

# SUBSTRATE SURVEYS MANUAL

Substrate surveys will give MCP an overview of the health of the coral reef at different depths and at different dive sites, especially if they are combined with the fish and invertebrate surveys.

## HOW DOES IT WORK?

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### Your training for surveys

To be able to carry out the surveys correctly, it is important that you learn to identify the different types of substrates we monitor. To do so, you will go through a phase of in-water and out-of-water training with an experienced teacher (*staff member, intern or trained volunteer*).

- **Bootcamp :** (2 dives) Buoyancy practice and general scuba skills training to prepare you to have an adequate level for surveys.
- **Introduction to coral reef monitoring:** (1 presentation and 2 dives) One day to be introduced to general reef species identification, our survey methodology and practice required skills ( reeling, navigation, etc.). During this day you will learn the difference between hard and soft coral, essential to continue your substrate training.
- **Identification training:** (3 presentations, 6 dives, 2 tests)
  - Three days to introduce you to the different type of substrate we monitor, their different growth forms and

their health. Each day, you will start with a presentation in the morning, followed by 2 identification dives and a quiz in the afternoon.

- During an identification dive, your teacher will bring a slate with the names of the different type of substrates you were presented in the morning. In the beginning, the teacher will point at live specimens and show you on the slate which it is. You will soon become more knowledgeable and be challenged to identify them yourself.
  - To assist your training it is highly encouraged that you use part of your afternoons for studying. Your teacher will introduce you to different training tools to help you study independently (Power point presentations, anki-decks, flashcards). **Study them !** The quicker you learn the substrates types and their growth forms, the more fun your dives will become and the sooner you will begin surveys!
  - At the end of this first phase of training, you will be asked to go through an Identification Test (dry). Passing rate is 90%. Once you passed it, you will go through an underwater test composed of 50 random substrates to identify correctly (90% rate). When you are ready, you will begin to do transect practices.
- **Substrate Transect Practice :** (Minimum 2 dives, 1 underwater test)

- You will learn to do surveys by conducting transect practices and identifying substrates and their growth forms every 25cm on a transect line of 30m and give the appropriate sign to your buddy / teacher who will be recording the data. You will practice both roles.
- Once you and your teacher feel that you are prepared you will be tested. You must complete and pass a mock survey test with a designated staff member. You will be assessed on your ability to identify and sign the substrates and their growth forms using the correct methodology.

\*\* It is very important in Scientific Research that the data collection process is conducted systemically showing little differences between each volunteer. This is something that MCP takes seriously; thus, please don't feel offended if you are asked to practice a bit longer. As a volunteer, presumably learning substrates for the first time, it can take a few dives to learn the different categories. Everyone learns at different rates and you will be given as much time and support as needed to reach the level required to collect reliable data.

On top of that, your dive skills also need to be sufficient to ensure both the safety of the reef and yourself. If it turns out that you have a lot of trouble with swimming upside down, frog kicking and/or keeping your feet up at all times, we'll ask you to do some extra buoyancy practice or join another boot camp. We want to prevent harming the coral while doing research as much as possible. If someone were to accidentally kick a piece of coral and it breaks off, it could take 2-10 years to regrow, depending on the species of coral. This is another aspect that MCP takes very seriously, so again, please don't be offended if we ask you to take a little more time to work on your dive skills;

we are committed to working with you to make you a better diver. At the end of the day it will make diving for you easier and more enjoyable.

### Your survey material

- 30 meter reel
- Two personal substrate slates per team
- 2 Pencil and at least 1 spare pencil per team
- An eraser in the car
- Substrate book

### The surveys methodology :

- The surveys takes place **in a buddy pair** along a **30m transect line** over **continuous reef** within a depth range that will be given to you ( 3-7, 9-13 or 15-19 meter deep).
- After being given a dive briefing, you will be asked to lay out your 30m reel in a random location of the reef within the depth range you were given. It is very important that you perform your survey over continuous reef and that you make sure that you are at least 15meters away from any other survey reels.
- To perform a survey, you follow the transect line and together with your buddy look at every 25cm on the line. One will be identifying and signaling to the other diver who will be in charge of recording the data on the slate. Roles will change. This buddy system allows better safety while diving, and a "back up brain" if confused at a substrate type during your survey.

- Depending on your air consumption and the depth you will be at, you will be able to perform more than one survey in one dive. You can finish a survey on the second dive if you are not done with it, but a 30m survey will always be completed on the same day, it cannot be divided into two days.
- Depending on the depth of the transect and the dive location, the type and health of substrates you will encounter will be different and therefore your dive time can differ as well. As a rule of thumb, take at least 15 minutes for a 30m transect.

#### **A few things to keep in mind:**

- Make sure to check your air regularly. Let your buddy know after each 30m transect how much air you have left. You might have the feeling your overdoing it a bit in checking your air, but we notice that a lot of volunteers forget to check their air while they are doing research. Just like any dive, stay close to your buddy so you can respond quickly should an emergency occur.
- When assigned to the deeper transects, make sure to do a safety stop. If you are down to 60 bar and you are not finished, abort the rest of the survey. **Don't start rushing to finish it**, because you will be overlooking substrate and could endanger yourself by getting to low on air. Do a safety stop and surface.
- If a person has an emergency/is not feeling well, abort

the survey. Surface together as a buddy team and ask help from another team if necessary. If it turns out to be a minor problem and you both have enough air, you can continue the survey.

### **SAFETY COMES FIRST!**

#### **Data entry**

Once you have finished your diving, you will enter your data in the database. Your teacher or an experienced volunteer will explain to you how that works. Make sure you enter your data accurately. If you make any mistakes, it is almost impossible to correct them later, as you will need to erase the data on your slate for the next survey. After you have entered the data, go over it again and compare the data from the data sheet with your slate. Please enter the data the same afternoon and don't wait until the next day, as it is easy to forget and this often results in lost data.

#### **What do we do with the data?**

MCP is interested in the health of the coral reef. Changes on the reef occur slowly and often take several years. Because the monitoring is long term, we will be able to monitor the health of the reef over several years and notice any incline or decline in health. The long term monitoring program is especially useful if an anthropogenic (human) threat or natural disaster takes place. Hopefully it doesn't happen, but if a typhoon occurs we can show data about the recovery of the

reef and compare it to its previous state. We can also monitor the influences of human impact and report our finding to the authorities, such as when oil is dumped into a river that empties into the ocean next to a dive site etc.

The data is also used for updating the Coastal Resource Management plan of Zamboanguita. The municipality would like to have data about the Marine Protected Areas (MPA's) within the municipality (Basak, Lutoban Pier, Lutoban South and Dalakit). The same goes for the municipality of Siaton (Andulay). There is already a discussion going on for quite a few years whether Kookoo's Nest can be become an MPA. MCP would like to assist and collecting long term monitoring data is a first step in convincing people this is an important area for conservation.

Other government stakeholders are also interested in the data like BFAR (Bureau of Fisheries Management and Agricultural Resources), DENR (Department of Environmental and Natural Resources), and other NGO's.