Bycatch Communication Network
NEWSLETTER
Issue 8 Feb-March 2008

In This Issue

Welcome to the 8th issue of the BCNN.

I would like to draw your particular attention to the following article on page seven: Notice from the Secretariat of the Convention on the Conservation of Migratory Species of Wild Animals (CMS), United Nations Environment Programme (UNEP) which is tendering for the preparation of a report providing an assessment of by-catch of migratory species in global fisheries, closing date March 28th.

Comments have recently been received regarding the scope of the BCNN which include:

- the bycatch issue needs to gain more visibility and funding;

- the pace of progress in the USA on bycatch issues is slow and stakeholders lose focus if issues drag on for years. It has been proposed that future BCNN editorials address bycatch issues in the future context of overfished and warmer oceans. Will bycatch be exacerbated by zooplankton retreating to the poles, or will bycatch issues increase as the oceans are purged of the fish we want for the table?;

- as global warming and overfishing play out, the remaining fish and cetaceans will be concentrated in smaller and smaller areas, and increased encounters will occur between fishers and non-target species. It may be appropriate to tie bycatch in with the aforementioned issues (overfishing and warmer oceans).

Any input from subscribers is encouraged and will appear in the next issue for discussion and consideration.

Finally, Laurent Louis-Jean from the Observatoire du Milieu Marin Martiniquais (France) is seeking information on marine turtle bycatch in lobster, fish and queen conche bottom nets (gillnet and trammel) in Martinique and Guadeloupe small-scale coastal fisheries for his Ph.D. entitled: " Impact of coastal artisanal fisheries on marine turtle populations in Martinique and Guadeloupe, (French West Indies). If you are able to assist in any way, please contact Laurent at: l.louisjean@gmail.com.

Sincerely,

Emma Bradshaw

This issue of the BCN newsletter is generously funded by WWF US.

Bycatch on the Net: WWF Launches New Website

Robin Davies, Global Bycatch Initiative, WWF International

As a tool to help support and advance the long-term sustainability of both fish stocks and fishing communities, WWF launched a new bycatch website in February. The site, whilst being clear about the magnitude of the problem, focuses on solutions and the steps all stakeholders, from fishers to consumers, can take to help reduce current bycatch levels and make informed choices.

The WWF bycatch website – http://www.panda.org/bycatch - aims to inform and support the need for stronger fisheries management of which bycatch is an important element, and in specific cases, stronger species conservation programs. The overall approach of WWF's bycatch mitigation work is to build policy, field and market willingness to support practical changes which will ensure that fisheries are more selective, better managed, and that the market supports consumer efforts to preferentially purchase sustainable seafood products.

WWF recognises bycatch as a major conservation priority as stated by Amanda Nickson, leader of WWF's Bycatch Initiative:

"Bycatch costs fishers time and money, it contributes to the already critical problem of over-fishing, it jeopardizes future revenue, jobs and long-term food security. It is also a major killer of marine wildlife. How many more reasons do you need to change the way we fish?"

The website also contains a new, searchable Bycatch Solutions Database that describes fishing gear, the bycatch it produces and the gear modifications that can be employed to reduce the associated bycatch. The database lists and illustrates over 80 different gear modifications in use around the world to reduce bycatch for 16 different gear types. The database is searchable by gear, bycatch type, and region/target species and, whilst not exhaustive, aims to serve as a useful tool to find summary information. See Invitation to Use and Review the Bycatch Reduction Techniques Database at www.bycatch.org, on page 12.

In addition, WWF is collaborating with fishers and other stakeholders from around the world to help mitigate bycatch. The details of these projects are outlined in an interactive bycatch projects map which allows the user to take a journey around the world and learn about the aims, objectives, outcomes and details of various categories of bycatch projects with which WWF is involved.

For more information contact Robin Davies at: rdavies@wwfint.org.

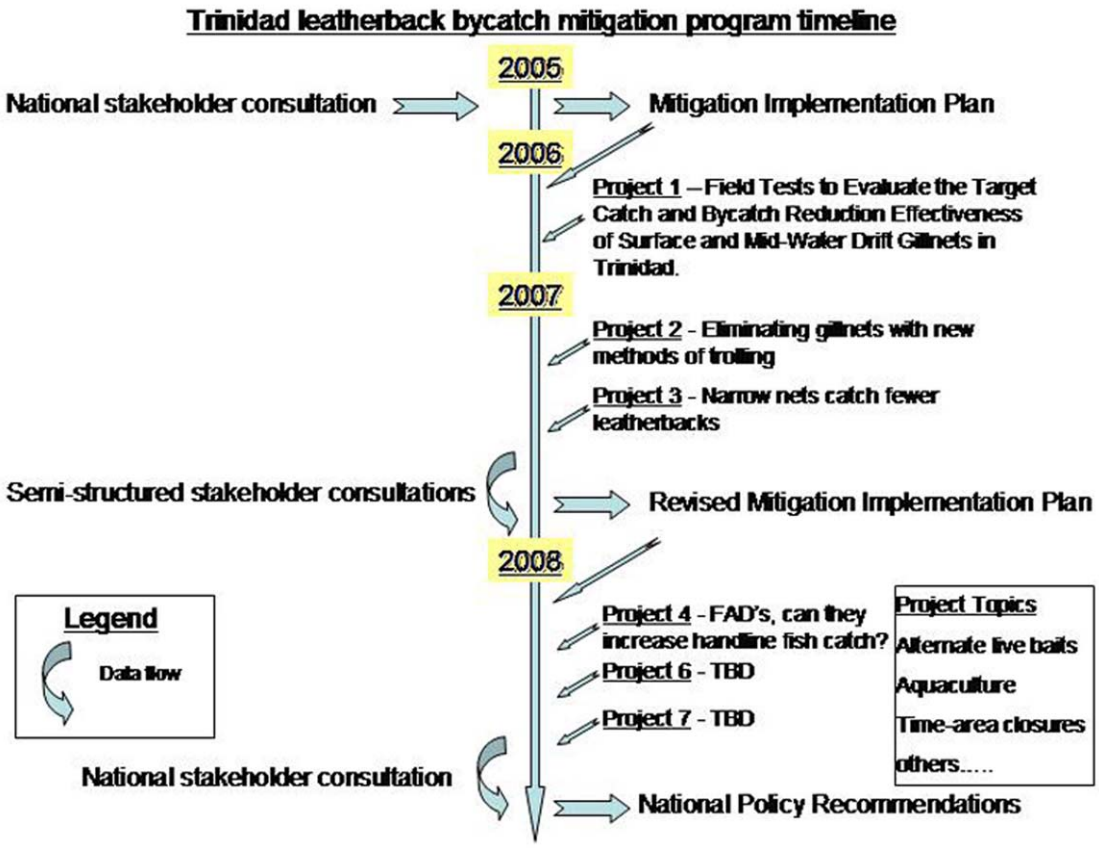
Reducing Leatherback Sea Turtle Bycatch in the Surface Drift-gillnet Fishery in Trinidad

Scott A. Eckert[1], Jeff Gearhart[2], NOAA Fisheries, Charlie Bergmann[2],
Karen L. Eckert[1], [1]WIDECAST, [2]NOAA Fisheries

The accidental entanglement of leatherback sea turtles by coastal drift-gillnet fisheries around the southern Caribbean island of Trinidad may exceed 3,000 per year, and represents the greatest single threat to the stability of this globally important breeding population (Eckert and

Eckert, 2005; Eckert and Lien, 1999; Lee Lum, 2006; WIDECAST, 2006). Leatherback bycatch also causes extensive damage to fishing gear and threatens the capacity of Trinidadian artisanal fisheries.

In 2005, a national consultation sponsored and convened by the Trinidad and Tobago Ministry of Agriculture, Land and Marine Resources and WIDECAST, produced a strategy (Eckert and Eckert, 2005) to address this significant problem, as reported in this newsletter in August 2006. One of the findings of this consultation was the need to develop a program to test new fishing methods that could significantly reduce bycatch without causing economic loss to fishers.



Trinidad leatherback sea turtle bycatch reduction programme time-line.

To this end, investigations were designed and carried out with stakeholder participation to evaluate, under realistic field conditions, various bycatch reduction options.

To structure the programme, a multi-year timeline was developed that facilitated capacity building among stakeholders in the early stages and then a series of bycatch reduction experiments, with regular stakeholder input to guide the process (see above). Here we report on the initial progress of the programme to date.

Field trials were initiated in 2006 to investigate whether standard nets set with the top line five metres below the surface would result in fish catch equivalent to that of the more traditional set (i.e. nets set to 10 metres below the surface). The concept behind this approach was that other investigations have shown that leatherbacks tend to move along the bottom when traveling through nearshore waters after nesting, but closer to the surface when returning to the beach to nest (S. Eckert, WIDECAST, unpubl. data). We hoped that by setting the nets mid-water, we might reduce leatherback entanglement while not compromising fish catch.

Trinidad net makers prepare gillnets for the surface-set gillnet fishery. Nets used in this fishery are made of twisted nylon twine with a 9.35 cm mesh size. © Scott A. Eckert - WIDECAST.

To ensure stakeholder involvement, all fishers who participated in the experiment were paid for their effort, all gear (experimental and control) was provided, and fishers were allowed to retain and sell their catch. Local sea turtle conservation groups were hired to provide data recording and serve as on-board observers. This structure allowed fishers to participate without financial risk, and actually resulted in increased income during their participation. As sea turtle conservation groups in Trinidad have extensive experience in field data collection, we were assured of high quality information. Finally by having two of the most important stakeholder groups working together, we created a venue for each group to share their respective opinions.

Fish catch results from this experiment showed that catch of high-value species (kingfish, serra mackerel) was reduced and lower-value demersal species (shark, catfish) increased, causing an economic loss to the fishers (Gearhart and Eckert, 2006). Because experiments were conducted late in the nesting season when turtle catch rates are typically low, the experiment provided no usable data on bycatch rates. However, the experiment did provide important insight into where high value target species may be caught (within the upper five metres of the water column). Moreover, by providing the opportunity for fishers and local conservationists to work together directly, the experiments created structure and experience within stakeholder groups for regular communication, and the capacity to build shared experience in developing solutions.

In 2007, using the same organizational structure, we undertook two further studies. Because our 2006 results suggested that target species were located primarily in the top five metres of the water column, we reduced net width so that fishers were fishing only to five metres. We anticipated that lower-profile nets would also fish more stiffly with less blousing (bagginess) than more traditional net sets fishing to 10-15 metres. These taut panels would be less entangling to sea turtles. Nets were set in a single string in an alternating configuration (control, experimental, control, experimental etc.), with each vessel setting eight nets (four matched pairs) per trip.

Fish catch results were encouraging. By using the same amount of net as might be used traditionally (e.g. 150 lbs/68 kg), but fishing it within the top five metres of the water column by using lower-profile nets, catch rates of high value target species were higher than for traditional nets. Turtle catch rates were dramatically lower. A total of 119 leatherback turtles were entangled and released during the 60 nights of experimental fishing. The experimental net captured only 29 turtles, 68% fewer than the control, and a significant number of turtles were noted to “bounce” out of the experimental net without becoming entangled. Also of significance were fisher observations that entangled turtles were more easily freed from the low-profile nets. Finally, in a repair cost assessment, the traditional nets sustained five times more damage (and thus had a five-fold increase in cost of repair) than the shallow set nets.

In a second experiment, also carried out during the summer of 2007, artisanal fishing vessels were outfitted with outriggers, planers; a single hand cranked bandit reel and a portable fish finder. While trolling is practiced in Trinidad, it is not as common as gillnetting and planers,

outriggers, fish finders and spoon baits are not used. After training, fishers were contracted for 120 days of fishing.

Fish catch results were excellent. Though not as high as the experimental drift gillnet methods, the largest proportion of the catch was the high-value kingfish, and so troll fishing brought as high an economic return even when increased operational costs (fuel, engine wear) were factored in. As expected, no turtles were caught during the trolling experiments.

In October 2007, we held a series of meetings with fishers to present results of the summer experiments. At the conclusion of the presentation and follow-on discussion, we presented fishers with a questionnaire to evaluate how well these new methods might be adopted and implemented. All reported that the catch of leatherbacks poses a serious problem for their fishing; 90% reported that they would switch to fishing with shallow set nets (10% said they "might" switch); 90% said they would be willing to switch to trolling; and 70% said they would switch to new methods even if they had to bear "some" of the costs of the switch (20% more said they might switch depending on the cost).

Trinidad artisanal gillnet fishers operate primarily along the north and east coasts of the island from 5 - 7 metre long pirogues. © Scott A. Eckert - WIDECAST.

To conclude, preliminary analysis of the most recent experiments suggests that we are well on our way to resolving the bycatch problem in surface-set drift gillnets in Trinidad, West Indies. By refining gillnet fishing methods, introducing more modern fishing techniques, fairly and transparently incorporating stakeholders into the process of developing mitigation methods, and responding to fisher feedback, we believe that we can significantly reduce the bycatch of Critically Endangered (cf. IUCN Red List) leatherbacks in the nearshore waters of this Caribbean island. We intend to continue this work in 2008, sponsoring another series of fisher-inspired bycatch reduction experiments, as well as refining the mitigation methods already under development based on results to date. We hope to report in this newsletter next year that the issue has been resolved, meeting the fundamental survival needs of both fishers and sea turtles.

Funding and support for this work was provided by the U.S. National Fish and Wildlife Foundation, the Disney Conservation Fund, NOAA Fisheries, WWF, WIDECAST, and the CGMK Foundation.

Literature Cited

Eckert, S. A. and Eckert, K. L. (2005). Strategic Plan for Eliminating the Incidental Capture and Mortality of Leatherback Turtles in the Coastal Gillnet Fisheries of Trinidad and Tobago: Proceedings of a National Consultation. Port of Spain, 16–18 February 2005. Ministry of Agriculture, Land and Marine Resources, Government of the Republic of Trinidad and Tobago, in collaboration with the Wider Caribbean Sea Turtle Conservation Network (WIDECAST). WIDECAST Technical Report No. 5. Beaufort, N. Carolina. 30 pp. + appendices ISSN: 1930-3025.: Wider Caribbean Sea Turtle Conservation Network.

Eckert, S. A. and Lien, J. (1999). Recommendations for Eliminating Incidental Capture and Mortality of Leatherback Turtles, Dermochelys coriacea , by Commercial Fisheries in Trinidad and Tobago: A Report to the Wider Caribbean Sea Turtle Conservation Network (WIDECAST). WIDECAST Information Document 1999 - 001January 1999 001 January 1999, 6.

Gearhart, J. and Eckert, S. A. (2006). Field Tests to Evaluate the Target Catch and Bycatch Reduction Effectiveness of Surface and Mid-Water Drift Gillnets in Trinidad., pp. 21. Beaufort, North Carolina: Wider Caribbean Sea Turtle Conservation Network (WIDECAST) WIDECAST Information Document 2007-01.

Lee Lum, L. (2006). Assessment of incidental sea turtle catch in artisanal gillnet fishery in Trinidad and Tobago, West Indies. Applied Herpetology 3, 357 - 368.

WIDECAST. (2006). Strategic plan for eliminating the incidental capture and mortality of leatherback turtles in the coastal gillnet fisheries of Trinidad and Tobago - Proceedings of a National Consulation. Bycatch Communication Network Newsletter 2, 9 - 11.

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BirdLife Internternational's Global Seabird Programme Safe Leads – a Revolutionary New Line Weighting Strategy for Pelagic Longline Fisheries

Andy Black, BirdLife Global Seabird Programme (GSP)

Currently, there is considerable momentum surrounding the need for further development and implementation of mitigation measures to reduce seabird bycatch in pelagic longline fisheries. This need has been recognized within fisheries operating under national jurisdiction and has been emphasized in recent developments in Regional Fisheries Management Organisations.

The Importance of Line Weighting

It is widely recognized that increasing the sink rate of the baited hook is one of the single most effective means of reducing seabird bycatch in pelagic longline fisheries.

Traditionally, line weighting in pelagic longline fisheries has involved adding weighted swivels to branchlines/snoods. These weights increase the sink rate of the branchline (and therefore the hook) and reduce seabird bycatch by minimising the time during which the hook is within the dive depth of foraging seabirds. However, uptake of line weighting has been hampered by two inextricably linked factors.

Firstly, many fishers are understandably reluctant to use weighted swivels on the basis of concerns about safety. Conventional leaded swivels (also referred to by fishers as 'lead bullets') can be extremely dangerous. The problem occurs during a bite-off[1], when the swivel can slingshot towards the boat at high speed. A 2 mm diameter branch line will accelerate a 60 gm leaded swivel to speeds of 500 km/h. A number of fishers have been seriously injured and two deaths have been recorded (one in New Zealand and one in Hawaii) after being hit by a lead swivel after a bite-off.

Secondly, many fishers believe that adding weight to their gear alters its position and behaviour in the water column, which could reduce the catch rate of target fish, an assumption that is untested and likely to be incorrect.

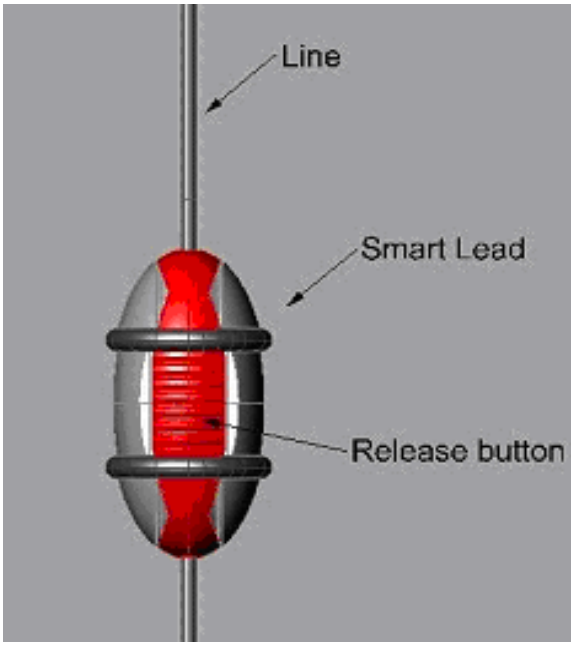
[1] A bite-off typically occurs when sharks are hauled to the surface and swim hard away from the vessel, which stretches the branchline to breaking point; causing a line breakage at or near the hook. Under current operations, this causes the weighted swivel to catapult back toward the boat.

Understanding this relationship is critical to effectively advocate the uptake of line weighting regimes that achieve an appropriate sink rate to reduce seabird mortality.

Safe Lead

Fishtek Ltd. (UK) has been working closely with Ben Sullivan of BirdLife International's GSP to develop the 'Safe Lead'. The Safe Lead is a completely new approach to line weighting in pelagic longline fisheries and relies on using the force on the broken line to slide the weight off and out of harm's way.

During a bite-off on monofilament, the line is stretched by around 10-20% before breaking. This stretch imparts an accelerating force on the lead equivalent to over 100 kg force. This is far more than the 5 kg that the Safe Lead grips with and so the weight simply slides on the line. It is an inherently reliable system, as the weight will always slide on the broken line instead of being accelerated inboard at dangerous speed.



Profile of a Safe Lead in situ.

Trials

These weights are currently being trialled in commercial fisheries in Australia, New Zealand, South Africa and the USA (Hawaii) and initial feedback from the industry has been encouraging. However, to take this process to the next step, dedicated at-sea experimental trials are needed to evaluate the safety benefits and investigate the effect of line weighting on fish catch. BirdLife's GSP has recently secured funding to undertake this research and trials will begin this year in collaboration with Graham Robertson (Australian Antarctic Division).

We hope to report on the results of these trials in future issues of the Bycatch Communication Network Newsletter.

For more information contact Andy Black at: Andrew.Black@rspb.org.uk.

Tender Notice: Assessment of Migratory Species Bycatch in Global Fisheries

Submitted by: Marco Barbieri, UNEP/CMS Secretariat, United Nations

Branch: United Nations Environmental Programme (UNEP).

Division: Secretariat of the Convention on the Conservation of Migratory Species of Wild Animals (CMS).

Summary Statement of Requirements

Preparation of a report providing an assessment of by-catch of migratory species in global fisheries.

Aims and Objectives

1. Carry out a comprehensive review of all global commercial and artisanal fisheries to assess the available information on the bycatch of seabirds, marine turtles, sharks and marine mammals, under the stewardship of the CMS Conference-appointed Scientific Councillor for by-catch and the CMS Secretariat.

2. For each fishery, examine recent fishing effort and bycatch information and evaluate the level of impact on non-target species, particularly CMS listed species.

3. Prepare a report that identifies the importance of bycatch as a threat to migratory species and provides an overview of priority fisheries, regions and species which will benefit from international action through the CMS.

Issues and Scope

The Convention on the Conservation of Migratory Species of Wild Animals (CMS) is an intergovernmental treaty which aims to conserve terrestrial, marine and avian species over the whole of their migratory range. To achieve this objective the Convention provides a framework for enhancing the conservation status of migratory species through the cooperative efforts of the range states of those species. There are currently 107 Contracting Parties to the Convention.

CMS seeks to conserve threatened migratory species by endeavouring to protect their habitats, remove obstacles that hinder migration, and lessen the impact of identified threats.

Bycatch is recognised by CMS as a major threat to marine migratory species and is the subject of Resolutions 6.2 and 8.14, and Recommendation 7.2. It is a threat that extends throughout all ocean basins of the world, and affects many species listed under CMS – including cetaceans, seabirds, marine turtles and sharks. To date, research and implementation of bycatch mitigation has largely been conducted on a fishery-by-fishery basis, with advice given on a species by species basis rather than a “whole-of-fishery” perspective.

Although there is significant conservation and bycatch mitigation action occurring at the national, fishery or species-specific level, links between these actions at the international level are often poor, leading to weakening of international effort. To date, despite many projects and activities within CMS agreements and other organizations/instruments, there is insufficient overall progress from these efforts, and bycatch remains a critical threat to many migratory species.

Knowledge of where and when bycatch occurs, and the scale that it is occurring, are critical information gaps that hinder progress in minimising the impacts of this threat. At the 13th meeting of the CMS Scientific and the ensuing 8th Conference of Parties, it was agreed that there is a need for a global assessment of the migratory taxa affected, as a precursor to stimulating the development and promulgation of solutions which are effective for all taxonomic groups, rather than one at a time as currently occurs. This project seeks to take forward these issues, which in turn will help CMS, its subsidiary daughter agreements, their party states and others play a more active part in addressing the threats to migratory species from bycatch. It should be noted that CMS daughter agreements (ACAP, ACCOBAMS, ASCOBANS, Wadden Sea Seals) and Memoranda of Understanding (Marine Turtles IOSEA, Marine Turtles Africa, Pacific Islands Cetaceans) have an active interest in minimising bycatch and may have information that can assist in this study.

Uses and Users of the Results

The results will lead to the collection of important data that should help set policy and priorities for CMS and its Parties. The results will also be used by CMS as a contribution to global efforts to help tackle the adverse effects of bycatch. The findings will be made available to CMS, its

regional agreements, Regional Fisheries Management Organisations, fishery managers, fishers, the NGO community, the scientific community and others.

Detailed Requirements

1. Carry out a comprehensive review of all global fisheries to assess the available information on the bycatch of seabirds, marine turtles, sharks and marine mammals, under the stewardship of the CMS Conference-appointed Scientific Councillor for by-catch. While there is a general interest in all migratory species, of particular concern are species listed on the CMS appendices, many of which are threatened with extinction.

2. For each fishery describe the fishery, principal target species and the gear types employed;
   - ❒ describe the level of annual fishing effort over the last 5 years;
   - ❒ assess the level of independent observer coverage provided for the fishery, if any;
   - ❒ assess the level of knowledge of bycatch of seabirds, turtles, sharks and marine mammals, together with an indication of any trend in bycatch;
   - ❒ provide information on the use of bycatch mitigation strategies to mitigate the incidental take of non-target species.

3. Based on existing literature and FAO data, determine a review of key fishing areas supposed to have considerable and visible impact on specific migratory species listed in CMS Appendices.

4. Prepare a report that identifies the importance of bycatch as a threat to migratory species and provides an overview of priority fisheries, regions and species which will benefit from international action through the CMS. The report and its recommendations must receive the endorsement of the Convention on Migratory Species.

In carrying out this study it will be necessary to develop a definition of 'bycatch', noting that terms such as 'by-product', 'accidental mortality', 'incidental mortality', 'non-target catch', 'un-regulated catch' and other terms are frequently applied to various portions of fishing catch that has not been specifically targeted. The contractor will also be required to develop a definition of the term 'fishery' for this study, noting that there is no single approach taken to this across jurisdictions.

Typically fisheries may be defined by gear type, target species, geographical area, season, or some combination of these. Some artisanal fisheries in particular may cross jurisdictions but are known by different names within each jurisdiction.

'Ghost fishing', the ongoing capture of marine wildlife by discarded fishing gear, is acknowledged as a significant threat to migratory species that can be considered as a bycatch problem, but does not form part of this study.

Outputs

It is the intention of CMS to publish the results of the work through one or more routes.

A final report covering the policy and scientific background to the work, the methodologies employed, results, conclusions and recommendations suitable for publication on the Internet. The report will contain a non-technical executive summary of not more than three pages and should be written in Plain English containing headline results and recommendations. If appropriate, papers for referred scientific journals may also be prepared.

In addition, the contractor shall provide an Executive Summary of no more than two A4-sized pages. The approved final report suitable for publication must be provided by the contract end

date. CMS may occasionally request summaries of interim results during the contract, which may be required in an electronic format to be agreed.

Quality Assurance

The final report will be subject to independent peer review and the contractor will be expected to respond in detail to reviewer's comments and amend the final report as appropriate.

Organisational Settings

The Contract will be managed in accordance with the CMS's 'Standard Terms and Conditions for Research and Development Contracts'.

The contractor will be managed by the CMS Scientific Officer (in consultation with the Conference Appointed Scientific Councillor on Bycatch). The CMS Scientific Officer will act as Contract Manager responsible for the day to day management of the contract. The contractor will appoint a project manager who will act as the principal point of contact. Before the end of the contract, the contractor shall attend a meeting with CMS to discuss the management and performance of the contract with a view to informing each other of any strengths and weaknesses exposed.

Timing

The contract will be expected to last approximately 6 months from the date of award of a contract. The anticipated start date is April 2008.

Programme of Work and Milestones

Tenderers are invited to propose a work programme designed to meet the above objectives, requirements and timetable. Tenders should include a time schedule for the work that identifies the main tasks and key milestones that will be used to monitor progress. Proposals should also state expected gross consultancy fees. In case the resources available would not be sufficient to complete the work as envisaged, the CMS Secretariat reserves the right to request proposals to reduce the scope of the work to fit the project budget.

Project Team (Including Sub Contractors)

Details of the project team should be supplied indicating the experience of the individuals. The organisation of the project team should be linked to the work programme, indicating the grade of staff and number of days allocated to specific work areas.

Evaluation Criteria

Tenders will be assessed against the criteria set out below. Tenderers are encouraged trying to assess their own proposal against these criteria before they submit it. It is important to realise that the Selection Panel will score proposals against each of these criteria. For example, if a proposal is of high quality, but does not provide an adequate description of how the results will be transmitted to the appropriate audience, it will probably be unsuccessful.

The Criteria are:

Quality of Proposal

- relevance to specified requirements;
- scientific merit;
- clear work plan with realistic testable milestones;
- clear deliverables;
- probability of success.

Details of Contractor

- ❒ expertise, infrastructure;
- ❒ project planning and management;
- ❒ past experience with contractor.

Cost

- ❒ reasonable and competitive costs;
- ❒ co-funders.

Send Quotations To:

Marco Barbieri, Scientific & Technical Officer, UNEP/CMS Secretariat, United Nations Campus Hermann-Ehlers-Str. 10, 53113 Bonn, Germany, Tel: +49-228-8152424, Fax: +49-228-8152449 Email: mbarbieri@cms.int, **Closing Date: 25 March 2008.**

Isolating Selection Mechanisms in Beach Seines

Matt Broadhurst, New South Wales Department of Primary Industries, Australia

Beach seines or "haul nets" are large funnel-shaped nets (up to 500 m in length) used along oceanic and estuarine beaches throughout New South Wales (NSW) to harvest almost 4,000 tonnes of fish annually, valued at $AUD nine million. More than 70 species are retained, although 90% of the total catch comprises fewer than eight, with sea mullet accounting for up to 70 and 45% of the harvests from oceanic and estuarine beaches, respectively.

The most commonly used beach seines have long panels (up to between 90 and 130 m) in their mid sections (comprising two posterior wings or 'shoulders' either side of a central bunt or 'centre piece') made from meshes that vary between 30 and 57 mm in estuaries and 50 and 60 mm in oceanic waters. Such long panels of small meshed netting mean that in addition to the targeted catches, some beach seines, and especially those used in estuaries, retain bycatch which is subsequently discarded.

Previous studies conducted in NSW's estuaries have demonstrated that the bycatch from beach seines can comprise up to 60% of the total catch, and often includes large numbers of juveniles of economically-important species such as yellowfin bream and sand whiting. The potential mortality of these discarded individuals has raised serious concerns over the sustainability of beach seining at certain locations, and led to investigations of modifications to conventional gears designed to reduce bycatch.

The starting point for reducing bycatch in net-based fishing gears such as beach seines is to (i) identify the strategic areas where most of the selection occurs, and then (ii) regulate mesh openings at these areas according to the sizes of the main targeted species. Our aims were to address each of these issues for estuarine beach seines during two experiments to determine the effects on catches associated with increasing mesh size (up to 80 mm) in the posterior wings and bunt, respectively.

None of the larger mesh sizes in the posterior section of the conventional beach seine resulted in significant reductions in the numbers or weights of total retained catch, although there was a general trend of decreasing catch with increasing mesh size in the bunt. During the first experiment, increasing the mesh size from the conventional 57 to 80 mm in the posterior wings allowed some fish to escape at this section, but owing to a maintenance of catches in the bunt

(mesh size of 45 mm), there were no effects on catches in the total seine. By comparison, maintaining mesh size in the posterior wings (63 mm) while increasing mesh size in the bunt (from the conventional 33 to 63 and 80 mm) in experiment two, significantly reduced the catches of large numbers of fish in this latter section. However, the catches in the posterior wings meant that less than half of these differences were detected for the entire seine.

Such broad effects of the posterior section of the gear were attributed to operational characteristics and differences in the behaviour of the target species. Owing to the orientation of meshes in the posterior wings, size selection for many fish was considerably more defined than in the bunt. But because most fish eventually swam into the bunt, this area demonstrated the greatest potential for improving selection.

Based on the results from this work we conclude that (i) the entire posterior section of conventional beach seines has an important influence on what escapes or is retained and (ii) the mesh sizes used in this area of estuarine beach seines are inappropriate and should be increased from a minimum and maximum of 30 and 57 mm respectively to between at least 57 and 100 mm. Further, because many of the species targeted in estuaries are also caught in oceanic beach seines, these gears may benefit from similar increases in mesh size.

For more information contact Matt Broadhurst at: Matt.Broadhurst@fisheries.nsw.gov.au.

Invitation to Use and Review the Bycatch Reduction Techniques Database at www.bycatch.org

Tim Werner, Consortium for Wildlife Bycatch Reduction

The research and development of bycatch reduction techniques is an active and dynamic field, involving hundreds of engineers, biologists, and fishers from around the world. In order to facilitate the exchange of information about these techniques, we have created a searchable on-line database of studies undertaken to evaluate bycatch reduction methods.

What is Included in the Database?

The database includes citations for bycatch studies with summaries of their main findings. The bycatch reduction techniques referred to in these studies are defined in an accompanying glossary, as are descriptions of commercial fishing methods. Users can conduct searches of these studies by year, type of fishing gear, reduction technique, or non-target wildlife group. Where available, links to the complete studies and contact information for authors are included. Registered users can upload new studies and edit content to help keep the database accurate and up-to-date.

Let Us Know What You Think!

Although it is fully functional, we would appreciate hearing your general reaction to the database, especially how it might be refined or developed to best serve the needs of its users. Your feedback will help us make improvements.

Managing the Database and Website

The Consortium for Wildlife Bycatch Reduction, a collaboration between scientists and the fishing industry to reduce bycatch of threatened non-target animals, created this database to improve the accessibility and exchange of information about bycatch reduction techniques.

Given that the field is so dynamic and involves people from around the world, we realize that it is extremely challenging to produce and maintain the most up-to-date compendium of studies. As a next step, we would like to hear from a few committed researchers who would be willing to upload new studies to www.bycatch.org as they become available, or help add ones that are not yet in the database but should be included. Already, NOAA Fisheries has offered to add its reports to the database. Our strategy is to have a small number of researchers taking responsibility for maintaining content (with minimal oversight from a website administrator) to ensure that the database reflects the state-of-the-art in bycatch research and is able to best meet the needs of its users. If you think you can help, we would really appreciate hearing from you by sending an email to Tim Werner at: (twerner@neaq.org).

We are also considering ideas for expanding the content available through www.bycatch.org beyond the database to enhance its utility as a clearinghouse of information on bycatch. For example, we envision our user groups to be not only researchers and scientists, but also members of the fishing industry who may be looking for information about particular bycatch reduction techniques or what current requirements are in place in areas where they fish. Additionally, some have suggested that the website might host a blog where users regularly exchange views on bycatch research. If you or your group have ideas about contributing to this website, please let us know.

Related Sites

US NMFS maintains a bycatch website with the latest NMFS bycatch reduction regulations and related resources: http://www.nmfs.noaa.gov/bycatch.htm.

An excellent site featuring bycatch studies from Australia and New Zealand is: http://adl.brs.gov.au/fishbycatch. Also check out WWF's new website www.panda.org/bycatch. with information on bycatch and bycatch mitigation as described on page 2.

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Contact Us

We want to hear from you! Please address any questions or comments to: Tim Werner at: twerner@neaq.org or Amanda Johnson, Right Whale Research Coordinator, NOAA Fisheries Service at: Amanda.johnson@noaa.gov.