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Micro reef building

Materials:

- Dead coral rocks
- Bag of cement (keep dry until use)
- Clean sand (dry, from as high up the beach as possible)
- Supply of fresh water
- Bowl for mixing cement
- Gloves
- Trowel/measure/mixer
- Plastic bags

Building Site:

Pick an area where micro reefs can be left undisturbed and will not be covered with water during high tide, for 3 days.

Mixing cement:

- Make cement in small batches as it cures (sets) quickly.
- Use ratio of **6 sand to 1 cement**, add **fresh** water until consistency of stiff putty.
- DO NOT MIX CEMENT WITH SEA WATER – it will not set well.
- Wash basin and mixer immediately after use to avoid it setting on the tools.
- Place in plastic bag for in-water use and squeeze all air out.

Building micro-reefs

- Place dead coral rocks in a circle about 40- 50 cm across (1.5 feet)
- Cement ring in place.
- Continue to build coral rocks up in circles which get smaller with each layer, leaving small gaps for fish entrances as you go. Cement the layers as you go.
- Bring the top to a close at about 60cm (2 feet) high.
- Poke finger-holes in areas of cement (will be used for coral planting later)
- Bury houses in sand and dampen with fresh or salt water
- Leave for 3 days. Dampen sand daily.

Base ring

Micro reef shape, note gaps

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Building the houses

Dead coral rocks from the beach were used, with cement and sand.

Finished houses

are hollow and have windows left in them for fish to enter

Houses are buried

Sand is wetted and left for 3 days to harden cement

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Placing Micro Reefs:

Select areas where the tops of micro reefs will still be covered with water at extreme low tides, where algae cover is al low as possible, and where there is some existing live coral if possible.
Avoid areas where there are freshwater outlets, heavy siltation or heavy algal overgrowth.
Place micro reefs in small groups of 5 or 6 to form an entire micro environment

- Mix a small amount of cement in a plastic bag (3 or 4 fist sizes)
- Carry or float (use canoe or wheelbarrow etc) micro reef out to the site.
- Use a diving fin to “wave” loose sand away from sea bed until you reach solid substrate.
- Place at least 3 fist-size lumps of cement on the sea bed
- Place micro reef firmly on top of cement.
- Leave in place for 3 days before planting corals

Moving completed houses onto reef

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Planting corals

Corals which have been broken by storms or careless reef walking can usually be found on fringing reef tops.
DO NOT take healthy corals and transplant into unhealthy areas!
Corals should come from a similar depth and habitat to the area where they will be planted.
DO NOT take corals from a deep reef slope and transplant onto a shallow reef flat!
Use a mixture of corals wherever possible, including branching, table, plate and boulder forms.

- Use gloves when collecting corals.
- Minimise handling – hold them by the base and not the branches.
- Place them in a basin or bucket of sea water until transplantation.
- Try to transplant within an hour of collection. If being kept longer, sea water needs to be changed hourly (or more often), or place on the sea bed in area where they will be used.
- Use only 3 or 4 pieces of coral per micro reef – space well to allow for growth.
- Using gloves, and GENTLY handling corals, place base in a hole in the micro-reef. In some cases, (e.g. calm waters) attachment may not be necessary. In rougher areas it will be necessary to fix the corals to the micro reef.
  Method 1: use Cement (this works only on horizontal surfaces or in holes)
  Method 2: Use Epoxy putty (this works on all surface but is expensive)
  Break off **small** portion of putty (about 2.5 cm/ 1 inch).
  Mix well between fingers until a uniform colour is achieved
  Place firmly on micro reef
  Push base of coral into putty