Sandy & Muddy Shore

NEW ZEALAND MARINE STUDIES CENTRE UNIVERSITY OF OTAGO

How do I survey my **Marine Metre Squared**?

1. **Plan your trip to the shore or estuary.** You need to be on the shore at low tide. Tide times can be found by looking in the weather information section of your newspaper, or on the Metservice website at http://www.metservice.com/marine/tides/index. If you choose a very low tide (at new or full moon), you may not be able to find the same low shore level next time.

2. **Gather your equipment.** For soft shore sampling you need:
   - A **square frame** (Eg tie 4 x 1m bamboo canes together, or use a 4m length of rope with three knots tied on it at 1m intervals that can be arranged into a square shape on the shore.)
   - A 10 cm diameter **core** (Eg a large fruit can 10cm in diameter and approx 11.5cm tall is ideal or a pipe or plastic container this size.)
   - A small **trowel**, a kitchen **sieve** and a **bucket**.
   - A small ruler, a hand lens and a camera are also useful.

3. **Choose your Marine Metre Squared.** If you arrive at low tide, lay your square down near the sea. Record the shore level on the data sheet by ticking "Low". If you want to put your square in the mid shore or high shore, then tick this instead. The top of the intertidal seashore is close to the seaweed drift line from the last high tide. To help you find your metre squared again draw a simple map, look for and photograph features that could help you on your next visit.

4. **Look for evidence of what lives in your m^2.** You may find holes, (borrow openings), worm deposits (faecal casts). Count and record these on your sheet.

5. **Take a photo.** Take a picture of your square from directly above so that you can compare changes to the plants and animals living there over time.

6. **Count animals and plants on the surface.** Count live animals inside your square and don't forget to look on and under seaweeds and shells. Plants and seaweeds should be recorded as the percentage of the surface inside the square that is covered when looking down. If you cannot identify a species, write a description and take a photo of it with a ruler in the shot to indicate its size. Write a brief description of where it was found and what is was doing: this information can help others to identify it later.

7. **Take 4 core samples.** This will give you a measure of what lives just under the sediment. Starting in one corner, push in the core to a depth of 10cm and use your trowel to dig it out. Tip it into 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.

8. **Record your survey information.** Record the location of the site. This can be done using a GPS function on your phone, or the name of the beach or a local landmark. Write a brief description of the site including possible influences on the plants and animals living there. Record the shore type, and describe the sediment found in your square.

9. **Enter your information on the Marine Metre Squared website: www.mm2.net.nz**

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MM2 SURVEY INFORMATION

Date: ____ / ____ / ____ **Location:** _____

Group Leader: _____ **No of surveyors:** _____

Start time: _____ **GPS/Map ref (optional):** _____

Low tide time: _____ **Shore level:** ☐ Low ☐ Mid ☐ High

Exposure: ☐ Very Exposed ☐ Exposed ☐ Sheltered ☐ Estuary (freshwater input)

Substrate type in 1m x 1m quadrat: ☐ Mud (sink more than 5cm) ☐ Mixed sand and mud (Sink 2-5 cm) ☐ Sand (sink less than 2cm) ☐ Mixed sand and mud with rocks

Site description:

Give a brief description of the site and describe any possible influences that might be important to the plants and animals in the area (e.g. mangrove trees; shell bed; mudflat; exposed sandy beach; very exposed surf beach; obvous signs of domanant species; freshwater creek 50 m to the north, upper shore modified with road or other structures; popular site for cockle collectors, etc.).

PHOTO:

Take a photo of your m^2 area to upload onto the website.

LOCATION SKETCH:

Do a sketch that will help you to find your m^2 area in future and label with landmarks and measurements (metres or paces) from the landmarks.

Surface evidence (in 1m x 1m quadrat):

This informtion will help you to identify the types of creatures that may be living in this area.
Include this data into the database under surface count if you are confident with your identification.

Surface feature	Number	What animals made them? (Common or scientific name)
Feeding marks		Wedge Shells (*Macomona liliana*)
Holes *(burrow entrance of mantis shrimp, ghost shrimp, mud crabs or amphipods)*		
Faecal casts (eg worm poo) *(worm deposits (poo) at borrow entrance of bamboo or lugwoms)*		
Other		

Surface count (in 1m x 1m quadrat):

Record plants and seaweeds as a percentage (%) cover. Count only live animals.

Plants, Seaweeds, Diatoms: common or scientific name	% Cover

Live Animals: common or scientific name	Count

Infauna Counts (in 10cm x 10cm core):

To find out what is living in the sediment just below the surface, take four core samples (one from each corner inside your m^2).
Remember to move surface life out of the way so it is not counted twice.

	Core samples taken from inside your quadrat				
Common or Scientific Name	1	2	3	4	Total animals in 4 cores