



**THE ECOSYSTEM APPROACH
TO
THE CONSERVATION AND MANAGEMENT
OF
FISHERIES IN INTERNATIONAL
ENVIRONMENTAL LAW**

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GENERAL INTRODUCTION

1. Introduction

1.1 The subject

Basically, the Ecosystem Approach (EA) is a new strategy in International Environmental Law to manage and solve problems affecting components in the ecosystem.¹ It involves the holistic management of all ecosystem processes with knowledge, gathered from scientific experiments carryout on the functioning of those processes.

In recent times and as far as the conservation and management of fisheries is concern, states and governments are trying to develop and implement the EA to manage and solve problems affecting fisheries with the aim of ensuring their sustainability and coexistence with other ecosystem processes.

According to the Census of Marine life (A global network of researchers engaged in a 10 study of marine life) report, rising water temperature and acidification, as well as the enlargement of areas characterised by low oxygen content (called hypoxia) of sea water, decline of marine species caused by human induced factors such as climate change have been identified as threats to fisheries.²

In the same vein, the United Nations Conference on Environment and Development (UNCED) reports that, rise in sea levels, high ocean temperatures and acidification caused by climate change, threatens the loss or destruction of most marine species including a third of all coral reefs species.³ Pollution from land and marine sources has also been identified as constituting threats to fisheries.

¹ Dawn A. et al refer to the EA as a new approach that will help governments and resource managers overcome past failures, in their article on Ecosystem and Precautionary Approach to International Fisheries Governance: Beacon of hope, Seas of confusion and illusion Page 4 Para 3.

² See Census on Marine Life Press release on October 4 2010, Available at <http://www.coml.org/pressreleases/whatlives10/CoML_WhatlivesInTheSea_Public.pdf>visited 24/7/12.

³ See Report of UNCED, Agenda 21, Ch 17; IUCN, Press Release 10.7.08 available at <http://www.cms.iucn.org> visted 22/7/12.

As per the Quality Status Report, fish species such as bluefin tuna, orange roughy and cod are exploited to unsustainable levels.⁴ There are therefore fears that, such species will become extinct if precaution is not taking in the manner in which they are harvested.

However, traditional methods employed to solve these problems were species specific or sectoral. According to Dawn A. Russell, article 61 of the Law of the Sea Convention (LOSC) reflects one of those traditional sectoral methods employed to solve problems affecting fisheries as it intends, to avoid overexploitation of fish stocks and relies on measures;

“...designed to maintain...population of harvested species at levels which can produce the maximum sustainable yield, as qualified by relevant environmental and economic factors.”⁵

This approach focused on single specie or stocks with the objective of optimizing its use for food as a source of employment. Other sectoral approaches includes output controls such as; restrictions on gears, effort and capacity, output controls in the form of total allowable catch levels or quotas, closed areas and season for purposes such as to protect spawning stocks.⁶ These sectoral approaches did not take into consideration the interaction amongst systems, including human activities and therefore failed to prevent the depletion of stocks.⁷

Due to these failures, the Global Environmental Facility (GEF) advised that, there is a need to come up with a strategy that was cross-sectoral and involves the integrated management of all Ecosystems processes to properly manage and conserve living marine resources.⁸ More recently, International organizations, conferences, workshops and stakeholders have called for the implementation of the EA in the management and conservation of fisheries and biological diversity as a whole.

⁴ OSPAR Quality Status Report 2010(OSPAR Commission, London 2010). Available at<:www.ospar.org>last visited 28/07/2012.

⁵ Ecosystem and Precautionary Approach to International Fisheries Governance:Beacon of hope, seas of confusion by Dawn A.et al.Page 9 Para2. ⁶ Page 9 Para 2 and LOSC Article 62(3). ⁷page 9 Para 3 and Garcia et al.pp3-4.

⁸ Ecosystem Management and its application to large marine Ecosystems, Law and Politics by Hanling Wang page 3 para 1 ISBN:0090-8320.

States to this end have concluded new multi-lateral treaties and soft law agreements which supports a cross sectoral approach and consequently the EA in the conservation and management of fisheries, with the aim of ensuring their sustainability.⁹ What exactly is the EA?

1.2 The concept of the EA and the Conservation and Management of fisheries and some important definitions.

1.2.1 Definition of the EA in International environmental Law.

To understand what the EA to fisheries is we need to first of all know what an Ecosystem is. The Convention on Biological Diversity (CBD), defines the Ecosystem as;

“...a dynamic complex of plant, animal and micro-organism communities and their non-living environment interacting as a functional unit”¹⁰

Made simple and with the words of Alfred George Tansley, the Ecosystem is “a biotic assemblage... [Including] it’s associated physical environment in a specific space.”¹¹

However, there is still no clear definition of what the EA is in international environmental law.¹² The most widely used definition of the EA in International Environmental Law is that provided by the Conference of Parties (COP) to the CBD.

COP 5 decision V/6 paragraph (A) defines the EA as:

“A strategy for the integrated management of land, water and living marine resources that promotes Conservation and sustainable use of genetic resources in an equitable way.”¹³

⁹ The Ecosystem Approach to Fisheries, FAO technical paper 443 P.1 Para.1 ISBN 0429934.

¹⁰ Preamble CBD.

¹¹ See the use and abuse of Vegetational Concepts and terms in Ecology by A.G. Tansley Vol.16, No.3 (July 1935), pp.284-307.

¹² See Report of the Bergen Conference on Implementing the Ecosystem Approach to Fisheries held on 26-28 September 2006 at Bergen Norway.

¹³ See COP decision V/6 Para A.

The EA is not defined in other Conventions and Agreements in International Environmental law. But, bodies like the Swedish Commission on the Marine Environment, describes the EA as:

“...interdisciplinary management system, which on the one hand recognises our rights as human beings to use what the ecosystem produce, and on the other ensure that all ecosystem components... can be found to such an extent that their survival is guaranteed in the foreseeable future...”¹⁴

Authors in Environmental law such as, Dr Ronan Long of the International Council for the Exploration of the Sea (ICES) have also defined the EA as, “as an integrated management of human activities based on the best available scientific knowledge”.¹⁵

Based on the definitions above, the EA could be summarised as a strategy to manage biological diversity which is cross-sectoral and not mainstream. This implies that, its implementation cuts across all processes of the ecosystem. More on this can be read in Chapter two. What therefore is the meaning of EA to the Conservation and management of fisheries?

1.2.2 Meaning of EA to the Conservation and management of fisheries.

To understand what the EA to fisheries is, we need to understand how international environmental law contextualizes fisheries and fishery management. Fisheries have an impact on the environment and this impact is dealt with in environmental law under living marine resources. Conventions and agreements in International Environmental law do not define what the EA to fishery is nor do they define what living marine resources are.

¹⁴ Swedish Commission on the Marine Environment, *The Sea-Time for a New Strategy* (Stockholm, June 24th 2003),page 61.

¹⁵ ICES cooperative research report No273 available at <http://www.ucc.ie/law/LawAndEnvironmentConference2010/RonanLongLegalAspectsOfEcosystem-BasedManagement.pdf> last visited 24/08/2012.

Article 77 of LOSC for instance, provides a general definition of marine natural resources which includes living and non-living resources but does not define what living marine resources is *stricto sensus*.¹⁶

On the other hand Article 1(b) of the Straddling Stocks Agreement does not define what living marine resources are but defines measures to Conserve and manage living marine resources as: “...measures...adopted and applied consistent with the relevant rules of International law...”¹⁷

Article 1(C) of the Stranding stocks Agreement provides a definition of “fish” as including “...molluscs and crustaceans...”¹⁸ This definition holds only for stranding fish stocks and does not include sedentary species. The lack of conventional definition of what fisheries are in their entirety does not deter or affect the implementation of the EA to fisheries in international environmental law. The EA to fisheries in International environmental law applies to all fish types including *inter alia* sedentary and migratory fish stocks. The U.S National Research Council defines the EA to fisheries as:

“...an approach that takes major ecosystem components and services-both structural and functional –into account in managing fisheries...it values habitat, embraces a multispecies perspective, and is committed to understanding ecosystem processes...Its goal is to rebuild and sustain populations, species, biological communities and marine ecosystems at high levels of productivity and biological diversity so as not to jeopardize a wide range of goods and services from marine ecosystems while providing food, revenue and recreation for humans.”¹⁹

What this implies is that, the EA to the conservation and management of fisheries is cross sectoral and involves a holistic management of all ecosystem process, it ensures that fisheries are sustained in their natural ecological habitats and promotes the equitable sharing of fisheries to all mankind. What does it take for states to legislate and implement the EA to manage and Conserve fisheries?

¹⁶See Article 77(4) of LOSC.

¹⁷ See article 1(b) of FSA.

¹⁸See Article 1(c) of the 1982 Straddling Stocks Agreement.

¹⁹*Sustianing Marine Fishery Report of the Committee on Ecosystem Management for Sustainable Fisheries Washington DC: National Academy Press 1998.*

1.2.3 Conceptual framework for the Implementation of the EA to the Conservation and Management of Fisheries.

According to the Institute of Marine research (IMR), to legislate and make operational the EA to conserve and manage fisheries states must; have a complete understanding of marine ecosystem dynamic, develop fish capture technology which reduces ecosystem effects of fishing, and develop indicators for “ecosystem health” which can be monitored as basis for assessment and advice on ecosystem effects of fishing and other human activities related to the marine ecosystems.²⁰

In the same vein, the Food and Agricultural Organization (FAO) Fisheries Technical paper 443 provides, a vast array of operational measures which states must take into consideration while implementing the EA in the Conservation and management of fisheries. These measures are not different from the ones listed above but the paper adds that states should; apply the Precautionary Approach (PA) to take account of risk and uncertainty, modernize laws to take account of ecosystem requirements, cooperate with other states bilaterally through the forming of Regional Fisheries Management Organizations (RFMO) and agreements to manage straddling fish stocks and ensure that decision making on fisheries management is decentralized.²¹

These are only a handful of the requirements needed for the implementation and adoption of the EA to fisheries. There are other requirements which we shall examine in the subsequent paragraphs. The question is, are the research capabilities, human and financial resources, required to develop and implement these measures substantial? The answer to this question brings to light the fact that there exist some challenges by states to implement these requirements.

²⁰ An Ecosystem Approach to Fisheries management by A.Bjorndal of the institute of marine research Bergen Norway and A.Boltnev of the Polar Research Institute of Marine Fisheries and Oceanography (PINRO) Murmansk, Russia session 5 report page 2 Para 3. Available at <http://www.imr.no/filarkiv/2004/12/Imr-Pinro-1-2004.pdf/nb-no> Last check 25/08/2012.

²¹ See the Ecosystem Approach to Fisheries, FAO fisheries technical paper 443, ISSN 0429-9435 Available at <ftp://ftp.fao.org/docrep/fao/006/y4773e/y4773e00.pdf> Last checked 25/08/20012, visited 22/07/2012

The challenges faced by states to legislate and implement the EA to the Conserve and manage fisheries shall be discussed in the last chapter.

1.2.4 History of the EA in the management of fisheries in International Environmental Law.²²

Movement towards an EA in the conservation and management of marine living resources started as far back as 1901, with a proposal from ICES during its first meeting to combat overexploitation of marine living resources. The ICES has since then called for a multispecies approach in the management of living marine resources. The multispecies approach proposed by the ICES later developed into an EA in the management of environmental resources and was gradually incorporated into international legal instruments. The 1980 Convention on the Conservation of Antarctic Marine Living Resource (CCAMLR) was the first global legal convention to adopt the EA to ocean resource management. Subsequent hard and “soft law” instruments such as LOSC, the CBD, COP decisions, Agenda 21 just to name a few have also adopted the EA to fisheries management.

1.2.4 Uncertainty in Terminology.

In International Environmental Law, a variety of terms such as ecosystem management, ecosystem approach, ecosystem approach to fisheries, ecosystem-based fisheries management, and integrated management have been used to term the concept. Based on the description of the EA provided by the CBD *supra*, the EA is used on all natural resources. The term is often used in conjunction with the natural resources the approach is attuned to. The COP refers to the EA in the conservation and management of both flora and funa. The Kyoto Protocol on the other hand adopts the EA in the management of CO₂ emissions and climate change effects. The way the approach is termed in International environmental law has no effect on its goal, which is to ensure the sustainability of natural resources.

²²Ecosystem management and its Application to Large Marine Ecosystem: Science, Law and Politics by Handling Wang, Page 7
Para1.

2. Legal regime for fisheries management in International Environmental Law.²³

2.1 Pre LOSC developments

Measures to conserve and manage fisheries started in pre LOSC era started after the Bering Sea Fur seal case between Britain and the United States of America (USA) over rights to harvest seals in the Alaska territory of the US. The tribunal seized to adjudicate on the matter requested the parties to come up with sealing regulations. The parties came up with sealing regulations such as; Moratorium on Seals, vessels licensing, catch records etc. Most Convention concluded around that time, adopted such measures for instance the International Convention for the regulation of whaling carried with it a moratorium on commercial whaling. The goal for such a moratorium was to avoid a depletion of fish stocks.

Followed was the 1945 Truman Declaration on fishing which emphasized the need for coastal states to have fishing right over contiguous zones of the high seas. This declaration contributed in the allocation of Exclusive Economic Zones (EEZ) in LOSC III. The 1958 Convention on fishing carried an important tool for sustainable fisheries management. It provides in article 2 that high seas fishing should be conserve to ensure maximum supply of food and other marine products.

2.2 Post LOSC Development.

In Post LOSC era, agenda 21 *supra* (A non binding implementation plan of the United Nations with regards to sustainable development) recognized LOSC as providing the fundamental obligation for fisheries conservation.²⁴ This implies that LOSC has the primary obligation to provide measures to conserve and manage all fisheries. This also means that subsequent instruments concluded after LOSC must be consist with LOSC in the conservation and management of fisheries.

²³The International law of the Sea by Donald R Rothwell et al. Page 292-310 ISBN 9781841132570.

²⁴Agenda 21, Basic Documents No.48, [17.45].

The fisheries regime in LOSC is broad and complex, with coastal states enjoying sovereign rights to fish in all areas adjacent to the high seas, and freedom of fishing in the high seas for all states. More on this can be read in Chapter one of the thesis. LOSC on the other hand have been criticized for not providing elaborate measures to conserve and manage fisheries. The relevant instruments such as the CBD, Fish stocks agreements (FSA) and the Code of Conduct for Responsible Fishing concluded after LOSC, turns to fill in the gaps contained in the LOSC for the conservation and management of fisheries. We shall read more of this in the subsequent paragraphs.

3. Purpose of thesis and legal questions.

The reason for choosing this topic is based on the fact that, fisheries are a source of food and livelihood for mankind. Unfortunately, all over the world, ecosystems are increasingly affected by human-induced impacts. The sovereign rights of states to exploit their own resources, freedom of fishing in the high seas and the high demand of fish in the international market have caused the overexploitation of living marine resources. There is therefore a fear that, there will be a lack of fish and eventually the “Tragedy of the common” situations envisage by Garret Hardin several years ago.²⁵ According to Hardin, “the freedom of the seas” and a consequential freedom to fish will lead to the extinction of species of fish and marine mammals because, individuals and states will fish more than what is required since such resources belonged to no one. This situation is experienced today with, treats of extinction of most fish species, discussed above. Recent studies show that human induced factors such as climate change have serious effects on fisheries *supra*. To this end, there is therefore an urgent need to carryout in-depth study of the EA to fisheries which turns to manage fisheries and all other ecosystem process to avoid stock depletion and “Tragedy of the common”.

Due to this, the purpose of this thesis is therefore to examine the relevant instruments in international law to see how they react to these problems and how the instruments require states to implement the EA as a new strategy to solve such problems.

²⁴ See Garret Hardin, “The Tragedy of the Commons” (1968) 162 (No 3859) *Science* 1243, 1244, Available at: <<http://dieoff.org/page95.htm>> Last checked 27/08/2012.

The first legal question in this thesis is, do international environmental instruments adopt or provide for adoption of the EA as a strategy to conserve and manage fisheries?

The question is relevant as the notion of EA is a new strategy in International environmental law, developed after the adoption of significant instruments such as LOS convention.

If they do support the approach, this will then lead us to our next legal question, what are the measures adopted by the relevant instruments for the implementation of the EA to conserve and manage fisheries?

4. Methodology and sources of material

The methodology used in this thesis is the legal method that is relevant for the analyses of international environmental instruments (hard and soft laws) that carry contents of the EA in the management of fisheries. To this end, I will critically examine the LOSC, the CBD, the Fish Stock Agreement and COP decisions, to examine if and how they adopt the EA to the conservation and management of fisheries. My analysis will be based on questions raised by me on the subject matter. The answers provided to such questions will help the reader understand the concept of the EA to fisheries as strategy to solve the existing problems affecting fish stocks.

At the end of the thesis, in the final chapter I will examine, the legal difficulties faced by states to adopt measures and implement the EA in the conservation and management of fisheries.

In my analyses, I will examine the sources that are relevant for answering the defined legal questions, which are: the relevant treaties, case laws, theories, soft laws, guidelines and reports.

CHAPTER TWO

CONTENT OF THE EA IN THE CONSERVATION AND MANAGEMENT OF FISHERIES IN THE LOSC

1. INTROUDUCTION

1.1 General

Participants to the 3rd United Nations Conference of the Law of the Sea (UNCLOS III) negotiated and adopted the LOSC as a “package deal” to solve the problems affecting ocean governance. These problems included; allocating the breath of maritime zones and navigational freedoms.¹ The LOSC was concluded at Montego Bay, Jamaica on the 10-12-1982 and came into force 1994.²

The LOSC as a matter of fact defines the rights and responsibilities of nations in their use of the world's oceans, establishing guidelines for businesses, the environment, and the management of marine natural resources.³ In the domain of fishery management, LOSC is a modern Law relating to International fisheries.⁴

As far as the EA to the Conservation of fisheries is concern, the LOSC does not expressly endorse the EA as a strategy to conserve fisheries⁵, but adopts as the analyses will show, measures which reflects and supports the EA to fisheries management.

The purpose of this chapter is therefore to examine, provisions of the LOSC which reflects and supports the EA to fisheries management.

2. The LOSC fisheries regime.

The LOSC adopts a regime for fisheries management, that provides measures to conserve and manage fisheries in all areas of the ocean.⁶ These measures are reflective of the EA to fisheries management and they include;

¹ *The International Law of the Sea by; Donald R Rothwell and T. Stephens* Page 14, Para 2 ISBN 9781841132570.

² http://en.wikipedia.org/wiki/United_Nations_Convention_on_the_Law_of_the_Sea, visited 23/06/2012.

³ *International Law of the Environment by; Patricia Bernie and Boyle* Page 714 Para 3 ISBN 9780198764229 ⁴Page 715 Para 2.

⁵ *Ecosystem Management and its application in Large Maritime region by: H Wang* Page 46.

⁶ Donald Rotwell (n 1) Page 298 Para 1.

2.1 Total allowable catch (TAC) and Maximum Sustainable Yield thresholds (MSY), article 61.

Under the LOSC and as provided by article 56 (1) states have sovereign rights “...of exploring and exploiting, conserving and managing...” resources found in their territory. This however does not imply that states have the laxity to explore these resources unsustainably. Article 56(2) makes it very clear and requires states to exercise such rights in a “...manner compatible with the provisions...” of the LOSC.⁷ One of such provisions which call for the sustainable management of marine resources is article 61 of the LOSC.

Articles 61(1) of the LOSC calls on states to; “...determine the allowable catch of the living resources in its exclusive economic zone”.⁸ The LOSC does not define what TAC is but it’s my understanding that, TAC is a catch limit which states are not suppose to supersede when fishing in the EEZ. One of the goals of TAC as read in articles 61(3) of the LOSC is to achieve the Maximum Sustainable Yield (MSY). It provides that;

“...such measures shall also be designed to maintain or restore populations of harvested species at levels which can produce the Maximum Sustainable Yield, as qualified by relevant environmental factors...”

In the same vein, articles 61(4) of LOSC further urge states to;

“...consider the effects on species associated with or dependent upon harvested species with a view to maintaining or restoring population of such associated or dependent species above levels at which their reproduction may become seriously threatened”

2.1.1 The Duty for states to implement TAC and MSY to conserve and manage fisheries.

The duty for states to implement the TAC and MSY concepts is a strong and absolute duty.

⁷ See Article 56 of LOSC.

⁸ See article 61 of the LOSC.

The LOSC provides that states “shall determine the allowable catch of the living marine resources...” The use of the word “shall” indicates that states have absolute right to establish TAC and MSY concepts in the harvesting of fisheries in the EEZ. The duty for states to implement TAC also extends to the management of Anadromous and Catadromous species which migrate over long distances to breed pursuant to articles 66 and 67 of the LOSC. In implementing TAC states also have the right to cooperate with international organizations and take into consideration “available scientific information” of fish statistics and all the “data relevant for fish conservation”. The reason for states to implement the MSY and TAC concepts in the conservation and management of fisheries is to prevent fisheries from endangerment and over exploitation,⁹ Ulrich B shares the same view.¹⁰ The LOSC does not define what the MSY is, one author on the subject defined MSY as; “catching the highest possible yield without destroying the stock”. What this means in relation to article 61 of LOSC *supra* is that coastal States could legitimately set practically any size of allowable catch, as long as it did not lead to over exploitation which endangered fish stocks.¹¹ How is the MSY concept reflective of the EA to fisheries conservation and management?

2.1.2 Relationship between the TAC and MYS concepts and the EA to Fisheries.

Article 61 and the MSY concept of the LOSC though criticized for being sectoral *supra*, reflects the EA in the conservation and management of fisheries in that; It recommends states to “take into account “...relevant environmental and economic factors” when establishing the MSY. It also recommends states to; “...take into consideration the effects on species associated with or dependent upon harvested species with a view of maintaining or restoring populations of such associated ...species above levels at which their reproduction may become seriously threatened”. This implies that, states shall take into account the impact of fishing on the broader marine ecosystem, by factoring in the effects upon associated or dependent species to protect fisheries from being serious threatened.¹²

⁹*The Convention of the Law of the sea: An Effective Framework for Domestic Fisheries Conservation? By Richard Barnes Page 9 Para2.*

¹⁰*See International Environmental Law by Ulrich Beyerlin and Thilo Marauhn Page 135 Para 1.*

¹¹*The Law of the sea' by; Churchill and Lowe Page 289 Para 2.*

¹²*Donald Rothwell (n2) Page 299 Para1.*

The EA to fisheries on the other hand, also involves sectoral measures such as, the establishment of the MSY on fisheries harvest (which involves, techniques to balance the harvest of fish and the yield, so that the population remains stable) and also cross sectoral measures to protect associated and dependent species of fisheries from being exposed to serious danger that may result from ecosystem activities.

2.2 Corporation in the management of migratory species occurring in the EEZ of two or more States.

The preamble of LOSC provides that states should co-operate on “all issues” concerning the law of the sea. Article 63 of LOSC call on states to co-operate and: “...ensure the conservation and development...” of stranding fish stock, with the help of sub-regional and regional organization in the EEZ and adjacent areas. What is the duty for states to cooperate in the LOSC?

2.2.1 Duty for states to cooperate under article 63 of LOSC?

In discussing the duty for states to cooperate under LOSC we must distinguish between the content of the obligation and the format of the cooperation. The first involves an obligation for states to “enter into negotiation with a view to take measures” and “shall seek to...agree upon these measures”. States shall comply with this obligation either through direct cooperation or through sub regional or regional fisheries organization. What this means is that, states have an obligation to cooperate with regional fisheries organizations even if they are not members of such organizations. The duty for states to cooperate with such organizations does not also mean that such regional organizations have exclusive competence to regulate fisheries in the high seas .¹³

¹³ Law of the sea and politics in ocean governance By : Tore and others Page 15 Para 2 ISBN 9004149686.

The LOSC is not specific about the duty for states to cooperate. It does not provide the necessary mechanism to determine that measures put in place for states to cooperate are compatible. The LOSC only says states shall “agree upon measures necessary to co-ordinate and ensure the conservation and development of such stocks” The use of the word “agree” suggest that measures to be implemented by states to manage stranding fish stocks must be compatible, what then is the legal framework for states to determine compatibility?

Article 7 of the FSA (an agreement which is intended to implement the LOSC in the management of stranding fish stocks) provides states with mechanisms to determine compatibility in exercising their duty to cooperate and manage stranding fish stocks. We shall discuss this in chapter 4 of this thesis.

However, the reason for states to cooperate in article 63 of LOSC is to “...ensure the conservation and development of such stocks...”¹⁴ The duty for states to cooperate is reflective of the EA to fisheries in that, the aim of the EA is to ensure the conservation and development of fish stocks, which article 63 seeks to adopt.

2.3 Optimum utilization of Living marine resources, article 64 LOSC.

Article 64 of LOSC further provides more obligations on states to conserve and manage living marine resources. It provides that, States and States whose national’s fish in areas where there is highly migratory species are oblige to co-operate directly or through appropriate international organization to ensure their conservation and promote the “optimum utilization of such species” in the EEZ and beyond.¹⁵ What development does article 64 of LOSC bring in the duty for states to cooperate in achieving optimum utilization of stranding fish stocks?

¹⁴ See article 63(1) of LOSC.

¹⁵ See articles 64 of LOSC.

2.3.1 Duty for states to promote the optimum Utilization of Stranding fish stocks article 64 of LOSC.

Article 63 provides states with a duty to cooperate “directly” or through appropriate “sub-regional...organization” to manage migratory stocks. Article 64 develops on article 63 in that, it gives states the right to “establish” sub-regional organization in areas where they do not exist. This duty does not exist under article 63 and implies consequently that states have a right to establish regional organizations to manage stranding fish stocks and also a right to promote the “optimum utilization” of such stocks through such established organizations. What is the relationship between the EA to fishery and the duty for states to promote the optimum utilization of highly migratory fish stocks?

2.3.2 Relationship between the duty for states to promote the optimum utilization of stranding fish stocks and the EA to fisheries.

There exist a close relationship between the duty for states to promote the optimum utilization of stranding fish stocks and the EA to fisheries. It’s my understanding that, to promote the optimum utilization of fisheries implies that states must make sure they implement measures to ensure that the quantity of fish caught do not affect the steady supply fish. By calling on states to promote the optimum utilization of stranding fish stocks, article 64 relates and endorses the EA to fisheries because the EA to fisheries also promotes the optimum utilization of fisheries. Article 64(2) further endorses the EA to fisheries as it gives room for states to include ecological networks in the management of migratory fish stocks to promote their optimum utilization. It provides that, states should implement the duty to cooperate with the objective to promote optimum utilization of stranding fish stocks “in addition to the other provisions of this part”. To this end, states have a duty to take into account the relevant “economical and geographical factors pursuant to article 61(3) of LOSC *supra* in promoting optimum utilization of stranding fish stocks. The concept to conserve fisheries by taking into account ecological networks has been supported in fisheries jurisprudence. In the southern Bluefin Tuna case for example, the tribunal held that, the conservation of living marine resources must also take into account ecological considerations.¹⁶

¹⁶See southern bluefin Tuna (New Zealand v Japan) (Provisional measures) (1999) 117 ILR 148.

Article 64 therefore endorses sectoral measures to conserve fisheries and it's open to include cross sectoral measures which could include the management of fisheries and some ecological factors. As H. Wang puts it, article 64 of LOSC deals with living marine resources in terms of the EA.¹⁷

2.4 LOSC fishery management regime in the High seas.

The LOSC fishery management regime in the high seas is similar and develops on the fishery management regime in the EEZ in adopting the EA to fisheries. It provides for the following measures;

2.4.1 Establishment of Sub-regional and regional fishery Organizations in the high seas.

Article 118 LOSC warrants states and their nationals to co-operate by establishing, sub-regional and regional fishery organization, to manage and conserve living marine resources in the high seas.¹⁸ LOSC therefore hopes that, the presence of fishery organizations will help regulate and eliminate its overexploitation and other acts which are not consistent with LOSC in the high seas. This relates to the EA to fisheries in that, the EA to fisheries is also aimed at fighting against the over exploitation of fisheries.

2.4.2 Best available scientific evidence, article 119 LOSC.

States are called upon under article 119 of LOSC to make use of the best available scientific evidence to "...maintain or restore population of harvested species at levels which can possibly produce MSY..." This article further call on states to recognize the needs of developing countries (which harbour most of these resources but do not have the technology to exploit them), and take into account economic and geographical factors when harvesting these resources. This is a development of the MYS concept adopted in article 61 of LOSC in adopting the EA to fisheries *supra* in that, it expressly calls on states to use "available scientific information" in determining the MSY. Article 119 adopts the EA to fisheries in that, the EA to fisheries also involves the use of scientific information about the activities of fisheries with the aim of ensuring their sustainability.

¹⁷ H. Wang (n 22 at Chapter 1) Page 9 Para 1.

¹⁸ See articles 118 of LOSC.

2.5 The LOSC's regime for the management of fisheries in semi-enclosed seas and in the Area adopting the EA to fisheries.

Article 122 of LOSC defines semi-enclosed states as “...basins or seas surrounded by two or more states and connected to another sea or the ocean by a narrow outlet...”¹⁷ LOSC provides in article 123 that, states bordering the enclosed and semi-enclosed seas described above should cooperate in the management, conservation, exploitation and exploration of living marine resources. Article 123(b) expressly mandates states to “protect and preserve the marine environment” while exercising their rights to explore and exploit living marine resources in the aforementioned zone.¹⁹ The duty to protect and preserve the marine environment during fishing, and how these duties reflects to the EA to fisheries has been discussed. A similar duty is compounded in article 136 and relates to the Area.

Article 136 of LOSC endorses the principle of “common heritage of mankind” implying that the resources found in the area belong to no particular state but to mankind in general.²⁰ This does not imply in any way that mankind should explore these resources without control or respect of the marine environment. The LOSC endorses a cross sectoral approach in the conservation and exploration of natural resources in article 145 by calling on states to “... ensure effective protection of the marine environment and natural resources from harmful effects...” when carrying out any activity to explore the resources in the Area.²⁰

In the same light, article 145(a) emphasises that, states should adopt measures to prevent the marine environment from pollution and ensure an “ecological balance” of the marine environment.²¹ To this end, the LOSC adopts the EA to fisheries in the management of fisheries in the area in that, the EA also supports and ensures an ecological balance of ecosystem processes in the management of fisheries and encourages a conducive and clean marine environment where fishery live and equitable sharing of fisheries products to all mankind.

¹⁹ See Article 123 of LOSC.

²⁰ See Article 136 of LOSC.

²¹ See Article 145 of LOSC.

2.6 General obligation to preserve and protect the marine environment article 192 of LOSC.

Article 192 provides general measures for states to protect and preserve the marine environment from activities that have a negative bearing on the marine environment and marine natural resources. Article 192 which applies to all areas of the ocean, is more general than the other articles studied above in reflecting the EA to fisheries. It calls on states, "...to have the obligation to protect and preserve the marine environment..."²² What is the duty for states to protect and preserve the marine environment under article 192? It's not clear whether the LOSC provides a duty for states to protect and preserve the marine environment in article 192. Article 192 says that states "have the obligation...", this suggest that the duty is implied and stems from states sovereign rights, which also include the right to preserve and protect their environment.

Article 192 reflects the EA to fisheries for the fact that, It calls on states to protect the marine environment. We have seen that the EA in the management of fisheries does not only involve the conservation of fisheries, but also involves the protection and preservation of the marine environment which is their habitat as provided in this article and in articles 135 and 145 *supra*.

2.7 Prevention of pollution from "any source" articles 194(1) and (5) of LOSC and the duty therefrom.

States are required to protect their marine environment from pollution from "any source" be it from land or at sea to the best of their ability. They are also obliged based on articles 194 to preserve rare and fragile ecosystems as well as the habitat of depleted, threatened or endangered species and other forms of marine life.²³

Article 194 of the LOSC provides an absolute duty on states to preserve the integrity of the ocean by avoiding pollution from "all sources". Pollution whether willful or not willful destroys marine habitats and kills fish stocks. If pollution is put under control it will render the ocean healthy for fisheries to live in. A clean and healthy marine environment is the ambition of the EA to fisheries which article 194 advocates.

²² See Article 192 of LOSC.

²³ Article 194 of LOSC.

Based on the articles examined in the aforementioned paragraphs, we will be correct to say that LOSC's regime for the management of living marine resources reflects impliedly the EA to fisheries. This has led to a series of debate on the subject as different authors have contrary views as to whether the LOSC adopts the EA to fisheries.

3 Legal debate whether or not LOSC's adopts the EA in fisheries management in International Law.

There is a debate in International Environmental Law, whether or not the LOSC explicitly adopt the EA in the conservation and management of fisheries. Russel on the one hand argues that, the term 'ecosystem approach' was not used in the LOSC that, only elements of the EA to fisheries are provided in the provision.²⁴ In the same vein, Barnies argues that, an obligation to adopt the EA to fisheries management forms no part of the LOSC. He further adds that, measures such as article 61 of the LOSC *supra* does not protect the viability of ecosystem but rather, protects the viability of the species for utilization.²⁵ William T. Burke buttressed the fact that the LOSC does not mandate ecosystem management of fisheries. He holds that, provisions in the LOSC such as protection of associated species and a duty to cooperate in utilization and conservation of trans-boundary species are not customary law.²⁶

On the other hand, Lewis M. Alexander points out that although the LOSC does not explicitly provide a legal regime for the implementation of EA, its objectives are "parallel to those of the large maritime ecosystem (LME) management' and its relevant texts are "supportive of the LME concept."²⁷ H. Wang holds that, the last part of the preamble of the LOSC affirms that, "matters not regulated by this convention continue to be governed by the principles of general international Law."²⁸

²⁴ Ecosystem and Precautionary Approach to fisheries by; Russel and VanderZwaag (n chapter 1) Page 6 Para 2.

²⁵ Barnies (n 6) Page 12 Para 2 and 3.

²⁶ W. T Burke, 'The Law of the Convention and Fishing Practices of Nonsignatories, with Special Reference to the United States.' H . Wang(n22 Chapter 1) Page 8 Para1.

²⁷ H wang (n 22 Chapter 1) Page 8 Para 2. ²⁸Page 8 Para 2.

By this wording and according to him, the LOSC keeps open to accepting legal norms ocean governance should they be generally accepted by nation states, indicating therefore that, if subsequent international practise adopts the EA to fisheries, then automatically the LOSC does.

In my opinion, this to me is an unnecessary debate because, no article in the LOSC explicitly says that states should implement the EA to conserve and manage fisheries.

4. Conclusion

The coming into force of LOSC created freedoms for states to explore living marine resources in all parts of the ocean, see article 86 of LOSC. Some authors say these freedoms are what have encouraged the over-exploitation of fisheries the world is seriously facing today.

Despite the fact that the LOSC provide for freedoms to explore marine living resources, it balances up the use of these freedoms by states in providing measures, to ensure that marine living resources are not over exploited by states and their nationals.

The question whether or not the LOSC explicitly adopts the EA in the conservation and management of fisheries has been answered, it doesn't. As we have seen, LOSC's regime for the management of fisheries adopts the EA to manage fisheries impliedly. These measures some of which are ambiguous such as article 63 of the management of stranding fish stocks are developed in the 1995 FSA and also in other international agreements, which have the duty to manage fisheries consistently with the LOSC pursuant to article 311 of the LOSC. This implies that subsequent agreements in the management of fisheries cannot adopt new measures they can, only develop on the provisions of the LOSC in the management of fisheries. This therefore makes LOSC a cornerstone instrument in the implementation of the EA to fisheries despite the fact that it does not adopt explicitly the concept.

CHAPTER THREE

THE ECOSYSTEM APPROACH TO FISHERY CONSERVATION AND MANAGEMENT IN THE CONVENTION OF BIODIVERSITY

1 INTRODUCTION

1.1 General

Most Multi-lateral Environmental Agreements (MEAs) concluded in the 1970s paid particular attention to utilization rather than Conservation of natural resources. This can be explained by the fact that scientific knowledge was not advanced enough in the 70s to envisage the effects of human actions on marine natural resources experienced in recent times.

In post 1970s and with improvement in science, the effects of over exploitation of marine natural resources and the dangers of environmental degradation and sea food scarcity for the present and future generation became glarier. In the midst of all these events, there was the need to enact a treaty that would carter for the utilization and conservation of natural resources. For this reason, the CBD was concluded on the eve of the United Nations Conference on Economics and Development (UNCED), and entered into force on the 29th /12/1993 with about 191 parties.¹

The CBD is as of now, the only legally binding instrument that covers all ecosystems.² The CBD applies to the conservation and management of marine ecosystems and biodiversity.³ The protection of marine biodiversity as well as marine ecosystem has been the duty of the Conference of Parties (COP) and the Subsidiary Body on Scientific Technical and Technological Advice (SBSTTA), created by the CBD to keep under review the implementation of provisions of the Convention pursuant to articles 23 and 25 of the CBD.⁴

¹<<http://www.cdd.int/cop/>> Last visited 23-08-12

² MM Goote, "Convention of biological diversity" The Jakata Mandate on marine and Coastal Biological Diversity 'International Journal of marine and coastal law, 12(3) (1997):378.

³See articles 4 and 5 of the CBD.

⁴See articles 23 and 25 of the CBD.

The objectives of the CBD are set out in article 1, they include; the conservation of biodiversity, the sustainable use of its components and, the fair and equitable sharing of the benefits arising from the utilization of genetic resources.⁵ These objectives are translated into binding commitments in substantive provisions of the convention. To this end, the CBD adopts a regime for the conservation of biological diversity to fulfil its objectives.

The jurisdictional scope of the CBD is so wide and covers the conservation and utilization of biological diversity both on land and in water, in areas within national jurisdiction and beyond.⁶

The CBD's regime for the conservation of biological diversity includes provisions to conserve and manage all forms of life in the ecosystem, including *inter alia* fisheries. Does the CBD's regime to conserve biological diversity adopt the EA to fisheries? Authors like Veronica Frank hold that the CBD explicitly endorses the EA,⁷ I hold a contrary view. The CBD on its own does not explicitly adopt the EA, the EA, is explicitly adopted by the CBD's auxiliary organ the COP whose rule have been discussed. The reason why we need to make this distinction is because COP decisions do not form part of the CBD, they are guidelines attuned to facilitate the implementation of CBD's provisions and therefore should be separated from the CBD's provisions. The CBD's regime for biological diversity conservation as will be examined, adopts measures to conserve biological diversity which reflects the EA to fisheries. The purpose of this chapter is to examine measures adopted by the CBD which reflects the EA to fisheries and also to examine the COP decisions which explicitly mandate the EA to fisheries and analyse the legal duties which arise therefrom.

2 The regime of biological diversity conservation in the CBD.

In order to understand the regime of biological diversity of the CBD we need to first of all understand the meaning of biological diversity.

2.1 Meaning of Biological diversity.

Article 2 of the CBD defines biological diversity as;

“...the variability among living organisms from all sources including, *inter alia*, terrestrial marine and other aquatic ecosystems and the ecological complexes of which they are part...”⁸

⁵ See article 1 of the CBD.

⁶ See articles 4 of the CBD.

⁷ The European Community and Marine Environmental protection in International Law of the sea by Veronica Frank chapter 8 Page 342.

⁸ See article 2 of the CBD.

2.2 Concept of biological diversity in the CBD and the EA to fisheries.

By the definition of biological diversity, fisheries form part of biological diversity. The concept of biological diversity of the CBD as we shall examine involves the management of fisheries and the participation of all states. The CBD affirms in its preamble that; "...the conservation of biological diversity is a common concern of mankind".⁹ To this end, all states have a right to participate in conserving biological diversity whether they are parties to the convention or not. Article 23(5) of the CBD for instance, gives non-members of the CBD observer status at meetings of the COP to observe and comment on the activities of the COP.¹⁰ The reason why every state must be involve in biodiversity management is because, biological resources are neither shared resources nor common property available for appropriation and use by all and also based on the migratory nature of some species of animals or fish which migrate from one territory to another.¹¹

The regime of biological diversity management in the CBD reflects the EA because it includes; measures to conserve biological diversity (in-situ and ex-situ conservation methods), the sustainable use of biological resources, access to genetic resources, the sharing of benefits derived from the use of genetic materials. These measures are different from the sectoral or old approach to manage biological diversity which was attuned to manage only the resources in question, because they take into consideration ecological factors in conserving biological diversity.

The subsequent paragraphs shall examine the regime of biological diversity management in the CBD to see how they reflect the EA to fisheries management.

2.2.1 General Measures for Conservation and Sustainable Use, article 6 of the CBD

Article 6(a) of the CBD provides that states shall;

“Develop national strategies, plans or programmes for the conservation and sustainable use of biological diversity or adapt for this purpose existing strategies, plans or programmes which shall reflect....measures set out in this convention...”¹²

⁹ See preamble of the CBD.

¹⁰ See article 23(5) of the CBD.

¹¹ *International law of the Environment by; Bernie and Boyle* Page 619 Para 2. ISBN 978-0-019-8764229.

¹² See articles 6 of the CBD.

2.2.1.1 The duty and reason for states to adapt strategies to manage their biological diversity.

Article 6(a) gives states a duty to “adapt... strategies plans or programs...” to manage their biological diversity. This duty is affected by the formulation of the chapeau provision “in accordance with their conditions and capabilities”. The use of the wording “in accordance with their conditions and capabilities” weakens and makes the duty for states to adapt strategies to manage their biological diversity elastic and none absolute, since the CBD requires them to adapt such strategies “in accordance with their condition and capability”.

However the reason for states to implement adaptive strategies to conserve and manage biological diversity is because, ecosystems are dynamic and they change over time. Natural phenomena such as floods cause changes to the ecosystem. Managers must monitor key indicators that will allow the implementation of an adaptive method.¹³ What legal mechanism is been put in place by the CBD to ensure that states effectively adapt measures to conserve their biological diversity ‘according to their capability’? Like every legal norm, article 6 of the CBD is suppose to carry provisions which shall follow if states do not implement it “...in accordance with their ... condition and capabilities” The absence of such a provision leaves the implementation of article 6 of the CBD a matter of will and not a matter of law by states.

2.2.1.2 Relationship between “adaptive” management measure and the EA to fisheries.

The relationship between the “adaptive” management of article 6(a) and the EA is that, the EA is not a “blue print” action plan it’s only a strategy.¹⁴ It’s a strategy that involves the concept of “learning-by-doing” since ecosystems are dynamic. Management policies designed to implement the EA to fisheries are flexible they are not “blue print’ measures. They are designed to meet changes in the ecosystem that could have an adverse effect on fisheries. Article 6 therefore in endorsing ‘adaptive’ measures to conserve biological diversity is a reflection of the EA to fisheries.

¹³ Using the Ecosystem approach to implement the CBD by Richard D Smith and Edward Maltby Page 24 Para 93.

¹⁴ See The 2006 Bergen conference report on Implementing the Ecosystem approach to Fisheries by; Gabriella Bianchi et al. Page 11 Para 2.

Furthermore, article 6(b) provides a follow-up of article 6(a) and calls on states to “integrate as far as possible and as appropriate the conservation and sustainable use of biological diversity into relevant sectoral or cross-sectoral plans, programmes and policies.” This article implies that states should consider it an urgent need to adopt management systems that embraces specific or all ecosystem processes. This is because, as we saw in the chapter one, sectoral measures were not enough to solve problems affecting fisheries or biodiversity, thus the CBD by this article calls on states to adopt both sectoral and cross sectoral measures to conserve biodiversity.

2.2.2 Identification and monitoring, Article 7 of the CBD.

Article 7 lays down a number of measures to be taken by states with regards to the conservation of biological diversity. Article 7(a) provides that, each contracting party shall;

“Identify components of biological diversity important for its conservation and sustainable use having regard to the indicative list of categories set down in Annex 1”

¹⁵

Resources referred to in Annex 1 *supra* include fish stocks such as; large number of endemic species, species which are unique, threatened and also species with very high social, economic, and cultural significance.

After identification, article 7(b) goes ahead to provide that states should monitor these resources and especially, those with greater potential for sustainable use.

The identification and monitoring of biological diversity was concluded in article 7(d) and it provides that when these biological resources have been identified, monitored and processes which have an adverse effect on the conservation and sustainable use of biological diversity identified as well, states shall maintain and organize, using any mechanism data derived from either of the identification and monitoring processes used in sub paragraph (a) (b) (c).

¹⁵See article 7 of the CBD.

2.2.2.1 Duty for States to identify and monitor biological diversity.

The duty for states to identify and monitor biological diversity as per article 7 *supra* of the CBD is an elastic duty. The chapeau formulation “as far as possible...” of article 7 indicates that states have an elastic or relative duty to identify and monitor their biological diversity. How is the duty for states to identify and monitor biological diversity related to the EA to fisheries conservation and management?

2.2.2.2 Relationship between the duty for states to monitor and Identify biological diversity and the EA to fishery management.

Identification and monitoring strengthens or underpins adaptive management provided in article 6 of the CBD *supra* for the conservation and management of biodiversity. It depends on adequate feedback mechanism to help managers to respond to change in the ecosystem.¹⁶

Identification of multiple indicators is practically impossible reasons why, it is essential to select the key indicators that will allow for the implementation of an adaptive management model. This strategy is linked to the EA to fisheries in that, in implementing the EA to fisheries, states must monitor fish stocks and the ecosystem through the construction of indicators in order to know which fish stocks are endangered and are targeted due to changes in the ecosystem.

2.2.3 In-situ measures to conserve biological diversity, article 8 of the CBD.

In-situ conservation is the most significant obligation placed on parties to the CBD. Article 2 of the CBD defines in-situ conservation as “...conditions where genetic resources exist within ecosystems and natural habitats...”¹⁷ This basically means that in-situ conservation, is a situation where the ecosystem and natural habitats are maintained to facilitate recovery of viable populations of species in their natural surrounding.¹⁸

¹⁶ See *Using the Ecosystem Approach to Implement the CBD* by; Richard D Smith and Edwards Maltby Page 24 Para 2.

¹⁷ See articles 2 of the CBD.

¹⁸ *International Law and the Environment* By Bernie and Boyle Page 623 Para1 ISBN 9780198764229.

To conserve biodiversity, the CBD call on states in article 8(a) to;

“Establish a system of protected areas or areas where special measures need to be taken to conserve biological diversity¹⁹”

Article 8 of the CBD further calls on states to; (b) promote guidelines for the management of protected areas; (c) regulate and manage protected biological resources both inside and out of protected areas; (d) protection of ecosystem and natural habitat and population species; (e) environmentally sound and sustainable development in areas adjacent to protected areas; (f) rehabilitation of degraded areas and recovery of species; (g) control of use and release of modified living organism when they are likely to have adverse environmental impacts; (h) protection of threatened species and population; (i) regulation or management of processes and activities which threatens biodiversity; (j) Involve indigenous people in the management of biological diversity and promote the equitable sharing of biological resources.

What is the rationale for states to implement in-situ measures to conserve and manage biological diversity?

2.2.3.1 Rationale for states to implement in-situ measures to conserve and manage biological diversity and their relationship with the EA to fisheries.

Article 8 of the CBD could be summarised to imply two things, that states should establish protected areas (or geographically defined areas²⁰) and involve the local community in biodiversity conservation. In the former, states are recommended to establish protected areas which include for instance the closure of seamount, hydrothermal vent, and cold water corals to bottom trawling.²¹ The reason for this is because states would have greater control over activities in protected areas, than in non protected areas.²²

¹⁹ See article 8 of the CBD.

²⁰ See article 2 of the CBD for definition of Protected areas.

²¹ *The international law of the sea* by: Rothwell at el. Page 313 Para 2.

²² *Using the Ecosystem Approach to implement the CBD* (n 12) Page 30 Para 2.

The relationship between establishing protected areas and the EA to fisheries is that, the establishment of protected areas is a sectoral measure to conserve biological diversity. The EA is cross sectoral implying that, it also involves sectoral measures such as the establishment of protected areas to have control over certain areas of the ocean to ensure the proper conservation of biological diversity.

The second duty placed on states to implement in-situ conservation of biological diversity is the duty to involve indigenous people in the management of biological diversity. The CBD does not define who indigenous people are, but the International Labour Organization (ILO) Convention 169 gives indigenous people a duty to be consulted before resources in their environment are exploited. The reason to involve indigenous people in biodiversity management is because, local players are more focused on the use of the resources rather than their conservation. Secondly, indigenous people have complete knowledge of the marine environment and shall provide stakeholders with the necessary information about the environment.²³ This duty has a relationship with the EA to fisheries management, because the EA to fisheries management also involves the participation of indigenous people. Stakeholders in implementing the EA to fisheries must contact the local community to provide them with information about the migration of some species for example, so that they could implement policies to sustainably manage such fish stocks. Is there a legal duty for states to implement in-situ measures provided in article 8 *supra* of the CBD to conserve and manage biological diversity?

2.2.3.2. Duty for states to implement in-situ conservation to conserve and manage biological diversity.

Article 8 of the CBD provides in-situ measures which states shall implement to conserve their biological diversity. The fact that the duty for states to implement in-situ measures are contained in a legally binding instrument such as the CBD implies *ipso facto* that, states are legally required to implement such in-situ measures listed in article 8 of the CBD to conserve their biological diversity. Is this duty an absolute duty?

²³ *Using the Ecosystem Approach to implement the CBD* (n 12) Page 27 Para4.

According to Ingvild Ulrike, the duty for states to implement all in-situ measures in article 8 of the CBD is not an absolute duty. She argues that the use of the word “shall” clearly indicate an obligation, but this obligation is weakened by the expression “...as far as possible and as appropriate...” Implying therefore that, states are only obliged to adopt all in-situ measures in article 8 “as far as possible and as appropriate.”²⁴

On the other hand Veronica Frank holds a contrary view by saying that, despite the fact that “as far as possible and as appropriate” appears in most provisions of the CBD, contracting parties must apply the provisions of the CBD,²⁵ Implying therefore that it’s an absolute duty for states to implement all provisions of the CBD including *inter alia* article 8. To this end and in my view, the duty for states to implement in-situ measures in article 8 is elastic and non absolute as viewed by Ingvild Ulrike *supra*.

We must note that, the CBD in conserving biological diversity calls on states to implement in-situ and ex-situ measures pursuant to article 8 and 9 of the CBD. As far as the EA is concern, we shall not discuss article 9 of the CBD which provide ex-situ measures to conserve biological diversity out of their natural habits.²⁶ This is because the EA deals with the conservation of biological diversity in their natural habitats. Therefore, in conserving biological diversity in their natural habitat, article 8 enjoys preference over article 9 of the CBD.²⁷

²⁴ *Marine protected areas in International Law: A Norwegian Perspective* by: Ingvild Ulrikke Jakobsen Page 137 Para 1 of ISBN 978-82-93021-04-9.

²⁵ *The European Community and Marine Environmental Protection in the International Law of the Sea* by; Veronica Frank Page 13 Para 2

²⁶ See articles 9 of the CBD

²⁷ *International environmental law* by; Ulrich and other page 194 Para2.

2.2.4 Article 10 of the CBD: Sustainable use of components of Biological diversity, a further reflection of the EA to the conservation and management of Fisheries.

Article 10 develops on the concept of “sustainable use” provided in article 6(b) *supra* of the CBD. It urges state parties to;

“Integrate considerations of the conservation and sustainable use of biological resources into national decision-making”²⁸

To understand the concept of “sustainable use” of biological resources, we must first of all know the meaning of “sustainable use” and “biological resources” as used in 10(a) of the CBD.

2.2.4.1 Definition of “Sustainable use” and biological resources.

Article 2 of the CBD defines sustainable use as; “the use of components of biological diversity in a way... that does not lead to long-term decline of biological diversity thereby maintaining its potential to meet the needs ...of present and future generations”²⁹. In the same vein, article 2 of the CBD defines biological resources as including “...genetic resources, organisms...populations, or any other biotic component of ecosystem with actual or potential use or value for humanity”. What measures should states implement to sustainably use their biological resources?

2.2.4.2 Measures implemented by states to “sustainably use” its biological resources.

Article 10(b) of the CBD provides that states shall *inter alia* “adopt measures relating to the use of biological resources to...minimize adverse impact on biological diversity” These measures include; to protect and encourage customary use of biological resources (c), develop and implement remedial action in degraded areas where biological diversity has been reduced (d), develop methods to sustainably use of biological resources (e).

²⁸ see article 10 of the CBD.

²⁹ See article 2 of the CBD.

Article 10 of the CBD *supra*, therefore provides structural requirements for states to implement to “sustainably use” and conserve their biological resources. States in practise have a duty to develop these requirements to conserve and “sustainably use” their biological resources. To what extent does state practise develop the concept of “sustainable use” beyond its formulation in article 10 of the CBD?

2.2.4.3 Duty of States to implement the concept of “sustainable use”

It’s not clear to what extent states can develop beyond the requirements in article 10 of the CBD, with the use of “as far as possible and as appropriate” in the chapeau of article 10. We have discussed the duty for states to implement requirements of the CBD which carry the chapeau formulation “as far as possible and as appropriate” in article 8 of the CBD *supra*. States therefore have an elastic duty to implement the requirements of article 10 of the CBD, by dint of the fact that article 10 carries the chapeau provision “as far as possible and as appropriate”. The reason for the chapeau provision in article 10, “as far as possible and as appropriate” and in other articles of the CBD was intended to allow a variety of flexible approaches as long as their goal is achieved.³⁰ Do measures provided by the CBD to sustainably conserve their biological diversity in article 10 *supra* reflect the EA to fisheries?

2.2.4.4 Relationship between the concept of “sustainable use” of biological resources and the EA to fisheries management.

Fisheries form part of biological resources in that, article 2 of the CBD *supra* defines Biological resources as including; “organisms... or their components ...which are of value to humanity”. The necessity of fish to humanity need not to be emphasised here. Article 10 which emphasises the concept of “sustainable use” creates room for states to adopt flexible measures to manage their biological resources or fisheries.

Such measures also include *inter alia* the EA and precautionary approaches amongst others which are holistic and involve the management of all ecosystem processes to ensure their sustainability for present and future generation.³¹ The EA to fisheries on the other hand supports the concept of “sustainable use” of fisheries. It endorses measures such as MYS provided in article 64 of the LOSC *supra* to fight against the over exploitation of fish and to ensure their sustainability by establishing quota on how much fish could be harvested in a particular stock. Article 10 therefore reflects and supports the EA to fisheries.

³⁰ *International law and the Environment* by; Bernie and Boyle page 622 Para1. ³¹Page 622 Para 1

As seen in the above articles, CBD does not expressly contain the EA to the conservation and management of fisheries. The CBD provides measures which are reflective of the EA to fisheries.

It's said that the EA is a core element of the CBD, but how does the CBD provide for the EA to the management of fisheries when the approach is not expressly found in the convention it's self?

Article 23 of the CBD creates the COP and gives it a mandate to keep under review the implementation of the convention, and provides in article 23(g) that "...the COP shall establish such subsidiary bodies, particular to provide scientific and technical advice, as are deemed necessary for the implementation of the Convention".³¹ This does not indicate that COP decisions are akin to the CBD, they are simply guidelines to help implement provisions of the CBD.

We saw in the introduction of this chapter that, the protection of the marine environment has been the lookout of the COP since 1995. The COP based on article 23 of the CBD and through the assistance of the SBSTTA as we shall be examine has adopted the EA as a strategy to protect biodiversity. The aim of SBSTTA is therefore to make operational the EA by providing the COP with advice on how the ecosystem functions and how it could be sustained.³²

Not all COP decisions are relevant to this paper, the subsequent paragraphs will provide a resume of some of COP decisions and shall provide an elaborate explanation of COP 5 decision V/6 which describes and provide guidelines for the implementation of the EA to the management of living marine resources.

³¹ See Article 23(g) of the CBD.

³² The Ecosystem Approach, CBD guidelines ISBN: 929225-023-X (.pdf version) Page.3 Para 3.

2.2.5 COP decisions providing guidelines for the implementation of the EA.

2.2.5.1 COP2 and 4, decisions 11/10 and IV/5.³³

COP 2 decisions 11/10 adopted the Jakarta Mandate which recognized threats to the marine environment and Coastal biodiversity which includes; Physical alteration, destruction and degradation of habitats of marine organisms, Pollution, invasion of alien species and the over exploitation of living marine resources.

The above problems triggered COP 2 participants to invite states and International regional bodies responsible for legal instruments, agreements and programs which address activities relevant to the conservation and sustainable use of marine and coastal biodiversity to review their programs with the view of improving existing measures and developing new actions to promote conservation and sustainable use of marine biological resources.

The EA was echoed in the COP 4 decision IV/5. The COP to the CBD decided in COP 4 decision IV/5 that, the EA should be promoted globally regionally and at local levels and at address the problems affecting biodiversity.³⁴

2.2.6 COP5 decision V/6, description of the EA and implementing guidelines.

COP 5 describes the EA as a “strategy for the integrated management of land, water and living marine resources that promotes conservation and sustainable use of genetic resources in an equitable way”³⁵ *supra*.

³³ COP 2 decision 11/10 introductions before para.1.

³⁴ COP decision IV/5 Para. 2.

³⁵ See COP 5 decision V/6.

2.2.6.1 Analysis of the description of the EA.³⁶

Based on the description of the EA in decision V/6 above, the EA can be analysed as an approach that is specifically tailored to the management needs of various ecosystems types such as forest, savannas and wetlands (which are habitat of fisheries).

In structural terms, the EA is not a set of guidelines for the management of various ecosystems it's a framework for thinking and acting ecologically. In other words, the EA is a framework for action that links biological, social and economic information and achieve a socially acceptable balance between nature conservation priorities, resource use and the sharing of benefits. The EA can therefore be seen as a framework for balancing the CBD's objectives through actions based on holistic decision making.

We should note therefore that, the EA does not preclude other management and conservation approaches, such as biosphere reserves, protected areas, and single-species conservation programmes, as well as other approaches such as the precautionary approaches carried out under existing national policy and legislative frameworks. The EA rather, integrate all those approaches and other methodologies to deal with complex situations.³⁷

The EA has been analysed, and is an approach used to manage various ecosystem types including fisheries. What is the duty for states to implement the EA?

³⁶ *Using the Ecosystem Approach to implement the CBD* by Richard D and others Page 12 Para 38.

³⁷ *CBD guidelines: The Ecosystem Approach*, Page 6 Para 5 Available at; <<http://www.biodiv.org>> Last visited 23/05/2012. ISBN: 929225-023-X

2.2.6.2 Duty for states to implement the EA.

Paragraph 2 of COP 5 decision V/6 call on states, governments and international organizations to "... apply, as appropriate, the ecosystem approach...and to develop practical expressions of the approach for national policies and legislation..."³⁸ To this end, states have a duty to "develop practical expressions" of the EA in their national legislature. The question is, does this duty carry with it any legal binding effects on the parties to the CBD? The use of the term decision instead of "recommendation" suggests *prima facie* that such a duty carries with it legally binding effects. On the other hand, article 23 *supra* of the CBD which details the powers of the COP, does not mention the possibility of adopting binding decisions. Article 23(4) of the CBD provides that "the Conference of Parties shall keep under review the implementation of this convention..." and bestowed powers to the COP in sub paragraphs (a-i) in the same article to implement provision of the convention which does not include the power to legally binding decisions. Article 23(4)i of the CBD for instance provides that the COP shall; "consider and undertake any additional action that may be required for the achievement of the purposes of this convention..."³⁹ Does this infer the COP powers to adopt legally binding decisions?

Article 23(4) i of the CBD does not warrant the COP to adopt any legal binding decisions. Pursuant to Rule 9(d) of the Rules of procedure for the meetings of the Conference of Parties to the Convention of Biological Diversity, adopted by COP 1 and modified by COP 5⁴⁰ which should be read with article 23(4)i, the COP can place any topic proposed by the contracting states on the agenda but do not have the power to make laws.

³⁸ See Para 2 of COP decision V/6.

³⁹ See article 23(4)i of the CBD.

⁴⁰ Annex to decision 1/1 and decision V/20 : Available at <http://www.cbd-rules-procedure.Pdf> Last visited 15/08/2012.

On the other side of the coin, COP decisions could only become legally binding when it can be qualified as one of the measures named in article 23(4) of the CBD. Due to the COP's lack of independent law making capacity, its decision can be legally binding when the relevant decision is negotiated and identified as a treaty revision, protocol or annex to the CBD. Until that happens, the COP decisions have no legal binding effects in international law on the parties to the convention and to third parties alike.⁴¹

To this end, states under international law have a duty to implement the EA pursuant to COP decision V/6 above, but this duty does not carry with it any legal consequences. This implies that, if states do not implement the EA to manage their biodiversity (including fisheries) they will not be prosecuted in a law court. COP decisions as soft laws, are normative in character meaning that they provide guideline for states to behave in a particular way⁴² the consequence of not implementing the EA or COP decisions *per se* is political rather than legal. The parties to the CBD have a duty pursuant to article 26 of the CBD to; "...present to the conference of the parties, reports on measures which it has taken for the implementation of the provision of the convention..."⁴³ This provides the COP to the CBD an opportunity to overview these reports and comment on any weakness or failures from states to implement provision of the convention⁴⁴, which also include implementation of the EA.

The above paragraphs provide us with an understanding of what the EA is and how it's related to the management of fisheries in International Law. The question now is what are the legal requirements for the implementation of the EA by states? COP 5 decisions V/6 provides 12 principles on how the EA should be implemented. The subsequent paragraphs attempts to provide an overview of these principles.

⁴¹ Legal opinions on the legality of the LOHAFEX marine research experiment, under International law: By Prof. Dr. Alexandra Proelos Page 10 Para 1.

⁴² *Environmental Law International*; by Ulrich Beyerlin and other Page 290 ISBN 9781841139241.

⁴³ See article 26 of the CBD.

⁴⁴ *International Law of the Environment*: by Birnie and Boyle Page 637 Para 2 ISBN 9780198764229.

2.2.7.1 Overview of principles for the implementation of the EA: decision V/6 COP 5.

Principle 1, 2, 3 of decision V6 provides techniques on how the Ecosystem should be managed. These principles provide that management of the Ecosystem should be based on; societal interest, decentralised and territorial.

Principle 2 on the one hand is a reiteration of article 8(j) of the CBD *supra* which provides room for the inclusion of indigenous people in the management of biological diversity. Principle 2 of the COP provides that, “management should be decentralised to the lowest possible level⁴⁵” that is including the Indigenous people. We saw in 2.2.3.1 the reason why indigenous people should be involve in the implementation of the EA. The indigenous people have a direct sense of responsibility over the quality and productivity of their environment and therefore, decisions should be made by those who represent the appropriate communities of interest, while management should be undertaken by those who have the capacity to implement the decisions. EA management must therefore maintain an appropriate balance between the interest of the communities and those of stakeholders.⁴⁶ Does this duty to make the EA management decentralised also meant that the indigenous people are involve in developing policies and guidelines for the implementation of the EA? It’s not very clear whether principle 2 provides a duty for indigenous people to make laws pertaining to the use of biological diversity in their region. Principle 2 only says that management should be “decentralized to the lowest level”. The COP has a duty based on principle 2 to provide a vehicle for further clarification of indigenous people rights, and create a forum where indigenous people can meet with parties to the convention and develop polices and guideline on how to manage biological diversity based on their unique perspective knowledge of the environment.⁴⁷

⁴⁵See principle 2 of COP decision V/6.

⁴⁶*The Ecosystem Approach, CBD guidelines* Page10 ISBN 9292250256: Available at <<http://www.biodiv.org>> Last visited 15/09/2012.

⁴⁷ *International Law and the Environment* by: Patricia Birnie and Boyle at el. Page 628 Para 2.

Furthermore, principle 3 cautions states to ensure sure that the activities they undertake in implementing the EA should be territorial and should not extend to the territories of adjacent states. The reason for this is simply because management interventions usually have unpredictable effects on other Ecosystems.

Principle 4 provides that Ecosystem management should be done in an Economics context. This implies that financial resources should be allocated in the management of biological resources. This principle implies that, those who generate environmental cost for example through pollution should pay for their acts. H Wang also provides an explanation of principle 2 and holds that, Ecosystem management most include the Economy of citizens because, poverty reduces people's ability to use resources in a sustainable way and therefore, the eradication of poverty should be essential in an Ecosystem management.⁴⁸

The fifth and sixth principle focused on the management of the Ecosystem with particular attention placed on factors that affect its evolution as a functional unit. It provides that the EA should be implemented cautiously even without complete knowledge of how the Ecosystem functions.

Principle seven provides that "the EA should be undertaken at the appropriate spatial and temporal scale". This is based on the fact that Ecosystem processes are linked across scales of both space and time, management intervention needs to be planned to transcend these scales.⁴⁹

⁴⁸ Ecosystem management and its Application to Large marine Ecosystem: Law and Politics ISBN 0090-8320 P45
Para 1.

⁴⁹ CBD guidelines(n46) Page 20.

Furthermore, principles 8 and 9 tell that Ecosystem management should be set for the long term and should be flexible. The committee on the scientific Basis for Ecosystem management (CSBFEM) also points out that long term sustainability should be the fundamental value of Ecosystem based management.⁵⁰ This can be explained by the fact that Ecosystem processes change over time therefore, management must be set for in the long term and flexible to suit these changes.

Lastly, principles 10, 11, 12 provides that the EA should be designed to support the conservation of biodiversity, the sustainable use of its components and the equitable sharing of resources there from, taking into account information from all sources. The reason why ecosystem management must take into account information from all sources is because ecosystems can be viewed at various scales and from different perspectives, each yielding unique information and insights. Good management should therefore consider all relevant information.⁵¹

COP 5 was a very important meeting for the implementation of the EA. It provides the definition and description of the EA in decision V/6 analysed above and was broadly endorsed as a framework for delivering the objectives of the CBD.

Subsequent COP meeting after COP 5 have further stressed on the implementation of the EA. I will not dwell on the rest of these meetings and decisions due to lack of time but, COP 9 for example invites parties to implement the EA to achieve the millennium development goal.⁵²

We must note that the EA represents the codification of previously applied strategies for biodiversity management. The codification was welcomed as it has the potential to provide significant momentum to integrate biodiversity management into development practice and decision making. What is the significance of the COP guidelines for the implementation of the EA to fisheries management?

⁵⁰ Ecosystem management and its Application to Large marine Ecosystem: Law and Politics ISBN 0090-8320 P44 Para 1.

⁵¹ CBD guideline(n26) Page 28.

⁵² COP 9 decision IX/7 Para 2.

2.2.7.2 Significance of the COP guideline for the implementation of the EA in the EA to fishery management.

We examined the legal status of the COP decision in 2.2.6.2 above and concluded that they have no legal binding effects on states. This holds the same for the COP guidelines for the implementation of the EA viewed above. They are legally not binding, but they have a normative character in that they influence the behaviour of states.

These guidelines are therefore significant in implementing the EA to fishery management in that, states should respect these guidelines in developing policies to implement the EA to fisheries. For instance, states in implementing the EA to fisheries must make sure that "management...be decentralized to the lowest appropriate level" pursuant to principle 2 of the COP guideline for the implementation of the EA. The reason for decentralized management has been discussed and how it relates to the EA to fisheries management have also been analysed. States should therefore use these guidelines to build an EA to fisheries management.

2.3.1 Legal debate about the adoption of the EA in the CBD.

We have analysed the CBD's concept of biological diversity management, which extends to the adoption of the EA by its auxiliary organ the COP to the CBD. The adoption of the EA by the COP has raised questions whether or not the CBD explicitly endorses the EA.

According to Veronica Frank *supra*, the CBD explicitly endorses the EA.⁵³ Implying therefore that, the CBD contains articles which expressly adopt the EA. E.J Molenaar on the other hand holds a contrary view by saying that; "...[no] global instrument contains a legally binding obligation to pursue integrated, cross-sectoral ecosystem based ocean management".⁵⁴

53 The European community and Marine Environmental Protection in the International Law of the Sea Page Chapter 8 Para 8.4.

54 Arctic fisheries conservation and management: Initial steps of reform of the International legal framework by: EJ Molenaar Page 459 Para1

This implies that the CBD does not endorse the EA. Debates of this caliber cannot be avoided due to the intricacies involved. The crux of the matter is that, the CBD by itself does not explicitly endorse the EA. The CBD as discussed above only contains measures which reflect the EA. The EA is expressly endorsed by the COP to the CBD. The COP was no doubt created by the CBD to improve on the contents of the CBD. To this end, the COP is an auxiliary body to the CBD and therefore a different body from the CBD. Its decisions do not form part of the provisions of the CBD but constitute a framework to direct the behaviour of states. The CBD contains 42 articles and two annexes none of which explicitly adopt the EA.

3.1 Conclusion

The CBD through its auxiliary organ the COP undoubtedly represents the EA approach to the management of biodiversity more than any other MEA in recent times. The measures and guidelines studied above, for the management and conservation of biological diversity are to be implemented by states both in areas within and beyond national jurisdiction in consideration of the integrity of the ecosystem. In areas beyond national jurisdiction the CBD calls on states to cooperate in the implementation of its provisions.

The CBD regime for biological diversity management only reflects the EA in the conservation and management of biological diversity, it does not expressly adopt the EA in the way in which the Rio Declaration expressly adopt the Precautionary Approach (PA).⁵⁵ This has raised questions on how poor states can implement measures of the EA in the CBD when they are so general. Small or developing states with almost no ability to conduct research on the marine environment depend on the robust international framework to manage their biological diversity.⁵⁶

55 See Principle 15 of the Rio declaration.

56 Norway's marine policy: Towards comprehensive Ocean Management by Alf Hakon and Terje Lobach Page 7
Para 3.

Nonetheless, the CBD itself reflects the theoretical aspects of the EA and based on article 23 and 30, mandate was given to COP and SBTTA to make operational the EA by coming up with practical guidelines. COP adopted the EA and has furnished the Convention with practical guidelines on how to implement the approach. These guidelines as seen above have no legal effects on state parties to the Convention.

By providing guidelines for states to manage their biodiversity and implement the EA, the CBD is therefore involved in the way states manage their biodiversity and biological resources. This inclusion should be made clear is indirect. The CBD recognized states sovereign rights to manage their own resources in article 3 of the Convention.⁵⁷

It's hoped that the implementation of the EA would help the CBD achieve its objectives of sustainable management of biological diversity. The guidelines adopted by the COP to implement the EA are not a "blue print" action plan, states must develop on them to suit their particular needs. The use of the chapeau provision "as far as possible and as appropriate" in most of CBD's provision indicates that, CBD's desire to achieve its objectives is stronger than its duty to make elaborate and strong laws to manage biological diversity.

⁵⁷ see article 3 of the CBD.

CHAPTER FOUR

THE 1995 FISH STOCK AGREEMENT AND OTHER INTERNATIONAL INSTRUMENTS REFLECTING THE ECOSYSTEM APPROACH TO FISHERY CONSERVATION AND MANAGEMENT.

1.3 INTRODUCTION

1.4 GENERAL

As analysed in chapter two, the LOSC satisfactorily established a regime for ocean governance but arguably does not expressly contain the EA as a strategy to conserve and manage fisheries. According to Ulrich and Thilo, LOSC provisions are ambiguous¹ implying that, the LOSC provisions to are not enough by themselves to conserve and manage marine resources sustainably. Overutilization of marine resources and insufficient states co-operation continued after LOSC was concluded, there was therefore a need to come up with new instruments to complement LOSC.

Agenda 21 chapter 17.1 holds that, there is need for new approaches which are “...integrated in content and are precautionary and anticipatory in ambit”² to be supplemented to the LOSC provisions on environmental protection(b), sustainable development of marine resources in the high seas(c) and in areas under national jurisdiction(d).

Paragraph 49 chapter 17.49(e) and (f) of Agenda 21 further calls on states to; “... convene as soon as possible, an intergovernmental conference...with the view to promoting the effective implementation of the provisions of the United Nations Convention on the Law of the sea on stranding fish stocks and highly migratory fish stocks”.³

To this end, in 1993 the United Nations general assembly convened a special conference to assess problems relating to the conservation and management of stranding and highly migratory fish stocks.

¹ *International Environmental Law* by: Ulrich and Thilo page 135 para.3 ISBN 9781841139241.

² See article 17.1 of Agenda 21 chapter 17.

³ See Agenda 21, Chapter 17.49(e) and (f).

Two years after and in 1995, the conference adopted the Fish Stocks Agreement which came into force on the 11th of December 2001.⁴

The objective and jurisdiction of the FSA is therefore to; "... ensure the long-term conservation and sustainable use of stranding and highly migratory fish stock through the effective implementation of the relevant provisions of the Convention".⁵ The jurisdiction of the FSA covers areas within and beyond national jurisdiction.⁶

As we shall examine, the FSA just like LOSC does not expressly endorse the EA as a strategy to conserve and manage fisheries. This implies that just like the LOSC, there is no article in FSA which expressly provide that states should apply the EA as a strategy to conserve and manage fisheries, the EA to fisheries is impliedly reflected in the FSA. This view is shared by H. Wangs *supra* who argues that, the FSA explicitly (not expressly) adopts the EA to conserve and manage living marine resources.⁷ Bernie and Boyle also share the same view and points out that, measures provided by the FSA for sustainability of stranding fish stocks should be read in ecosystem terms.⁸ What this means is that, there are measures in the FSA which could be read as implying an EA to the conservation and management of living marine resources. What then are these measures?

The purpose of this chapter is to examine those measures in the FSA which reflects the EA to fisheries and the duty for states to implement such measures.

4 Oceans and Law of the Sea United Nations divisions for the Oceans Affairs and the Law of the Sea documents; Available at: http://www.un.org/Depts/los/convention_agreements/convention_overview_fish_stocks.htm Visited 11/09/12.

5 Article 2 of the FSA.

6 Article 83203 of the FSA.

7 H wang (n 6 chp1) page 49 Para 2 ISSN 0090-8.

8 *International law of the Environment* by: Bernie and Boyle page 736 Para 2 ISBN 9780198764229.

2.1 The regime for the management of Stranding fish stocks and the EA to fisheries management in the FSA.

The regime for the management of stranding fish stocks in the FSA include; conservation and management principles, compliance measures and provisions for the peaceful resolution of disputes arising from the management of such stocks. The regime, seeks to improve on the generic requirements provided by the LOSC in the management of stranding and highly migratory fish stocks in articles 63(2) and 64 of the LOSC *supra*. As a consequence and as according to article 4 of the FSA, measures put in place by the FSA to manage stranding fish stocks must be consistent with provision of the LOSC.⁹ The stranding fish stock regime of the FSA supports impliedly the EA. The preamble of the FSA points out that, the state parties are “conscious of the need to avoid adverse impacts on the marine environment, preserve biodiversity, maintain the integrity of marine ecosystem and minimize the risk of long term or irreversible effects of fishing operation”. I will therefore examine those principles provided for the management of stranding fish stocks which are attuned to preserving the integrity of the ecosystem while ensuring the sustainable conservation and management of stranding fish stocks.

2.5 General measures to conserve stranding fish stocks and highly migratory fish stocks in the High seas, article 5 of FSA.

Articles 5 of the FSA provides general principles which states shall implement to conserve and manage stranding fish stocks, in the high seas and in areas under national jurisdiction in connection with their duty to cooperate as provided in the LOSC. According to article 5(a) of the FSA, states shall; adopt measures to ensure the “long term sustainability of stranding fish stocks and highly migratory fish stocks “and promote their optimum utilization through cooperation with other states.¹⁰

9 See article 4 of the FSA.

10 Article 5(a) FSA.

States further have the responsibility to ensure that, such measures are based on the best scientific evidence available and are”...designed to maintain or restore stocks at levels capable of producing Maximum sustainable yield”.¹¹

The FSA or the LOSC does not define the MSY concept. The concept can basically be described as the activity to catch the highest possible yield without destroying the stock. The goal, of the MSY concept in international environmental law has been discussed. According to article 5(b) of the FSA, states should take into account “environmental and economical factors”, the interdependence of stocks, the needs of developing states and generally recommended international minimum standards before establishing the MYS.

Article 5(c) obliges states to apply the “precautionary approach in accordance with article 6” in the conservation and management of stranding fish stocks.¹²

States are further required under article 5 to adopt a holistic management of all ecosystem processes by controlling human activities and environmental factors on target stocks and species belonging to the same ecosystem,¹³ minimize pollution,¹⁴ protect the marine environment,¹⁵ take measures to eliminate over fishing,¹⁶ consider the needs and interest of the indigenous people who are usually involve in subsistence fishing,¹⁷ and promote the use of science in the conservation and management of fisheries.¹⁸

What is the duty for states to implement the general principles in article 5 of the FSA to conserve and manage stranding and highly migratory fish stocks?

2.5.1 Duty for states to implement article 5 of the FSA.

11 Article 5(b) FSA.

12 Article 5(c) FSA

13 Article 5(d) FSA.

14 5(f) FSA.

15 5(g) FSA.

16 5(h) FSA.

17 5(i) FSA.

18 5(K) FSA.

The duty for states to implement article 5 of the FSA *supra* is a strong and absolute duty. The use of the word “shall” in the chapeau of article 5 indicates that states have an absolute duty to cooperate with other states and implement all the provisions in article 5 to manage stranding and highly migratory fish stocks in accordance with the LOSC. To this end and pursuant to article 63 and 64 of the LOSC *supra*, states in implementing article 5 of the FSA can “co-operate directly or through appropriate international organization”. The LOSC states that states should co-operate to manage stranding and migratory fish stocks but does not emphasize on the measures they should take. Article 5 of the FSA therefore provides a broader and more extensive obligation for states to co-operate and manage highly migratory fish stocks than the measures provided in articles 63 and 64 of the LOSC.

2.5.2 Relationship between article 5 of the FSA and the EA to fisheries management.

Principles provided in article 5 of the FSA are reflective of the EA to fisheries in that, the EA to fisheries involves; sectoral measures which are attuned to the management of fisheries alone such as the MSY provided in 5(b), and other approaches such as the PA, the promotion of clean marine environment which is healthy and conducive to sustain fisheries, measures to fight against over fishing, and recognized the rights of indigenous people to consume their resources which are provided in article 5 of the FSA.

However, articles 6 and 7 of the FSA provide a more developed representation of the EA to fisheries. They account for the;

2.6 Application of the Precautionary Approach in the conservation and management of stranding fish stocks article 6 of the FSA.

Article 6(1) of FSA provides that;

“States shall apply the precautionary approach widely to conservation, management and exploitation of stranding fish stocks and highly migratory fish stocks in order to protect the living marine resources and preserve the marine environment”.¹⁹

19 See articles 6(1) of the FSA.

Article 6(2) of the FSA further provides that, “the absence of adequate scientific information should not be used as a reason for postponing or failing to take conservation and management measures”. Article 6(3) of the FSA provides a list of measures which states must do to implement the PA in the management of stranding fish stocks amongst which include the need for states to establish “stock specific reference points”. The question is how does, the reference point develop on the MSY established by the LOSC? The duty to establish “reference points” in the FSA have a clearer binding effect than the MSY of the LOSC as it integrates the PA in the setting of such reference point. Article 6(6) goes on to provide an obligation for states to set “catch limit and effort limit” on new fisheries and to adopt emergency measures to conserve fisheries in case of emergency, 6(7). What does it mean for states to implement the PA to conserve and manage fisheries?

2.6.1 Meaning and duty for states to implement the PA in the management of stranding fish stocks.

The definition of the PA is provided in article 6(2) of the FSA, it states that states should “be more cautious when information is uncertain, unreliable and inadequate” in the management of stranding fish stocks, even when scientific information is uncertain. This means that, states are to be more cautious when regulating a new fishery than with an existing one.²⁰ States have an absolute duty to apply the PA, article 6 of the FSA *supra* provides that states “shall apply the precautionary approach”, the use of the word “shall” implies an absolute duty, for states to apply the PA in the management of stranding fish stocks and to protect the marine environment. On the other hand, the definition of the PA provided in article 6(2) of the FSA *supra* makes the absolute duty states have to implement the PA relative, in that, the level of caution exerted must be equal to the information available.²¹ What is the relationship between the PA and the EA to fisheries?

2.6.2 Relationship between the PA and the EA to fishery management.

The PA is attuned to manage fisheries in a manner that will avoid fisheries from overexploitation. It involves the establishment of reference points, MSY all in a bid to avoid the overexploitation of fisheries.

²⁰ *Law and Politics in Ocean Governance* by: Tore Henriksen and other Page 24 ISBN 9004149686. ²¹ Pages 24.

The PA also involves measures to protect and preserve the marine environment which serves as habitats for fisheries. The EA on the hand also involves measures which are sectoral and involves the management of fish stocks independently such as the MSY and also measures to preserve the marine environment. As Maritaka Hayashi pointed out: "the ecosystem approach is taken fully into account in the precautionary approach".²²

To this end, by endorsing the PA in the management of stranding fish stocks article 6 of the FSA therefore reflects the EA to the conservation and management of fisheries.

2.4 Compatible conservation and management measures, article 7 FSA.

Article 7 of the FSA requires states to cooperate compatibly to conserve and manage highly migratory and stranding fish stocks, in area within and beyond the national territory without undermining the sovereign rights of the coastal states to conserve and manage their living marine resources established under LOSC.²³ This does not mean that the measures applied in the EEZ and on the high seas should be the same, it simply implies that measures applied in the EEZ is independent of those applied in the high seas.

The aim for states to have compatible measures in the management of highly migratory fish stocks is promote the optimum utilization of such stocks. Articles 7(1) b of the FSA provides, that states shall cooperate;

"...with a view to ensuring conservation and promoting the objectives of optimum utilization of such stocks throughout the region, both within and beyond areas under national jurisdiction".

Article 7(2) of the FSA provides a list of management measures which states must implement to achieve "compatible measures" in the management of stranding fish stocks. Amongst these measures, include the need for states to take into account; "...the biological unity and biological characteristic of stocks and the relationships between the distribution of the stocks, the fisheries and the geographical particularities of the region concerned..."²⁴

22 *Ecosystem management and its Application to Large Marine Ecosystem; Science, Law and Politics* by: H Wang and Hayashi. "The 1995 Fish stock agreement and the Law of the sea" Page 53.

23 See article 7 of the FSA.

24 See articles 7(2) d of the FSA.

Biological characteristic of the stocks are important in achieving compatible measures because of characteristic attributable either to the area under national jurisdiction or to the area adjacent where the stocks are.²⁵ According to article 7(2) d *supra*, the intention in referring to the unity or the characteristic of the stock must be to ensure that the “distribution of the stocks” over different jurisdiction does not undermine the conservation of the stock. Pursuant to article 7(2) f states must ensure that measures they undertake to achieve compatible measures do not “...result in harmful impact on the living marine resources as a whole”. What is the duty for states to achieve compatible measures to manage stranding fish stocks?

2.4.1 Duty for States to achieve compatible measures to manage stranding fish stocks.

As per article 7 *supra* of the FSA, states and states whose nationals fish stranding fish stocks in areas within states jurisdiction and in the high seas shall cooperate “either directly or through the appropriate mechanism for cooperation” which include cooperation with sub regional or regional fisheries management organization to establish conservation measures.

By use of the word “shall” implies that the duty for states to cooperate and earn compatible measures to conserve and manage stranding fish stock is an absolute and a strong duty. States also have a strong duty to “agree” on compatible measures and inform other states about the measures they have adopted to manage stranding fish stocks in area within and beyond national jurisdiction. What is the relationship between the duty for states to have compatible measures to manage stranding fish stocks and the EA to fisheries?

2.4.2 Relationship between the duty for states to have compatible measures and the EA to fisheries.

Compatible measures adopted by article 7 of the FSA relates or reflects the EA in that, the matters to be taken into consideration in establishing consensus for corporation by states in the FSA, adopts an EA to the conservation and management of fisheries.²⁶

²⁵ Tore Henriken (n 20) Page 33.

²⁶ *Ecosystem Management*(n6 chp1) by: H. Wang Page 53 Para2.

These matters includes; the need to include human and ecological elements, biological unity and characteristic of stocks, fisheries, geographical particularities of the region concerned and the extent to which such stocks occur and are fished in the area within national jurisdiction and the harmful impact on living marine resources as a whole before reaching a consensus to corporate. Article 7 of the FSA therefore adopts the EA to fisheries in that, the EA to fisheries takes into account geographical and human factors in the conservation of fisheries. What developments does the FSA bring in establishing compatible measures to manage stranding fish stocks in the LOSC?

2.4.3 Developments brought in by the FSA in establishing compatible measures to manage stranding fish stocks from the LOSC.

The requirements in achieving compatible measures of cooperation in the management of stranding fish stocks have been developed in the FSA and include both geographical and human factors which do not exist in LOSC. According to Patricia Bernie, article 7 further amplifies article 63 and 64 of the LOSC by requiring states to cooperate to ensure compatibility between the measures adopted for the high seas area and those for areas under national jurisdiction.²⁷

3.1 Other International Instruments which endorse the EA in the Conservation and management of Living Marine resources.

A plethora of instruments carry and endorses the EA to the conservation and management of fisheries, which for time constrain and space cannot be examined in this thesis. They include; The 1979 Bonn Convention on the Conservation of Migratory Species of Wild Animals, the 1980 Convention on the Conservation of Antarctic Marine ecosystem (CCAMLR), the 1972 Stockholm Declaration, the 1992 Rio Declaration, Agenda 21, The 1993 Compliance Agreement, the 2001 Reykjavik Declaration, the 2002 Johannesburg plan of Implementation, the Jakarta Mandate, the 2006, 2007 and 2008 UN General Assembly Sustainable Fisheries Resolutions, and the Code of conduct for responsible fishery.

²⁷ *International law and the Environment* by: Patricia Birnie et.al *supra* Page 742.

A close study of these instruments and the principles they provide would tell that, the EA in the conservation and management of living marine resources has been established in international environmental law.

4.1 Conclusion

The FSA adopts the regime for the management of stranding fish stocks and highly migratory species by implementing and improving on provisions of LOSC, but does not expressly adopt the EA as a strategy to conserve and manage fisheries.

The bone of contention is whether the measures contained in article 5, 6 and 7 are dependable by themselves for states to adopt and be develop into an EA management strategy to conserve and manage fisheries? According to Bernie and Boyle, the FSA is not a comprehensive instrument to regulate the conservation and management of fisheries because it does not handle all categories of fish stocks.²⁸ This indicates that, the provisions of the FSA cannot be developed into an EA in the management and conservation of fisheries which involves the management of all fish types. This view is not however shared by H. Wang who holds that, the measures in the FSA in conserving and managing living marine resources are important by themselves to be developed into an EA strategy to conserve and manage fisheries.²⁹

However, it's my opinion that, despite the fact the FSA does not expressly account for the EA as a strategy to conserve and manage fisheries, it provisions supports all the component of the EA in the conservation and management of fisheries. These provisions are elaborate enough as they cover all the key issues of the EA fisheries as discussed above. States can therefore depend on the provisions of the FSA to adopt an EA in the conservation and management of fisheries.

²⁸ International Environmental law by Patricia Bernie and others Page 734.

²⁹ *Ecosystem Management*(n6 chp1) by: H. Wang Page 54.

CHAPTER SIX

GENERAL CONCLUSION

1.1 Overall assessment of the EA to fisheries in International environmental Law

1.2 Overview of the EA in general environmental law instruments.

The relevant instruments charged with the management of fisheries and biological diversity endorse the EA to fisheries in different extents. The relevant hard law instruments such as the LOSC, the CBD and the FSA do not expressly adopt the EA to fisheries management. These instruments contained measures which are attuned to the management of fisheries or biological diversity with ecological networks, to this end only impliedly adopting the EA to fisheries management. The relevant soft law instruments on the other hand expressly adopt the EA to fisheries management. Decision V/6 of COP 5 *supra* described and endorses expressly the EA as a new strategy to manage biological diversity. The code and other soft law instruments do not expressly adopt the EA but provide a lee way for the approach to be implemented by states.

The endorsement of the EA by soft law instruments gives states a duty to implement the EA in the management of their biological resources. This duty may not carry with it legal reparation but serves as a normative framework with political consequence to ensue if states do not implement the EA in the management of their biological diversity.

1.3 International Practice

States and political entities such as the EU have adopted the EA to fisheries in their respective legislation. Sections 7(b) of the Marine Resource Act of Norway (which governs the management of wild living marine resources) for instance provides that that; "an ecosystem approach that takes into account habitats and biodiversity"¹ should be use to manage wild living marine resources. What are the structural difficulties in implementing the EA?

2.1 Structural difficulties in the implementation of the EA.

The major problems facing managers and policy makers in adopting the EA to fisheries are discussed in brief below.

To develop laws to implement the EA to fisheries, states need to have a complete and adequate understanding of the complex relationship amongst species in the ecosystem.

¹ Sections 7(b) Marine Resource Act of Norway.

At present, very little is known about the dynamics of the marine ecosystem.² This is particularly true for the high seas where knowledge of stock abundance, distribution and life histories of many species are lacking.³ The inadequacy of scientific understanding of the complex relationship amongst species means that states have had difficulty in developing management policies that consider associated and dependent species except in a limited number of fisheries.⁴ Other structural limitations include the inconsistency between large maritime ecosystem and maritime zones. The Exclusive Fishing Zone do not often coincide with the EEZ's in their boundaries, this may create problems in the implementation of the EA to manage migratory species since the management regimes of both region may differ.⁵

3.1 Conclusion

Despite the structural limitation in implement the EA, the EA to fisheries has developed upon the single specie traditional method of solving problems affecting fisheries. The fact that this approach is endorsed in international law is a positive sign that there are movements to change the way states manage fisheries. The EA to fisheries stands out as the best possible strategy to manage fisheries sustainable, but as Dawn A. Russell puts it, the EA to fisheries is only a "beacon of hope" it will not solve all problems affecting fisheries, states must have the political will, for example to reduce fishing capacity and reduce overfishing to effectively manage fisheries sustainably.⁶

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