



Pew/NatGeo Column Oversimplifies Ecosystem-Based Management of "Forage Fish"

It's not as simple as "ABC"

WASHINGTON (*Saving Seafood*) May 7, 2014 -- In a recent article, "[The ABCs of Ecosystem-Based Fisheries Management-Part II](#)," the Pew Charitable Trusts' Director of Federal Fisheries Policy and *National Geographic* online guest writer, Lee Crockett, focuses on the management of "forage fish" -- a much used, though highly debated categorization for a number of small, marine species. The article's title suggests that management of forage species is as simple as learning the alphabet, but in reality that is far from the case. Fisheries management is a highly complex process, and fisheries managers have stated that much remains to be studied and understood before ecosystem-based management can work for every species.

The term "forage fish" simply describes a number of tiny fish and invertebrates that share a similar niche in the marine food web (they are often "foraged" upon by larger predators). The range of included species is broad, and their differences are diverse. Targeted stocks like shrimp, squid, herring, and menhaden can all be classified as "forage" species, as can non-targeted species like jellyfish, bay anchovy, sand lance, and sea worms. These species have a variety of biological differences, and don't have much in common outside of their trophic level. So while the term may seem convenient, all species labeled "forage fish" cannot be successfully lumped and managed in the same way, as Pew and a number of environmental groups often suggest.

An example of this flaw can be found in the calculations Mr. Crockett cites from the Lenfest Forage Fish Taskforce. The Lenfest analyses are based around the assumption that the various "forage species" can be managed under the same broad guidelines. However, there are a significant number of different variables -- including fecundity, spawning periods, migration, predator-prey relationships, and habitat -- that must be considered to properly manage these species and are more relevant than their shared trophic role.

Different forage species will likely respond in different ways to management

measures. For example, one of the species mentioned in the article, Atlantic herring, [has lower levels of fecundity when the stock biomass is high](#). Another species mentioned, Atlantic menhaden, has historically shown a poor correlation between harvest levels and biomass. Some of the peak years in menhaden biomass, particularly in the early 1980s, were preceded by years of heavy fishing mortality. The [National Oceanic and Atmospheric Administration \(NOAA\) states that](#), "menhaden recruitment appears to be independent of fishing mortality and spawning stock biomass, indicating environmental factors may be the defining factor in the production of good year classes." Mr. Crockett's broad reference to "forage fish" as a general category does not factor in these differences.

Lenfest's economic analysis, concluding that "forage fish" are more valuable if left in the water than if caught, rests on unproven assumptions about predator species. First, that all "forage fish" left in the water will be consumed by predator species, and second, that predator species are currently constrained by a lack of forage. But the report does not actually provide evidence that this is the case.

In fact, these assumptions are demonstrably untrue for several predator species. Some, like weakfish, are currently overfished, and an increase in available forage would not be an effective solution to problems facing the stock. Other species, like striped bass, have [not historically been abundant](#) at the same time as forage species like menhaden.

A shift toward ecosystem-based fisheries management for all fisheries is a common goal shared by managers, industry members, and conservationists alike. But such a transition requires that fisheries management reach a point of technological and scientific innovation that enables responsible and informed management in that capacity. Fisheries managers are constantly working to improve and obtain the most up-to-date and comprehensive scientific information regarding species interactions, but at the present, many fisheries simply have not yet reached the point at which ecosystem-based management is possible and productive.

In the mean time, "forage" species like menhaden are being watched and managed closely to ensure their sustainable harvest. The menhaden fisheries in the Gulf of Mexico and Atlantic are two of [the most closely monitored](#) and regulated fisheries in their respective regions. In the Atlantic, commercial menhaden harvesters now operate under a 20 percent reduction in allowable harvests. That historic cut was implemented by the Atlantic States Marine Fisheries Commission (ASMFC), with the support of groups such as Mr. Crockett's employer, for the express purpose of ensuring the species' continued sustainable harvest. In the Gulf of Mexico, the menhaden fishery has been lauded as a ["close to perfect"](#) fishery thanks to its remarkably low bycatch and closely monitored commercial operations.

Managers in the Gulf have also openly discussed ecosystem-based management for the menhaden fishery there, for which they have decades of scientific records.

But as is the case for many fisheries for now, scientists concluded that the data and technology are simply not there yet for such a significant transition. In their most recent [Gulf menhaden stock assessment](#), the Gulf States Marine Fisheries Commission (GSMFC), which manages regional species in the Gulf of Mexico, stated "that data and techniques [for ecosystem-based management] are insufficient at present to incorporate them into the assessment." In other words, to adopt premature and incomplete ecosystem-based components to future stock assessments would prove difficult to accurately project the true health of a species' population. Ultimately, a hasty transition would leave fisheries with less science-based management than at the present.

Mr. Crockett also references Federal law governing fisheries management, the Magnuson-Stevens Act (MSA). He alleges that "forage" species are at risk of exploitation without strongly worded protections within the MSA against commercial harvests. But harvest cuts like those for Atlantic menhaden, and closely monitored menhaden management in the Gulf of Mexico already exemplify that law's intent. In both cases, managers are actively fulfilling the law's fundamental requirement that fisheries management balance long-term sustainability with the socioeconomic needs of our fishing communities. The Magnuson-Stevens Act exemplifies the principle of sustainable marine resource management. Its intent and application demonstrates that conservation is not an end in itself, but also a means for ensuring that those who rely on these fisheries remain economically afloat.

Commercial fishermen, including those who harvest species like menhaden, share an interest in ecosystem-based management. Fishermen and scientists have long worked together to develop more timely and comprehensive fishery science to that very end. But forcing fishery managers into a system that is not yet supported by fundamentally important scientific findings and technology will not advance responsible resource management.

In the case of "forage fish," those involved in fishery management have regulated and monitored these species with recognition of the reality that they are a highly diverse group whose behavior is far from uniform. To the benefit of these species, as well as the fishing communities who depend on their sustainable management, there is more work to be done before making a move toward the ecosystem-based management that Mr. Crockett endorses.