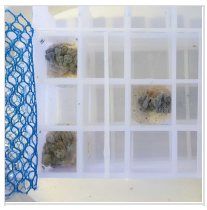

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# Effective asexual propagation (fragmentation) method of the soft coral *Xenia umbellata*

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Many asexual propagation methods for hard corals can easily be found in scientific papers, while methods for soft corals are mostly present in grey literature or aquarium hobbyists' forums. Moreover, fragmentation methods for hard corals are difficult to be adopted by many soft corals since they lack a rigid support system. Even though some soft corals may be considered as easy and fast growers, it is difficult when it comes to preparing healthy fragments in large quantities to use for experiments. Thus, the Plug mesh method was formulated to easily fragment one soft coral type lacking any rigid support system, the *Xenia umbellata,* efficiently. This method was coined by modifying a method named theTunnel cube method developed by Curry (2020) and could be used for many other soft corals with similar characteristics.

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protocol

Kim S, Wild C, Tilstra A, Effective asexual reproduction of a widespread soft coral: comparative assessment of four different fragmentation methods. PeerJ doi: 10.7717/peerj.12589

Asexual propagation, Soft coral fragmentation, Soft coral fragging

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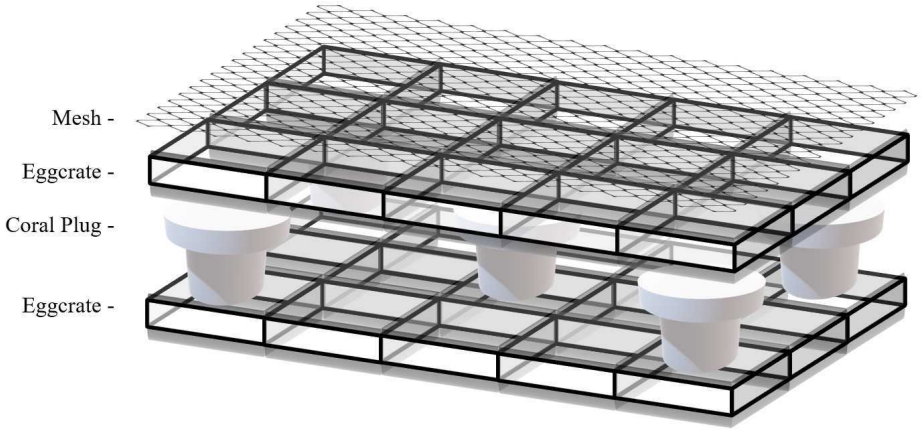
*Xenia umbellata*, eggcrate, mesh fabric, coral frag plug, rubber bands, nursery tank with maintenance equipment, scissor or scalpel, and tweezer.

Be careful of injuries when using scissors or a scalpel.




1. Prepare two eggcrates of the same size.
2. Prepare the needed number of coral plugs. Make sure they are not placed right beside each other but being adjacent diagonally is ok.
3. Cut a mesh fabric to fit the selected eggcrate size. Use a mesh with large enough holes for water to flow while small enough to keep fragments inside. A diameter of 3.5mm or larger is recommended.
4. Secure the eggcrates and coral plugs with rubber bands.
5. Prepare extra rubber bands to secure the top mesh fabric after coral fragmentation.
6. If fragments will be placed in a nursery tank, make sure to prepare the nursery tank to have ambient water flow allowing sufficient circulation within the tank.

1 Select a coral stock and prepare it in a water basin filled with identical water from where it comes from.



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2 Cut prepared stock into the desired size with scissors or a scalpel. Use tweezers if needed to secure them and always keep them in the water.

3 Gently allocate them on top of plugs inside eggcrate grids.



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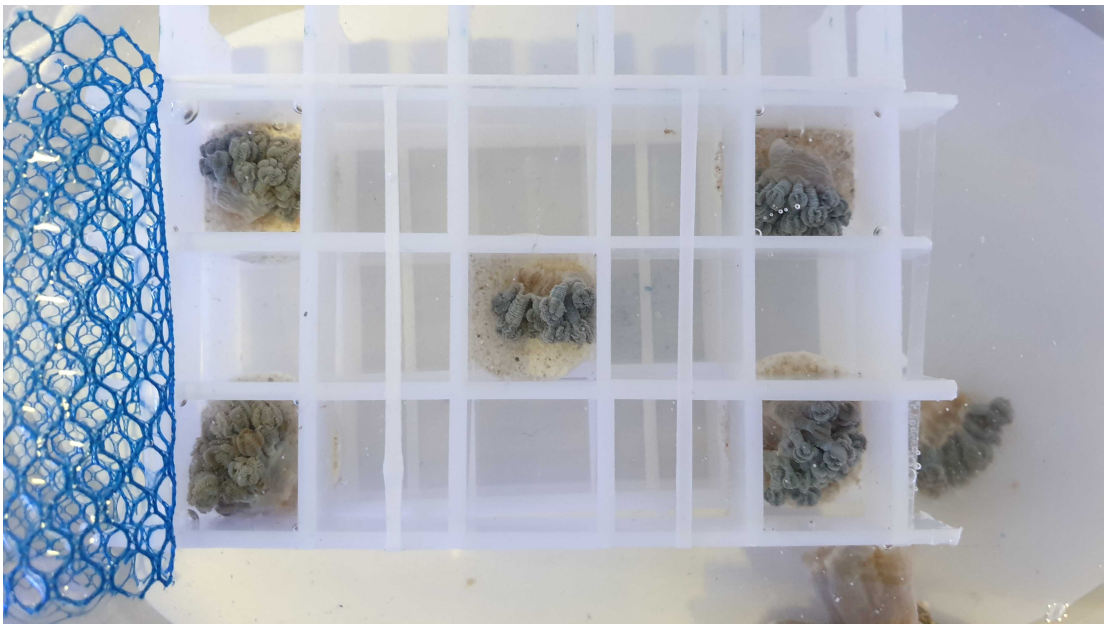
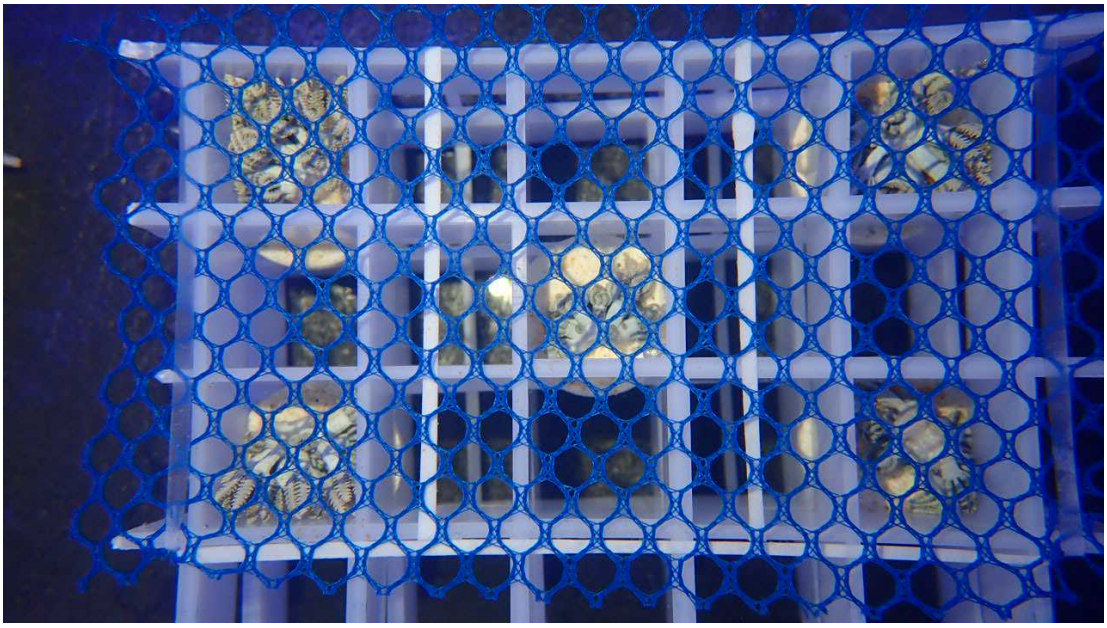


4 Cover the top of the eggcrate with prepared mesh and rubber bands and then put the assembly into the tank.



5 Check every 24 hours to make sure that they have attached to the plug, not the wall of the eggcrate.



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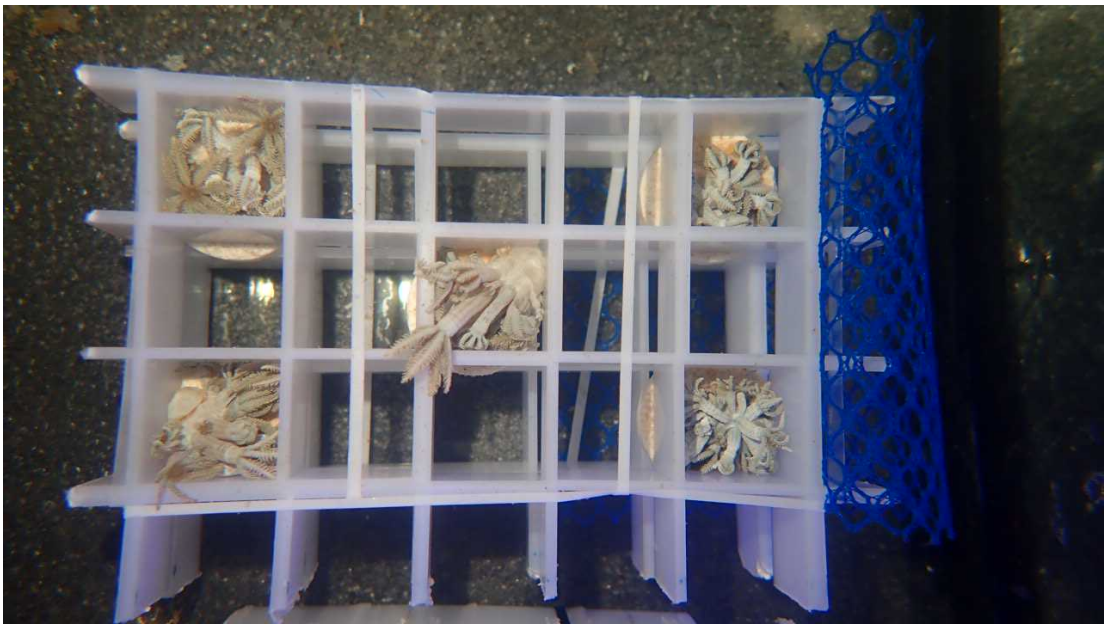
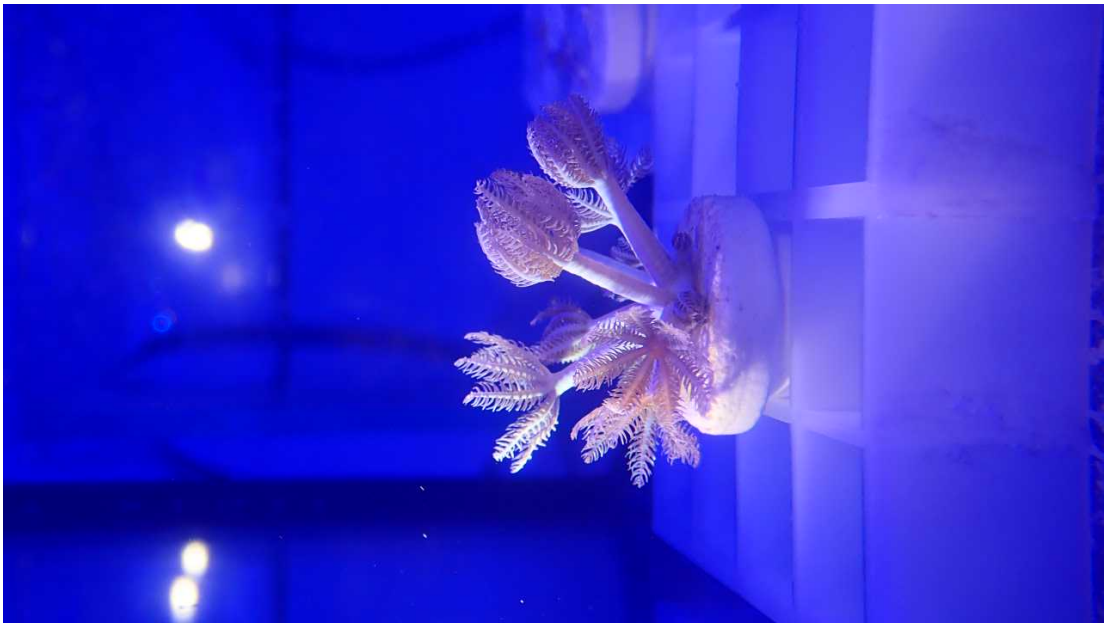


The one in the middle is attached to the eggcrate wall.

6 If they have attached to the eggcrate wall, gently scrape them off and place the fragment back on top of the plug.

7 Once the fragments are firmly attached to plugs (after 24~72hours), they can be removed from the eggcrate assembly. Firm attachment can be assessed by gently shaking the plug.





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