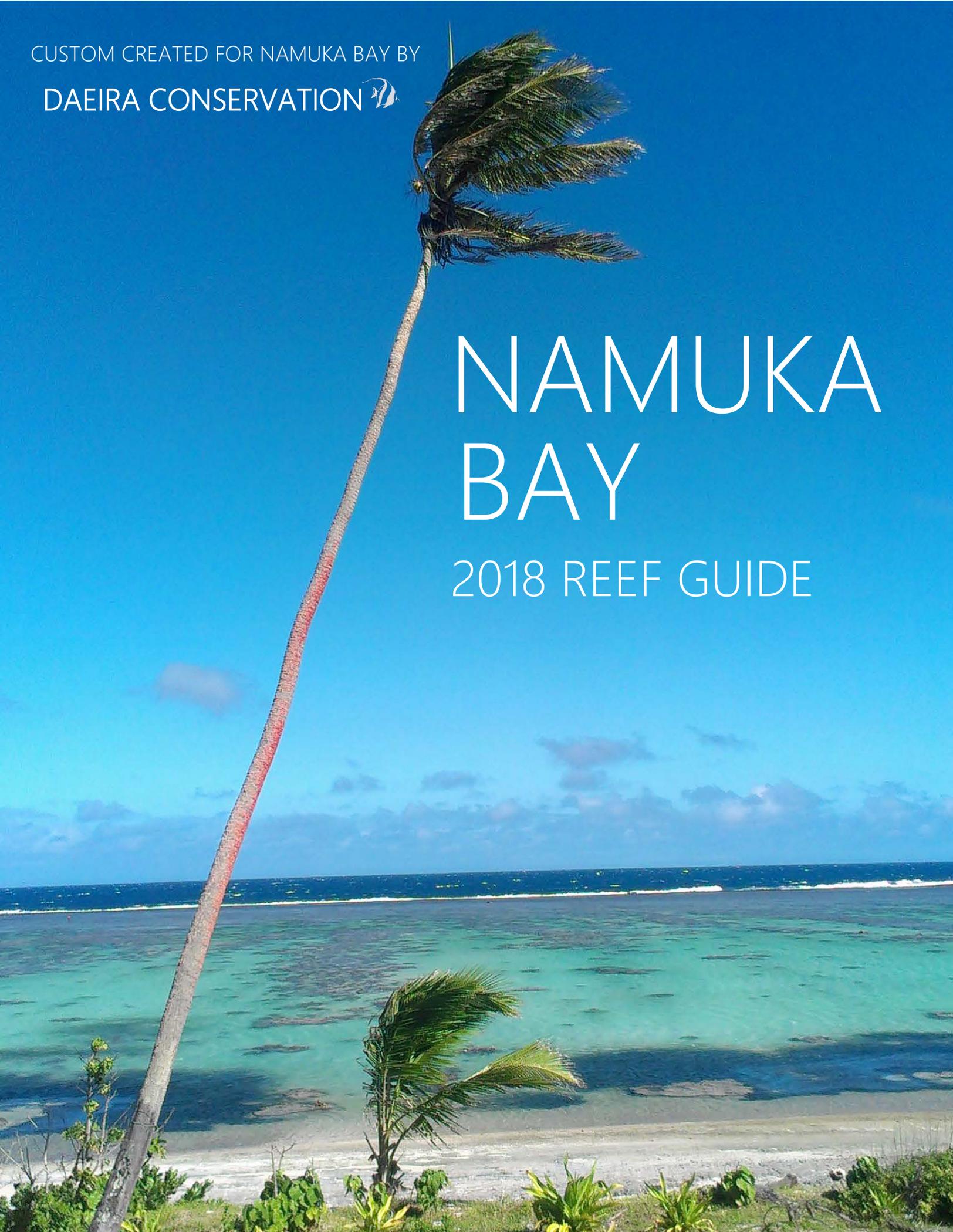


CUSTOM CREATED FOR NAMUKA BAY BY

DAEIRA CONSERVATION 

# NAMUKA BAY

2018 REEF GUIDE



# WELCOME

## *Welcome to the reef at Namuka Bay!*



Located on the southern coast of Viti Levu, Fiji, Namuka Bay is part of the Coral Coast. Namuka Bay features a shallow lagoon bordered by two very fast flowing and deeper channels, and has moderate tidal fluctuations.

*How to use this guide:* This guide takes you on an exploration adventure from shore to reef crest, highlighting the most common animals at Namuka Bay. You can also find tips for reef conservation on the last page.

\*Guests must rely on their own swimming abilities and judgement. This information serves only as a guide and Daeira Conservation does not take any responsibility for any injuries

## ABOUT DAEIRA CONSERVATION

Madison Willert and I came to Namuka Bay as graduate students going into the field for the first time. As young scientists, we wanted to translate our knowledge into actions to ensure future generations could enjoy the beauty of coral reefs, as well as the fish and coastline protection they provide. Along with other young conservationists, we were inspired to found Daeira Conservation, a service to help hotels and resorts develop custom multi-component conservation and education programs such coral and mangrove planting and restoration, kids camps, and educational snorkeling experiences. We hope you enjoy this guide we made based on our fieldwork at Namuka Bay and join our efforts to help protect coral reefs.

-Cara Lin, Co-founder

Have questions about something you saw at Namuka Bay? Or want to let us know how you used this guide? Post a picture to Instagram and tag us and we will answer your reef related questions or feature your photo/feedback!



To learn more about our work, contact, or support us, find us online at [www.DaeiraConservation.com](http://www.DaeiraConservation.com)

# CLOSE TO SHORE

## *Sand, stone, and seagrasses*

Corals reefs often get most of the attention, however seagrass beds are also full of life and act as nurseries for numerous fish species including groupers, snappers, and parrotfish, helping to supply the reef with mature fish. Seagrasses also help stabilize sediment and maintain water quality and are a food source for sea turtles.

## What to look for by the shore...



## Synaptid Sea Cucumbers

These uniquely long, striped, and mobile sea cucumbers are **not sea snakes**, and are **perfectly safe** to be around. Look for the head, which has feathery mobile tentacles and watch the tentacles bring in sediment food particles to the mouth. \*\*\*see below regarding sea snakes

## Hermit Crabs

Small hermit crabs are numerous on the beach. These crabs will retract into their shells when they sense danger, and are able to move into larger shells as they grow. If you see what looks like tire tracks on the sand, these are actually hermit crab trails!



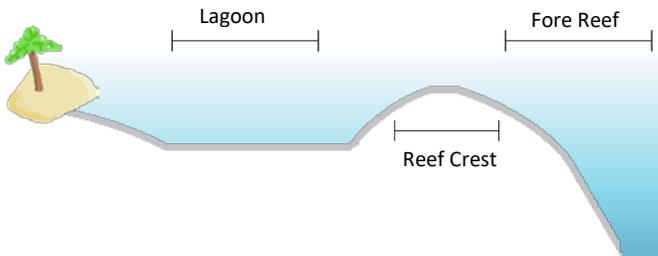
## *Padina* Macroalgae

This a type of macroalgae (also known as seaweed). It looks like a flowery plume, and can be found attached with holdfasts to the hard and sandy shoreline.

\*\*\* Sea snakes are at Namuka, you can also distinguish them from sea cucumbers because they are clearer black and white bands, will be clearly swimming instead of laying on the ground, and they will not have the tentacles. They are rare and docile, but still avoid disturbing them because they are extremely venomous.

# THE LAGOON

## *Shallow waters behind crashing waves*



Lagoons are shallow areas between shore and the reef crest. Waves crash on the reef crest, allowing the lagoon waters to be calm. Beyond the crest is the fore reef, which drops off into deep water. All parts including the reef crest are created by coral. Without corals, our shorelines and coastal buildings would be much more susceptible to wave damage.

## What to look for in the lagoon....



### Christmas Tree Worms

These worms live in burrows within coral and use the feathery tree-like portion of their body to collect food particles. If you wave your hand over them they will quickly retreat back inside their burrow.



### Sea Slugs & Eggs

Sea slugs (left) at Namuka are rare, and often easily overlooked, however there are several species and ribbons of sea slug eggs can also be found (right).



### Sea Cucumbers

Similar with how earthworms eat soil, sea cucumbers eat the nutritious particles in sand. As a defense, they are capable of spewing out their internal organs when startled. Some sea cucumbers species are eaten for food and are sometimes overharvested

## Blue Sea Star

*Linckia laevigata*

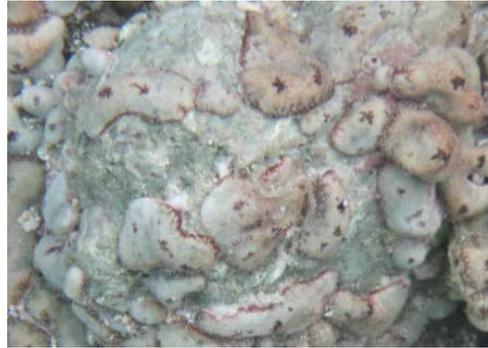
Common to find with less than 5 arms, lost arms can be regenerated



## Ascidian

*Unknown species*

These pinkish grey animals live in colonies, filtering the water for food



## Giant Clam

*Tridacna sp*

Similar with coral, these clams have algae living inside them



## Sea Urchin

*Diadema sp.*

Can be found hiding in rocks, feed on algae. Have extremely sharp spines- do not touch!



## Damselfish

*Dascyllus aruanus*

Stay near corals to shelter near them, along with other bright blue

*Chromis* fish.



## Three-spot Wrasse

*Halichoeres trimaculatus*

Feeds on small invertebrates.

Males have two spots that females lack



## Animals taking advantage of algae...

*Chlorodesmis* algae is bright green and found in areas with strong water flow. It is often found in small clumps smaller than your hand, and is attached with strong holdfasts.



*Cyperce nigricans.*



*Caphyra rotundifrons.*

*Chlorodemis fastigiata* with a sea slug



*Chlorodesmis* contains chemicals that make it toxic to most organisms. *Chlorodesmis* crabs are an exception and can eat *Chlorodesmis* and hide inside the algae to prevent being eaten themselves. There is also a species of sea slug often found near *Chlorodesmis* that has venomous scales that can detach into a predator's mouth and deter feeding.

# NAMUKA AT NIGHT

## *Looking for adventure?.....Grab a (dive) flashlight*

At night, different animals come out to roam the reef and beaches. Aside from the animals highlighted below, eels, octopi, and large crabs have been observed to be more active in the reef at night.

### Tips for night snorkeling:

- **Only go when the water is calm**, especially if you are not an experienced snorkeler. At Namuka, during even seemingly moderate wave surges, the current can be strong and the water can become stirred up and cloudy.
- **Bring a back-up dive flashlight.** If your first light goes out you will need a secondary light to avoid bumping into rocks, corals and the spines of sea urchins, which tend to be more active at night.
- **Swim slowly**, since you are relying on your light to see what is ahead of you, it is easy to accidentally bump appendages into rocks, corals, or urchins while swimming. Moving slowly allows you to observe your surroundings carefully, and if you do accidentally hit something you will hit it with less impact.
- Have fun! If you are worried about sharks, have peace of mind knowing that Namuka Bay is a very shallow lagoon, and would be rarely, if ever, visited by large sharks, or even small sharks.

## *What to look for at night...*



Horn-eyed Ghost Crab (*Ocypode ceratophthalma*)

These crabs are semi-terrestrial and form burrows. They scavenge at night and are one of the fastest animals on the planet for their body size.



Wedge Sea Hare (*Dolabella auricularia*)

Sea hares can be found in the seagrasses and in the reef. As hermaphrodites, they can be found in mating chains, and lay egg clumps that resemble thin noodles. If threatened, they release a pink ink that deters predators.

WHAT YOU CAN DO TO

# PRESERVE NAMUKA

Here are actions you can take to protect coral reefs

## On Vacation:

### 1. Do not touch or step on corals.

Be careful with your fins while swimming near corals!

### 2. Use a zinc based sunscreen.

Oxybenzone based sunscreens are toxic to corals, zinc oxide is a better choice.

### 3. Avoid eating parrotfish or unicornfish.

Overfishing is a major reason for reef decline. If a bleaching event occurs, seaweeds often start to grow on dead corals. If there are enough fish to eat the seaweeds, the corals grow back, but if there are not enough fish, the ecosystem can change from a coral reef to less diverse seaweed forest.

Parrotfish and unicornfish are especially important in preventing seaweed overgrowth. When eating fish on vacation, try to avoid eating or spearing parrotfish and unicornfish, and try to ensure whatever fish you do eat is sustainably caught, or opt for alternative protein sources.



## At home:

### 1. Save energy, support clean energy.

Climate change is the biggest threat to corals worldwide.

### 2. Support marine protected areas and mangrove preserves

Marine protected areas can help make sure reefs are not facing other stresses in addition to climate change, such as overfishing, this helps reef recover after bleaching events. Mangroves can be destroyed for development, if you eat shrimp, ensure they were not produced on shrimp farms that destroyed mangroves.

### 3. Support sustainable aquarium fish

If you have a salt water tank at home, purchase from a sustainable dealer. For instance, purchase captive-bred clownfish instead of wild captured.



@DaeiraConservation



Follow us to learn more about marine conservation