

Survey of Zooplankton in the Lower Rio Grande Valley Coast



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Introduction

- “Water quality is determined by the interaction of physiographic setting with human activities and is measured as the degree of eutrophication—the clarity of water—and the levels of contaminants.” (Kennicutt 2017)
- Zooplankton are free floating, heterotrophic, and generally microscopic organisms. They are found within large bodies of water, including oceans and freshwater.

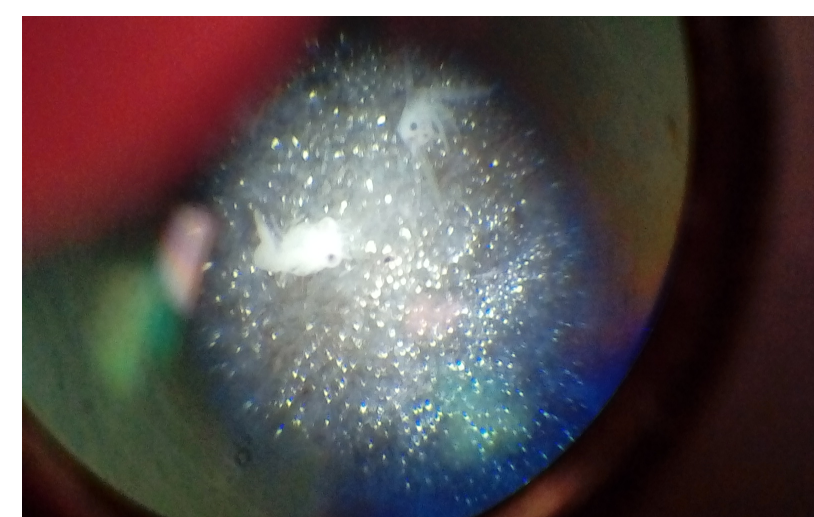
Hypotheses:

- Water quality will sway the distribution of zooplankton. I expect to find that site 1 and 3 have similar bio diversity because the sites have similar salinity and both were near a boat ramp.

Methods

Field Sampling:

- Zooplankton samples were collected from boating ramp and a fishing pier by a plankton net. There are 3 sample sites along the Rio Grande Coast (Figure 2.)
- A water test probe with multiple sensors was used to collect water quality samples at all three sites
- Water Nutrient Test kits were also used to examine quality



Laboratory methods:

- We used a microscope to identify the specimens per site.
- Simpson's Index was calculated to determine diversity based on both richness and proportion (percent) of each species.

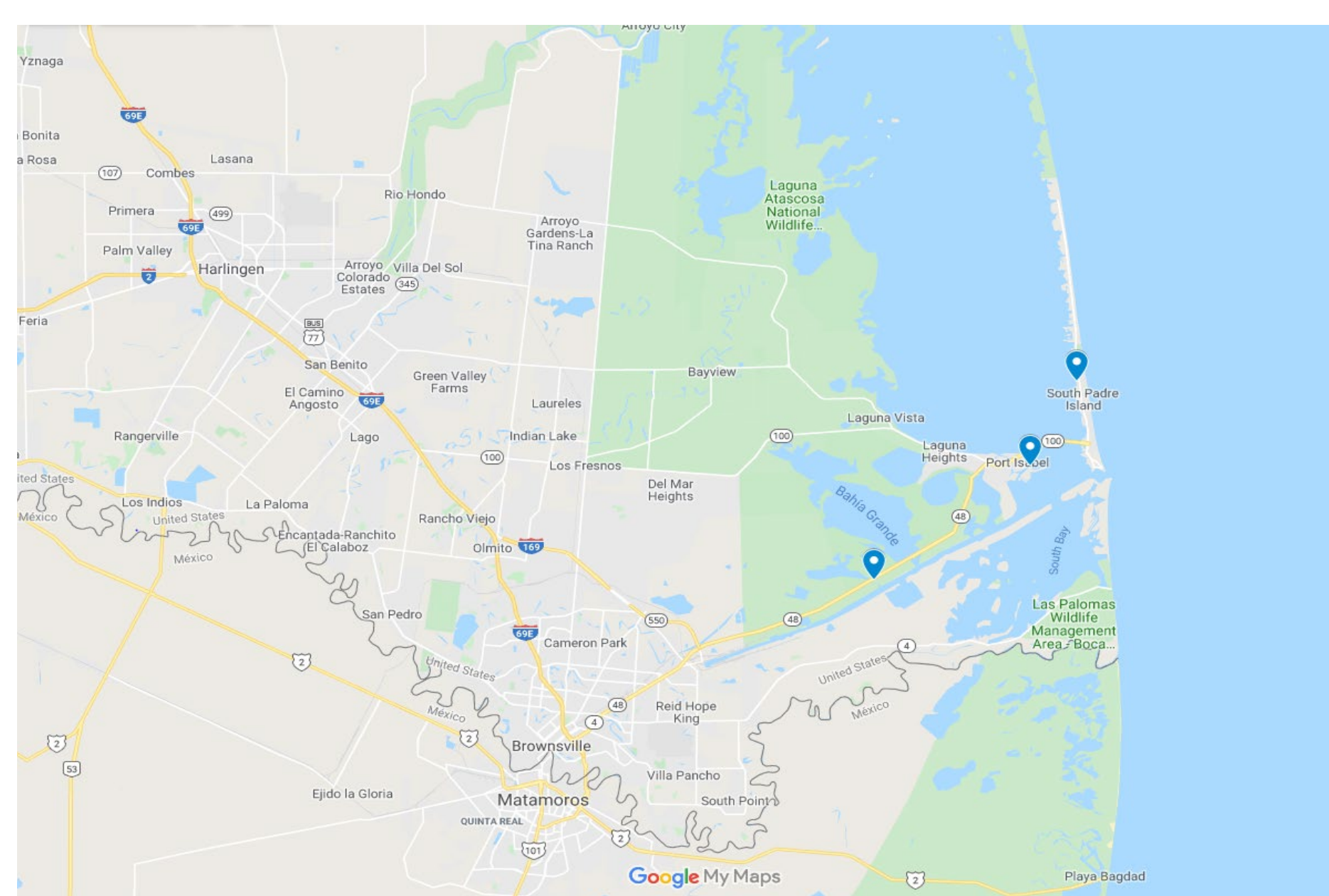


Figure 1. Zooplankton collection site. Each node represents a sampling site.

Results

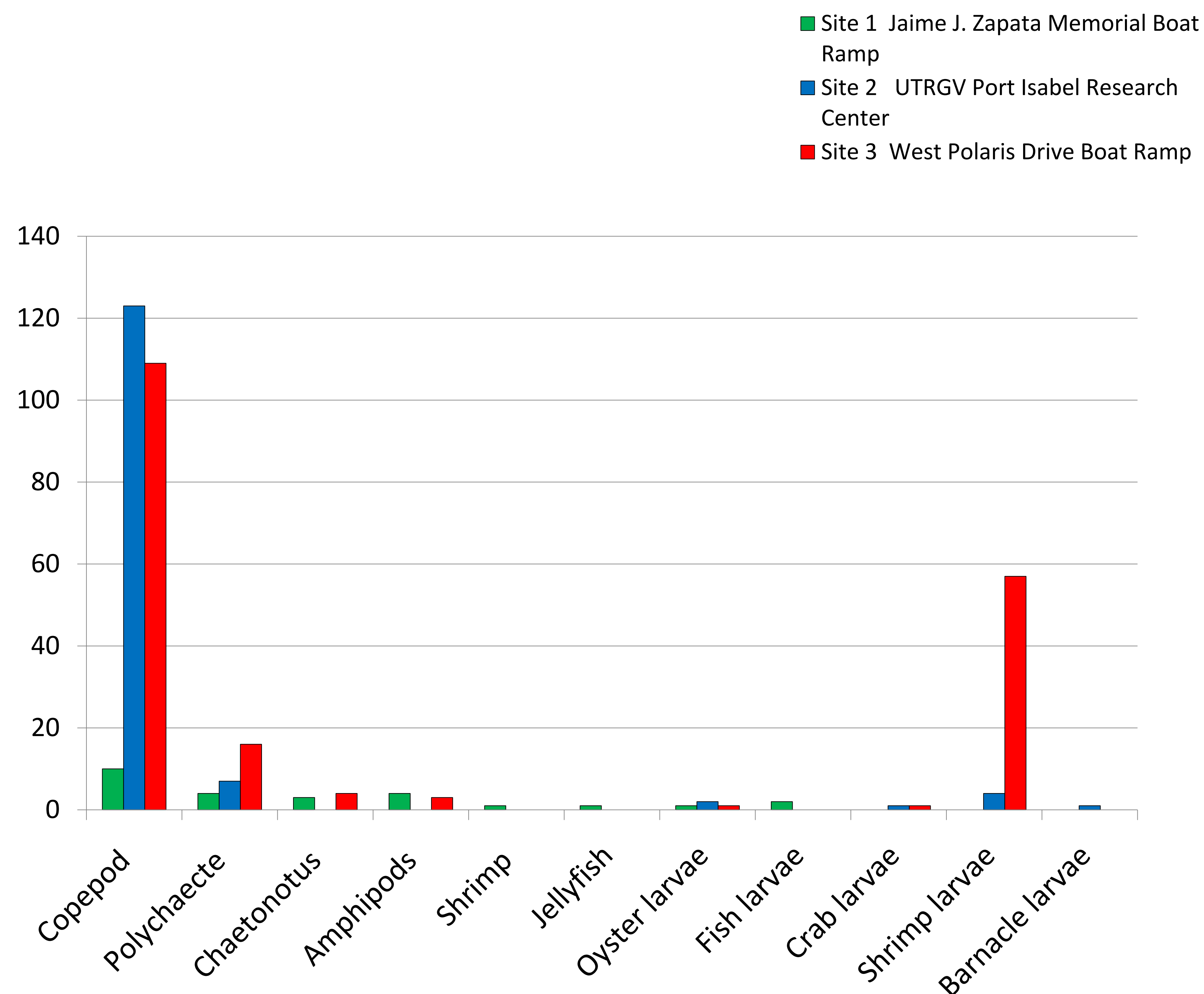


Figure 2. Zooplankton populations data from 10/11/2019

site	Date	Time	Amm onia	Dithiop hospha te	Nitrat e_mg/l	Nitrite _mg/l	Temp_deg _C	pH_u nites	conduc tivity	Dept h_m	bgm_ce lls/mL	chl_ ug/l	DO_ mg/l	Turbity _NTU
1	10/11/2019	11:00 am	0	0.3	0	5	28.6	7.92	47,270	1	3.05	4.5	5.4	90
2	10/11/2019	11:30 am	0	0.2	0	5	28.7	7.9	44,480	1	2.2	4	6.7	31.4
3	10/11/2019	12:00 pm	0	0.4	0	10	29.92	8	45,630	1	3.08	5.84	6.23	30.47

Table 1: Water quality data from 10/11/2019.

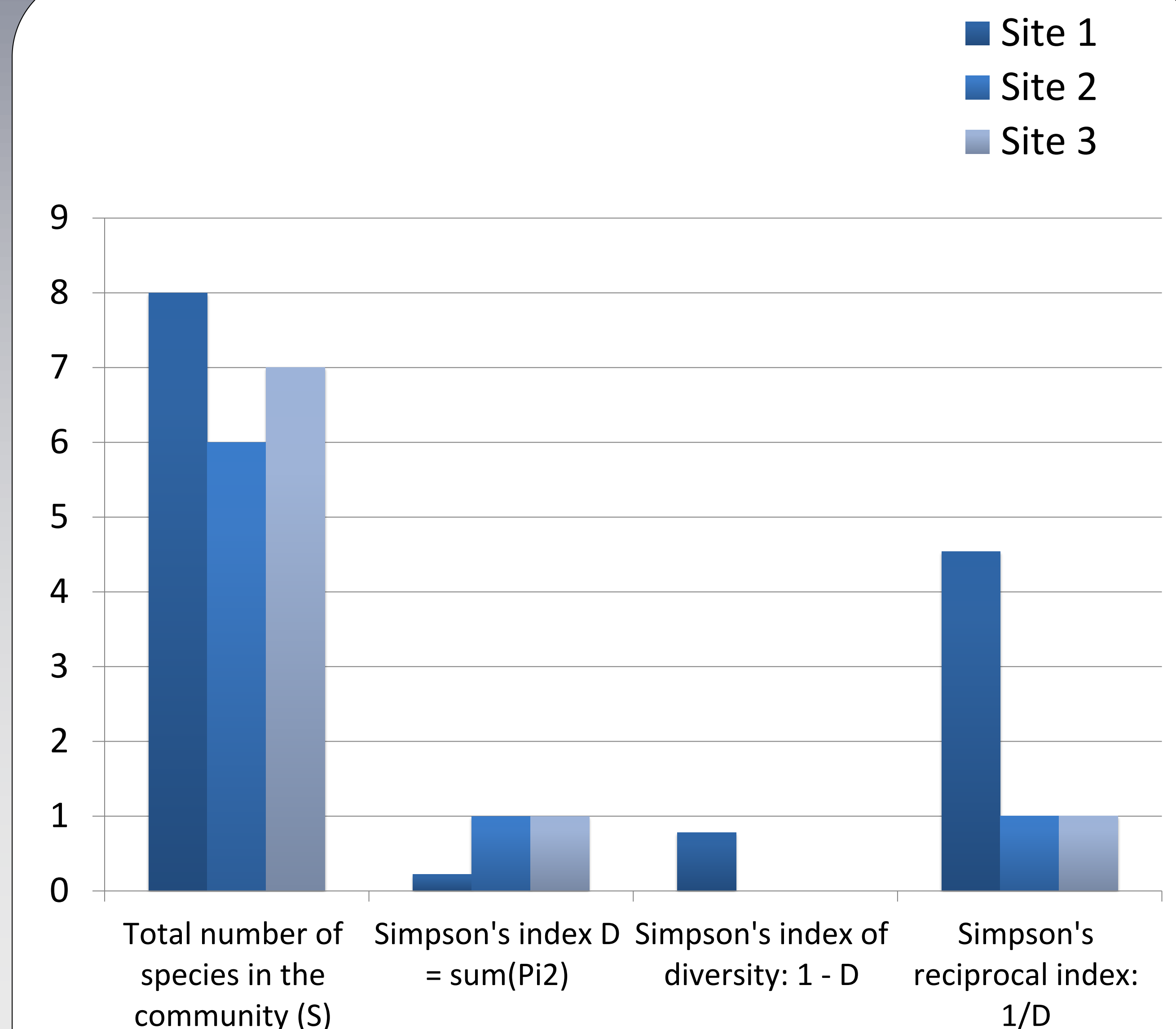


Figure 3. Simpson's Index

Conclusions

- The results suggest that Site 2 and 3 have similar abundance however both are less diverse than site 1.
- Based on the results found my hypothesis is rejected because sites 1 and 3 did not have similar biological diversity and salinity was greater at site 1 as demonstrated by the high conductivity.
- Site 1 had higher diversity because it was a small area and is surrounded by mangrove habitat and mostly likely had productive sea grass bed habitat as well.
- The main habitat around sites 2 and 3 are oyster beds.

Literature Cited

- Kennicutt, M. C. 2017. Habitats and Biota of the Gulf of Mexico: Before the Deepwater Horizon Oil Spill 1: 55-164.

Acknowledgements

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