

Coral Reef Fisheries: Three Thematic Challenges

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This presentation is divided into three parts, each dealing with different sets of scientific challenges: (a) the identification of three types of coral reef fisheries, and the specific management regime each requires; (b) the estimation of global catches from reef fisheries, and (c) the potential impact of global warming on these catches.

Regarding (a), I see three types of major fisheries on reefs: (i) recreational fisheries in Florida, Australia and similar high-income areas; (ii) small-scale fisheries, such as traditional reef fishers and the fish suppliers of tourist resorts and the life-fish exporters, as well as a often competing and rapidly growing 'Malthusian' small-scale fisheries component, providing occupation of last resort to thousands of new entrants, often displaced coastal dwellers, e.g., in Southeast Asia or the larger Caribbean islands, and (iii) traditional reef fisheries, i.e., fisheries which are still managed under traditional-based rules in the South Pacific.

The question of how much fish is caught in coral reef fisheries is based on the assumption that, in the 21st century, it should be unnecessary to consult archives and unpublished or grey literature to derive time series of the world's coral reef catch, i.e., it should be part of global databases such as those maintained by the FAO. However, this is not the case, because coral reef fisheries are small-scale, and the FAO database covers mainly industrial fisheries. A series of authors have published independent estimates of the world catch from coral reef fisheries, but no consensus has emerged. An approach is presented here which documents an estimate, based on the assumed 'reefyness' assumed for various species in the catch reported to FAO by countries with coral reefs. The results, even less likely to generate a consensus, illustrate the need for country-specific catch reconstructions. An example is provided here, but these are discussed in more details in the presentations by Dirk Zeller and Jennifer Jacquet, who complement their catch reconstruction with fisheries-independent data, e.g., household food consumption data.

The third topic of this presentation is the future of coral reef fisheries, presently impacted by various stresses likely to increase in the next decades, such as increased turbidity and coastal development, and particularly global change-associated phenomena, illustrated here by quantifying the poleward shifts in the distribution range of reef-associated fish caused by warming at low latitudes, and their impact on the coral reef catches of 10 equatorial countries. This specific threat appears relatively small compared with the direct effect of warming (i.e., coral bleaching) and acidification, but it adds to what may be described, for coral reef systems, as 'death by a thousand cuts'.