



By Craig M. Pease

Too Much Lobster (And Too Few Cod)

It is sometimes instructive to focus not on what you can see, but on what you cannot. Such was my rather eerie experience several years ago, when traveling for the first time along the coast of Maine. Everywhere we turned there was lobster — lobster boats, lobster traps, lobster buoys, lobstermen, and lobster for sale.

But where were the cod? A rich cod fishery once stretched along the Atlantic seaboard from Cape Cod to Newfoundland. Yet I saw nary a sign of commercial cod fishing. Eventually, I asked a local where I might buy some fresh cod, and was directed to a building ensconced in a maze of side streets, where a fishmonger sold me a small piece of cod, though not before complaining of increasing prices.

Alas, the history of the New England cod fishery is not unique. The collapse of fishery after fishery over the last several decades led to the 2007 amendments to the Magnuson-Stevens Act, which governs the management of U.S. coastal fisheries. These changes required the National Marine Fisheries Service to set explicit harvest and management goals for the fisheries they manage, and to report annually on their progress in preventing overfishing. All Atlantic cod fisheries are below their goals, and are thus classified as “overfished.”

Earlier this year, NMFS released two documents central to its ongoing

efforts to implement the 2007 amendments. Perhaps surprisingly, the 2008 Status of U.S. Fisheries report asserts that over three quarters of U.S. coastal fisheries are not overfished. Yet the status report merely states conclusions, providing little indication of the data and analyses on which they are based. To find these, a good starting point is the Guidance on Annual Catch Limits to End Overfishing, finalized earlier this year. Alas, it is technically dense.

The apparent complexity of the science belies the simplicity of the central question: Are we catching too many fish? Although fisheries management science is deep and sophisticated, there is no consensus. Opinions range from optimistic, roughly aligned with NMFS, to pessimistic, arguing that nearly every commercial fishery in the world is overfished.

One key point of dispute is this: What is the appropriate baseline, describing a recovered or “normal” fishery? In managing cod, should our goal be its abundance 30 years ago, 3,000 years ago, or something in between? In their wonderful review of ocean environmental history published last year, John Pinnegar and Georg Engelhard summarize the quite decent ecological data on many fish, turtles, sharks, and whales, going back centuries and even millennia. These sources include written reports of early travelers, the size of cod vertebrae recovered from the middens of indigenous humans, newspaper accounts of shark attacks, records of whale landings at major ports, and economic data on fish exports.

The changes in ocean ecology seen over such long times are dramatic. Early Atlantic coast explorers regularly caught cod five to six feet in length. G.A. Rose’s 500-year reconstruction of Newfoundland cod populations using catch and export data shows gradually decreasing cod abundance

and increasing catch, starting at the industrial revolution. Robert Steneck and colleagues find that for most of the last several thousand years, the Gulf of Maine keystone species was cod, but that by the 1970s, because of overfishing, the new keystone species was sea urchins, with a concomitant increase in lobsters, known colloquially as “bugs.”

In setting fishing goals, the Magnuson-Stevens Act requires NMFS to use the “best scientific information available.” But which data set is “best”? The excellent cod abundance and catch data, collected with careful and systematic protocols, which alas only go back to about 1980, when sea urchins already dominated? Or the more sparse and admittedly ad hoc data sets, allowing one to piece together cod ecology stretching back several millennia? Accounting for fishery politics, it is entirely understandable why NMFS choose the first data set. But in truth, neither data set is “best.” They are complementary.

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The 2007 amendments forced scientists, albeit implicitly, to decide an inherently political and ethical question: Should our goal be to restore the Atlantic

cod fishery and ecosystem to its condition of 30 years ago (already dominated by sea urchins and lobster), or 3,000 years ago (dominated by large cod)? This question is beyond the ken of science. When Congress foists political questions onto unsuspecting scientists, rather than deciding these questions themselves, it weakens the role of science in environmental decisionmaking. If only scientists could remand such inherently political questions back to Congress and political appointees, where they belong.

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