

Millenium atoll: A pristine ecosystem

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A series of surveys were carried out to characterize the physical and biological parameters of the Millennium Atoll lagoon during a research expedition in April of 2009. Millennium is a remote coral atoll in the Central Pacific belonging to the Republic of Kiribati, and a member of the Southern Line Islands chain.

The atoll is among the few remaining coral reef [ecosystems](#) that are relatively pristine. The [lagoon](#) is highly enclosed, and was characterized by reticulate patch and line reefs throughout the center of the lagoon as well as perimeter reefs around the rim of the atoll. The depth reached a maximum of 33.3 m in the central region of the lagoon, and averaged between 8.8 and 13.7 m in most of the pools.

The deepest areas were found to harbor large platforms of *Favia matthaii*, which presumably provided a base upon which the dominant corals (*Acropora* spp.) grew to form the reticulate reef structure. The benthic algal communities consisted mainly of crustose coralline algae (CCA), microfilamentous turf algae and isolated patches of *Halimeda* spp. and *Caulerpa* spp.

Fish species richness in the lagoon was half of that observed on the adjacent fore reef. The lagoon is likely an important nursery habitat for a number of important fisheries species including the blacktip reef shark and Napoleon wrasse, which are heavily exploited elsewhere around the world but were common in the lagoon at Millennium. The lagoon also supports an abundance of giant clams (*Tridacna maxima*).

Millennium lagoon provides an excellent reference of a relatively undisturbed coral atoll. As with most [coral reefs](#) around the world, the lagoon communities of Millennium may be threatened by climate change and associated warming, acidification and [sea level rise](#), as well as sporadic local resource exploitation which is difficult to monitor and enforce because of the atoll's remote location.

While the remote nature of Millennium has allowed it to remain one of the few nearly pristine coral reef ecosystems in the world, it is imperative that this ecosystem receives protection so that it may survive for future generations.

More information: Barott KL, Caselle JE, Dinsdale EA, Friedlander AM, Maragos JE, et al. (2010) The Lagoon at Caroline/Millennium Atoll, Republic of Kiribati: Natural History of a Nearly Pristine Ecosystem. PLoS ONE 5(6): e10950. [doi:10.1371/journal.pone.001095](https://doi.org/10.1371/journal.pone.001095)

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