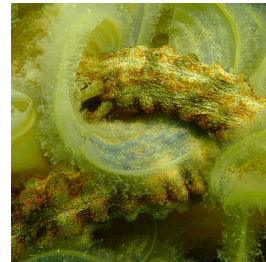


Mar 19, 2025

Gump Reef Sea Cucumbers: Feasibility Test Protocol

DOI

<https://dx.doi.org/10.17504/protocols.io.rm7vz6mjrgx1/v1>



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Protocol Citation: Seth Caleb Chow, Emily J Farley, Aaron Mark, Jasmine Sizer, Samantha Torres, Liam Quinn, Thomas Quinnild 2025. Gump Reef Sea Cucumbers: Feasibility Test Protocol. **protocols.io**

<https://dx.doi.org/10.17504/protocols.io.rm7vz6mjrgx1/v1>



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Protocol status: Working

We use this protocol and it's working

Created: March 19, 2025

Last Modified: March 19, 2025

Protocol Integer ID: 124602

Keywords: sea cucumber, excrement, feasibility study, *H. atra*, *S. Horrens*, *H. impatiens*, *P. kefersteinii*, *C. rigida*, gump reef sea cucumber, microbiome of sea cucumber, target sea cucumber species, collecting target sea cucumber species, individual target sea cucumber, shallow reef of the gump research station, key information about the microbiome, sampling of rori excrement, microbiome, gump research station, health of the lagoon, aforementioned target species, shallow reef, feasibility of rori excrement collection, relative locations of various species, fece, various species, rori excrement collection

Abstract

The primary objective of this project is to conduct a feasibility study collecting target sea cucumber species (rori) and their feces. More specifically, this test seeks to understand the time at which individual target sea cucumbers defecate and the relative locations of various species (ie. *Holothuria atra*, *Stichopus horrens*, *Holothuria impatiens*, *Polyplectana kefersteinii*, and *Cystipus rigida*) along the shallow reef of the Gump Research Station. The aforementioned target species can be visualized on this google sheet:

https://docs.google.com/spreadsheets/d/1ZTFU71BxU5_nTs_s0LA0n4k0IT4U7oEnTVj44BedjRY/edit?usp=sharing

The study aims to determine the feasibility of rori excrement collection as a tool to engage with local elementary school children to promote environmental education. In addition, the sampling of rori excrement is expected to provide key information about the microbiome of the animal. The microbiome of sea cucumbers is expected to provide data on the composition of the community to further understand the health of the lagoon.

Image Attribution

Taken by Seth Chow, 2025

Guidelines

Practice safe swimming and wear appropriate sun protection to avoid harsh UV ratings. When snorkeling at night, ensure that your dive light works and there is a third party on land in any case of emergency.



Materials

- Snorkel and Mask
- Rash Guard
- Sun Protection
- 4 Liter Plastic Container
- GPS Tracking Device
- Underwater Camera
- Gloves (optional)
- Diving Flash Light
- Timer (records to milliseconds)

Safety warnings

- ! Take normal ocean safety precautions. Always dive/snorkel in pairs. Practice sun protection; sunscreen, rash guard, etc. Also, exercise caution when around coral to avoid coral cuts. Use a dive light at night. Make sure a 3rd party on land is aware of when you went in the water and when you plan on returning.

Ethics statement

Practice respect for the marine environment and for Marine Protected Areas and permit policies. Make sure that all proper species collection permits have been processed.

Before start

Ensure that you have all necessary materials and have reviewed and prepared for possible hazards.



Sample Collection

- 1 Swim in waist-deep water, and search the sea floor for sea cucumbers resting on the sand. Be careful to not kick up any sediment as you search for the specimen. Upon finding a sea cucumber, determine if the observed specimen is a target species.
- 2 Next, use the Gaia GPS app and plot a point relative to the observed sea cucumber's location (target species or not) to record its geographic position and take a picture of the sea cucumber. If the observed species is not a target species, do not collect and keep searching.
- 3 If the specimen is a targeted species, gently pick up the sea cucumber and place it carefully in the container while still underwater.
- 4 Immediately start a timer.
- 5 Bring the sea cucumber (inside the container) above the water. Ensure the container remains at least 3/4 full of water and the sea cucumber is submerged (with as little sediment as possible).
- 6 When the sea cucumber begins defecating, stop and record the time to the nearest millisecond.
- 7 Only 1 target sea cucumber should be recorded in the container at a time. Once finished, return the specimen to the exact place where it was found.
- 8 Repeat this process until 5 specimen of each target species have been identified and recorded.

Protocol references

(World Register for Marine Species , WoRMS, 2025)