

## Cultural Significance of Marianas Reefs

Coral reefs are harbingers of the Indigenous peoples of the Marianas. Many of the local traditions and legends involve life in the sea, and interisland exchange networks have bonded cultures across Micronesia.

Both CHamoru and Refaluwasch cultures of the Mariana Islands evolved alongside reefs for thousands of years, with vast areas supporting large villages such as Litekyan (Ritidian), Tumhon (Tumon), and Malesso (Merizo) in Guam, and Tanapag, Garapan, and San Antonio in Saipan.



### CORALS & BETELNUT CHEWING

Betelnut chewing, a prominent practice in both CHamoru and Refaluwasch cultures, is partly supplemented by adding slake lime (calcium hydroxide), which is derived from burning specific kinds of coral and grinding it. This is then combined with pupulu (pepper) leaf (and sometimes tobacco in the modern day) into a betelnut to form the “mix” that is then chewed to give the user a mild calming effect. Jesuit missionaries recorded this practice during their visits to the islands as far back as the 1600s.

**Refaluwasch and CHamoru are official languages in the Marianas, along with English. Some names in this brochure are in the following format: Refaluwasch/CHamoru (English).**



**Rising nearly 6 miles from the Mariana Trench, the Mariana Islands are the highest peaks of a vast undersea mountain range in the western Pacific Ocean.**

The Marianas are divided politically into the territory of Guam and the Commonwealth of the Northern Mariana Islands (CNMI). There are 14 islands in the CNMI. The northern islands were—and continue to be—formed by active volcanoes, while the southern islands were formed by ancient limestone reefs. The single island of Guam is a mix of both, with the northern half composed of ancient reef limestone and the southern half shaped by volcanic eruptions.



**Follow the QR code to view sources and learn more about coral reef species and conservation in the Mariana Islands.**

*This brochure was created by the Communications Working Group of the U.S. Coral Reef Task Force.*



## Tirow and Håfa Adai

### CORAL REEFS IN THE MARIANAS



Coral reef ecosystems of the Mariana Islands are essential to the livelihoods of over 200,000 people who call the islands home. The region's Refaluwasch (Carolinian) and CHamoru Indigenous peoples are linked to Micronesian culture with deep connections to the surrounding seas.

Healthy reefs have high cultural and economic significance, providing traditional and subsistence uses, recreational opportunities, and coastal protection from storm waves and flooding. Coral reefs in the Marianas are negatively impacted by factors such as rising sea surface temperatures, ocean acidification, pollution, overfishing, and other localized threats. Efforts to monitor, protect, and restore reef systems, along with education and outreach to the public, are being carried out by various institutions throughout the Marianas.



## Marianas Reef Stats

Understanding the current state of coral reef species found throughout the Marianas is essential to preserving these rich marine ecosystems for future generations. Data on coral reef populations and biodiversity trends help inform conservation efforts throughout the CNMI and Guam.

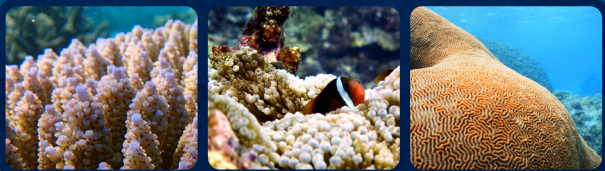
CNMI

GUAM

256 — Coral species — 400+

63 mi<sup>2</sup> — Total coral reef ecosystem area — 42 mi<sup>2</sup>

11.1% — Percent coral cover — 11.6%



## Benefits of the Reef

### SEAFOOD

Reef ecosystems support subsistence fishing and provide food and habitat for species such as igh-falafal/tátaga (bluespine unicornfish, *Naso unicornis*), ighal-wosch/palakse' (small parrotfish), langú/tarakitu (bluefin trevally, *Caranx melampygus*), ghúús/gãmsón (octopus), ppáleppál/balate' (sea cucumber), and other seafoods that locals enjoy.

### SHORELINE PROTECTION

The Marianas are located in "Typhoon Alley," a region of the western Pacific where the world's strongest typhoons most frequently occur. Coral reefs serve as the first line of defense against large, storm-induced waves and flooding, reducing 97% of wave energy. In addition, the reef protects coastal structures from shoreline erosion.

### RECREATION

Local reefs provide a wide variety of activities and adventures for both residents and visitors, including swimming, snorkeling, stand-up paddling, rowing, scuba diving, and free-diving.

## Local Threats

### LAND-BASED SOURCES OF POLLUTION

Harmful soil erosion and sediment runoff are caused by poor erosion control during construction, as well as deforestation from frequent wildfires and invasive species. Increased development from growing populations has also caused polluted stormwater runoff and nutrient discharges from water purification systems.

### OVERFISHING

Overfishing disrupts the balance of coral reef ecosystems by reducing the number of herbivores critical for controlling algae overgrowth. In the Marianas, desirable herbivorous fish such as oscha/lāggua (steephead parrotfish, *Chlorurus microrhinos*), limell/kichu (convict tang, *Acanthurus triostegus*), and lleh/hiteng kahlao (forktail rabbitfish, *Siganus argenteus*) can see steep population declines.



### NUISANCE SPECIES

Environmental changes can cause some native species to reproduce in large numbers, upsetting an ecosystem's balance. In the Marianas, nuisance species that prey on corals and harm reefs include crown-of-thorns sea stars, *Drupella* snails, and *Terpios* sponges. Maintaining their natural predators is crucial to preventing outbreaks of these species and protecting the reefs.

### TOURISM

Because tourists come from all over the world to the Marianas, it can be challenging to communicate reef-safe behaviors due to language barriers. As a result, stepping on and vandalizing corals, feeding wild fish, harassing reef species that provide essential ecosystem services, and using non reef-safe sunblock have contributed to reef degradation.

## Restoration Activities



Coral restoration staff conducting maintenance on a coral tree structure at the CNMI government nursery.

The CNMI has 2 active coral restoration nurseries in the Saipan West Lagoon:

Johnston Applied Marine Sciences • Est. 2019:

11 coral species 23 trees 4 tables

CNMI Government • Est. 2021:

11 coral species 6 trees 2 tables 1 rope



Coral restoration staff adding coral fragments to the coral tree in the GCRI Piti Bomb Holes nursery.

Guam has 4 active coral nurseries spread across the island:

University of Guam Marine Lab / Piti Bomb Holes • Est. 2014:

8 coral species 11 trees 4 tables 1 rope

University of Guam Marine Lab / Cocos Island Lagoon • Est. 2019:

8 coral species 11 trees 1 rope

Guam Coral Reef Initiative (GCRI) / Piti Bomb Holes • Est. 2024:

6 coral species 6 trees

National Park Service  
War in the Pacific National Historic Park • Est. 2024:

2 coral trees ...with more underway!