Prepared by: Samoilys, M.A, Maina, G.W, Ater, S. & Osuka, K.

Policy Brief – October 2011:
Recommendations for sustainable and responsible fishing in Kenya's coastal artisanal fisheries

Summary statements

The coastal population of Kenya represents around 3.3 million people. Outside the few coastal towns of Mombasa, Lamu and Malindi, the majority live in rural areas, have one of the highest poverty levels in the country (62%) and are still largely dependent on natural resources for their livelihoods. On the coastal strip this dependence is on fishing, for livelihoods and for food security.

Research and analysis of long term datasets on nearshore fishery catches and fish populations by CORDIO East Africa suggest that the shallow water demersal fish stocks are under significant and unsustainable pressure.

Unless pre-emptive action is taken, these shallow water demersal fish stocks are unlikely to continue to support viable fisheries and thus provide food security for Kenya's coastal people.

There are several actions that could be taken to halt the current situation and improve coastal fisheries and their habitats so that they can continue to provide food and livelihoods long into the future.

The following recommendations are based on the results of detailed analyses by CORDIO East Africa of long term trends in fishery catches (data from the 1980s to 2006) and a thorough review of research on artisanal fisheries in Kenya.

These recommendations address the Constitution of Kenya Act (2010), the World Summit on Sustainable Development Plan of Action (1992), and three international management policies relevant to fisheries, all recommended and adopted by FAO:

- the Precautionary Approach
- the Ecosytem- Based Approach
- the role of Marine Protected Areas as a management tool in fisheries

Recommended action for sustainable fishing on the coast

1) Take specific precautionary action for three groups of coastal species
2) Fully enforce the ban on beach seines
3) Legalise the speargun
4) Promote Marine Protected Areas as a fisheries management tool
5) Conduct scientific research on by-catch from gillnets

These five specific actions are recommended for government intervention and are listed and described below.

Recommendation 1) Take specific precautionary action for three groups of coastal species

Three species groups contribute the highest proportion of the coastal artisanal catch, support the highest numbers of fishers and coastal people and fishing pressure on them has increased significantly in the last 10 years:

- rabbit fish - *Siganus sutor* – "tafi"
- seagrass parrot fish - *Leptoscarus vaigiensis* - "pono"
- emperors – *Lethrinus* spp. – "changu"

All three groups may be more resilient to climate change due to their broader habitat and diet requirements and are therefore potentially ideal species for future nearshore artisanal fisheries. Their long term sustainable management is therefore crucial.

- Current levels of fishing pressure on these three species groups is likely to reduce populations to levels that will no longer be viable for fisheries.
- Exploitation of *S. sutor* spawning aggregations adds additional pressure on populations; deliberation on protection of spawning aggregations is needed.
- Targeted research on these species including biology, population demography, and stock assessment are needed urgently in order to develop specific management plans for them.

Recommendation 2) fully enforce the ban on beach seines at the coast

A high profile, concerted, national level of input is required to eradicate the use of beach seines in Kenya's coastal waters. This requires adequate funding, media coverage and awareness, as was done at Lake Victoria.

- Beach seines are banned under the following Fisheries Regulations: Kenya Gazette Notice No. 7565 Vol. CIII. No. 69 of 9th November 2001.
- Enforcement is inadequate - the use of beach seines increased after the ban (from 2004 to 2006) though has declined since 2006.
- Beach seines are the most destructive gear in use in Kenya's nearshore coastal waters with the highest rate of juvenile capture (68%). They also cause damage to benthic habitats from nets being dragged across the sea bed, though this is still only poorly quantified.
- Beach seine crew members net the lowest income of artisanal fishers.

- Coordinated enforcement activities with Kenya Wildlife Service (KWS) would promote cooperation across government agencies and pool resources (boats, fuel, manpower).
- KWS legislated Marine National Reserves would be ideal locations to start a major enforcement campaign. This would pool government agency resources, encourage their cooperation and focus on areas already gazetted as important for maintaining marine biodiversity and fisheries productivity.
- Any programme to exchange beach seines for legal gears (such as gillnets) should follow guidelines on gear exchange programmes developed through recent analysis by CORDIO East Africa.

Recommendation 3) Legalise the speargun

There is no scientific support for banning the use of spearguns.

- Spearguns are banned under Kenya Gazette Notice No. 7565 Vol. CIII. No. 69 of 9th November 2001.
- Spearguns catch the lowest proportion of juveniles of all artisanal gears (38%).
- Spearguns have no by-catch.
- Spearguns have one of the lowest input costs for a fisher and are therefore preferred by entry level and the poorest fishers, often youth.
- Legalising spearguns will do much to promote Government's reputation with coastal fishing communities as a government that adapts to new research findings and considers the plight of poor fishers.
- Related gears such as spears and harpoons should be included in this legislation change.

Recommendation 4) Promote Marine Protected Areas as a fisheries management tool

Scientific evidence is clear on the need for Marine Protected Areas (MPAs) that contain no-take zones, or fishery reserves where no fishing is allowed, as one of the primary management tools for fisheries in coral reef ecosystems, as found on Kenya's coast.

- No take zones maintain healthy breeding populations which then seed surrounding fishing grounds.
- No take zones export fish biomass into surrounding fisheries by adults moving out of the closed zone.
- No take zones protect habitat and biodiversity and hence are an ecosystem based approach to maintaining fisheries productivity.
- There are a number of community-based initiatives establishing Locally Managed Marine Areas (LMMAs) or Community Conservation Areas (CCAs) in Kenya. Government should provide strong leadership and support for these through existing legislation such as the Beach Management Unit (BMU) Regulations.

- National guidelines for CCA establishment, especially their legislative base, should be developed as a priority.
- Pro-active policy statements from Government on the importance of MPAs in fisheries management will promote this management tool among fishing communities and foster cooperation and collaboration across Government departments.
- Formalising partnerships between government and NGOs for civil society to play a key role in education and awareness activities in fishing communities will help spread the load and the message on MPAs as fisheries management tools.

Recommendation 5) **Conduct scientific research on by-catch from gillnets**

Qualitative information from fishers suggest the largest gillnet mesh size (46cm) is the one most responsible for catching species of high conservation concern such as turtles, whales and dolphins, as by-catch. Fishers also use this mesh size to target sharks. Several of these by-catch and target species are classified as Endangered (IUCN Red List).

Scientific information through experimental research on the by-catch and catches of gillnets of all mesh sizes is needed to properly understand their impacts. Such research would evaluate the need, for example, of introducing a maximum mesh size for gillnets, or restrictions on deployment, to reduce and prevent capture of Endangered and Vulnerable species.

- There has been no quantitative study on by-catch of any gears in Kenya.
- CORDIO East Africa's review of information found artisanal fishers use six different gillnets, differentiated by mesh size, ranging from 10 – 46cm (~ 3.94 – 18.11 inches)..
- Fishers report that only the largest mesh size gillnets (46cm) capture turtles, whales and dolphins incidentally; these largest gillnets are also used to target sharks and rays.
- Gillnets have been the preferred gear in gear exchange programmes when trying to eradicate beach seines. Exchanging the largest mesh size gillnets with their ensuing problems of by-catch of Endangered species has created conflicts.

References and background reading

FAO (1995). International Code of Conduct for Responsible Fisheries - The Code formalises advice on how to manage fisheries sustainably and recommends protection of all vital fisheries habitats. The General Principles and Article 6.5 of the Code prescribe a precautionary approach to all fisheries, in all aquatic systems, and regardless of their jurisdictional nature, recognising that most problems affecting fisheries result from insufficiency of precaution in management regimes when faced with the high levels of uncertainty encountered in fisheries.

FAO (2003). Supplement to Code of Conduct for Responsible Fisheries - Ecosystem Approach to Fisheries Management (EAF).

FAO (2007) Marine Protected Areas as a Tool for Fisheries Management: FAO Technical Guidelines. FAO Fisheries and Aquaculture Department. Rome. Updated 26 April 2007.

Maina, G.W. and Samoilys, M.A. (2011). A Review of Fishing Gear Exchange Programmes in East Africa. CORDIO/USAID/PACT Kenya Project Report. 27pp.

Martin, K.; Samoilys, M.A.; Hurd, A.K. Meliane, I.; and Lundin C.G. (2006). Experiences in the use of Marine Protected Areas with Fisheries Management objectives - a review of case studies. A report for the Food and Agricultural Organization of the United Nations. FAO, Rome, Italy. 56 pp.

Samoilys, MA. Osuka, K., Maina G.W. and Obura D.O. (2011). Long term effects of artisanal fishing on the Kenyan coast. CORDIO/USAID/PACT Kenya Project Report. 43pp.

Samoilys, M.A. Osuka, K.O. and Maina G.W. (2011). Opportunities and challenges of current legislation for effective conservation in the Tana Delta – Pate Island coast of Kenya. CORDIO/FFI Project Report. 36pp.

Samoilys, M.A., Kanyange, N., Maina, G.W., Macharia, D. Robinson, J. (2011 in prep.). Dynamics of spawning aggregations of *Siganus sutor* in southern Kenya. MASMA/ WIOMSA Project: Incorporating reef fish spawning aggregations into optimal designs for no-take fishery reserves: Strengthening fisheries management and coral reef resilience in the Western Indian Ocean.

WSSD (1992). World Summit on Sustainable Development Plan of Implementation: targets include forming representative networks of MPAs by 2012, restoring depleted fish stocks by 2015 and applying the ecosystem approach to marine management by 2010.