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Are beaches' suitability as sand crab habitat affected by human recreation?

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INTRODUCTION



Sand crabs (Anomura: Hippoidea) live in beach habitats worldwide (Boyko 2002). Because they have no visible signs of their presence on beaches to casual observers, they are easily overlooked, even though they can be present in high densities. Because humans use beaches for recreation, it is possible that sand crab habitat could be affected in popular tourist locales.

We hypothesized that if heavy beach use affected sand crab habitat, the southern developed site would have:

- Fewer individuals per section of beach samples
- Smaller individuals
- Fewer reproductive individuals

METHODS

We compared the populations of sand crabs (*Lepidopa benedicti*, family Albuneidae) at two locations on the popular tourist destination South Padre Island: one which is reasonably developed, having many hotels and restaurants and one which is not so developed, at a more northern point on the island.

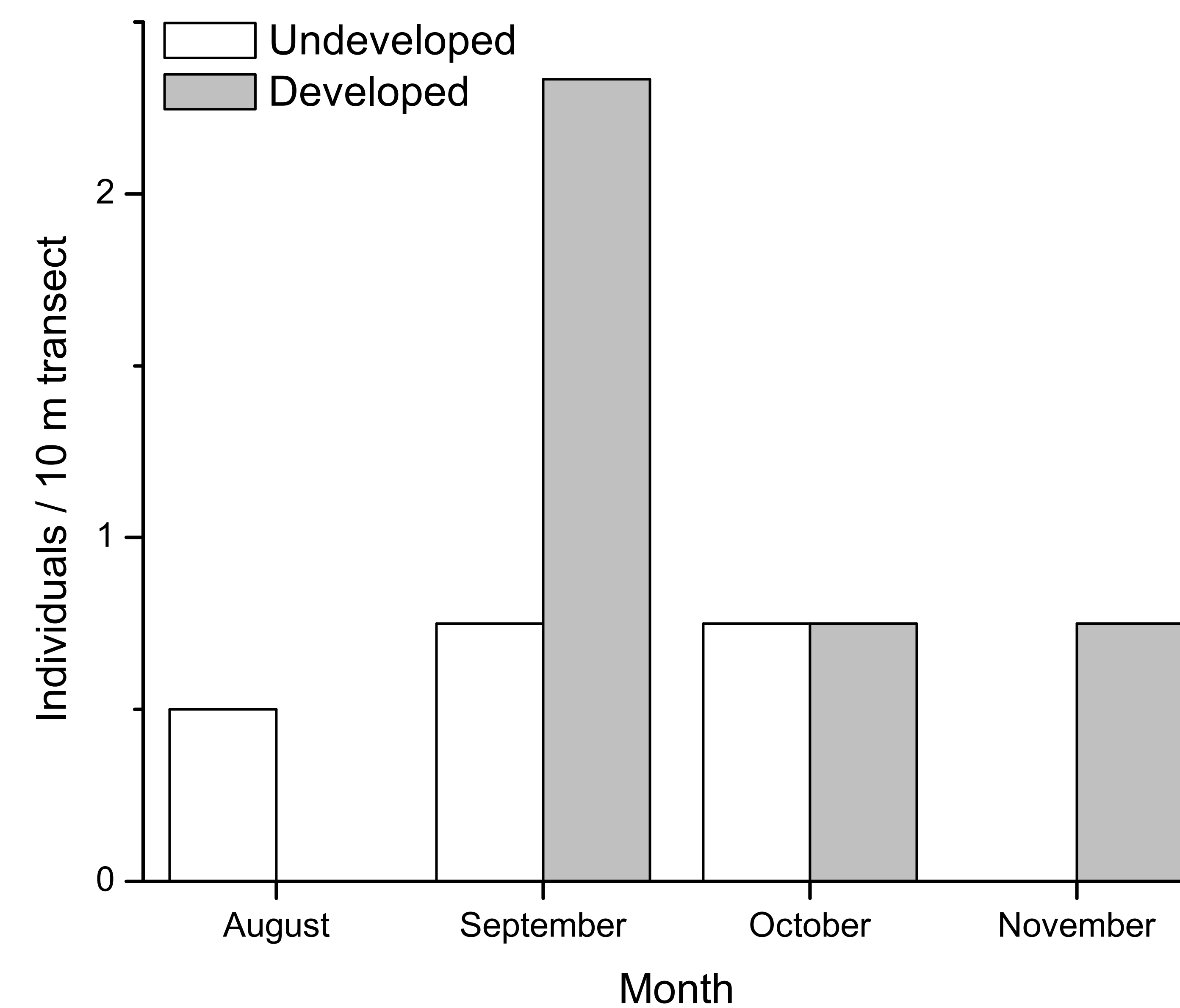
At each site, 10 m transects were dug starting at the top of the swash zone (parallel to the surf). Each shovel of sand were carefully sifted. The carapace length, sex, color, and reproductive status of each sand crab found were recorded on site. Samples were collected regularly from August 2009 to present. Sample sizes vary among these measures because some crabs were damaged by the shovel, preventing size or sex from being measured.



RESULTS

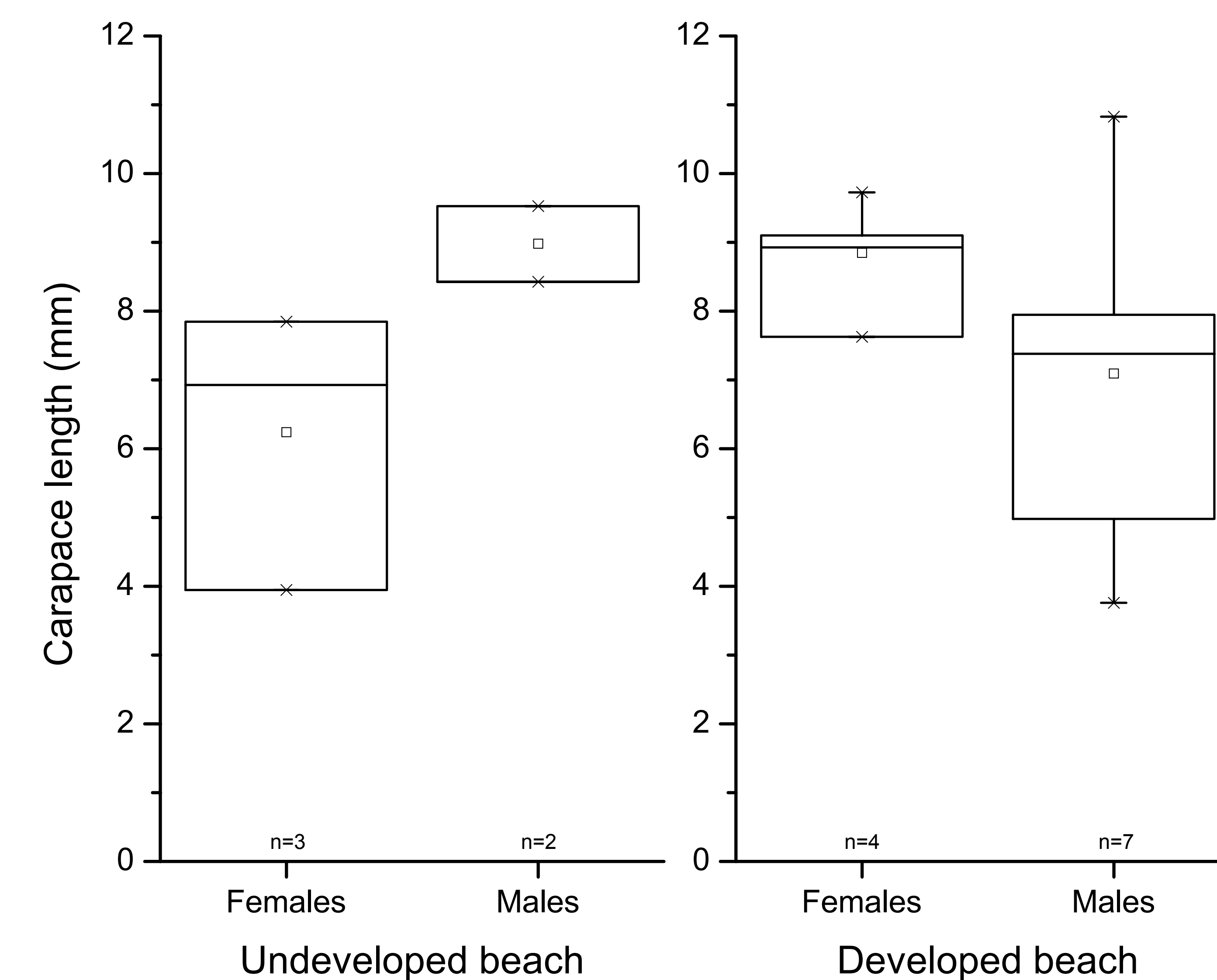
Abundance

Lepidopa benedicti have been uncommon during this study. In particular, they have not been found at either location since mid-November, when a harmful algal bloom ("red tide") affected the area (Texas Parks and Wildlife 2010).



Size

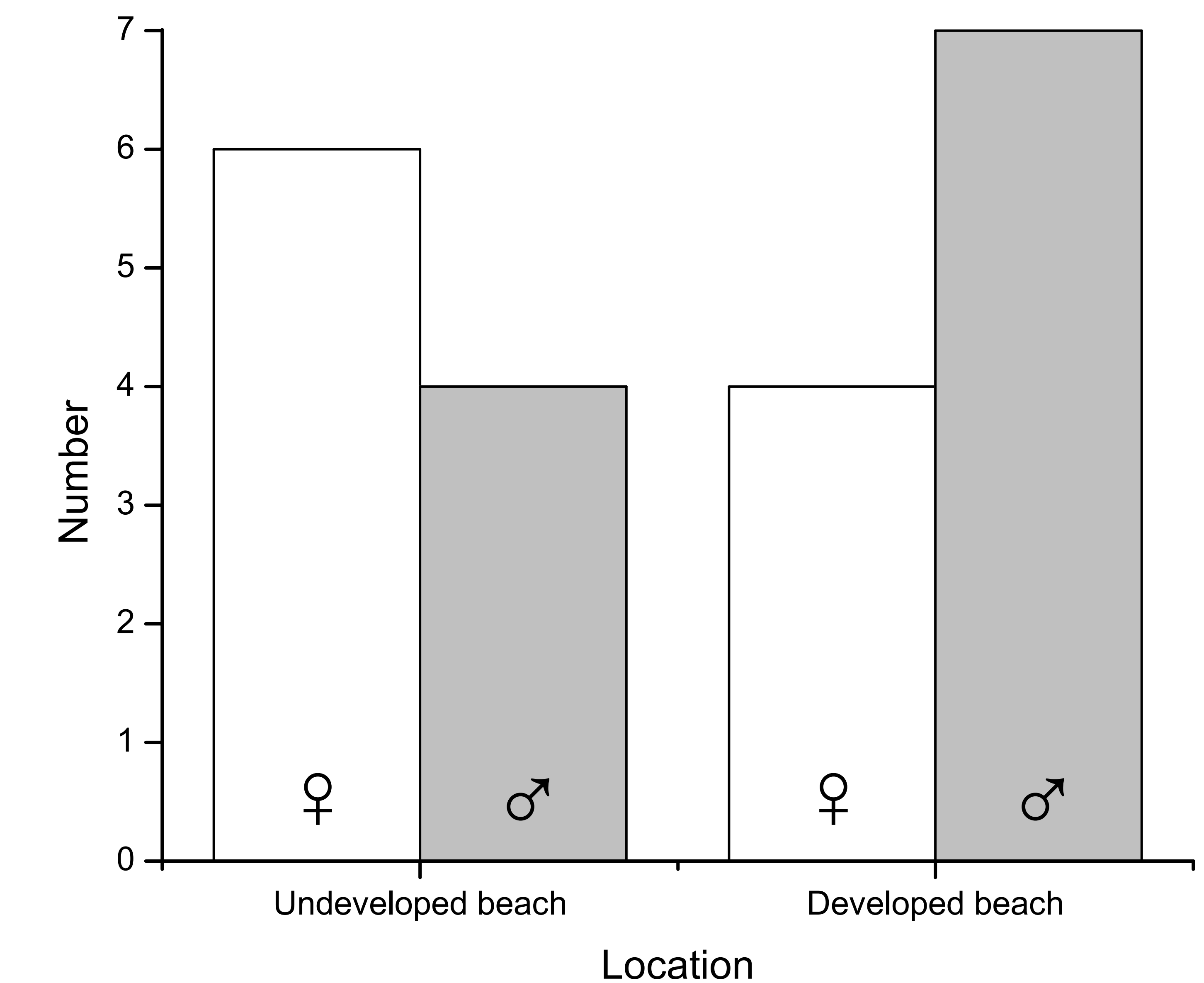
There is no apparent difference in the size of *L. benedicti* sampled.



Dot = mean; line = median; box = 50% of data; whiskers = minimum and maximum values.

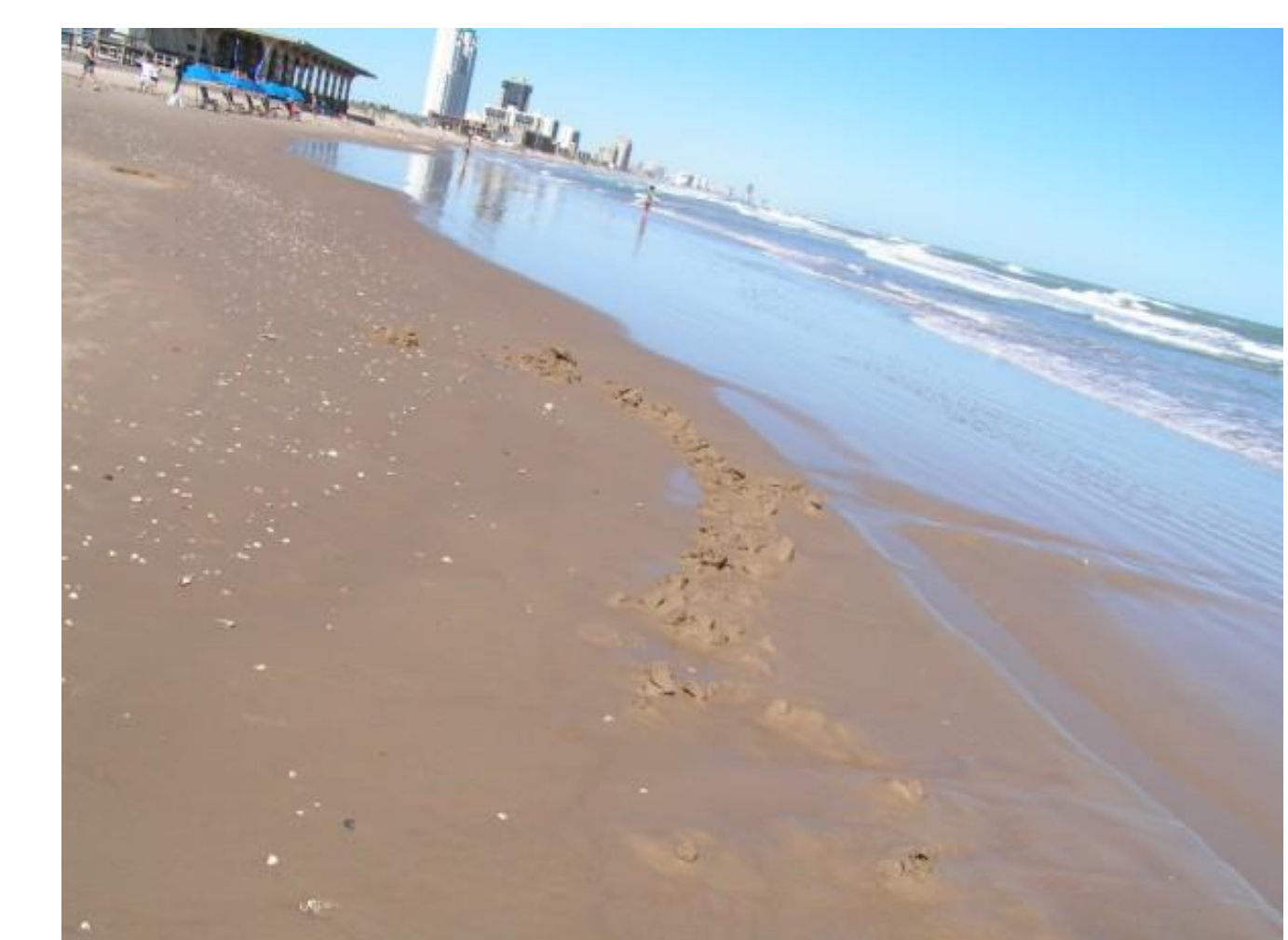
Sex ratio and reproductive status

There is no apparent difference in sex ratio at the two sites. No reproductive *L. benedicti* females have been found to date.



DISCUSSION

Preliminary results suggest that urban development is not affecting sand crab habitat. An alternative possibility is that while urban development at the two sites differs, that actual human traffic on the beach does not. Further information on actual beach usage will be helpful in interpreting these results.



ACKNOWLEDGEMENTS

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REFERENCES

- Boyko, C.B. 2002. A worldwide revision of the recent and fossil sand crabs of the Albuneidae Stimpson and Blepharipodidae, new family (Crustacea, Decapoda, Anomura, Hippoidea). *Bulletin of the American Museum of Natural History* **272**:1-396.
- Texas Parks and Wildlife. 2010. Red tides in Texas. <http://www.tpwd.state.tx.us/landwater/water/enviroconcerns/hab/redtide/status.phtml>