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WORKING GROUP ON BYCATCH

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**A STRATEGY TO IMPROVE THE SELECTIVITY OF THE FISHERY ON
FLOATING OBJECTS**

In the purse-seine fishery, sets on floating objects produce the greatest quantity of discards of tuna and of most other species. There are various actions which could be taken to reduce bycatches in such sets. The strategy presented here for consideration by the Working Group covers four groups (juvenile tunas; sea turtles; billfish, sharks and rays; large fish of interest to the artisanal fishery). In some cases, where measures or industry practices that might reduce bycatch require investigation, further research is proposed.

Improving performance with respect to bycatch will require a long-term approach; using a strategy such as that presented here as a framework will allow regular monitoring, and adjustment as necessary.

OBJECTIVES

1. Reduce the incidental mortality of juvenile tunas

The Commission extended the pilot program, requiring retention of all bigeye, skipjack and yellowfin tuna caught, into 2002. This measure is intended to encourage vessels to avoid catches of tuna that were too small to be marketable. See document BYC-3-04, *Full retention requirement during 2001: Preliminary analysis*.

a. Immediate action:

With the cooperation of the fleet, it would be possible to establish a system of real-time communication to inform vessels of areas of high concentration of juveniles of those species. However, any such system would have to balance the need for sharing detailed position information and fishermen's interest in not revealing details of their fishing activity to competitors. The information could be transmitted by the observers, and would have to be analyzed and distributed promptly so that the fleet could avoid areas in which high concentrations of juveniles were to be expected.

b. Future actions:

1. Studies of the distribution of juvenile tunas, using fishery and oceanographic data, as a basis for avoiding catches. This might include studies of the dimensions of patches of juveniles, and models to predict their concentrations.
2. Study the spatial stratification of the species in the net as a basis for removing the juveniles from the catch unharmed.
3. Develop technology for releasing small tunas (*e.g.* sorting grid, mesh size).
4. Develop technologies for culturing juvenile bigeye and yellowfin that would otherwise be discarded.

Currently the staff is not actively involved in studies relating to (1) and (2), and starting any substantial research would require new funding or redeployment of staff from other projects. Some preliminary work has been carried out and reported on in respect of (3), and a proposal for a dedicated research program costing US\$320,000 was approved by the Commission, but not funded. In addition to research funding,

collaboration with one or more purse-seine vessels is necessary. Proposal (4) would not necessarily reduce the catch of small tunas, but would mean that such catches would not be entirely wasted.

c. Progress towards the objective

Reduce the trend of discards of juvenile tunas (yellowfin and bigeye and skipjack combined) per set on floating object by 5% per year.

2. Reduce the bycatch of sea turtles

The 2000 Resolution on Bycatch requires that any turtles taken in a purse-seine net be promptly released unharmed, to the extent practicable. Specifically, retaining live captured turtles is prohibited, certain actions to avoid entangling turtles in the net or to release them if entangled are required, and turtles brought aboard a vessel should, if necessary, be resuscitated before being returned to the water.

Avoiding harm to sea turtles while retrieving the net should be easy, yet some vessels are not complying with this requirement. Active communication from governments and vessel owners to vessel personnel would probably improve this situation; training seminars for captains are also an opportunity, and distributing educational material might also be useful. In respect of (3), a simple comparison of the results of vessels using different FAD designs during normal fishing activities could be carried out with existing staff resources, but such opportunistic comparisons usually do not provide definitive conclusions. A more useful analysis could be carried out with planned trials of different FADs, but this would require the cooperation of a number of vessels. Salt bags and similar trash discarded by tuna vessels have been reported to entangle juvenile turtles, so mortality might be reduced if their discard at sea were prohibited.

a. Future actions

1. Publicize the requirement to release turtles and the other components of the Resolution.
2. Train crews of vessels without observers in techniques for handling turtles to improve survival after release.
3. Modify design of FADs. Sea turtles can become entangled in the mesh that often hangs below FADs; experiment with replacing the mesh with other alternatives (McIntyre kites, lines with weights, *etc.*).
4. Prohibit purse-seine vessels disposing of salt bags or any other type of plastic bag at sea.

b. Progress towards the objective

Reduce the annual incidental mortality of turtles in sets on floating objects to less than 50 through 2003, less than 25 for 2004 through 2010, and less than 10 after 2010.

3. Reduce the incidental mortality of billfish, sharks and rays

The 2000 Resolution on Bycatch requires that any sharks, billfishes and rays taken in a purse-seine net be promptly released unharmed, to the extent practicable.

At the 66th meeting of the Commission in June 2000 it was reported that nearly 50% of the bycatch of billfish, sharks and rays, but only 10% of the catch of tunas in sets on floating objects, was taken north of 7°N. For these species it would be most productive to focus efforts on bycatch reduction in this area.

a. Future actions

1. Publicize the requirement to release sharks, billfishes and rays, and develop techniques and/or equipment to facilitate the release of these species from the deck or from the net.
2. Carry out experiments to determine the survival rates of released billfish, sharks and rays.
3. Define areas and periods in which manta rays are most likely to be caught.
4. Restrict the fishery on floating objects north of 7°N.

b. Progress towards the objective

Reduce the incidental mortality of these species by 20% between 2002 and 2007.

4. Reduce the incidental mortality of species of large pelagic fish of interest to the artisanal fishery

The 2000 Resolution on Bycatch requires that any *mahi mahi* and other non-target species taken in a purse-seine net be promptly released unharmed, to the extent practicable.

a. Future actions

1. Identify areas of high catches of juveniles of these species, and verify the stability in time and space of any such areas.
2. Consider closures in those areas.

b. Progress towards the objective

Reduce the incidental mortality of these species by 20% between 2002 and 2007.