

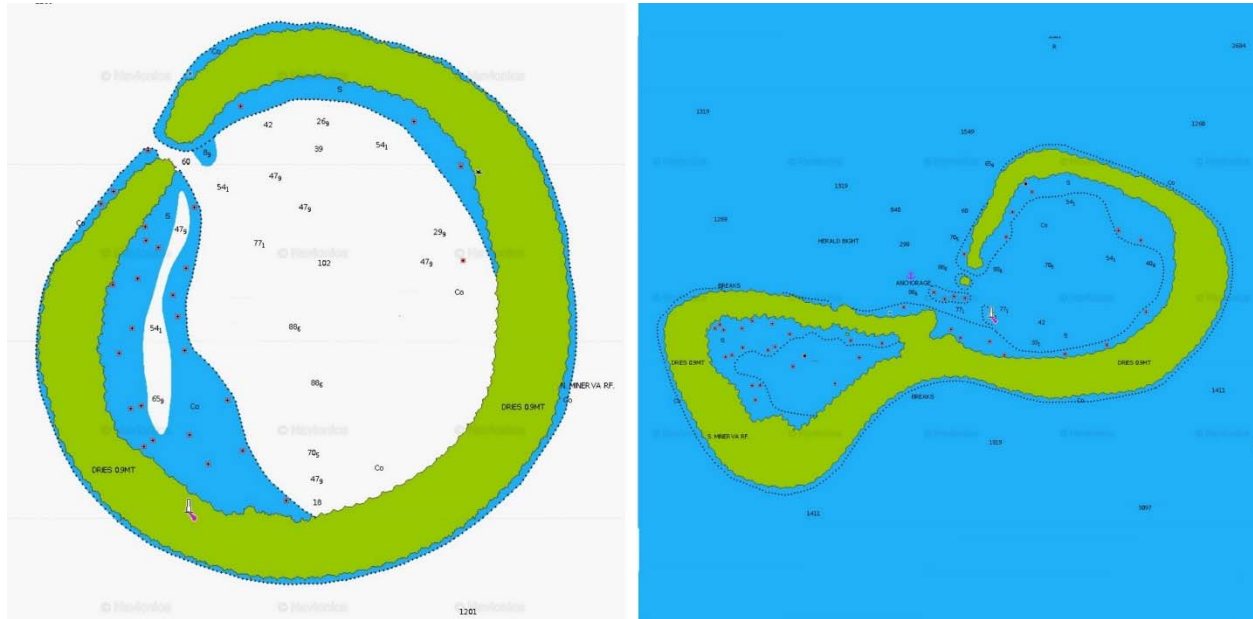
Exploring Minerva Reefs



November 2024
Rich Marshall
s/v Pogeyan

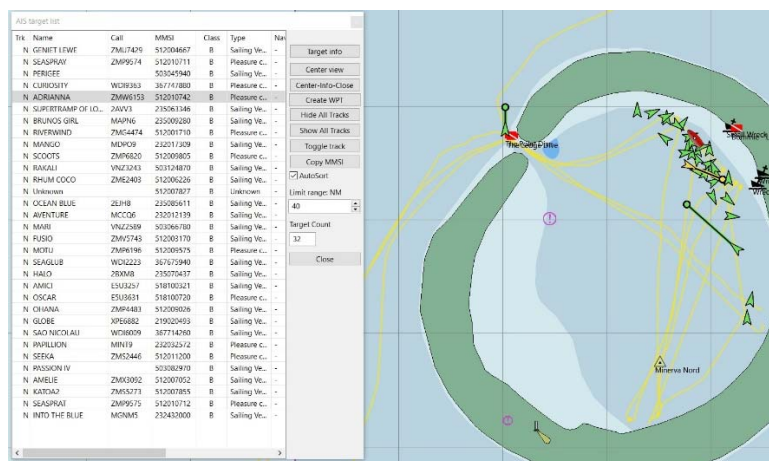
Exploring Minerva Reefs

The Minerva Reefs are a great stopover for cruisers making the passage between New Zealand and the island nations of Tonga and Fiji. Located about 1/3 of the way between the islands and New Zealand, the stopover breaks up the 1000+ mile passage into more manageable segments. Since these remote reefs are visited only by yachts and military patrols, they have a healthy underwater environment worth exploring.



Minerva Reef Navionics Charts

During May and October of each year there can be quite a few boats pausing together at the Minerva Reefs while waiting for passage weather. We have enjoyed being a part of these spontaneous, multi-national communities, complete with VHF nets, potlucks, reef walks, and collaborative analysis of weather data.



Minerva Reef Yacht Club - May 2023 Edition
(Courtesy S/V Horizon)

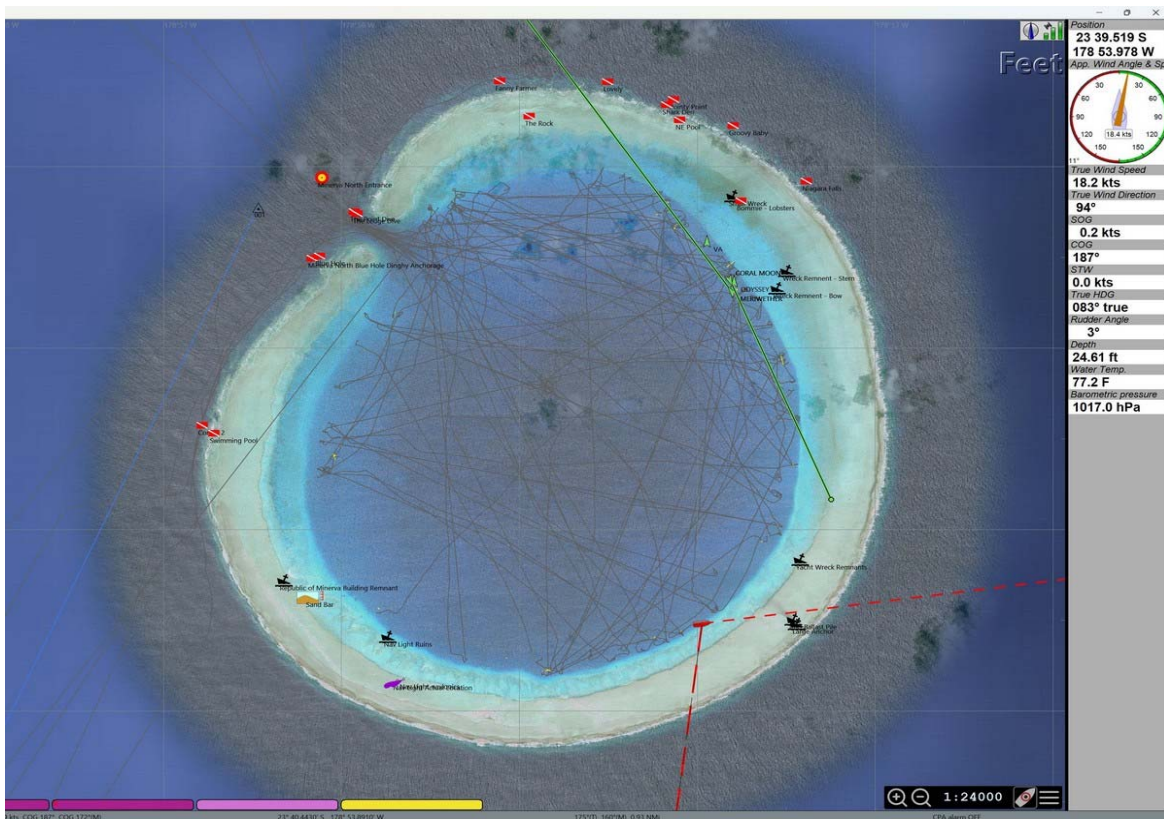
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The enclosed lagoons of both reefs provide some protection from open ocean conditions. Both reefs are flooded at high tide and a portion of the swell comes across into each lagoon at high tide. The North reef is somewhat higher and provides better protection – especially at its Southern end. We estimate that half the open ocean swell comes across the reef at high tide. In other words, at high tide, a four meter swell in the open ocean results in 2 meter waves inside the lagoon. It can be a rough anchorage.

Depth is relatively uniform across the center of each lagoon and never exceeds 30 meters. Holding is good everywhere except near the entrance channels, where current seems to have swept away the sand. We have been through a 35 knot blow, gusting to 40, in the North reef along with 3 other yachts. No one dragged.

We have found the Predictwind global tide model accurately predicts the tide at Minerva Reefs. We create a custom forecast location and the tide data are then visible on the Predictwind “Forecast Tables” screen. Offline tide data are provided by the freely available WXTide32 application. The tide data for New Zealand’s Raoul Island are about 30 minutes behind the tides we observe at Minerva Reefs.

The reefs and their entrances are accurately depicted on both CM93 and Navionics chart products. Satellite imagery is only available for the North reef, and only from Google. A satellite overlay for use with OpenCPN is freely available at brucebalan.chartlocker.com. Download the Google .MBTiles file from the Tonga section of the website.



Minerva North Reef Google Satellite Overlay in OpenCPN
chartlocker.brucebalan.com

Exploring Minerva Reefs

North Minerva Reef

North Reef Entrance

Having visited the North Reef many times, we would not hesitate to enter at Night. The charts accurately depict the entrance channel and it is deep and wide enough for a cargo ship. Many yachts arriving for the first time will gingerly thread their way in through the pass with several lookouts posted. Later, these same yachts often raise their sails inside the lagoon and depart through the pass under full sail.

Occasionally, we have observed significant standing waves in the North Reef entrance channel. These can extend nearly a kilometer out to sea. This current-against-waves situation occurs during falling tide and is much more severe with Northerly winds. We have never observed standing waves that would threaten a yacht but they would certainly roll a dinghy. We have always found a safe route by hugging the righthand side of the channel when heading out in the dinghy.

If I were a first-time visitor in a small craft, seeking refuge from severe weather at night, I would head in through the North Reef entrance and stay in the Eastern half of the lagoon where there are fewer, smaller bommies. I would head towards the windward edge of the lagoon and drop my anchor when the depth is about 10-15 meters.

North Reef Anchorages

Anchoring inside the North Reef is not challenging. There is no shortage of locations around the edge of the lagoon. Most yachts move to the windward side to reduce fetch. Since the lagoon is over two miles across, wind driven waves can be significant on the leeward side. The prevailing winds are East to Southeast and this is a happy coincidence since the East side is deeper and has fewer bommies. We find conditions are usually best at the South end in any South or East winds. The reef is higher there. This can be observed at low tide when a long, one-meter high "waterfall" forms at the margin where the hard reef meets the lagoon. During our longer stays at North Reef when the SE trades are established, we typically sail across the lagoon every day, explore outside the reef, then sail a reach back South for the night.

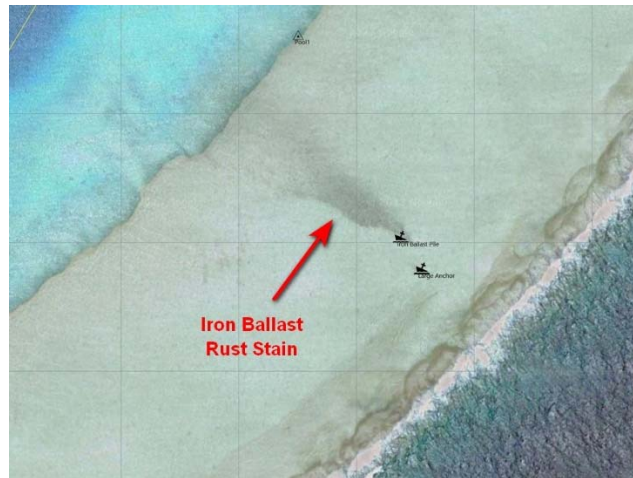
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North Reef Points of Interest

Here are a few interesting spots to visit at the North Reef. I have added coordinates and descriptions for these locations to the Navionics "community edits".

Iron Anchor and Ballast Pile

An ancient ship wreck left behind quite a large amount of pig iron ballast on the Southeast corner of the reef. The debris field is so large that the "rust stain" can be seen on Google satellite imagery. Walking across the reef you can see many large pieces of iron about the size of your leg. Mixed in the reef rubble there are also small, smooth pieces of iron about the size of a thumb which are identifiable by their weight.



Iron Ballast Stain on SE Corner of North Reef



Large Iron Anchor

23° 39.5201' S 178° 53.4466' W

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Iron Ballast Pile

23° 39.4957' S 178° 53.4646' W

Republic of Minerva Ruins

The Wikipedia article for Minerva Reefs provides a summary the misguided attempt by Michael Oliver (born Moses Olitsky) to create his own idea of a Libertarian paradise at Minerva North reef. For an in-depth account of the whole strange affair, see “How to Rule Your Own Country” by Harry Hobbs.

In 1971, Oliver’s shell company, called Ocean Life Research Foundation, transported barges of sand from Fiji with the goal of raising 2000 acres above the high tide line. After building some concrete structures and covering 7 acres with sand, they ran out of money AND attracted the attention of the neighboring Pacific Island nations - especially Tonga. Within a year, Tonga destroyed all the work and built their own “permanent structure above the tide line”. At that point Tonga declared the reefs to be their territory.

Some of the sand appears to remain at the Southwest corner of the reef and forms large sand bars that dry out at low tide. There’s also a building foundation and several huge chunks of concrete that appear to be the result of the Tongan demolition work.



Sand Bars and Nav Light Looking North

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Republic of Minerva Ruins
23° 39.2810' S 178° 56.3284' W

Navigation Lights (New and Old)

In 2010 and 2011 Fiji decided to dispute the Tongan claim to the Minerva Reefs. To emphasize their displeasure they destroyed the Tongan navigation lights. Twice. The debris is visible at two locations not far from the existing light. Coordinates are shown below.



Nav Light Debris
23° 39.8308' S, 178° 55.6836' W and 23° 39.5911' S, 178° 55.7448' W

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Yacht Wreck

We don't know the name of the yacht but it's keel and spars are tucked up against the edge of the reef at the Southeast corner of the lagoon.

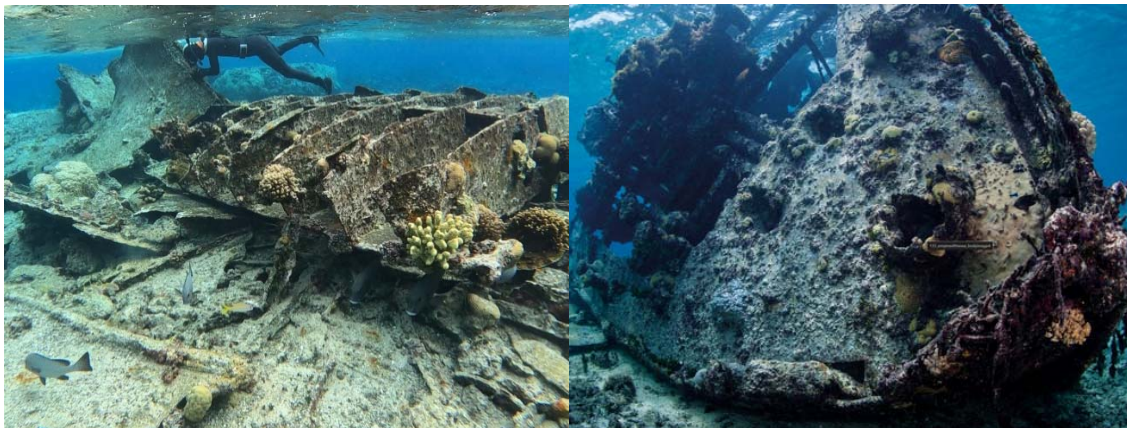


Yacht Wreck

23° 39.1657' S 178° 53.4260' W

Commonderry Wreck

This small steel freighter is one of the best snorkeling spots in the Minerva Reefs. It is broken into two large pieces which have been stable for many years. The stern portion is the more interesting of the two locations but it's in shallower water. It can be approached carefully at any tide state. When winds are driving large swell across the reef at high tide, the flow into the lagoon can result in a surprisingly strong current at this location.



Stern Wreck Remnant

23° 37.5756' S 178° 53.5020' W

Bow Wreck Remnant

23° 37.6699' S 178° 53.5567' W

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Small Wreck

This wreck remnant is so small that it may actually be a launch. Look for the large bronze propeller.
23° 37.1630' S 178° 53.8040' W

Reef “Walking Track”

The South end of the reef is much higher and dries out at half tide and below. This creates an opportunity to get off the boat, stretch your legs and maybe meet up with the neighbors. This elevated area is right next to the lagoon along most of the Southern sector. At lower tides you must raise the outboard on the dinghy when approaching the hard reef. Directly adjacent to the reef there are much deeper pools of water where you can leave the dinghy.

This is a good spot to walk across the .5 kilometer-wide reef to the outer edge. This involves slogging through some calf-deep water at points. Hard sole footwear is essential.



Minerva Yacht Club Reef Walk – November 2023

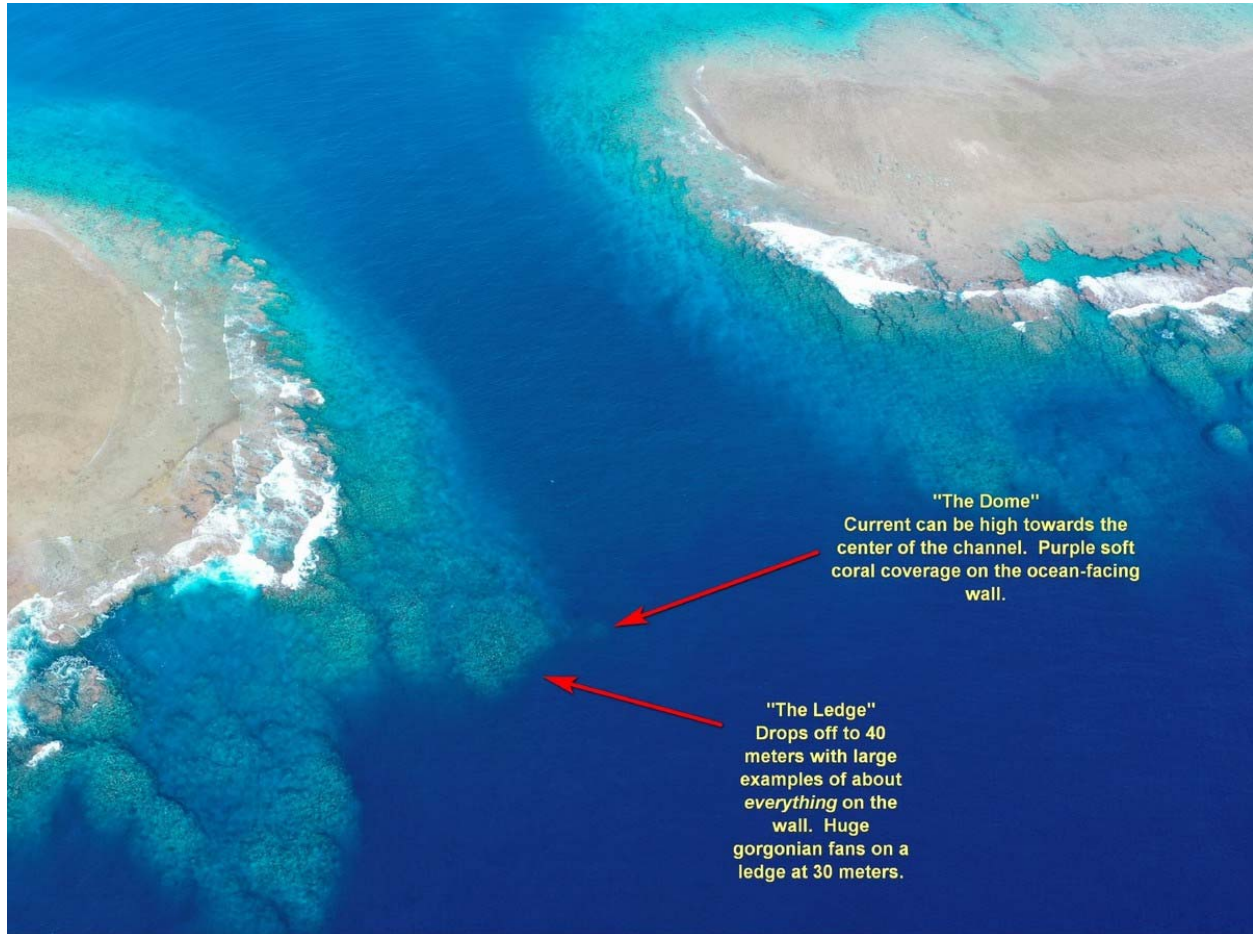
Minerva North Entrance Dive

Head straight out the right side of the entrance channel and you will eventually reach an abrupt drop-off. The reef is about 5-8 meters deep where it rolls off “The Ledge” and the dinghy can be anchored here. We have a 3 meter length of chain on the end of our dinghy anchor rode. Upon entry, we find a dead piece of bommie and wrap the chain around it several times. We drop the dinghy anchor at about 23° 37.2385' S, 178° 55.9309' W for this wall dive.

When we first swim over the edge of the wall, a large school of Midnight Snapper is usually heading down to the sand below at 40 meters. Almaco Jacks and Trevally come by to look us over. Occasionally a Dogtooth Tuna patrols past in the blue. During peak “yacht transit season” in May and October there are quite a few sharks when we splash-in but they seem to disperse quickly. We think they are expecting to poach from the increased spearfishing at peak season. The grey sharks can be a bit territorial but they will continue on their business if you don’t square-off and stare at them. We used to see the same huge Saddleback Grouper at this location year after year. The same 3 individuals would swim right up to us every dive. They were all gone on our 2022 visit and we haven’t seen them since.

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The portion of the wall worth diving is about 50 meters wide. Looking back at the wall from the deep, the left side is defined by a valley full of rubble. The right side is towards the center of the entrance channel and viz is poor in the flow coming out of the lagoon. Just off the right, or West edge of the wall is a separate bommie at 15 meters depth. We call this "The Dome". It's sea-facing side is festooned with soft coral. Nudibranch are often found on a separate, smaller pillar at the base of this bommie.



North Reef Entrance Dive

Blue Hole Dive

This is our favorite dive at Minerva Reefs. It's located about ¼ mile West of the entrance channel. You head out of the channel and turn left, staying in deep water and running parallel to the main reef for about 500 meters. Arriving at the reef, continue along it's drop-off to the farthest corner and anchor there at 23° 37.5037' S, 178° 56.1687' W. The Blue Hole itself is about 40 meters East at 23° 37.4917' S, 178° 56.1288' W. Breakers form over some portions of this reef at low tide when the swell is higher – but they never form near the drop-off.

The blue hole itself is not the highlight of this dive. The action is on the wall towards deep water. Just off the Northwest corner of this reef is a 10 meter diameter chimney at 15 meters depth. There's a two meter wide "alley" between this chimney and the main reef that has large gorgonian fans. We call this "Fan Alley" and it's a great photo op. The chimney is covered with soft coral, smaller gorgonian fans and fish. See the figure below for a suggested Blue Hole dive plan.

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The hard coral on the top of this reef makes for a nice snorkel. The bottom of the hole connects to the open ocean at about 50 meters. On my only trip down there, I lost a staring contest with two massive Giant Trevally.



Fan Alley



Recommended Dive Plan for The Blue Hole

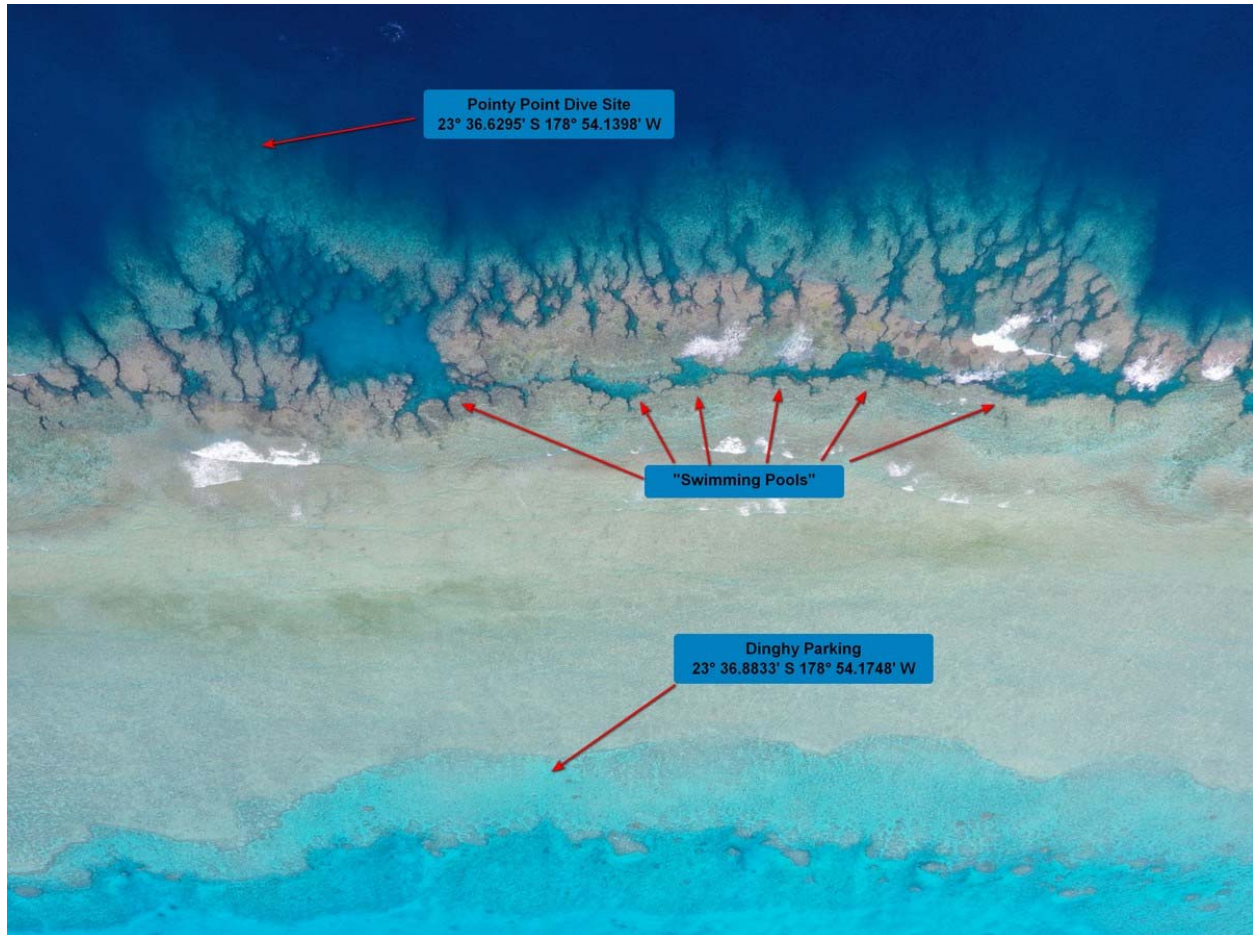
The "Swimming Pools"

There is probably a proper name for these pools of water at the outer edge of the reef. We call them swimming pools. When conditions are too rough to venture outside the reef by dinghy, we walk across

Exploring Minerva Reefs

the reef and jump in to these protected bodies of water at low tide. The outer barrier reef adsorbs much of the surf energy and keeps us relatively safe. The bottoms of these pools are dead rubble but the edges have amazing hard coral coverage. Four different Parrotfish species form schools in these pools. The Steephead Parrotfish have such vivid colors that they seem to have been Photoshopped. The slow-swimming Box Fish and Porcupine Fish seem to like the lack of surge. One small pool on the West side had dozens of Box Fish.

The photo below shows our favorite location. This spot also provides snorkeling access to the amazing dive site we call Pointy Point.



Swimming Holes at the Northeast Corner of the Reef

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South Minerva Reef

The "figure 8" shaped Minerva South Reef has a separate East and West lagoon. Only the East lagoon is navigable.

South Reef Entrance

The East lagoon has a bommie obstructing the entrance channel which is accurately located on all chart products and it is easy to spot. We would not hesitate to pass on either side of it but prefer the East channel since both sides of that channel are visible in all light conditions. The deepest and most wide-open channel is on the West side of the entrance however this channel lines up with the hazard mentioned below.

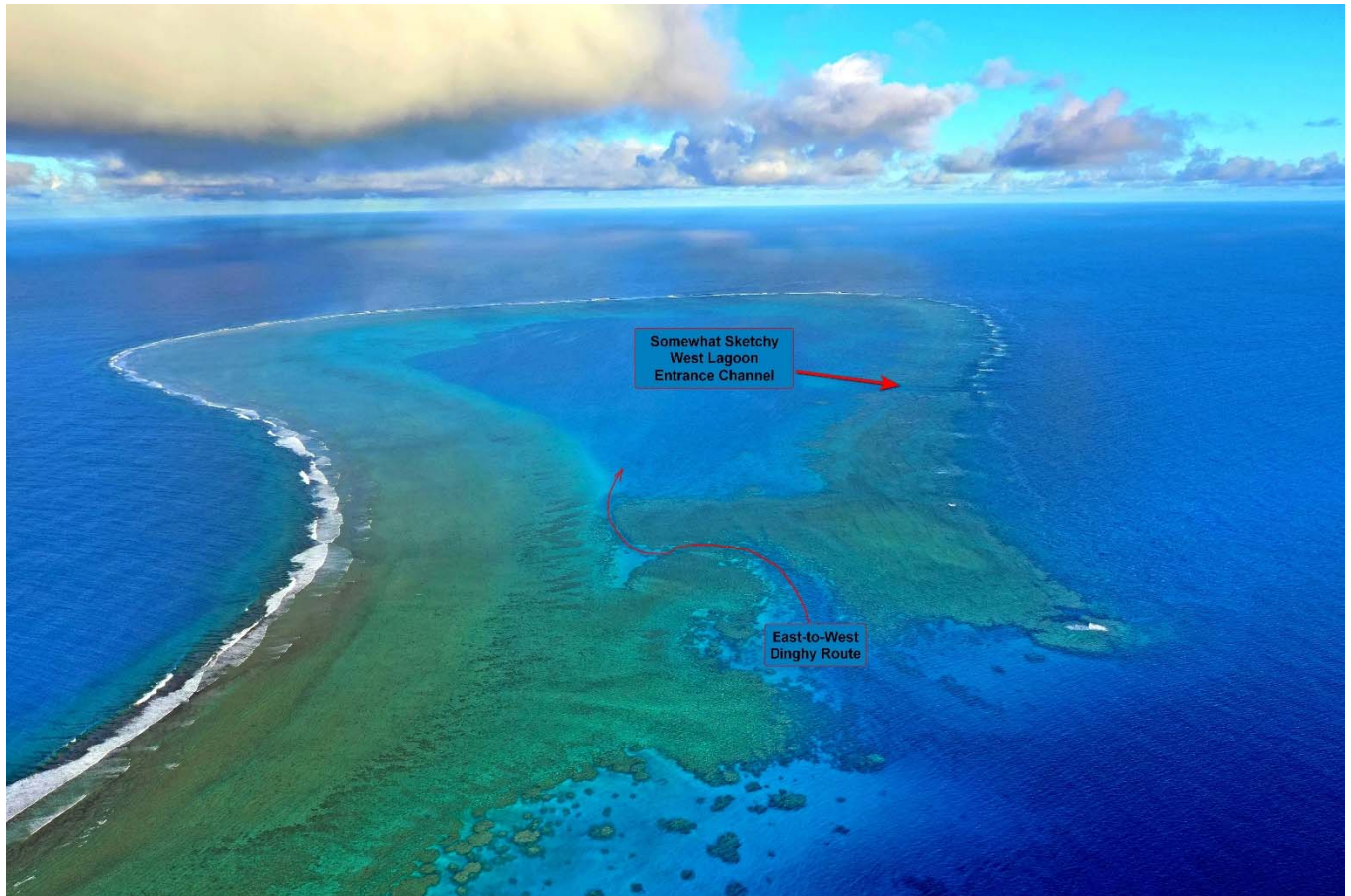


Minerva South Entrance Channels Viewed from the Outside

If you proceed into the lagoon by going straight down the middle of the western channel, be aware of a stand-alone bommie which is straight-ahead 500 meters into the lagoon. This bommie is the most significant hazard in the Minerva Reefs. All other bommies are located in shallow water or near the reef edge, where you would expect them. This 10 meter diameter bommie is not shown on CMAP charts and Navionics charts show a nonexistent navigation light at this location. The bommie is at 23° 56.36' S, 179° 07.5576' W and is difficult to spot since it doesn't dry out.

It is actually possible to take a small vessel with 2 meter draft into the West Lagoon through a channel on the North side. I have been told that one daredevil has done this. At low tides we have used this passage for dinghy access to the West Lagoon but the tidal current really rips through the channel.

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Minerva South Reef – Aerial View of West Lagoon



West Lagoon Entrance Channel Close-up

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South Reef Anchorages

When conditions are calm we anchor as far West as possible for easy access to the best snorkeling. When winds are above 10 knots we stick to the windward edge.

The South Minerva reef is not as high or wide as the North Minerva reef. Therefore conditions in the lagoon are somewhat rougher at high tide. If the winds are going to be above 15 knots for several days, we'll usually head up to the North Reef.

Compared to Minerva North, there are more large, deep bommies around the perimeter of the South Minerva lagoon. That being said, we've always had enough room between them to anchor but we have had to unwrap the chain after a wind shift. It is easy to spot these bommies since the water is clear and the bottom is white sand.

South Reef Points of Interest

West Lagoon

The West Lagoon is surprisingly sterile. There is a huge amount of bommies and swim-throughs but the quantities of fish and coral are not impressive. We think it may be due to the shallow depth and warmer water. At half-tide and above you can dinghy into the West lagoon through a tortuous connecting channel.

On cold, cloudy days the warmer water of this lagoon is welcome. A "finger" of the West Lagoon extends into the reef area where the two lagoons are joined. The edges of this channel are somewhat healthy and Michelle enjoyed drift-snorkeling through the channel. I dropped her (and her camera rig) overboard at the West end and she flushed into a small pool at the other end...over and over.

East Lagoon Snorkeling

On the outside edge of the reef just to the East of the entrance. There are two "cuts" in the reef at this location. We prefer to anchor the dinghy on the inside of the lagoon and swim through these cuts to the outside. Once outside, we turn right or East to swim along the outside edge of the reef. It's not impressive at first, but if you swim Northeast along the reef for a while you'll find some nice coral and fish. There are a crazy amount of colorful giant clams embedded in the reef here.

At the Southwest corner of the East lagoon there is a wonderful maze of bommies with great coral coverage. Keep an eye out for small silvertip sharks here. Twice they have acted very aggressively towards us. In each case, the diver caught the movement as the shark charged and they were able to get their dive fins up to fend off the animal.

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General Info and Opinions About Minerva Reefs

We have observed many dozens of boats stopping briefly as possible at the remote Minerva Reefs. Listening to the VHF chatter, we get a feeling that some boats feel “trapped” here and experience a lot of stress about how long they might wait for a weather window. Often, the skipper must adhere to a schedule but there’s also what we call “Minervousness”: a feeling of being stuck hundreds of miles from any assistance. There’s certainly elevated risk exploring such a remote location. But none of us chose this lifestyle for its safety. We wish we could lead every boat on a snorkel to show them the amazingly clear water and huge, healthy reef fish. This place is more than worthy of a long layover. We feel privileged to have experienced such an unspoiled piece of the South Pacific. If you like swimming in the tropics, please jump in the water and look around. A suitable weather window always materializes. It just might take a few weeks. In the meantime, we cruisers always assist each other.

Fiji and Tonga Jurisdiction

If everything you know about Minerva Reefs came from Wikipedia, you might think a shooting war could break out any minute between Fiji and Tonga. We have encountered the Tonga Navy patrol boat several times during our visits. They conduct a very polite and professional check of our passports, ask a few questions, and they tell us to “enjoy the reefs”.

We have had the Fiji Navy visit us just one time and they were also quick and courteous. However, that same Fiji Patrol did conduct thorough searches of other 3 other Fiji-bound vessels near the South Reef. It appeared they might have been operating on a tip.

Digging deeper into the 2010-2011 navigation light incidents, political tension between Tonga and Fiji was high at that point in time for reasons unrelated to the Minerva Reefs.

Lobstering

You can find lobsters roaming on the main reef at night when the tide is high enough to cover the reef. They start heading out right when the sun goes down. It takes a bit to spot the first one but then it becomes easier once you know what you are looking for.

In the daytime, the most reliable source of lobsters are the channels cut in to the reef at the outside edge. The best place for this is on the reef adjacent to the wrecks at the NE corner of the lagoon. An hour before low tide we take the dinghy out past the wrecks till we run out of water, then hike across the reef with snorkel gear, an U/W torch, and sturdy gloves. We walk along the surf line, jumping in the cracks and sticking our heads in the bowls. This activity is much safer when the swell is below 2 meters.



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Yacht Pogeyan in Our Happy Place

We've been cruising and diving Tonga and Fiji since 2016. We fell in love with the Minerva Reefs the first time we visited and have spent many months exploring them. We are writing this on our 11th and final visit. We wanted to share some info and insights about this unique and wonderful place in the hope it provides a safer and more enjoyable experience for future visitors.

Rich and Michelle Marshall

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Please send any errors, omissions, and additions to rich@pogeyan.net