How To Do A Marine Metre² Survey

SANDY OR MUDDY SHORE

WHAT YOU WILL NEED

- **A square frame**
  You can tie 4 x 1 m bamboo canes together, or use a 4 m length of rope with three knots tied on it at 1 m intervals that can be arranged into a square shape on the shore.
- **A 10 cm x 10 cm quadrat** (1% of your m2) e.g. a ice cream container lid works well.
- **A 10 cm diameter core** - a large fruit can, pipe or plastic container 10 cm in diameter and approx.. 11.5 cm tall is ideal.
- **A small trowel, a kitchen sieve, and a bucket.**
- **A small ruler, a hand lens and a camera are also useful.**
- A print out of this data sheet and a pen or mobile access to load your survey data online here.

1. PLAN YOUR TRIP AT LOW TIDE

Tide times can be found by looking in the weather information section of a newspaper, or at metservice.com/marine/tides/index. Note: the tide levels change each day and often are lowest around the time of the new or full moon so you may not be able to find the same low shore level next time.

2. GO TO THE SEASHORE AND CHOOSE YOUR SURVEY SITE

Randomly choose a position to lay your square down near the sea. To help you find your metre squared again draw a simple map, look for and photograph/record features that could help you on your next visit.

3. RECORD YOUR SURVEY SITE INFORMATION

- Record the shore level on the datasheet. The top of the intertidal seashore is close to the seaweed drift line from the last high tide.
- Take a photo of your metre square with the top of your datasheet in the corner so that you can compare the features of your sample area with others.
- Describe the location of the site, (e.g. name of the beach or a local landmark). This can also be done using a GPS function on your phone.
- Record the start time of your survey.
- Record key features of the site, (e.g. presence of a freshwater stream, evidence of human influences).
- Fill in as much information as possible before heading to the shore.

4. RECORD THE TYPE OF GROUND SURFACE (SUBSTRATE) IN YOUR SQUARE (E.G. REEF, BOULDER, ETC.) IN PERCENTAGES.

This should add up to 100 %. If sand is layered on top of the reef – record the upper surface (in this case sand). Remember you can use your 10 cm² quadrat (1% of your m2) to help figure out the cover of the substrate.

5. LOOK FOR EVIDENCE OF WHAT LIVES IN YOUR METRE²

You may find holes (borrow openings), worm deposits (faecal casts). Record these on your sheet.

6. COUNT THE ANIMALS AND PLANTS IN YOUR SQUARE

- **Measure the abundance of seaweeds using percentage cover.** This is the percentage of the square that is covered by the seaweed when looking down. You can use your 10 cm² quadrat to help you.

- Start in one corner of your square and **count the animals** that you can see without moving any rocks or seaweed.

- If you find a species you cannot identify, write a description of it in the species list. If you can, take a photo of it with a ruler (if possible) in the shot to indicate its size. Write a brief description of where it was found and what is was doing. Email this information to marinemetresquared@gmail.com to help others to identify it later.

7. TAKE CORE SAMPLES

Starting in one corner, push in the core to a depth of 10c m and use your trowel to dig it out.

If the sediment core remains intact, first **measure and record where the RPD layer starts** (from the surface). This is to see what lives just under the sediment and to measure the Redox Potential Discontinuity (RPD) level where **oxygenated substrates (light brown) change to deoxygenated substrates (dark and often smelly)** as this influences what lives where in the soft sediment.

Next, place the sample in the sieve and pour water through it to wash off the sand and mud. **Count and record the different species. Repeat in the other 3 corners of the square** (so you have 4 core samples in total – one for each corner!)

8. CREATE A 3D MODEL OF YOUR SURVEY SITE

If you'd like to capture a 3D model of your site so you and others can revisit it later, you can do a quick photogrammetry survey using your phone. Once you've downloaded the app it only takes around 10 minutes. Find out how here.

9. SHARE YOUR FINDINGS

Log your findings in the Marine Metre^2 database at **mm2.net.nz**.