

Brief Note on Oyster Culture

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DESCRIPTION

Oyster farming is one of the most popular types of marine aquaculture in the United States. A total of 31 million pounds of oysters were gathered with a dockside value of 135 million. Because it does not account for the ecological value of the fish species that use oyster reefs as a food source and nursery habitat, nor the coastal protection and water-quality services oyster reefs provide, this is likely a poor assessment of the oyster's overall worth. When both the economic and ecological importance of oyster reefs is taken into account, the figure rises into the billions. Oysters are bivalves, which mean they have two shells, one comprised of calcium carbonate released by their mantle tissue and the other protecting their delicate bodies from predators and the environment. The oyster's gills not only "pump" water for oxygen, but they also filter particles from the water for the oyster to consume. The food collected by the gills and labial palps become part of the crystalline style, a mucous thread that is reeled into the stomach. The gut is made up of diffuse tissue that serves as both a digestive and reproductive organ.

Temperature fluctuations trigger oyster reproduction. Males release sperm when water temperatures change from cold to warm, while females release eggs when water temperatures change from cold to warm. Fertilized eggs will float for 24 hours in the water column before hatching into swimming larvae. The larvae are small and will float for about two weeks before developing a foot and crawling to find a place to lay their eggs. Because an oyster cannot migrate once it has settled in a region, choosing the right spot is crucial. Oyster larvae tend to settle on and around areas where other oysters are present, forming reefs. Water quality, current flows, and the availability of cultch, a suitable setting material, all contribute to the establishment of this reef. The process of transplanting wild oysters as young juveniles from public bottom to leased areas for grow-out is the most traditional kind of husbandry or aquaculture. This procedure has been carried out for centuries in numerous regions, including the Gulf of Mexico and the Chesapeake Bay. In addition, regions, where natural reproduction is desired, are planted with clean oyster shells or equivalent medium. Pollution and overfishing have changed the way oysters are produced to

fulfill market demand. The Chesapeake Bay used to be one of the most productive oyster fields in the United States, but oyster disease, uncontrolled harvesting, and declining water quality decimated the population. Harvesting wild oysters in the Chesapeake Bay is still possible, but not at the same level as it previously was. Broodstock, or sexually mature adult oysters, are used to create larval broods in the hatchery. Broodstock can be found in the wild or produced from the previous year's offspring. Genetics has a significant role in offspring selection. Through the technique of selective breeding, scientists in agriculture have been able to generate disease-resistant or faster-growing organisms. As a result, it's critical to think about the genetics of the broodstock that is employed. After the selection of broodstock, the next stage is to determine gonadal maturity or ripeness. Unfortunately, the only method to identify if a bunch of oysters is ready to be spawned (if they hold mature gametes) or if they need to be conditioned is to shuck a few and check the gonadal tissue. Conditioning is the practice of altering hatchery ambient variables, like water temperature, to match the conditions required for gonad maturity. This is a classic hatchery method for extending oyster output beyond their usual spawning season. To ripen broodstock oysters, basic conditioning approaches include putting them in tanks with water at room temperature and progressively increasing the water temperature and algal supply over many weeks. The temperature and quality of the water will vary depending on the oysters' area and location. Hatchery products are used in two types of oyster aquaculture: intense culture (off the bottom, containerized) and extended culture (loose on the bottom). The final aim, receiving oyster seeds as spat-on-shell or as individuals from a nursery system, is to develop them to a marketable size. The size of the market varies by state.

CONCLUSION

Harvesting oysters from the bottom with a pair of tongs was the conventional way for growing oysters. The Industrial Revolution introduced speedier ships, which allowed boats to reach oyster reefs faster. As well as the motorized winch, this made dredging reefs considerably more efficient than using tongs. In the Gulf of Mexico and the Chesapeake Bay, the traditional practice of gathering seed oysters and transporting them to private leases for grow-out is still in use.

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