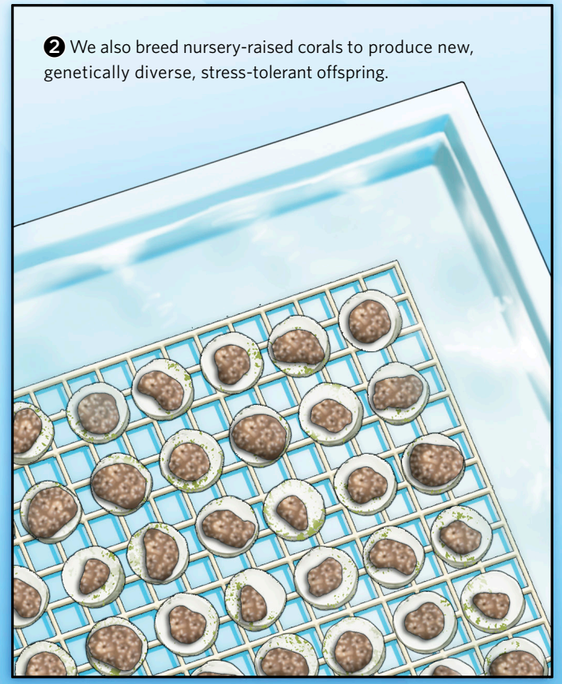
THE MICROFRAGMENTATION PROCESS

At Mote Marine Laboratory, our group has developed a new approach to restoring corals, depicted below. Already, we have seen new coral form across the dead skeleton of massive brain, boulder, star, and mounding coral structures in just one or two years, instead of the hundreds of years it might take a reef to regenerate on its own. Sexual reproduction is vital to the persistence of coral populations, but sexual maturity is size-dependent in reef corals, so expediting the growth of larger corals should support faster population and reef recovery.

❶ When corals reproduce sexually in the wild, we collect bundles of their sperm and eggs, which we bring back to the lab and use to produce new baby corals.

❷ We also breed nursery-raised corals to produce new, genetically diverse, stress-tolerant offspring.



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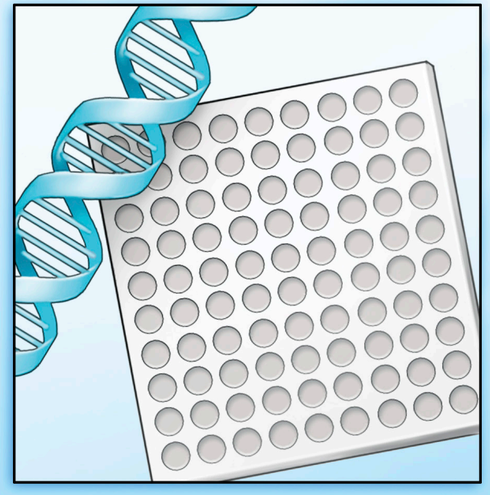
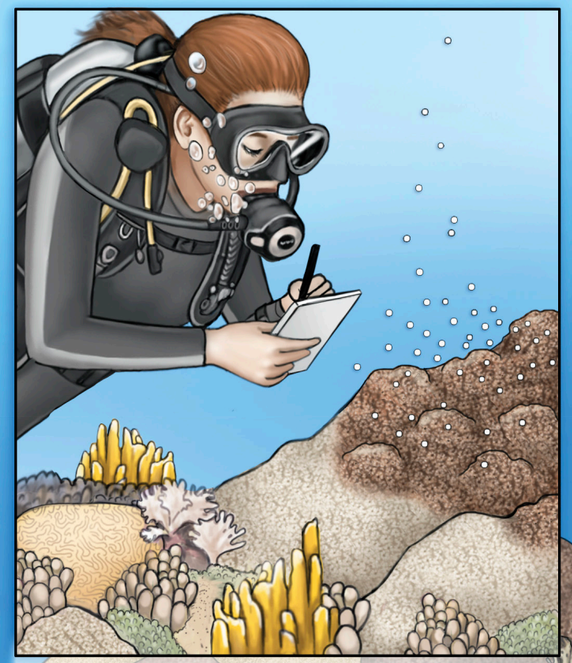
❸ We generate large numbers of corals asexually by microfragmenting the colonies to produce clones.



❹ We test coral genetic varieties for resilience to disease, climate change, and related stressors.

❺ We plant coral fragments representing different genetic varieties and species onto damaged reefs to support resilience-based, multi-species restoration.



❻ We monitor the outplanted corals as they grow, fuse together, and reach sexual maturity.

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