

DUMAGUETE ACTION PLAN: CETACEAN BYCATCH SECTION

The Dumaguete Action Plan came out of the Second International Conference On Marine Mammals Of Southeast Asia, which was held 22-26 July 2002 in Dumaguete, the Philippines. This is the section that addresses the issue of bycatch in fisheries.

Reference information:

Second draft, October 2002

REPORT OF THE SECOND WORKSHOP ON THE BIOLOGY AND CONSERVATION OF SMALL CETACEANS AND DUGONGS OF SOUTHEAST ASIA

Silliman University, Dumaguete City, Philippines, 24-26 July, 2002

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THE PROBLEM OF BY-CATCH IN FISHERIES

Regional Review

Research efforts in SE Asia since the 1995 workshop have revealed that the by-catch of cetaceans and dugongs in fisheries is even greater than previously supposed, and there is no indication that this problem has been addressed in a meaningful or satisfactory way anywhere in the region. Illegal and unregulated fishing by distant-water commercial fleets is a major problem for SE Asian countries. In particular, encroachment by Taiwanese vessels in offshore waters of the Philippines was repeatedly noted by workshop participants. Exclusion of such vessels from one country's territorial waters all too often simply displaces the problem. An example is the Taiwanese tuna driftnet fishery in the Arafura Sea. Australia banned this fishery within its EEZ after large by-catches of dolphins had been documented. Rather than ending its operations, however, this Taiwanese fishery simply relocated to international waters and is now believed to be operating in Indonesian waters with little or no monitoring or regulation. This example demonstrates the need for a regional approach to by-catch reduction/mitigation.

It was also noted that in some instances, incentive programs by government agencies have been responsible for over-capitalization of fishing fleets, or increasing the amount of fishing with gillnets and other unselective gear. There is a need to end, and if possible reverse, directed government programs and policies that effectively, albeit inadvertently, increase marine mammal by-catch.

A factor to consider in present and future assessments is that low by-catch rates in many areas reflect the fact that cetacean and dugong populations have already been severely reduced by direct and incidental removals. Vietnam provides one particularly stark example. There, observed densities of marine mammals in coastal waters are very low, fishing intensity is extremely high, and skulls in whale temples bespeak a formerly diverse and abundant local marine mammal fauna (Smith et al. 1997; Doc. 3, 14).

Useful Approaches

Small cetaceans

Only a few existing cetacean by-catch reduction/mitigation efforts in SE Asia were identified:

WWF-Philippines, in collaboration with local government, has initiated a project to develop modifications to crab-fishing gear and/or practices in Malampaya Sound, with the goal of reducing the by-catch of Irrawaddy dolphins, especially in *matang quattro* nets.

Declaration of marine reserves and other types of marine protected areas in Brunei and Malaysia is justified, at least in part, as a way of reducing dugong and cetacean by-catch, although protection of coral reefs and seagrass beds is likely the primary impetus for such initiatives.

The participants were asked to identify and rank what they considered to be useful generic approaches to small-cetacean by-catch mitigation. A total of 18 strategies were identified, of which seven were considered important by more than one or two individuals. These seven, in descending rank order, were:

- 1) Targeted community education and awareness programs.
- 2) Improved enforcement initiatives.
- 3) Monitoring and assessment of by-catch and fisheries.
- 4) Gear research.
- 5) Promotion of alternative livelihoods.
- 6) Identification of key areas and closure of fisheries.
- 7) Development of laws and regulations to reduce by-catch.

While it is recognized that by-catch data from interviews are almost always seriously biased downward (Lien et al. 1984), the participants acknowledged the difficulty of placing observers on small artisanal fishing vessels. In the United States, some small-boat fisheries have been successfully observed from one or more independent vessels that move around on the fishing ground and monitor the nets from a distance as they are being hauled. Also, in California it has proven feasible to use shore-based observers to obtain unbiased data on by-catch for some nearshore fisheries (Hanan et al. 1986).

Data need to be collected in such a way that by-catch rates can be discriminated at least to the species level. Moreover, for by-catch rate estimates to be meaningful in population assessment, it is necessary to have good information on stock structure and abundance. For small populations where sufficient data are available, e.g., the Irrawaddy dolphins in Malampaya Sound, Philippines, it may be possible and useful to calculate a potential biological removal (PBR) level (“mortality limit,” as it is called in Europe) and/or to conduct a population viability analysis (PVA). These kinds of calculations can inform policy makers and resource managers as to the probable consequences of various alternative management strategies.

Table 9. Strategies identified by workshop participants as having the potential to mitigate dugong by-catch, ranked by relative potential for each country.

Strategy	Country rankings (1=most important)
Develop community-based education and management programs in fishing communities	(1 most important) Indonesia, Japan, Malaysia, Philippines; (2) Australia, China, Thailand, Vietnam; (4) Cambodia
Identify key dugong habitats and negotiate closure to by-catch fisheries	(1) Australia, Thailand, Vietnam; (2) Cambodia; (3) China, Malaysia; (4) Indonesia.

Improve enforcement of regulations	(1) China; (2) Indonesia, Malaysia, Philippines; (3) Australia, Cambodia, Thailand.
Monitor by-catch	(2) Japan; (4) Malaysia, Thailand
Develop stricter regulations	(1) Cambodia
Modify gear (fish corrals, trap nets)	(3) Indonesia, Japan, Philippines
Sponsor alternative livelihoods for fishers in by-catch fisheries	(3) Vietnam
Reduce effort in by-catch fisheries	
Introduce and enforce attendance at net rules	
Buy out gear e.g. push nets	
Introduce incentives to change to less damaging gear	
Emphasize conservation value of seagrass habitats	

Terminology

The term “by-catch” is generally understood to mean anything that is caught in addition to the target species of a fishery. It is often used interchangeably with the term “incidental catch,” implying that the catch is accidental, unintended, and not desirable (e.g., “trash fish”). In practice, however, there is considerable ambiguity surrounding these terms. In SE Asia, the distinction between catch and by-catch is often obscured by the fact that fisheries have multiple target species and that almost anything that is caught has value (whether for commercial sale, use as bait, or domestic consumption). Defining by-catch becomes more complicated when the target species is/are present in very low densities, and when the target shifts to include one or more of the by-caught species. In a number of countries (e.g., Peru, Sri Lanka, and the Philippines), cetaceans were initially taken as a true by-catch (unwanted) in certain fisheries but eventually became intended targets as markets developed for their meat and as communities came to regard them as food resources. Some fishermen in these countries now intentionally set driftnets, for example, in areas where they are likely to take either cetaceans or other valuable species (tuna, billfish, sharks). All are desired and used. Throughout SE Asia, any catch of a dugong by a non-commercial fisherman is likely to be welcomed as a source of good food and cash potential (tusks). Therefore, to regard dugong captures as by-catch can be very misleading.

There was considerable discussion of the problem of terminology, and workshop participants agreed to the following principles in this regard:

By-catch needs to be recognized as part of the catch, and therefore affected stocks should be managed for sustainability regardless of whether they are targets of the fishery or whether they are utilized. The naming of fisheries is important. Those that target a combination of species should be labeled as such, e.g., tuna-and-dolphin fishery, or billfish-shark-and-small cetacean fishery.

By-catch, whether it is discarded or utilized, needs to be documented quantitatively and taken into account as exploitation of the resource.

Simply declaring by-catch as illegal does not solve the by-catch problem. In fact, it is likely to exacerbate the problem by forcing fishermen to conceal information.

Some local, small-scale fisheries may best be described as opportunistic. Another approach to defining classes of catch might be to identify primary, secondary, and unwanted species that are taken in a given fishery. Kahn proposed a system of terminology as follows:

1) *Primary catch* - the commercial target species (in SE Asia often a "wish-list" item, a bonus species).

2) *Secondary catch* - also called by-product, catch that is kept or sold but is not primarily a target species (in SE Asia this is the majority of the catch and secondary catch species may become primary catch due to over-exploited fisheries)

3) *Discarded catch* - species which are returned to the sea either because they have no commercial value, or because regulations do not allow them to be landed and sold (in SE Asia this may be minimal, as non-commercial species can be consumed locally or used as bait)

4) *Catch interactions* with fishing gear - catch that does not reach the deck of the fishing vessel but is affected by interaction with the fishing gear (including lost fishing gear).

The group agreed that this set of terms has merit but recognized that the term "by-catch" is firmly established in international fishery and conservation circles and therefore must be used *per force*, with appropriate qualifications as outlined above.

The concept of "destructive fishing practices" or DFP may deserve to be broadened beyond its usual meaning, which relates primarily to damage to habitat (e.g., use of explosives, poisoning, bottom trawling). Extremely unselective or intensive fishing (e.g., wall-to-wall driftnets, using high-tech equipment to locate productive sites for "attack" with small-mesh netting) may cause direct harm to the integrity of ecosystems and therefore qualify as destructive. It therefore may be appropriate to incorporate the term "destructive fishing practices" into legislation and management policy.

It is important to differentiate between over-exploited fisheries and destructive fishing practices, as they are not the same. The first is related to fishing capacity and intensity, or too many fishers chasing after too few fish. The latter is a particular practice that has an unacceptable environmental impact, each single time it is practiced. With DFP, very few practitioners can cause major environmental damage and the collapse of fisheries stocks. Hence, DFP are highly unsustainable. For example, by reef blasting a major grouper spawning aggregation, a few local fishermen can devastate crucial habitats and decimate marine resources of a much wider geographical region.

The term "indiscriminate" may be a useful alternative to "destructive." In SE Asia, fisheries are often characterized as IUU – illegal, undocumented, and unregulated.

Often, DFP are illegal but enforcement is lacking. As such, the recognition of DFP as a term to describe highly unsustainable capture methods is important to mobilize public support against such practices and to promote such behaviour as socially unacceptable, within coastal communities and ultimately on the fishing boats. This is especially important in vast archipelagic nations such as Indonesia and the Philippines, where management resources and existing enforcement infrastructures are minimal in relation to coastline and overall marine area.

Development of Draft Plan of Action

The group discussed various potential approaches to coordinated regional action. It was agreed that the best strategy would be to formulate a plan in two stages, the first phase to

concentrate on raising awareness of the issue of by-catch and the second on assessment and mitigation. An initial awareness-raising phase is necessary because in much of SE Asia awareness of the conservation threats posed by by-catch is so low on the part of the public, fishery and community stakeholders, and decision makers that immediate initiation of full assessment and mitigation efforts is unlikely to be supported or funded. The education efforts would be coupled in this phase with preliminary surveys of the scope of by-catch in regional fisheries. Recognizing that some nations in the region are farther along in their efforts to address by-catch, e.g., the Philippines, it was stressed that any regional action plan should not be viewed as supplanting or substituting for existing national efforts and plans, but rather as augmenting and complementing them.

A draft outline of items for inclusion in the first phase of the plan (Doc. 30) was amended and agreed (Table 10).

Table 10. Outline of Draft Regional Action Plan on By-catch of Small Cetaceans and Dugongs in SE Asia - Phase 1: Raising Awareness.

I. Background

II. Objectives

III. Proposed actions (not necessarily in this order)

A. Identify fisheries with small-cetacean by-catch.

1. For each nation, identify coordinating national institution.
2. Identify national coordinator and academic/NGO collaborators.
3. Develop catalog of fisheries for each nation (using GIS?)
4. Identify regional coordinating institution and coordinator.
5. Exchange information on fisheries with by-catch, and compile regional catalog of fisheries affecting shared cetacean populations.

B. In regional consultation, prioritize fisheries to identify those with likely greatest impacts.

C. Conduct regional training courses on:

1. Methods for collecting by-catch data (field people)
2. Methods for assessing impacts of by-catches (analysts)
3. Development of standardized data forms.

D. Develop pooled regional databases.

E. Develop draft regional action plan for assessment and mitigation of by-catch.

F. Establish regional email discussion group/list

G. Educate public and stakeholders.

1. Establish information center for fishermen and other stakeholders (interactive website)
2. Develop community-based education programs in fishing communities.
3. Produce popular articles/films
4. Develop information packages for decision makers (legislators, administrators, executives)

H. Work toward wider regional membership in CMS.

IV. List of specific projects/fisheries (based on present information and proposals).

V. References

Appendix - List of species

Appendix - List of potential range states and states with adjacent waters

Time did not permit full development of the draft action plan. A start was made in casting the agreed action items for Phase 1 in the CMS action-plan format (Appendix 6). It was agreed that the group would continue work on "timeline" and "responsibility" elements of the plan, as well as Phase 2, by correspondence, should the CMS Scientific Council decide that this would be desirable.

APPENDIX 6

DRAFT REGIONAL ACTION PLAN TO ADDRESS BY-CATCH OF SMALL CETACEANS AND DUGONGS IN FISHERIES IN SE ASIA: PHASE 1 - RAISING LEVEL OF AWARENESS OF THE PROBLEM

Phase of Action Plan	Objective	Generic Strategies	Specific Actions
Phase 1	Empower resource managers, NGOs, fishermen and the wider community to appreciate the scope of the problem in South East Asia	Identify regional coordinating institution and coordinator	
		For each nation, identify: <ul style="list-style-type: none"> • coordinating national institution • national coordinator • academic and NGO collaborators 	<ul style="list-style-type: none"> • Identify key personnel • Establish regional e-mail discussion lists • Identify national coordinating institution and coordinator
		Summaries and collate available information on fisheries for each nation in region, including: <ul style="list-style-type: none"> • details of target species • by-catch • gear type • effort • areas fished 	
		Use this information to perform comparative qualitative risk assessments, leading to: <ul style="list-style-type: none"> • evaluation of sustainability of by-catch in major fisheries • identification of fisheries with likely greatest impacts 	
		For each country: <ul style="list-style-type: none"> • Review existing national conservation (including marine protected areas) and fisheries legislation and regulations relevant to management of by-catch of small cetaceans and dugongs • Identify potential for by-catch control and changes needed to mitigate by-catch 	
		Develop and implement targeted community consultation and education on marine mammal ecology and by-catch mitigation measures	<ul style="list-style-type: none"> • Develop resource website (interactive and tailored to audience) • Develop culturally

			<p>appropriate education programs for each country including popular articles, films</p> <ul style="list-style-type: none"> • Develop briefing documents for governments and other decision-makers • Hold training workshops on collecting by-catch data and assessing impacts for resource managers, analysts, NGOs and fishermen
Phase 2	Mitigate problem	Rationalize/ introduce legislation to recognize by-catch as catch to be managed as part of sustainable fisheries strategy	
		<p>Identify appropriate mitigation actions for each fishery. Such actions might include:</p> <ul style="list-style-type: none"> • improving enforcement of fishing regulations especially at community level • identifying areas/ times where risk of by-catch is highest and negotiating spatial and/or temporal closures to reduce by-catch • closing fisheries and developing alternative livelihoods for fishers • modifying gear and fishing practices to reduce by-catch 	
		Monitor by-catch to provide feedback on the effectiveness of mitigation measures	