

6th International Conference on

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Fisheries and their impacts: Imagined and real

The impacts of harvest on fisheries have been hotly debated over the past 100 years. Here, I discuss these impacts, both imagined and real. The first part of my talk will focus on Pauly's Mean Trophic Level Index, which is meant to provide a means by which to identify whether fisheries ecosystems have declined in complexity, owing mostly to the overharvest of large pelagic predators. Pauly suggested in a 1998 paper in *Science* that many of the world's fisheries ecosystems are threatened by these removals, thus reducing long-term stability and productivity. I will provide an example from the Gulf of Mexico to both illustrate and question the validity of this Index. In the second part of my talk, I will discuss the magnitude and effects of bottom trawling, a fishing technique that has been used since the early 1800's and continues today to be used worldwide. I will speak about the effects of trawls on fish and crustacean populations, and on the seafloor. Often, trawling is focused on a single species, but trawls are notoriously nommed selective, and those fishes or crustaceans that aren't the target species are returned to the sea dead. In the early days of trawling for shrimp in the Gulf of Mexico, the ratio of pounds of bycatch to pounds of shrimp was ~11:1. In a new paper that has been submitted for publication, we estimated the area of the northern Gulf of Mexico shelf and slope to a depth of 1000 m are approximately $4.6 \times 10^5 \text{ km}^2$. The total trawl swept-area for the years 2007-2009 was $2.8 \times 10^5 \text{ km}^2 \text{ yr}^{-1}$ making impacts of trawling easy to visualize. When all of the areas we studied are combined, landings of fish, crustaceans, and mollusks are 18.9 to 19.8 million t yr^{-1} .

Biography

James H Cowan, Jr is a Professor in the Department of Oceanography and Coastal Sciences and the Coastal Fisheries Institute at the Louisiana State University, both of which are part of LSU's School of the Coast and Environment. He received BSc (Biology) and MSc (Biological Oceanography) degrees from Old Dominion University, and MSc (Experimental Statistics) and PhD (Marine Sciences) degrees from the Louisiana State University. Among many other professional activities, he has served on four National Research Council study committees and technical review panels concerning fisheries issues, has twice served on the Ocean Sciences Division, Biological Oceanography Review Panel for the National Science Foundation, and has served as a US delegate both to the International Council for the Exploration of the Sea (ICES) and the Pacific Marine Sciences Organization (PICES). He was Chairman of the Reef Fish Stock Assessment Panel for 13 years and currently is a member of the Standing Scientific and Statistical Committee for the Gulf of Mexico Fishery Management Council. He has served as President of the Early Life History Section, and on the Outstanding Chapter Award and Distinguished Service Award committees for the American Fisheries Society.

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