Comments to the US Coral Reef Task Force
February 24, 2011

While in the past I have addressed the Task Force as Executive Director of the Caribbean Coral Reef Institute or as PI on major NOAA-funded research projects, today I sit before you as a professor of fisheries biology with 30-years' experience dealing with coral reef fisheries. One of the principal focus areas of the Coral Reef Conservation Program is to deal with overfishing. In my professional opinion, the approach pursued by NOAA is flawed, both in its concept and approach.

Coral reefs exist within a complex nonlinear biological ecosystem coupled to an equally complex and nonlinear socio-economic system. If the goal of the CRCP is to improve the condition of coral reefs, then it must manage taking into account these complexities. This means (1) managing within an ecosystem basis, (2) managing for resilience, and (3) optimizing the use of existing resources. In practice, fisheries management policy is ignoring the importance of retaining intact trophic pathways for promoting healthy reefs. Comparative studies of truly pristine areas, such as the Northwest Hawaiian Islands or the Line Islands, show a strong correlation between intact fish communities and coral reef health and resilience. Without question, the fish communities within these areas stand in marked contrast to those undergoing intense fishing pressure. While the message seems to be clear, policy has lagged, most likely because the mechanisms for this are not completely understood, although the top-down control of herbivore communities is often suspected as being important. But the situation is no doubt much more complex. For example, a recent paper in Nature, partly based on coral reef studies, shows that ecosystems with intact biodiversity are buffered from the full impacts of infectious diseases. Such diseases have ravaged Caribbean reefs since the 1970's, when intense overfishing of shallow coral reef resources became the norm. If we are to return coral reefs to a healthy state, we must get our fish communities restored to a functional level. This means that we need to have standing fish populations that are greater than those contemplated under current management policy.

At present, fisheries management policy in coral reef ecosystems is being driven, not by the above concerns, but by the mandates of the re-authorized Magnuson Stevens Fishery Conservation and Management Act. This approach aims to reduce overfishing by requiring that the Regional Fishery Management Councils ensure that they reduce fishing to levels they are confident will not exceed the overfishing level. The latter is defined unilaterally by the antiquated assumptions that each species can be managed in a vacuum, and that we can estimate Maximum Sustainable Yield for all such species. It also assumes that we can monitor catch (a) on a species level and (b) with a timeliness to be able to determine when mandated catch limits are exceeded. None of these assumptions are true. This approach was designed with the heavily industrialized fisheries of Alaska and the Northwest Atlantic in mind, but is of little relevance to coral reef fisheries characterized by a high diversity of species, gears, habitats and landing sites, incomplete and questionable data, and recreational fisheries that rival the commercial catch. As a consequence, the Regional Councils that oversee coral reef fisheries are spending valuable time and resources to the impossible task of setting Annual Catch Limits instead of attempting to implement effective management strategies (I say this being fully involved in this task for the

Caribbean Fishery Management Council and an advisor to the Western Pacific Fishery Management Council).

Yet, there are alternative approaches available for reef fisheries management. Length-frequency analysis can be used to establish if selected indicator species are being overfished. Periodic fishery-independent sampling can be used to obtain data on abundance, age-structure and habitat condition that feed these types of assessment models. Rigorously designed statistical sampling of the catch will also produce reliable data for assessments and catch and effort estimation, without having to rely on volunteer and questionable fisherman compliance. Because of the mandated emphasis on annual catch limits, fisheries managers within the regional fisheries management councils and local jurisdictions are not being given the tools and guidance that would really help them reduce overfishing and restore coral populations.

Equally importantly, current fisheries management policy is not aligned with recent moves to implement Coastal and Marine Spatial Planning, which is being pushed through local coastal zone management offices. There is no effort by NOAA (at least on the fisheries side) to link these efforts to fisheries management. Yet, space-based management, the use of marine protected areas and marine reserves, is one of the most valuable tools available to fisheries managers to protect stocks, biodiversity, and enhance resilience within an ecosystem framework.

My recommendations to the Coral Reef Task Force are as follows:

1) Have the CRCP become fully engaged in fisheries management to ensure that management advice and efforts address the needed level of protection.

2) Work with Congress to amend the FCMA to allow Councils and local agencies to use all the tools available to meet management targets.

3) Provide the needed expertise to local agencies to develop data collection programs commensurate with expected funding levels.

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