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# Bioluminescence of Heron Island

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## Abstract

Despite being the largest coral reef ecosystem in the world, the Great Barrier Reef of Australia has yet to have a systematic search and description of the bioluminescent organisms that inhabit it. We recently traveled to the Heron Island cay in the southern Great Barrier Reef and identified marine bioluminescent species in the microhabitats around the island. In the lagoon surrounding the island, we found undescribed bioluminescent ostracods, non-luminous *Angiola* snail species, bioluminescent hydroids, and observed the bioluminescent courtship behavior of *Odontosyllis australiensis*. In the fringe reefs of the Heron Island Cay, we found that the substrate was predominantly non-luminous reef-building corals with the exception of numerous luminous hydroids. The shallow water column was often rich with bioluminescent plankton including ctenophores, hydromedusae, dinoflagellates, larvaceans, and gastropods.

The protection of the island and lagoon by the cay's fringe reef, as well as the diversity of plankton brought in by wind-driven and tidal currents, makes Heron Island a convenient collection site and research station for future studies on luminous animals of the southern Great Barrier Reef. Future studies will benefit by greater efforts at exploring the reefs, bommies, and inter-channel straits during night scuba dives, as well as studies to further document the seasonal, lunar, and tidal periodicity of *Odontosyllis* mating displays.

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