

Sustainable Fishing

The application of sustainable harvesting techniques

While fisheries management practices have improved enormously in recent years, some past management failures can be traced directly to a general lack of information about the size and status of younger fish populations. In most fisheries, fishermen harvest only large, mature fish while actively avoiding younger, smaller fish. As a result, a great deal of information can be available to scientists and fisheries managers on the mature adult populations... while the condition of younger populations often remains a mystery.

Not knowing how many younger fish will grow to maturity can obviously result in serious problems for fisheries managers and fishermen alike. A farmer could not plan his annual harvests without knowing how many acres of crops had been planted in his fields. Likewise, fisheries managers need to have reliable information about how many younger fish will eventually reach adulthood so that future harvests of the larger adult fish can be planned and properly managed. Harvesting a number of smaller, younger fish can therefore be very useful for better understanding the overall status of a fish population -- and to prevent overfishing. *Combination Harvests of Younger and Older Tuna in the Atlantic Albacore Fishery*

In the case of the Atlantic albacore tuna fishery, trollers using hook-and-line jig gear harvest some of the surface-swimming albacore in the 3 to 5 year classes (i.e., "line-caught" albacore), while other fishing gears target older, larger albacore from much deeper waters. The pole-boat fishery can thus serve as a kind of "early warning system" if something goes wrong with the larger, older albacore populations. *Limiting Factors in the Atlantic Albacore Line-Caught Fishery*

The Atlantic albacore troll fishery is a relatively low production fishery limited by a range of unavoidable factors. The first limitation rests in the way the 3 to 5 year old albacore behave. Since albacore do not swim in tightly formed schools and spread out from one another, each must be caught individually rather than in groups (i.e., with encirclement nets). This means pole boat fishermen cannot catch hundreds of albacore at a time or thousands of albacore at a time -- even when there are hundreds or thousands of albacore in the immediate vicinity of a jig boat. It means that pole boat fishermen must catch albacore one at a time, which automatically restricts harvest rates to a much greater degree than in many other commercial fisheries.

Each pole boat is also functionally restricted to using no more than 10 to 14 lures (i.e., individual fishing hooks on individual fishing lines) because to what is sometimes referred to as "the tangle factor." Each hook and its fishing line must be placed far away from other lines to prevent tangles. By comparison, albacore longliners use hundreds or even thousands of hooks at a time -- which is still acceptable, so long as their overall harvests remain within sustainable levels.

The enormous size of Atlantic albacore fishing areas is also a significant factor that helps to protect albacore from overfishing.