

**SEDAR Review Panel Advisory Report  
Gulf of Mexico Vermilion Snapper  
SEDAR 9 Review Workshop**

**Stock Distribution and Identification**

This assessment covers the vermilion snapper distributed in the US waters of the Gulf of Mexico. There is no information available suggesting that this definition is an inappropriate one as a unit stock for management purposes.

**Assessment methods**

The assessment method used is an age-structured production model assuming constant selection and a stock-recruit relationship of Beverton-Holt form. The assessment used previously (a biomass-dynamic model of Schaefer type) shows similar tendencies.

**Assessment data**

The data sources used were:

- Estimates of by-catches in the shrimp fishery
- MRFSS estimates of catches and discards
- Estimates of commercial catches
- Estimates of catches in the charterboat and headboat recreational sectors
- SEAMAP video survey indices of abundance
- MRFSS estimates of catch rates
- Commercial handline catch rates
- Age, growth and fecundity estimates.

**Catch trends**

Catches before 1986 are not known with usable precision.

A large part – about 40% - of the removals from this stock are made as by-catches in the shrimp fishery. Very little information is available about the trends in these by-catches, and the absolute level is not known accurately.

In the non-shrimp fishery sectors, catches increased steadily from 1986 to 1994, decreased again until 2000, then increased from 2000 until 2004.

**Fishing mortality trends**

Fishing mortality shows an irregular but generally increasing trend from the mid 1980s to 2004, though fishing mortality may have been lower around 2000. This trend may be associated to an increased targeting of this species as the commercial handline fleet may be changing away from targeting red snapper.

## **Stock abundance and biomass trends**

Stock biomass followed an irregular but declining trend in the time series. The estimated abundance in 2004 is the lowest in the time series. There are two periods of higher recruitment, around 2000 and around 1990.

## **Status determination criteria**

The overall perception of trends in the stock are that fishing mortality is increasing, biomass is declining, and the stock has been sustained in recent years by a high recruitment in 2000. Furthermore, a substantial mortality is exerted, mostly on juvenile fish, by the shrimp fleet as a by-catch. These trends are robust to the various plausible assessment models and data series that were explored, and are considered to be reliably estimated.

However, the exact location of stock status in 2004 relative to the benchmarks is more uncertain.

## **Stock Status**

Declarations of Stock Status:

- the stock was not overfished in 2004;
- the stock was not undergoing overfishing in 2004;
- the stock was overexploited with respect to the optimum fishing mortality;
- a substantial but unmeasured mortality is exerted as a by-catch in the shrimp fishery, which is greatly reducing the yield in the directed fisheries;
- fishing mortality is tending increasing and biomass is decreasing. A further decrease in the size of the stock is likely if present conditions continue.

## **Projections**

Quantitative projections are not yet available (See Addendum 2 to the Consensus Summary).

## **Allowable biological catch**

Quantitative projections are not yet available (See Addendum 2 to the Consensus Summary).

## **Special Comments**

The change of assessment model from the base case used previously maintains the same broad perception of a declining stock with increasing fishing mortality. However, on including life-history information, the estimated productivity of the stock at small stock size has been revised upwards. It is stressed that:

(a) while allowing the trend to smaller stock size and higher fishing mortalities to continue is not forecast to cause overfishing in the short term, it will do so in the medium term and will lead to conditions which are outside those seen historically – and predictions of stock dynamics in such conditions have not been validated by observation;

(b) increasing fishing mortality rates will lead to a smaller average size of fish in the catches.

Additional scientific and technical resources need to be made available in order that the requests for scientific advice can be fully met.

### **Sources of information**

The primary source of information for this report includes the reports of the SEDAR 9 Data and Assessment Workshops (SEDAR 9 Stock Assessment Report for Gulf of Mexico Vermilion Snapper. SEDAR9-AR3.) and the compiled SEDAR working papers. Final assessment results reviewed at the workshop and referenced here are documented in an addendum to the stock assessment report included with the Review Workshop Consensus Report for Vermilion Snapper