

recognized that effective biological management must treat billfish stocks throughout their range. Therefore implementation of an international management plan for billfishes is recommended to complement the management initiatives undertaken within the EEZ.

#### 4.0 THE FISHERY MANAGEMENT UNIT

Sailfish, Istiophorus platypterus in the west Atlantic Ocean; white marlin, Tetrapturus albidus in the North Atlantic Ocean; blue marlin, Makaira nigricans in the North Atlantic Ocean; and the longbill spearfish, Tetrapturus pfluegeri in the entire Atlantic Ocean comprise the management unit of this plan. These species are interrelated from the standpoint of both biology and the fishery. This plan establishes a management regime for these interrelated stocks throughout that portion of their range which is in the Atlantic, Gulf of Mexico, and Caribbean Exclusive Economic Zones of the U.S. and recommends establishment of a complementary international management program applicable to the entire range of the stocks.

Unit stocks of billfishes are not contained within the EEZ. Consequently, the long-term biological productivity of billfish resources is dependent on management through international agreements. Despite the presumed stock structure, mark-recapture data indicate that most billfish do not make trans-Atlantic or trans-equatorial migrations. Thus, the impact of management measures within the EEZ will be largely on these relatively resident fish and not diluted stock-wide. In view of this, the significant social and economic value of the domestic billfish fishery, and the competition for the available resource within the EEZ, management to achieve the optimum yield from the fishery within the EEZ is desirable. This management regime should complement any biological management initiatives undertaken through international arrangements. In addition, management measures contained in this plan will provide some protection to the stocks and may encourage other nations to undertake management.

The plan primarily addresses the two marlins and the sailfish. There is no domestic directed fishery for the longbill spearfish and available data suggest this species is scarce within the U.S. EEZ. However, it is occasionally taken in the recreational fishery for marlins and sailfish and is therefore included in the management unit.

#### 5.0 PROBLEMS IN THE FISHERY

The principal problems in the fishery which the management plan will address are:

- A. There is intense competition for the available resource between the recreational fishery for billfish and other fisheries that have a bycatch of billfish.
- B. There is a developing commercial market for billfish and an increasing value for the product, thus encouraging directed fishing and/or increased retention of incidentally caught billfish. This situation jeopardizes the economically valuable, traditional

recreational fishery and threatens to undermine the conservation ethic developed by this user group.

- C. There is a rapidly expanding domestic tuna longline fishery which has a higher billfish bycatch than the historical swordfish fishery.
- D. The current statistical and scientific data base is inadequate for stock assessment and is likely to remain so for the foreseeable future. A long term biologically sound management regime, either domestic or international, will not be possible until an adequate and accurate data base is available.

## 6.0 MANAGEMENT OBJECTIVES

The following management objectives have been developed for the billfish fishery in the Atlantic, Gulf of Mexico, and Caribbean EEZs:

- A. Maintain the highest availability of billfishes to the U.S. recreational fishery by implementing conservation measures that will reduce fishing mortality.
- B. Optimize the social and economic benefits to the nation by reserving the billfish resource for its traditional use, which on the continental U.S. is almost entirely a recreational fishery. In the Caribbean, the fishery is both a recreational and small-scale handline fishery where billfishes are used as food.
- C. Increase understanding of the condition of billfish stocks and the billfish fishery.

## 7.0 DESCRIPTION OF THE FISHERY

### 7.1 Description Of The Stocks

#### 7.1.1 Distribution

The marlins and sailfish are widely distributed over the Atlantic Ocean (including the Gulf of Mexico and the Caribbean Sea) from about 35° South latitude to 45° North latitude. All three species are migratory and, as a result, there are marked variations in their seasonal and geographic abundance within the U.S. Exclusive Economic Zone.

The sailfish is primarily an inshore species, with the densest concentrations of adults occurring over the continental shelf and/or near land masses. This species is available year-round off the lower east coast of Florida and the Florida Keys, but is found in greater numbers during winter. In summer, sailfish are also abundant within the EEZ in the northern and northeastern Gulf of Mexico and along the Atlantic coast of the U.S. from northeast Florida to Cape Hatteras, North Carolina. In Puerto Rico and the Virgin Islands they are caught during October through April.

Tagging results indicate considerable movement of sailfish between the Florida Keys and the Miami-Stuart area and some interchange between the Gulf of Mexico and the Atlantic.