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Panel says future of Bay oyster likely to be aquaculture, large sanctuaries

Costly plan would require almost 2 decades to show significant results

By Karl Blankenship

Likening the effort to return a large oyster population to the Bay to that of putting a man on the moon, a Maryland advisory commission in January indicated that it would recommend a sharply different-and costly-restoration program.

The commission envisions a future in which the majority of the state's remaining oyster habitat would be set aside in large sanctuaries where oyster reefs would be built and "seeded" with billions of hatchery-reared spat.

Oyster harvests, meanwhile, will largely come from aquaculture, with oysters reared on privately held bottom land, or in floats placed in the water column. Harvests from public oyster grounds would be limited, if allowed at all.

Those actions could result in a "well-established and expanding" native oyster population over "significant" portions of historic oyster habitat within two decades, according to the vision set forth in the Maryland Oyster Advisory Commission's interim report.

"I think all of the members realize that this is a critical time, and this may be our last chance to get it right for oysters in Maryland's part of the Bay," said Bill Eichbaum, chair of the Maryland Oyster Advisory Commission. "I think people know that we may have to make some tough choices."

Oysters were once a key part of the Bay ecosystem, with vast numbers clearing the water by filtering algae and sediment. Their reefs offered habitat for clams, mussels, fish and a host of other species while also providing ideal conditions for underwater grass beds that often grew nearby.

Bay oysters were once a prized commodity. An average 2.5 million bushels were annually pulled out of Maryland's waters alone between 1920 and 1969.

But the introduction of diseases, overharvesting and loss of habitat have left oyster populations at 1 percent of their historic level. Oyster stocks have shown no major change since 1994, despite the investment of nearly \$40 million in state and federal funds, the report said. Oyster reproduction has been below the 22-year average since 1998, with no significant Baywide spat set-baby oysters that settle on solid solid substrates-in Maryland since 1991.

Against that backdrop, the General Assembly called for an independent commission last year to review oyster management and restoration. The panel's 21 members, including scientists, watermen, anglers, businessmen, economists and environmentalists were appointed by Department of Natural Resources Secretary John Griffin in September.

The commission's interim report is a sharp departure from recommendations of other advisory groups, which typically have linked ecological recovery with the recovery of the oyster industry.

Instead, the commission's report said restoring the ecological and economic functions of the oyster population are "mutually incompatible" with a population at 1 percent of historic levels because of a lack of habitat and sufficient oyster production.

The interim report represents the direction the commission is headed. Members said the exact recommendations in their final report, expected in a year, will hinge on information they gather in the coming months.

The commission's review was also limited to native oysters. Maryland, Virginia and the U.S. Army Corps of Engineers are developing a Environmental Impact Statement evaluating the possibility of introducing a nonnative oyster into the Bay, as well as

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a range of other alternatives. The draft statement, thought to be the most comprehensive review of native oyster restoration strategies ever performed in the Bay, is expected in late spring.

Eichbaum, a vice president at the World Wildlife Fund who has a long history of working on Bay issues, said information from the Environmental Impact Statement would be used in the commission's final report.

The commission promised its final report would contain a "bold" action plan to restore an oyster population to the point that it no longer requires millions of dollars of effort to maintain each year, and would again perform significant ecosystem services.

"I think this will fundamentally change how we do business with oyster restoration and management of the commercial resource in a very significant way," said Donald Boesch, president of the University of Maryland Center for Environmental Science and a member of the commission.

But, he cautioned, the commission is advisory and final recommendations may be more aggressive than legislators are willing to accept. "You have to wait and see," he said.

Indeed, the price tag could be steep. The commission estimated it would take between \$41 million and \$87 million annually for a decade to support restoration. The money would be used largely to produce billions of small oysters in hatcheries and restore 10,000 acres of oyster habitat with shell or alternative materials.

That's a huge increase over the \$5 million in state and federal funds that has been spent annually in recent years. "This is going to take a big job, and people need to start thinking that way," Eichbaum said. "That is why we included those numbers."

The commission envisions a future in which broad swaths of remaining habitat are protected as oyster sanctuaries, where oyster bars will be built and stocked with hatchery-reared spat.

The report said sanctuaries are a valuable management tool because oysters that survive and reproduce are "presumptively disease resistant" and may produce disease-resistant offspring that will, if left alone, increase the population over time.

Maryland now has 36 small sanctuaries that cover 1,475 acres, or 4 percent of remaining oyster habitat. But many are placed in "less than optimal" locations, the interim report said, and have also been plagued by disease and illegal harvesting.

The notion of protecting most large oysters would be a sharp change in management.

Many fishery managers have historically supported harvesting larger oysters, saying they would die anyway, and any disease-resistance characteristics would be diluted by the presence of other oysters in the area. But the report cited more recent research that suggests oysters over time can develop resistance to both diseases that plague oysters in the Bay: MSX and dermo.

Oysters suffer not only from disease, but widespread loss of habitat. In the last 25 years, oyster bar habitat in Maryland has decreased by about 70 percent from 200,000 acres to about 26,000 acres-and the majority of that is now considered a "low quality" mix of shell, sand and mud.

Reconstructing reefs in the large, new sanctuaries are an essential part of restoration, according to the interim report. The reefs provide substrate for oyster larvae settlement and refuge from predators. They also keep oysters above low oxygen conditions that may persist on the bottom. The vertical structure also helps to reduce sediment deposition.

"Implementation of a mega-scale oyster bar habitat rehabilitation program will be critically necessary to restore an abundant and self-sustaining oyster population throughout Maryland's Chesapeake Bay," the report said.

While ecological services would be restored through sanctuaries and reef restoration, economic benefits would come from another major policy shift-from wild harvest to harvest on privately held bottom land and aquaculture.

In the last two decades, 70-80 percent of the state's annual oyster harvest came from its repletion program, which consisted of dredging ancient shell from the upper Bay and planting it around the state to provide substrate for natural spat sets.

The program, largely funded with state money, also took shells in areas of high spat set and transported them to areas of lower salinity in an effort to avoid disease mortality.

The program ended in 2006 because of a dispute over the dredging of shells in the Bay. In any event, the report said such a program was not sustainable without draining public funds and that it also used up increasingly scarce oyster shell needed for habitat restoration.

"Nowhere else in the world does an oyster fishery still operate like in Maryland; they all have transitioned to some degree of privatization and aquaculture," the report said.

Last year, a Virginia Blue Ribbon Oyster Panel also said that aquaculture would play an increasingly important part of revitalizing the oyster industry, and said that it needed more support from the state, although the Virginia panel left other harvest options open as well.

"You cannot get away from the conclusion that any viable oyster industry has to be more based on aquaculture," said Mark

Luckenbach, a researcher with the Virginia Institute of Marine Science who served on both the Virginia and Maryland groups.

"Everywhere that has had a completely wild fishery for oysters has collapsed, and every one of them that managed to rehabilitate an industry did it based on an increasing amount of privatizing and an increasing amount of aquaculture."

Some watermen have expressed skepticism about making such a change, saying if oyster aquaculture was economically feasible in the state, watermen would already be doing it.

Ben Parks, a Maryland Waterman's Association representative on the commission, said that "change is needed, but we need to move ahead in a way that doesn't leave the commercial oyster industry behind.

"If we all work together and implement a carefully planned transition, we can have both," he said.

The Maryland report agreed that transitional programs would be needed to help watermen make the switch from wild harvests to, essentially, farming the bottom.

"There is a lot of compassion about preserving the way of live and preserving the economic viability and culture," Boesch said. "So I think we are going to be crafting some recommendations about how to help those watermen who want to make that transition."

The commission said a moratorium on wild harvest from public grounds alone would not be beneficial unless it were combined with other activities to restore oysters.

"It is different from the striped bass moratorium, where the view was have the moratorium and the fish will do the rest," Eichbaum said. "This is a lot more complicated."

The commission acknowledged the difficulty of the program, but was undaunted in offering its vision. "In order for the program to be successful, it will necessarily be large and ambitious, adopting a 'putting a man on the moon' philosophy," the report said.

While the cost is high, Boesch said the plan offers the promise that-after the initial investments-oysters will again be self-sustaining, albeit one or two decades in the future. "You can't ask people to pay for something forever," he said. "You have to find a strategy to get something back in that is self-sustaining."

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