

RECOMMENDATIONS OF THE IOI TRAINING COURSE ON OCEAN GOVERNANCE IN SOUTH AFRICA 2016

FOR AN OCEAN POLICY FOR EAST AFRICA

(Cape Town, 07 October 2016)

Preamble

BEING AWARE of the overall importance of coastal and marine areas, including ecosystem services provided, for the well-being of peoples and communities of East African countries and the sustainable development of their economies;

NOTING that with a growing African population, oceans will play a critical role to maintain food-security in Africa and beyond;

BEING CONCERNED about the threats to human well-being caused by continuous degradation of coastal and marine ecosystems through a number of threats, such as climate change, overexploitation of marine living resources, pollution, invasive alien species and the loss of critical habitats and biodiversity;

RECALLING goal 14 of the UN Sustainable Development Goals on the sustainable use of oceans, seas and marine resources, calling, inter alia, for the prevention and significant reduction of marine pollution of all kinds by 2025, the sustainable management and protection of marine and coastal ecosystems and the prohibition of certain forms of fisheries subsidies which contribute to overcapacity and overfishing, and subsidies that contribute to illegal, unreported and unregulated fishing by 2020.

NOTING the report on the State of World Fisheries and Aquaculture (2016) (SOFIA) of the United Nations Food and Agriculture Organization, which concludes that 89.5 per cent of fish stocks are either overfished or fully-fished and that the overall catch of marine fish has not increased since 1986 despite higher fishing effort;

BEING CONCERNED about the high levels of bycatch of endangered or protected species, and habitat destruction caused by unsustainable fishing methods, overall economic loss caused by IUU fishing, the lack of scientific knowledge, catch data, and weak overall management of fish stock, as well as a lack of implementation and enforcement of existing regulations;

ACKNOWLEDGING the economic importance of the fisheries sector for countries in East Africa, and that fisheries and aquaculture remain important sources of food, nutrition, income and livelihoods for hundreds of millions of people around the world.

RECALLING Article 11 of the Nairobi Convention requesting Parties to conserve biological diversity;

STRESSING Article 4 of the Nairobi Convention Protocol concerning Protected Areas and wild Fauna and Flora calling for the strictest protection of endangered wild fauna and the regulation and prohibition of activities that may have adverse effects on the habitats of endangered wild fauna listed in Annex II of the Protocol, whereby the latter does not contain any fish species.

RECALLING FURTHER the Code of Conduct for Responsible Fisheries of the FAO, promoting sustainable fisheries and the sustainable aquaculture development in particular in developing countries;

BEING FULLY AWARE of the economic and social value of the marine and coastal environment of the Western Indian Ocean region, and the threat posed by the invasive alien species to this pristine environment;

CONSIDERING the devastating impact marine invasive alien species have had and continue to have on the marine ecosystem in the Western Indian Ocean Region;

TAKING INTO ACCOUNT the 1992 Convention on Biological Diversity (CBD), 2004 Ballast Water Management (BWM) convention and other relevant international conventions;

NOTING that existing international conventions do not cover all aspects and sources of marine invasive alien species including those from fouling communities attached to hull structures in the Western Indian Ocean Region;

CONVINCED that the purposes of this convention would be better achieved by amending the Nairobi convention for the protection, management and development of the marine and coastal environment of the Western African Region;

ACKNOWLEDGING the rapid coastal development, the growth in the coastal population and increased pressure on coastal areas resulting in increased sewage, marine litter and nutrient discharge as well as the high risk of introduction of hydrocarbons in the region owing to major shipping routes;

FURTHER ACKNOWLEDGING the impacts of pollution and the subsequent alteration and degradation of coastal and marine ecosystems as well as negative effects to coastal and marine biological diversity;

CONSIDERING that the Contracting Parties have committed to regional cooperation to conserve, protect and restore the health and integrity of the marine and coastal environment of the Western Indian Ocean;

RECOGNISING that efforts and measures at the local, national and regional levels to reduce marine and coastal pollution need to be enhanced and strengthened;

MINDFUL OF the provisions of the 1982 United Nations Convention on the Law of the Sea and in particular articles 207 and 213 thereof;

STRESSING the Protocol for the Protection of the Marine and Coastal Environment of the Western Indian Ocean from Land-Based Sources and Activities;

The East Africa Working Group of the IOI Ocean Governance for Africa
Training Course 2016

INVITES Parties of the Nairobi Convention to review to policy recommendations included in Annex 1 and to consider those for adoption at their 9th Conference of the Parties.

OCEAN POLICY FOR EASTERN AFRICA



Marcellin, Peter, Mpho, Thuli, Jodie, Nurudean, Andrea
Cape Town (October 2016)

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1. Overview

The present document, which was developed during the 2016 IOI Training Course on Ocean Governance in Africa, aims to provide recommendations to Contracting Parties of the Nairobi Convention, on their future ocean policy.

Oceans and their ecosystem services play a critical role for the economic development of East African countries. In particular, with regard to the growing population in this region, blue resources must be used in a sustainable manner, in order to maintain them for future generations.

A number of main issues concerning the conservation of the Western Indian Ocean were identified and are discussed in this document. We have concentrated on three major threats, namely pollution, overfishing and invasive alien species, which have the potential to significantly impact on the ability of the Western Indian Ocean to contribute to the wellbeing of the peoples in East Africa.

We are discussing these major threats, identifying legal instruments and regulations to address those and make suggestions as to how gaps should be addressed.

Climate Change, as one of the biggest drivers for overall global change was not specifically addressed. However, with regard to the development of regional policy on the Western Indian Ocean, expected impacts of climate change on the ocean should be taken into account. This includes, planning for and adapting to likely and potential changes in water temperatures, salinity, pH and oxygen levels, which may result in shifts and loss of habitats, changes in the distribution of species, increased erosion and sea level rise, algae blooms as well as more extreme weather events such as storms and droughts.

Hence, our recommendations should be seen in the light of making marine and coastal ecosystems, on which our blue economy relies, more resilient towards these changes.

2. Pollution:

2.1. Introduction

Ocean pollution, also known as marine pollution, is the spreading of harmful substances such as oil, plastic, industrial and agricultural waste and chemical particles into the ocean directly, or indirectly resulting in deleterious effects such as: hazards to human health, hindrance to marine activities, impairment of the quality of seawater for various uses and reduction of amenities. Sources of marine pollution include sewage, toxic chemicals from industry, land runoff, oil spills, ocean mining and litter (sources <http://www.conserve-energy-future.com/causes-and-effects-of-ocean-pollution.php>).

Sources and activities of pollution are one of the major threats to the marine environment in the Western Indian Ocean region. The growth of the coastal population and development of coastal-based activities has dramatically increased the amount of pollution that makes its way out to sea. Hot spot areas in the vicinity of large urban areas produce the majority of the pollution caused by anthropogenic activities. Agricultural runoff causes dead zones in coastal communities, with high levels of nitrogen and phosphorous creating large levels of eutrophication and hypoxia. Biological contaminants from municipal and agricultural wastes have a large-scale impact on the health of the entire region. Direct effects of pollution in the WIO area include loss of biodiversity, economic loss in the tourism industry, and contamination of drinking water for coastal residents (Martin, 2014).

The incidence of debris in particular is a major concern. It is known to be harmful to organisms and to human health, it presents a hazard to shipping, it is aesthetically detrimental, and it may also have the potential to transport contaminants over long distances. Marine debris, and in particular the accumulation of plastic debris, has been identified as a global problem alongside other key issues of our time including climate change, ocean acidification and loss of biodiversity (CBD 2012).

2.2. Existing regulations

The principles of the Nairobi Convention are specified and implemented through the Articles in the Convention framework and Specific Protocols, and address the following issues: pollution from ships (Article 5); pollution caused by dumping (Article 6); pollution from land-based sources and activities (Article 7); pollution from sea bed activities (Article 8); pollution resulting from transboundary movement of hazardous wastes (Article 9); airborne pollution (Article 10); co-operation in combating pollution (Article 12). The amended text adopted in 2010 added two new articles to the Convention: Pollution resulting from Transboundary Movement of Hazardous Wastes and Biological Diversity.

The Protocol Concerning Cooperation in Combating Marine Pollution in Cases of Emergency in the Eastern African Region addresses many of the original Articles of the Convention, including combatting pollution from shipping and dumping, and cooperation in combatting pollution, and pollution resulting from transboundary movement of hazardous wastes from the amended Convention.

The Protocol on Land-based Sources and Activities (LBSA) calls for parties to cooperate in preventing and reducing the impact of pollution in the region from land-based sources.

Other Conventions, addressing the subject of marine pollution are:

- Dumping from Ships and Aircraft (1972) The Oslo Convention
- Convention for the prevention of pollution from ship (1973) MARPOL
- Convention for the Prevention of Marine Pollution from Land-based Sources (1974) The Paris Convention
- Convention for the Protection of the Marine Environment of the North-East Atlantic (1992) The OSPAR Convention
- International Convention Relating to Intervention on the High Seas in Cases of Oil Pollution Casualties (INTERVENTION), 1969
- Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter (LC), 1972 (and the 1996 London Protocol)
- International Convention on Oil Pollution Preparedness, Response and Co-operation (OPRC), 1990

- Protocol on Preparedness, Response and Co-operation to pollution Incidents by Hazardous and Noxious Substances, 2000 (OPRC-HNS Protocol)
- International Convention on the Control of Harmful Anti-fouling Systems on Ships (AFS), 2001
- International Convention for the Control and Management of Ships' Ballast Water and Sediments, 2004
- The Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships, 2009

2.3. Gap analysis

The adoption of the Protocol on Land-based Sources and Activities (LBSA) is an important step to harmonizing regional and national management in the WIO. The emergence of regional environmental degradation and the need for better conservation efforts has triggered the development of modern and integrated legal frameworks in Kenya, Madagascar, Mauritius, and Mozambique. However, additional effort is needed to have all member States establish National Plans of Action (NPAs) and National Environmental Management (NEM) Plans in place (Martin 2014).

The potential for plastic debris to travel considerable distances, its persistence and its potential to accumulate present a distinct challenge. The lack of overarching jurisdictional responsibility in any single agreement dealing with marine debris management for the entire life-cycle of the items that become marine debris, from production to disposal to clean-up, is compounded by a lack of appropriate infrastructure, a lack of enforcement of existing regulations, and a lack of clear standards describing more sustainable methods of production and consumption (CBD 2012).

The rapid development of coastal urban hotspots along the Western Indian Ocean has brought about significant growth in the coastal population. However, quantitative data is generally not available for assessing the rate of change in solid waste impacts on the environment.

There have been significant changes in behavior regarding transboundary marine pollution in the Western Indian Ocean. Since the adoption of the Nairobi Convention, all member States (with the exception of Somalia) have developed a national contingency plan for oil spills, as well as participated in national and regional capacity building initiatives. While there has been some training and education initiatives enacted by projects implemented in the region, more concentrated effort is needed in educating national stakeholders in the response and prevention of oil spills (Martin 2014).

2.4. Recommendations

Overall Principle:

Strategic regional application and implementation of existing pollution policies is needed.

Action required:

- More concentrated effort is needed in educating national stakeholders in the response and prevention of oil spills, therefore it is recommended that support for initiatives to develop capacity-building in this area are implemented.
- Furthermore, it is recommended that the operationalization of a regional coordination center should be expedited to prevent oil spills.
- All member States need to establish National Plans of Action (NPAs) and National Environmental Management (NEM) Plans to address environmental degradation
- Environmental issues in the region must be identified by establishing an environmental platform to assess threats. This includes the establishment of active surveillance programs for oil spills at sea and pollution hotspots.
- The implementation of appropriate infrastructure, enforcement of existing regulations and clear standards describing more sustainable patterns of production and consumption is needed to reduce land-based

sources of pollution. Local and governmental initiatives should be developed to achieve this and include the following:

- Economic incentives for recycling waste
- Packaging and plastic reduction from producers
- Eco-labels
- Biodegradable products
- Producer responsibility initiatives
- Providing incentives for collection and recycling
- Providing capacity for pyrolysis recycling plants for small islands

3. Invasive Alien Species

3.1. Introduction

The establishment of introduced (non-indigenous) animals, plants and microorganisms in locations outside their native range is one of the serious threats to the natural ecology of biology systems worldwide (Wilcove et al. 1998; Mack et al. 2000). The growth of international trade during the 20th century, and in particular the development of steel-hull ships and the expansion of shipping, has provided increased opportunities for the transport of species to regions where they did not previously occur. In some cases, successful introduction and establishment of non-indigenous species can result in biological invasions, which may adversely affect native biodiversity, industry and human health. The greatest number of introduced species arrive through hull fouling and ballast water and associated sediments. Historical movements of vessels along coastlines between continents have facilitated the spread of many hundreds of marine species in new locations, where they have established populations, often in shipping and surrounding coastal environments (Cohen and Carlton 1998; Eldredge and Carlton 2002; Leppäkoski et al. 2002).

Today, shipping carries about 90% of world trade in volume and moves an estimated 10 billion tonnes of ballast water globally each year. This water frequently contains a multitude of living organisms carried around the world in ballast water every day. An individual ship can carry anything from several hundred litres to more than 130,000 tonnes of ballast water, depending on the size and purpose of the vessel. And one cubic metre of ballast water may contain up to 50,000 zooplankton specimens (Locke et al. 1991, 1993; Gollasch 1996; Kabler 1996).

While ballast water is crucial to the safe operation of ships, studies have shown that when ballast water is taken on board, the organisms living in that water are also drawn in to the ballast tanks. Depending on the duration of the voyage and other factors, many of these organisms are then able to survive the journey, and are subsequently released live into the waters of the destination port when the ballast water is discharged. Thus, ballast water serves as a vector for the transfer of species from one part of the world to another. Where this new area is outside of its natural geographic range, the species which has been transferred is commonly known as an alien species (alternative terms are non-native or non-indigenous). If the environmental conditions in this new geographic area are suitable, the alien species may then not only survive, but may establish and spread, in many cases causing, or with the potential to cause, harm to the local environment, economy, or human health.

The following problems regarding were identified:

- Surveys comparative baseline data is generally not available and species identification and taxonomy expertise is scarce within South Africa (and the wider region)
- Low public awareness and opposition to government intervention
- Shortage and inaccessibility of scientific information (for species identification, risk analysis, detection and mitigation techniques etc.)
- Absence of clear and agreed priorities for action
- Ease of introduction and movement (e.g. through the post), inadequate inspection and quarantine

- Inadequate monitoring capacity
- Lack of effective emergency response measures
- Outdated or inadequate legislation
- Poor co-ordination between government agencies, states and other stakeholders.

3.2. Existing regulations and Gap analysis

Currently, the Nairobi Convention does not adequately address marine invasive species and their sources.

Of the 31 articles of the Nairobi Convention, Article 4 in general can address the ballast water issue but its article 5 and 6 which are more particular yet this issue is not highlighted.

Article 4: General Obligations

- 1) *The Contracting Parties shall, individually or jointly, take all appropriate measures in conformity with international law and in accordance with this Convention and those of its protocols in force to which they are party, to prevent, reduce and combat pollution of the Convention area and to ensure Sound environmental management of natural resources, using for this purpose the best practicable means at their disposal, and in accordance with their capabilities.*

Article 5 & 6 of the Nairobi convention on pollution from ships

Article 5: Pollution from ships

The Contracting Parties shall take all appropriate measures to prevent, reduce and combat pollution of the Convention area caused by discharges from ships and, for this purpose, to ensure the effective implementation of the applicable international rules and standards established by, or within the framework of, the competent international organization.

Article 6: Pollution caused by dumping

The Contracting Parties shall take all appropriate measures to prevent, reduce and combat pollution of the Convention area caused by dumping of

wastes and other matter at sea from ships, aircraft, or man-made structures at sea, taking into account applicable international rules and standards and recommended practices and procedures.

Nairobi Convention Protocols

Of the 22 articles in the Nairobi Convention Protocols, its article 7 which restricts introduction of alien or new species.

Article 7:

The Contracting Parties shall take all appropriate measures to prohibit the intentional or accidental introduction of alien or new species which may cause significant or harmful changes to the Eastern African region.

The fact that studies show that marine invasive species are increasing in Eastern Indian Ocean Region means that there is a gap in this area.

3.3. Recommendations

In line with United Nations Development Program sustainable development goals, particularly goal 14 life below water, which aims at sustainable managing and protecting of marine and coastal ecosystems. In furtherance of the Convention on Biological Diversity (CBD) (1992) aims of protecting all components of biodiversity against invasive alien species. And the Jakarta Mandate by CBD contracting parties on Marine and Coastal Biological Diversity whose goal is to prevent the introduction of invasive alien species into the marine and coastal environment, and also to eradicate those alien species that have already been introduced.

Cognizant of the potential harmful affect marine invasive species could have on native biodiversity, industry and human health in the Western Indian Ocean Region.

In furtherance of Nairobi Convention and Nairobi Protocols;

- We urge contracting parties to put mechanisms into national policies and programs to address the major causes of marine invasive species i.e. Bio fouling and Ballast water.

- We argue contracting parties to develop a protocol on the control and management of Ships' Ballast Water and Sediments.
- We call on contracting parties who are not party to the Ballast Water Management (BWM) Convention to work towards becoming members.
- Conservation policies need to include restoration measures for species, natural habitats and ecosystems that have been affected by biological invasions.
- Treatment efforts should go into research and development of treatment technologies.
- Regional co-operation and assistance should be provided to developing countries to help them implement ballast water management.

BWM Convention party benefits include;

- Enhanced protection of the marine environment and biodiversity through minimization and ultimately elimination of the devastating effects of invasive species.
- Standardized enforcement of a full range of ballast water management requirements on foreign ships that enter ports, offshore terminals under their jurisdiction.
- The exchange of new research and development information, best practices and practical experiences in the management of ballast water and invasive species.

4. Overfishing

4.1. Introduction

Marine living resources are becoming increasingly important as source for animal protein and income through fisheries in many East African countries, in particular, in the context of a rapidly growing human population, which is expected to double in Africa by 2050 (FAO 2016).

In order to preserve this important resource for future generations and to optimize the output of the ocean in terms of overall harvest, fisheries must be undertaken in a sustainable way.

As pointed out in the report on the State of World Fisheries and Aquaculture (2016) (SOFIA) of the United Nations Food and Agriculture Organization, global marine fisheries catches increased until 1996, followed by a phase of stagnation or decline in accordance with other scientific findings (Pauly et. Al 2016). Furthermore, the report concludes that 89.5 per cent of fish stocks are either overfished or fully-fished and that the overall catch of marine fish has not increased despite higher fishing effort.

Overfishing is amongst the most significant threats to marine living resources, resulting in declining fish stocks despite higher fishing effort.

IUU fishing poses a direct threat to food security and socio-economic stability in many parts of the world. Developing countries are most at risk from IUU fishing. It is estimated that the overall annual loss through IUU fishing is in the billions, or even tens of billions, of dollars each year (Agnew et al 2009).

Pauly et. al (2016) identified the need for improved monitoring of all fisheries, including often neglected small-scale fisheries, and illegal and other problematic fisheries, as well as discarded bycatch.

Furthermore, the impact of unsustainable fishing practices are accompanied by various other threats, such as the results of climate change.

Results of a modelling exercise on the latitudinal shift in catch under different greenhouse gas concentrations scenarios indicate that there could be drastic changes, with the tropical countries suffering up to a 40 percent drop in catch potential and high-atitude regions enjoying as much as a 30 to 70 percent increase in catch potential.

Conflicts between traditional and industrial fishery were recently noticed in almost all fishing areas, especially between foreign fleets and local fishermen. Traditional fishermen often accuse industrial fleets to expand their fishing area to areas adjacent to that used by the small-scale

fisheries, and ultimately lead to decreased catches in small scale fisheries as well as the overfishing of the exploited stocks.

FAO has recognized the importance of small-scale fisheries for their contribution to nutrition, food security, sustainable livelihoods and poverty alleviation - especially in developing countries. Since the issues constraining the sustainable development of small-scale fisheries remain poorly understood, guidelines on small-scale fisheries were developed.

As many East African countries don't have the technical capacities to fully exploit their marine living resources, the trade of fishing licenses to foreign fishing fleets in East African countries was chosen to enhance economic gain. However, the sector remains almost uncontrolled. Catch statistics are difficult to verify and largely replaced by unilateral declarations from ship-owners, since board observer programmes are rarely in place, due to the lack of funding. Consequently, enforcement is lacking.

4.2. Existing regulations

The Convention on the Conservation of Biodiversity (CBD) has agreed to reduce the direct pressures on biodiversity and promote sustainable use. Aichi Target 6 directly addresses marine fisheries and requests that “By 2020 all fish and invertebrate stocks [...] are managed and harvested sustainably, legally and applying ecosystem based approaches, so that overfishing is avoided, recovery plans and measures are in place for all depleted species, fisheries have no significant adverse impacts on threatened species and vulnerable ecosystems and the impacts of fisheries on stocks, species and ecosystems are within safe ecological limits.”

Art 61 of the United Nations Law of the Seas Convention requests coastal states to conserve and manage living marine resources based on the best scientific evidence available, determination of the allowable catch and the optimum utilization in the EEZ. In Part VII, section 2 the law obliges States to cooperate in the conservation, management and conservation of the living resources of the high seas.

The **Code of Conduct for Responsible Fisheries** of the FAO, aims to promote long-term conservation and sustainable use of fisheries resources. The Code sets out principles and international standards of behavior for responsible practices. The Code recognizes the nutritional, economic, social, environmental and cultural importance of fisheries and the interests of all stakeholders of the fishing and aquaculture industries.

In Art 7.2 it is recognized that long-term sustainable use of fisheries resources is the overriding objective of conservation and management, States and sub-regional or regional fisheries management organizations and arrangements should, i. a., adopt appropriate measures, based on the best scientific evidence available, which are designed to maintain or restore stocks at levels capable of producing maximum sustainable yield, as qualified by relevant environmental and economic factors, including the special requirements of developing countries.

Art 7.1.1 states and all those engaged in fisheries management should, through an appropriate policy, legal and institutional framework, adopt measures for the long-term conservation and sustainable use of fisheries resources. Conservation and management measures, whether at local, national, sub-regional or regional levels, should be based on the best scientific evidence available and be designed to ensure the long-term sustainability of fishery resources at levels which promote the objective of their optimum utilization and maintain their availability for present and future generations; short-term considerations should not compromise these objectives.

The United Nations Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks sets out principles for the conservation and management of those fish stocks and establishes that such management must be based on the precautionary approach and the best available scientific information. The Agreement elaborates on the fundamental principle, established in the Convention, that States should cooperate to ensure conservation and promote the objective of the optimum utilization of fisheries resources both within and beyond the exclusive economic zone.

The Agreement attempts to achieve this objective by providing a framework for cooperation in the conservation and management of those resources. It promotes good order in the oceans through the effective management and conservation of high seas resources by establishing, among other things, detailed minimum international standards for the conservation and management of straddling fish stocks and highly migratory fish stocks; ensuring that measures taken for the conservation and management of those stocks in areas under national jurisdiction and in the adjacent high seas are compatible and coherent; ensuring that there are effective mechanisms for compliance and enforcement of those measures on the high seas; and recognizing the special requirements of developing States in relation to conservation and management as well as the development and participation in fisheries for the two types of stocks mentioned above.

The FAO Agreement on Port State Measures to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing was adopted by the FAO Conference in 2009. The main purpose of the Agreement is to prevent, deter and eliminate illegal, unreported and unregulated (IUU) fishing through the implementation of robust port State measures. The Agreement envisages that parties, in their capacities as port States, will apply the Agreement in an effective manner to foreign vessels when seeking entry to ports or while they are in port. The application of the measures set out in the Agreement will, inter alia, contribute to harmonized port State measures, enhanced regional and international cooperation and block the flow of IUU-caught fish into national and international markets.

The Indian Ocean Tuna Commission (IOTC) is an intergovernmental organization mandated to manage tuna and tuna-like species in the Indian Ocean and adjacent seas. The objective of the Commission is to promote the conservation and optimal utilization of tuna and tuna-like stocks covered by the IOTC Agreement, and to encourage sustainable development of fisheries.

In Art. 11, of the amended version of the Convention for the Protection, Management and Development of the Marine and Coastal Environment of the Western Indian Ocean (Nairobi Convention) requests Parties to take measures to conserve biodiversity, to protect and preserve areas or fragile

ecosystems, as well as endangered or threatened species and their habitats. Furthermore, Parties shall establish protected areas and regulate and prohibits activities with adverse on negative effect on species, ecosystems and biological processes in such areas.

Through Art 15, Parties are requested to cooperate on resource monitoring and data exchange to this end, parties shall develop and coordinate the research and monitoring program to include bio physical and socio economical aspect. A regional network of research center should be established.

The Protocol concerning Protected Area and Wild Fauna and Flora in the Eastern African Region further specifies Art 11 of the Convention and refers in its Art. 5 to harvestable species of wild fauna and in Art. 6 to migratory species.

4.3. Gap analysis

IOTC, the major fisheries management body in the region, is mandated to manage only tuna and tuna like fish species. Although the Commission is also responsible to address species bycaught in their fisheries, those species largely remain unmanaged. This is partly due to the lack of reporting on catch and by-catch and the resulting lack of information on the status and trends of target species as well as bycaught species in Indian Ocean fisheries. The latter however, would be a basic requirement for a sustainable management of fisheries and for setting appropriate targets and catch limits to maintain stocks at a healthy level and to maintain maximum sustainable yield.

The Nairobi Convention, although requesting the conservation of biological diversity, does not specifically address fisheries management. It rather refers to the conservation of endangered and threatened species as well as migratory species, where fish species are excluded at the time being.

It is clear that the need for management of East Africa fisheries must be discussed in all fishery management forums. In the near future, the

continued expansion of both small-scale and large-scale fisheries both inside and outside the EEZ could reduce catches.

4.4. Recommendations

Overall Principle:

Fisheries must be managed by applying the ecosystem based and precautionary approach, supported through sound scientific information about the population of harvested species and those bycaught in fisheries.

To this end we suggest the following for the consideration of Parties to the Nairobi Convention:

- The adoption of a Protocol on Sustainable Fisheries Management, which should address the following aspects:
 - To apply the precautionary approach towards sustainable fisheries as outlined in the Code of Conduct for responsible fisheries;
 - to improve the quantity and quality of data collected during fishing operations on catch and by-catch on a species specific level to allow for sustainable management;
 - to establish spatial and/or temporal no taking zones as required to allow for recovery of marine species in critical areas;
 - To apply a multi-stakeholder approach in the development of fisheries management programmes and policies, by i.a. allowing small scale fisheries communities to contribute to the development in accordance with FAO guidelines on small-scale fisheries (FAO 2015);
 - To include fisheries management into overall integrated marine spatial planning, to avoid conflict with other activities
 - To implement the FAO Action Plan on IUU Fishing to assist in getting a better handle on what the actual level of activity and impacts are so that they may be appropriately addressed.

- To reduce harmful subsidies to appropriate levels in order to avoid overcapacities; (this also includes to limit licenses to fish and in return to establish a fair sharing of rent between ship owners and the State)
- Ratify the 2009 Agreement on Port State Measures to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing (PSMA)
- Become a member of the Indian Ocean Tuna Commission (IOTC)
- Improve monitoring of fisheries and enforcement of existing regulations by establishing on board observer schemes as well as appropriate tools to monitor catches in small scale fisheries;
- Establish programmes to improve implementation and enforcement;
- Improve reporting on catch and bycatch to relevant bodies, such as FAO and IOTC.

5. Summary of Policy Recommendations

The overall goal of an Ocean policy for East Africa is to achieve and maintain healthy oceans to allow for future sustainable use of ecosystem services provided by the oceans. In particular, with regard to expected global changes due to climate change, increased demand for protein provision by the ocean in order to support a sustainable development and the wellbeing of peoples in East African countries bordering the Western Indian Ocean, we suggest to take the following recommendations into account:

Pollution:

- educate national stakeholders in the response and prevention of oil spills, capacity-building;
- operationalization of a regional coordination center to prevent oil spills;
- establish National Plans of Action (NPAs) and National Environmental Management (NEM) Plans to address environmental degradation;

- establishing an environmental platform to assess threats, active surveillance programs for oil spills at sea and pollution hotspots;
- The implementation of appropriate infrastructure, enforcement of existing regulations and clear standards.
- Invasive Alien Species:
 - put mechanisms into national policies and programs to address the major causes of marine invasive species i.e. Bio fouling and Ballast water;
 - develop a protocol on the control and management of Ships' Ballast Water and Sediments;
 - contracting parties who are not party to the Ballast Water Management (BWM) Convention to work towards becoming members;
 - Conservation policies need to include restoration measures for species, natural habitats and ecosystems that have been affected by biological invasions;
 - Treatment efforts should go into research and development of treatment technologies;
 - Regional co-operation and assistance should be provided to developing countries to help them implement ballast water management.
- Overfishing:
 - adopt a Protocol on Sustainable Fisheries Management;
 - Ratify the 2009 Agreement on Port State Measures to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing (PSMA);
 - Become a member of the Indian Ocean Tuna Commission (IOTC);
 - Improve monitoring of fisheries and enforcement of existing regulations by establishing on board observer schemes as well as appropriate tools to monitor catches in small scale fisheries;
 - Establish programmes to improve implementation and enforcement;
 - Improve reporting on catch and bycatch to relevant bodies, such as FAO and IOTC.

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