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MENHADEN NETTERS THREATEN CHESAPEAKE

Industrial-scale netting in Chesapeake Bay is reducing numbers of these critical food fish and living water filters

By Ken Hinman

At the Fishermen's Museum in Reedville, Virginia, a small village on Chesapeake Bay that's home to the largest fish processing plant on the East Coast, a short, proud film about the local industry describes the Atlantic menhaden as "a useful little fish." Indeed. Not far from the museum, down a main street lined with worn but picturesque Victorian-era houses and out across the inlet, looms corporate giant Omega Protein, whose factory "reduces" about 200,000 tons of menhaden into animal feed and oil for human consumption every year. No part of the fish, the company boasts, is wasted.

But talk about the "use" or "waste" of menhaden – known also as bunker or pogie - inevitably sets off other Bay fishermen and conservationists, view this little fish as part of a much bigger picture. Because they swim in thick throngs and are heavy with fat – precisely what makes the purse seine fishery for reduction so lucrative - the small, bony, oily relative of the herring is a critical source of food for a wide variety of fish and wildlife, not just in Chesapeake Bay but all along the coast. Some marine biologists would argue menhaden is the most important forage species in coastal waters.

Menhaden matter, too, because they are filter feeders. Moving through the water in vast schools, mouths agape, consuming phytoplankton and decaying plants, billions of these tiny sea-strainers work to cleanse near shore waters and estuaries of excess nutrients, thereby reducing build-ups of oxygen-robbing algae.

A Critical Link

The commercial reduction fishery for menhaden has been around for over a hundred years, but history is now overtaking it. Heightened awareness of the fragile links in overstressed marine food chains, coupled with earnest efforts to apply a broader, ecosystem-based approach to the way we manage our fisheries, has put the menhaden fishery under the microscope. What has always been a chronic concern among anglers – that removing such a large amount of prey limits the amount available to so many competing predators, striped bass and bluefish among them – is now an acute problem. Predator demand is reaching unprecedented highs, as we restore many of our long-depleted coastal fish stocks to healthier levels, while the supply of prey is at an all-time low.

The problem is most severe within Chesapeake Bay, the nation's largest estuary, one of the Atlantic seaboard's most productive ecosystems, and the center of the menhaden fishery. Some 2,700 species of fish, birds and other animals spend their lives in the Bay, or at least a crucial part (to breed, feed or mature) between migrations up and down the coastline. A growing number of conservationists and biologists believe the continued high level of menhaden harvest in the bay, if not curtailed, could jeopardize the hard-earned recovery of striped bass and other species, while hindering efforts to clean up the environment.

The National Coalition for Marine Conservation (NCMC), a major player in the return of striped bass and an early and leading advocate for conserving both predators and prey to support sustainable fishing, believes the threat is so serious that we've launched a major campaign aimed at removing the reduction fishery from the Chesapeake. If we don't, we could see the striper go from a poster fish for good conservation to a symbol of what can go terribly wrong when we ignore a fish's ecological needs.

Stripers Affected

Industrial-scale netting of menhaden, which used to take place from New England to the Carolinas, is now concentrated in Chesapeake Bay. The 10 purse seine vessels operating out of Reedville fish almost exclusively inside the Bay, and account for over two-thirds (in numbers of fish) of the total Atlantic-wide catch. Most of these fish are immature (ages 0-2), finger-sized juveniles that traditionally have made up 70-80% of the diet of large adult stripers.

Although coastal waters are brimming with striped bass, or rockfish, and the fishing is better than many of us can remember, there's trouble in paradise. The resurgent population is not finding enough to eat. Today's coastal environment - in particular Chesapeake Bay, where up to 90% of Atlantic stripers spawn - is straining to support numbers of fish it hasn't seen since the '60s. While restoring bass and other predators (bluefish and weakfish are also staging comebacks), we've been fishing down their prey, especially menhaden.

The impact on breeding-age bass is already evident. The catch of "skinny" stripers is all too common, an unmistakable sign that food is scarce. Although stripers are opportunistic feeders, no alternate prey is as widely distributed as menhaden or of equivalent nutritional value. Even so, backups such as bay anchovy and blue crab are also in short supply.

More trouble is on the way. The abundance of older rockfish, the most productive spawners and therefore crucial to maintaining a healthy and stable fishery for the future, is expected to sharply increase in years to come as the strong year classes of the '90s mature. But these fish are the most dependent on young menhaden, whose numbers are steadily declining. The continued high level of menhaden harvest, already

stunting the growth of adult bass and increasing natural mortality, threatens to further weaken the breeding population, possibly leading to another stock collapse.

Stressed-Out Fish

Coincidentally, a bacterial disease is spreading among the Chesapeake Bay's striped bass population, according to recent surveys of the health of the bay's bass. Up to half the stripers in the bay are infected with myobacteria, a chronic "wasting" disease that attacks an animal's organs and can be fatal. The infections are often internal, not visible to fishermen, however, fish may exhibit external lesions. Indeed, anglers have been reporting sores on bay rockfish for years.

Scientists say the disease, which first appeared in striped bass in 1997, has been increasing in both frequency and severity. Because the disease is rare in wild fish populations, the cause is unknown. Aside from the general observation that something is terribly wrong with the Chesapeake Bay ecosystem, scientists speculate that a fish population is more susceptible to the spread of disease when it is under stress. Possible causes of stress in the striper population are malnutrition (a lack of prey) or poor water quality. The Bay's heavily harvested population of menhaden is both a key prey species for striped bass as well as an important filter of the Bay's water.

In fact, we are fishing down the number of algae-eating menhaden in the bay at a time when oxygen-sucking, fish-killing algae blooms are turning more and more of the bay into dead zones, devoid of life. Excess nutrients, mainly nitrogen and phosphorous in run-off from farmland and inadequate wastewater treatment plants, produce the blooms that cut off life-giving light to seagrasses on the bottom then suck the oxygen out of the water when they decompose. Fish and crabs either go elsewhere or die.

"Ecosystem Overfishing"

As every waterman knows, if you want to find a pack of feeding rockfish, look for the birds. Loons, cormorants and osprey find menhaden and other bait from the air while water-bound predators take them out from below. The Reedville menhaden fleet works in a similar fashion. Just outside the gates of Omega Protein's factory is a compact airfield. A squadron of company-owned "spotter" planes locates shoals of menhaden in the shallow waters of the bay and directs the net boats to wrap them up. The colossal catch is vacuumed from the net into the hold of the mother ship.

Forming tight groups is an evolved defensive mechanism for prey to reduce vulnerability to predators. Unfortunately, this schooling behavior makes fish like menhaden more susceptible to purse seining. And because, as the population shrinks, juveniles aggregate with older fish for protection, it makes it harder to avoid catching the young ones and gives a misleading impression of the health of the stock. Catches can be sustained even as the number of fish declines. Indeed, declines may not be discernible until the stock collapses.

Scientists advising the Atlantic States Marine Fisheries Commission (responsible for managing both striped bass and menhaden in state waters) say menhaden are not overfished and that overfishing is not occurring. But such a conclusion provides little comfort. The menhaden assessment is done on a coastwide stock, which doesn't account for the possibility, and in this case likelihood, of localized depletion in the bay. Nor does the assessment account for the forage needs of other critters. It only measures the health of the stock in terms of its ability to sustain the current commercial harvest.

Warning Signs

Even so, there are warning signs within the assessment. Recruitment – that is, the number of (forage size) juveniles that survive to adulthood – has been in a steady decline and reached a record low in 2001. The indices measuring juvenile abundance are lowest in the Chesapeake, which produces nearly half of each new generation of menhaden. (The adults (3+) spawn offshore in the mid-Atlantic and the young enter the Bay and its tributaries for refuge while they grow.) And an independent study undertaken by Maryland's fisheries department, using catch trends in the bay's pound net fishery (which catches relatively small amounts of menhaden for bait) over the last 40 years as an index, suggests that the fishing mortality rate on the bay population has been higher in recent years than the ASMFC assessment indicates and that abundance has been lower.

Take Action, Not Chances

In fact, some of the scientists on the menhaden panel agree off the record that there "may" be local depletion in the bay, but the present assessment is unequipped to confirm (or reject) it. (Interestingly, a spokesman for Omega Protein conceded in a published news story that his reduction boats may be overfishing the bay, but said they have no choice, having been kicked out of nearly everywhere else.) If, for the foreseeable future, our stock assessment process can't answer our questions about ecosystem overfishing and show us what to do, then fishery managers (i.e., the ASMFC) are obliged to step up to the plate.

We've talked and worried about the menhaden situation for at least the last 7 years. Meanwhile, the reasons for concern have grown in number and severity. Meanwhile, the amount of menhaden that can be taken from the Chesapeake is at an all-time high and remains completely unregulated. As the distinguished fishery biologist Peter Larkin advised us 25 years ago, "The world won't wait while we figure it all out."

We need to act now to halt overfishing of menhaden in the Chesapeake, at least until we have the answers to some increasingly disturbing questions. The alternative may be an ecological disaster. That's a chance we can't take.

Given all this, what is the reduction industry's response to the concerns of conservationists, scientists and other fishermen? Last spring, Omega Protein

announced it is spending $16 million to expand processing capacity at its Reedville plant. By this time next year, the factory will be able to process an additional 110 metric tons of menhaden a day; presumably fish taken from Chesapeake Bay.

The NCMC plans to present its menhaden conservation proposal to the ASMFC at its annual meeting in December. It will be backed by science and supported by a petition signed by thousands of concerned anglers. We will request that the commission prohibit all purse seine fishing for Atlantic menhaden within the Chesapeake Bay and its tributaries; *at least* until such time as concerns about the long-term impact on striped bass and other predators are thoroughly evaluated in a scientific, ecosystem-based manner and, if appropriate, alternative measures are implemented sufficient to protect the entire food web and the broader public interest.

We've been told this proposal is "extreme." But I say, compared to what? There is no other proposal on the table. None. Although, to its credit, the ASMFC is taking steps toward developing a multispecies approach to the menhaden fishery (and others), it has no plans to take remedial action in the foreseeable future. Finally, the menhaden industry, for its part, not only resists any limits, it is planning to expand.

No, what's extreme is to continue to do nothing.