

## **DRAFT A History of Yellowtail Snapper (*Ocyurus chrysurus*) Assessments from the US Caribbean and Florida**

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### US Caribbean

No one has yet conducted a formal assessment of the yellowtail snapper (*Ocyurus chrysurus*) stock in Puerto Rico and the US Virgin Islands. As such, the yellowtail portion of the eight Southeast Data Assessment and Review (SEDAR 8) workshop will provide new insight into the status of this stock.

The only previous attempt to ascertain the status of yellowtail snapper in this region came as part of a broader assessment of shallow water reef fish (Appeldoorn et al. 1992). This effort came to a number of conclusions worth bearing in mind as we take a closer look at yellowtail snapper. First, they found that data were improving in quality but still insufficient to examine some key issues such as spawning potential ratios. Second, they found evidence of some general decline in all Puerto Rican reef fish fisheries combined. This evidence included landings, which had peaked in 1979, hit bottom in 1988, and increased slightly in 1989 and 1990. Composition of the snapper portion of this catch had shifted from mostly shallow water to deeper water. Comparable data was not available to assess the Virgin Islands but landings apparently stayed relatively constant from 1975 to 1989. In both Puerto Rico and the Virgin Islands, catch-per-unit-effort, a possible index of abundance, had declined.

Analyses of the size-frequency of fish sampled from commercial catches provided additional details for each species. With respect to yellowtail snapper, there were some minor changes between 1985 and 1990 that varied from island to island. Data were insufficient to make conclusions about St. Thomas and St. John. Yellowtail snapper caught off St. Croix were generally larger in 1990 than they had been in 1985 but small sample sizes in 1990 may have been an issue there as well. In Puerto Rico, the change in size-frequency varied across the island, with apparent increases in the north and west and apparent decreases in the south and east. Of greater concern for all islands was the number of small fish caught. Female yellowtail snapper mature somewhere between 20 and 25 cm FL (Cummings SEDAR8-DW-##). On Puerto Rico, the median yellowtail snapper was less than 25 cm in 1990, a decline from 1985. On St. Croix, the median yellowtail snapper in 1990 was larger than 1985, presumably because of larger trap mesh size. Yield-per-recruit analyses suggest that yellowtail snapper may have been fully- or slightly overexploited by the mid 1980s around Puerto Rico (Dennis 1991).

### Florida

Like the US Caribbean stock, Florida yellowtail snapper was not fully assessed until recently (Muller et al. 2003). Prior to the recent effort, Florida yellowtail snapper had only been examined in the context of larger multispecies efforts (NMFS 1990; Ault et al. 1998), much like

the existing stock assessment for the US Caribbean. However, the 2003 effort built and analyzed formal assessment models, all focused on Florida yellowtail snappers. These models provide some insight that could be applicable to yellowtail snapper in the US Caribbean, although in most cases the conclusions of the Florida assessment apply only to the Florida stock.

The life history information may have some utility, both as a check against what we assign for the US Caribbean and as possible surrogate parameter values when estimates aren't available from within the region. However, caution must be used in that the 2003 assessment itself found substantial differences between yellowtail snapper in the Florida Keys and those along the southeastern coast. The 2003 assessment may also have value in identifying modeling techniques and their limits. For example, the two production models estimated extremely large stock size and low fishing mortality rates, a common outcome for this type of model when the data lack contrast. Their age-structured models appeared to get more information out of the data, but our ability to replicate those techniques may be hampered by a lack of ageing data and inadequate fishery-independent sampling.

### References

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