

fishery, and regional and national economies, as well as the number of fishermen affected by the proposed measures is discussed above and in Sections 9.2, 9.4, and Appendix I of this plan.

10.0 RESEARCH NEEDS

10.1 Short-term Research and Data Needs

The most critical short-term data needs are:

1. Determine survival rate of the released billfish.
2. Determine the total recreational catch of each species of billfish.
3. Determine the bycatch of billfish in directed swordfish and tuna longline fisheries.
4. Determine mortality of billfish caught recreationally as well as on longlines.
5. Develop and implement a program to assess the recreational value of billfish fishing.
6. Determine total landings, stock-wide.

10.2 Long-term Research Needs

The most critical long-term research needs are:

1. Determine stock structure.
2. Determine stock status of each species of billfish.
3. Determine age, growth, natural and fishing mortality rates for each species.
4. Investigate ways of reducing billfish bycatch in the longline fishery through time/area closures or through changes in gear or fishing methods.

11.0 MONITORING PROCEDURES

The South Atlantic Council, in cooperation with the New England, Mid-Atlantic, Gulf of Mexico and Caribbean Fishery Management Councils, will review and monitor the plan on a continuing basis to assess the effectiveness of the management measures in attaining the objectives of this plan. Performance monitoring will be conducted by each of the five Councils concerned in its area of jurisdiction, in consultation with appropriate research, management and enforcement agencies and its Advisory Panel and Scientific and Statistical Committee. Public hearings may be conducted, as necessary, to receive public opinion on the effectiveness of the FMP and to determine the need for revisions. Any changes in foreign fishing effort or practices will be evaluated and may require additions to the regulatory regime.

It is hoped that analysis of logbook and observer data may suggest gear or fishing practices which reduce the incidental catch or mortality of billfishes. If so, the Councils would consider modifying the management regime accordingly.