



Reef Watch Guidelines

What is Reef Watch?

Reef watch is a simple one-dive-one-survey method to record the health of coral reefs. The method is easily learnt and it is even easier to participate in the program. On a regular dive or snorkel trip valuable information can be collected to help protect coral reefs.

The data collected using the Reef Watch underwater slate will help to highlight any trends developing on the reef. Participation is invaluable in providing a large amount of vital information to monitor the reef's health.

Let's Start

Open the slate, and follow the instructions below:

Fill in information on Country, Province, Island (if appropriate), name of the reef, which direction the reef faces and the latitude and longitude of the dive site. If you do not have the latitude and longitude, please sketch a map of the location on the reef where you dived.

Your dive leader can help with this information or any other part of the survey you are not sure about.

Reef's name: Dive/Snorkel site

Facing direction: North, East, South or West when you are facing out to sea.

Reef width (m): Distance between the shore's edge and seaward edge of the reef (Figure 1).

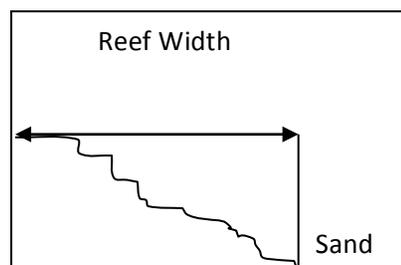


Figure 1. How to measure reef width



Maximum depth of reef and time when recorded: This is important as depth of reef varies with time and tidal movement

Average depth of dive: Give the average depth of dive as this tells us the approximate depth you found most of your data.

Reef topography at the diving site: Choose the area where you spend most of your dive:

- Gentle slope from shore
- Obvious reef flat with reef slope
- Very steep slope or wall type
- Submerged rocky reef

Reef type: Please choose only one.

- Dense coral reef: Dense area of hard corals alive or dead (may have small areas of sand or rock)
- Patch reef: Isolated, often circular or oval reef formations are spread over a sandy floor, usually within a lagoon or embayment, are usually found near one of the major types of coral reefs. Patch reefs develop in calm protected waters
- Rocky reef: Corals growing on rock beds

Zone of Reef where you conducted observations: Please choose only one zone to carry out your survey.

- Reef flat Area exposed at extreme low tides
- Reef slope
- Both flat and slope
- Wall
- Irregular topography or submerged rock

Percentage cover estimate: Over the dive record the percentage cover of the categories below after 10, 20 and 30 minutes. Each category at these times can



then be divided by 3 to give an average of cover type over the whole area surveyed.

Live Hard Coral: Reef building corals

Dead coral rock: Coral dead but still intact

Dead coral rubble, scattering on sand: broken corals scattered on sand or seafloor

Soft Coral: Can be recognised by their compact, defined vegetable-like look and bright colours

Sea Fan: feathery branches often form in a 2-dimensinal traditional fan shape

Fleshy Algae: Generally green and leafy or grass like, they can grow much quicker than coral and rapidly smother the reef

Other: Sponges, Anemone, Giant Clam, Zoanthid, Corallimorph, these are organisms which have taken up available space and are firmly attached to substrate.

Zoanthid and Corallimorphs are close cousins to corals but do not build reefs and can instead smother coral.

Sand floor: Sand Area

Rock floor: This does not mean limestone from dead coral, but other rock such as granite. This can be covered in encrusting algae, as suitable substrate for larvae settlement.

Remember you can always use the marine life identification book provided by your operator if you would like to learn more about the animals you are identifying.

Common types of corals: Those coral growth forms which are the most dominant on the reef (not all growth forms seen).

- Massive - Large or small boulders
- Submassive - Long or short, very thick columns, No branches



- Short or Long branches - like fingers or staghorn
- Table - Branching form which has spread horizontally
- Leafy or vertical plate - folds of coral flowing in area with a definite edge, like a cabbage
- Encrusting - coral seems to spread over the floor in a thin layer
- Mushroom - these corals are single large polyps of several centimetres in diameter and are found scattered over reef floor. They do not attach to the reef

Indicator Species: This can be done using either method

Survey method 1: Count the number of indicator species found in a 10 x 10 m square at any point during the dive and select, none, small number, fair number, or large number.

Survey method 2: During your dive count all the indicator species you see. Please remember to enter how far (approximate) you dived in meters. *Remember to look in crevices and under rocks and corals for sessile animals.*

1. **Needle spined urchin:** Identified by long spines, usually found on the sea floor where they graze for algae. Small numbers are good for a healthy reef, large numbers may indicate too much algae and dead matter.
2. **Crown of Thorns Starfish:** Purple, blue, light brown, green and black colour large, are usually at least 20cm in diameter. Can be found anywhere on the reef generally where coral is dense, feed on coral polyps, they are nocturnal predators so are usually hidden in crevices or under table corals during the day. Spines are toxic. 1 or 2 on a dive is OK, 5 or more is an early warning, 10 or more is of concern. 30+ COTS is a serious outbreak. Please refer to the COTS guidelines for more information.
3. **Sea Cucumber:** Variety of colours, cleaners of reef, they feed on dead and decaying matter in all reef zones from top to bottom of the reef.
4. **Parrotfish:** Reef Grazers, average length 20cm, range of colours. Recognised by parrot like jaws. Swim over several habitats on the reef and regularly graze on the reef. Important reef fish as graze on algae clearing



the way for new coral larvae to settle and keeping algae in check, some species will eat coral polyps.

5. **Bumphead parrotfish:** Very large, distinctive bump on the forehead, found in all areas of the reef, regularly swimming down to rocks and coral to feed.
6. **Grouper:** Found generally at the bottom of the reef or places they can hide and wait for prey. They rely on their camouflage and are usually shy. They can be quite difficult to spot, try looking under branching and massive corals, they are usually resting on their pectoral fins. As a top predator on the reef they prey on the weak fish keeping overall reef health high.
7. **Snapper:** Cruise around reef in schools, have a sloping forehead, fished regularly for food so there is a danger they may be overfished.
8. **Butterflyfish:** Mostly found in pairs, generally disk shaped. Roam along the reef grazing, eat many types of food and as they feed open up space for new coral or other animals to settle.
9. **Napoleon wrasse:** Rare visitor, fished for its lips
10. **Spiny lobster:** Spiny lobsters are edible, these lobsters tend to live in crevices of rocks and coral reefs, only occasionally venturing out at night to seek snails, clams, crabs, sea urchins or carrion to eat. Sometimes, they migrate, in long files of lobsters across the sea floor. Indicator of over-fishing.

Over the whole dive, please rate the following:

Reef attractiveness

- Give your personal opinion, was it: exceptional, pretty good, moderately good, limited, or very poor.

Hard coral variety

- Your personal opinion on variety of growth forms and amount of species, was it: exceptional, pretty good, moderately good, limited, or very poor.



Reef fish number

- Were fish populations: Superabundant, abundant, moderate, limited or poor

Reef fish variety

- What was your opinion on the variety: incredibly varied, pretty varied, limited or noticeably few

Damage on the reef

Over the whole dive did you see damage being done to the reef or the results of some earlier damage? Please only note what you saw on this particular dive.

- Fishing Gear: Nets, lines, traps entangled on or over the reef
- Spear Fishing: Did you see this
- Dynamite blasting: if you hear explosion during your dive or see recent impact from dynamite fishing
- Careless Diving: Fins or equipment hitting coral, kicking up sediment on to corals
- Shell Collecting: People collecting shells
- Stepping / holding on to coral: People stepping or holding on to the reef while snorkelling or diving.
- Oil Slick : Appears as thin film on water surface
- Anchoring on Coral: Anchors on coral or being dragged across coral reefs
- Sediment: kicked or stirred up on reef or from land based activities
- Sewage: expelled into the sea from boats or land near coral reefs



Did you find that over the whole dive:

Corals are bleaching: Coral turns white or very pale or very bright pale yellow (polyps still exist)

Seaweed smothering the Reef: Especially the leafy algae, either green or brown

Standing dead coral: Corals that are dead but are still intact and not broken up

Additional Comments

Please use this section to add sightings of rare or endangered species, any crown of thorn outbreaks. Also anything you are unsure may be relevant can be added here.

Submitting Data: *You can easily upload your data to the Reef Watch Website*

Thank you!