

SOUNDINGS

One fish, two fish, red fish, blue fish – Dr. Seuss was obviously aware of the need for stock assessment and species identification. Unfortunately, fisheries management is a much more complicated subject area which attempts to balance the biological limitations of the planet's living aquatic resources with the increasing pressure to generate food and wealth for mankind. The basis of fisheries management is a sound knowledge of the abundance of fish populations which is normally gathered through a stock assessment process. This information, combined with the biological knowledge of the stock with respect to distribution, growth rates, natural mortality, spawning behaviour, feeding behaviour, predator/prey relationships and environmental conditions, form the basis of fisheries management systems globally.



From the time of Thomas Huxley's "inexhaustible seas" to the current doomsday predictions of global fisheries collapse, mankind has not been able to sustainably manage marine or freshwater resources. The swinging of the pendulum from exploitation to preservation for many species and stocks is an indication of the failure to manage on a sustainable basis and with a conservation ethic.

During the 1950s and 60s, a great deal of progress was made with respect to fisheries biological sciences, which laid the foundation for today's stock assessment models. During the 1970s and 80s, a quantitative revolution occurred which resulted in enormous growth in the mathematical modelling of fish populations. These population assessments became the basis of a new concept of total allowable catches (TACs). These TACs were then used as the basis for allocations between countries and fleets and eventually between individual harvesters with the development of enterprise allocations and individual transferable quotas. Fisheries assessment or science during this period was seldom, if ever, questioned since stocks were either newly exploited, stable or recovering. However, the decline of fish populations such as northern cod during the last two decades has led to the review and criticism of fisheries stock assessment and management.

The bottom line is that fisheries are the last wild roundup on the planet and our knowledge of the 72% of the planet that is water is woefully inadequate to manage the hundreds of thousands of species and stocks that are harvested for food and profit. This lack of knowledge also raises the issue of ecosystem management, which is a great improvement over single stock management, but likewise suffers from our lack of knowledge of fisheries' biology, migration patterns, species interactions, oceanographic conditions and population dynamics.

With a past so bleak and a long list of failures, it is critical that fisheries' assessment and management embrace and incorporate the ideas, concepts and technologies contained in this journal in their future work. Better fisheries' management depends on more science, better assessments and a conservation ethic. We have no choice but to improve our knowledge of the oceans' living resources since their future depends upon it and so does ours.

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