

implementation of bycatch assessment and reduction plans as outlined in the 4<sup>th</sup> component of the petition for rulemaking.

*Comment 5:* Several commenters suggested that the petition's directive that NMFS prohibit fishing in any fishery lacking a functioning bycatch plan 12 months after rulemaking commences represents an unduly severe burden on the fishing industry.

*Response:* NMFS has disapproved FMP amendments or portions thereof that inadequately addressed the bycatch requirements of the SFA. Examples include the partial disapproval of: Amendment 8 to the FMP for Pelagic Fisheries of the Western Pacific Region; Amendment 6 to the FMP for Bottomfish/Seamount Groundfish Fisheries of the Western Pacific Region; Amendment 12 to the FMP for Summer Flounder, Scup, and Black Sea Bass (only the bycatch provision for scup was disapproved); and the generic SFA amendment to all of the Gulf of Mexico FMPs. We believe that it is worthwhile to investigate the creation of uniform standards for bycatch assessment and reduction for all FMPs governing commercial and/or recreational fisheries based on the requirements listed in the 4<sup>th</sup> component of the petition for rulemaking. Nonetheless, NMFS believes that total fishing prohibitions for fisheries lacking bycatch plans within a 12-month time frame are inappropriate.

*Comment 6:* One commenter indicated that it would be impractical to assess fishery bycatch in relation to "the impact of that bycatch on bycaught species and the surrounding environment" because such data are not currently monitored and are unavailable.

*Response:* NMFS believes that the ecosystem effects of bycatch are an important consideration of fishery management. Nonetheless, we agree with the above comment that for many commercial and recreational fisheries, the ecosystem effects of bycatch are poorly understood due to monitoring limitations. NMFS has limited resources to fund the monitoring of bycatch and ecosystem effects of bycatch, and those resources, including resource-intensive observer programs, have to be prioritized to address fisheries with problematic levels of bycatch.

*Comment 7:* One commenter agreed with the petition's requirement that bycatch plans consider the various species with which a single fishery interacts, as well as the effects of multiple fisheries on a single stock, in order to create broad-based plans where

the likelihood of compliance, effective enforcement, and success is optimal.

*Response:* We agree that these factors should be fully considered for fisheries where data have been collected on fisheries interactions, and managers should identify areas where fisheries interaction data are lacking and create plans to improve data collection. These factors are considered in most cases during the FMP creation process and addressed in the National Environmental Policy Act (NEPA) process.

*Comment 8:* One commenter expressed reservations about the petition's recommendation to use incentives for those who use gears that produce less bycatch because of unintended consequences that might occur when segments of the fishing industry change gears from a gear that causes one type of bycatch problem to another gear that causes a different type of bycatch problem.

*Response:* NMFS recognizes this problem and strives to fully analyze the various consequences of management actions, whether they be closed areas, gear restrictions, or fishermen's incentives.

#### **Accomplishments and Ongoing Activities**

NMFS and the RFMCs have undertaken many activities to both quantify and reduce bycatch. The most successful of these have required a comprehensive understanding of the type of and cause of bycatch, and cooperation between NMFS scientists, managers, RFMCs, and the fishing industry in implementing measures that are effective in reducing bycatch yet result in minimal impacts to fishermen.

NMFS is in the process of compiling summary information on a regional basis that identifies: bycatch species (fish, sea turtles, marine mammals, seabirds, corals); bycatch data collection methods being used (logbooks, observer programs, dockside sampling, etc.); percentage of coverage in observed fisheries; bycatch estimates where available; gear requirements or prohibitions; and other management measures being used to reduce bycatch. This summary information is being compiled in matrix form and will be made available in the near future on a dedicated NMFS bycatch website (<http://www.nmfs.noaa.gov/bycatch.htm>) linked from the NMFS homepage. NMFS plans for its new bycatch website, unveiled in January 2003, to eventually contain information about bycatch regulations and policy, bycatch-reduction research, bycatch experts, bycatch data sets, conferences/

workshops, and technology-transfer efforts that will assist the public in understanding the bycatch problem, the efforts that have been taken and are being taken to address the bycatch problem, and the commitment of NMFS to meeting its bycatch goal. Following are some examples of progress made to date to quantify and reduce bycatch, and a summary of key ongoing activities.

#### **A. Gear Technology and Fish Behavior Research**

Prior to the enactment of the SFA, NMFS established a national team which produced the 1998 report *Managing the Nation's Bycatch* available at <http://www.nmfs.noaa.gov/bycatch.htm>. This comprehensive report identified a number of high-priority needs in the area of gear technology and selectivity and fish behavior research. As is described below, some of the research has been devoted to fisheries interactions that are not defined as bycatch in the SFA, because the SFA defines bycatch in terms of fish, which is defined as "finfish, mollusks, crustaceans, and all other forms of marine animal and plant life other than marine mammals and birds". However, *Managing the Nation's Bycatch* expanded the management concept of bycatch to include marine mammals, and seabirds. In 2001, NMFS formed the NMFS Gear Technology Working Group, and this group is helping to organize national priorities for gear technology research and ensure sustainable funding.

At the Alaska Fisheries Science Center (AFSC), gear technology research and research on the behavioral responses of fish both to fishing gear and to the stresses imposed by coming in contact with fishing gear have contributed substantially to efforts to address the bycatch problem. Species-specific differences in the response to fishing gear have been identified and used to develop gear modifications that increase the escapement of juvenile fish and other fish that would be discarded if caught. Examples of the gear modifications that have been developed include: (1) excluder grates to decrease halibut bycatch in the Alaska flatfish and Pacific cod trawl fisheries; (2) trawl modifications to decrease rockfish bycatch in west coast sole fisheries; (3) grates and square mesh in trawl codends to reduce the bycatch of juvenile pollock in the Alaska pollock fisheries; and (4) excluders and large mesh to reduce skate bycatch in Alaska trawl fisheries. Research on the differences in the responses of salmon and pollock to trawl gear has been completed and it is