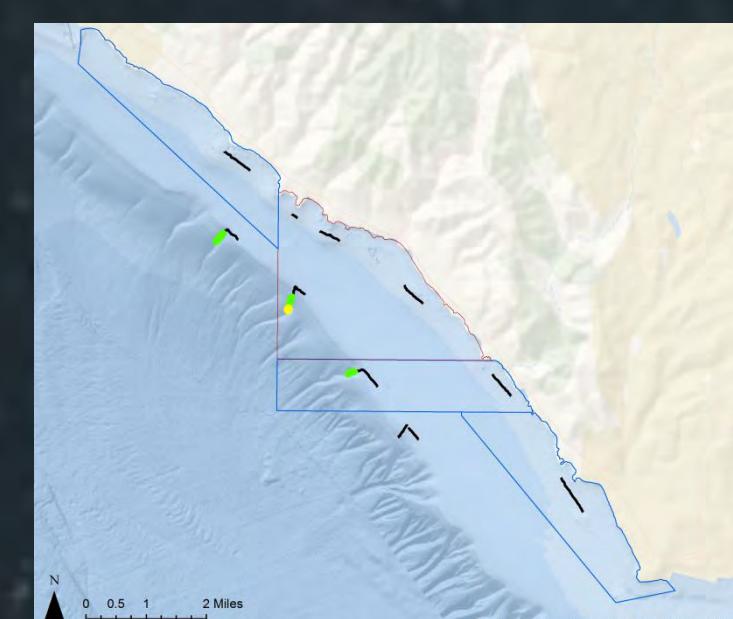
## Prawn distribution at other sites:

### Point Vicente Study Site:



Only Ridgeback prawns observed  
All found off the continental shelf in deep areas

### Laguna Study Site:



Both species of prawns observed  
All found off the continental shelf in steep areas

## Future:

Examine other factors that contribute to the distribution of both species of prawn, such as temperature and salinity.

Using these habitat variables at other study sites, examine how they may be driving prawn distributions.

Create predictive maps for both species using the significant habitat variables for areas of the seafloor that were not surveyed with the ROV.

## Many thanks to...

We would like to thank the staff at the Undergraduate Research Opportunities Center (UROC), the crew of Marine Applied Research and Exploration, the captain and crew of the F/V Donna Kathleen, and the Seafloor Mapping Lab at CSUMB for key support across all aspects of the project.