

# DOWNLOAD PDF THE GULF OF GUINEA LARGE MARINE ECOSYSTEM (LARGE MARINE ECOSYSTEMS)

## Chapter 1 : The Gulf of Guinea Large Marine Ecosystem: Volume 11 : J. McGlade :

*The Gulf of Guinea Large Marine Ecosystem Environmental Forcing & Sustainable Development of Marine Resources*  
Edited by Jacqueline M. McGlade, Philippe Cury, Kwame A. Koranteng, Nicholas J. Hardman-Mountford.

Regional Ocean Governance Presented by: Marine Affairs Course Lecturer: Measures to curb environmental degradation Solid waste pollution in Liberia Mangroves are negatively impacted by human activities Benrong Peng for his beautiful and enriching lectures. In fact, his methodology of analyzing facts has been a rich spectrum of inspiration to me. I am also indebted to Mrs. Phoebe Ye for her timely information on academic routine. I say kudos to her efforts. My sincere gratitude also goes to my Marine Affairs classmates who are always ready to assist me whenever it is necessary. However, despite its resources and support to livelihood systems, the GCLME is facing a lot of challenging problems, namely, population explosion and urbanization, fisheries depletion, water pollution, public health and sanitation, habitat degradation, coastal erosion, loss of biological diversity, and land- use all of which have been exacerbated by human activities. These include, recover and sustain depleted fisheries; restore degraded habitats; and reduce land and ship-based pollution by establishing a regional management framework for sustainable use of living and non-living resources in the GCLME. This paper, seeks to address the following questions: The methodology used in writing this paper is basically literature review and personal analytical views. The area is characterized by its tropical climate it is the primary force driving the LME, with intensive fishing as the secondary driving force. The coastline of the sub-region is generally low lying and interspersed with marshes, lagoons and mangrove swamps UNEP, Fishery resources in the Guinea Current region include over species of finfish, 17 species of cephalopods, 25 species of crustaceans, and 3 species of turtles FAO, The fishery resources are exploited by both artisanal and industrial fishing fleets, the latter of which is made up of both local and foreign flag vessels. For example, in Nigeria, the artisanal canoe fleet exploits coastal waters up to 5 nautical miles from shore while 40 fishing and shrimping vessels were 8 licensed in , and 62 fishing and shrimping vessels in FAO, FAO records show that there was a catch of , tons in and , tons in , although there was a decline to , tons in The mangroves areas, which form a great part of the eco-region, are also important areas for the local communities. These mangroves beside the species available in them act as spawning ground for fish species. Some of the mangrove species available especially in the Niger Delta area of Nigeria, the largest mangrove in Africa 9, km<sup>2</sup> and the third largest in the world Despite its resources, the GCLME is facing a lot of challenging problems, namely, population explosion and urbanization, fisheries depletion, water pollution, public health and sanitation, habitat degradation, coastal erosion, loss of biological diversity, and land- use UNEP, all of which have been exacerbated by human activities. For example in Ghana, a marine prawn of the *Paenus* sp. In Nigeria the establishment of the oil industries close to the EEZ has caused high migrations to the coastal towns like Bonny, Eket and Port Harcourt. This results in a great increase in wastes discharges to water courses with accompanying negative impacts. Also, in the Niger Delta area of Nigeria, the construction of jetties, sand and gravel mining, dredging and removal of vegetation has worsened coastal erosion. Pollution is also a major issue. UNEP, in the final report of the Global International Water Assessment GIWA indicates that the main pollution problems are degraded water quality, the loss of critical habitats for migratory and non-migratory species, effluents in rivers flowing into the 9 LME, the risk of offshore spills, marine debris and beach pollution, and industrial and solid waste. Pollution from oil and gas exploration is a major potential danger for coastal fisheries. For example, In Nigeria oil is produced from the Niger Delta over 90 oil fields, about 6, km<sup>2</sup> of flow lines and pipelines spread over 30, km<sup>2</sup> of the Delta. They encompass coastal areas from river basins and estuaries seaward to the break or slope of a continental shelf or out to the seaward extent of a well-defined current system e. Benguela Current, Kuroshio Current. Baltic Sea are partially enclosed geographical areas Sherman et al. Governance questions the fundamental goals, the institutional processes and the structures that are the basis for planning and decision making. Governance sets the stage within which management occurs.

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The long-term development goals of the project are: The project focused on nine demonstration projects and designed to be replicable and intended to demonstrate how concrete actions can lead to dramatic improvements. Sustainability was aimed at improving capacity, strengthening of national and regional institutions, improvements in policy and legislative frameworks, and the demonstration of technologies and approaches that will lead to improved ecosystem status. The private sector was a focus for cooperation, as they also played a key for long-term sustainability of actions. The priority problems of resource depletion, loss of biodiversity and land and sea-based pollution are all addressed through the interventions proposed here. The project had five main components with associated objectives identified by the root cause analysis carried out during the project preparation process: The Global Environment Facility provided a 6-million US dollar grant, with co-financing from other countries. The GCLME supports a significant world fishery that is important for food security, and as a source of foreign income earnings for the countries. Pelagic and demersal fisheries within the region are being exploited with evidence showing that the landings of many demersal species are currently declining. The decline in fish availability in the subsistence sector has led to the adoption of destructive fishing methods such as use of undersized meshes and blast fishing. Based on present consumption patterns and population growth rate, much of the region especially the large coastal cities of Lagos, Abidjan, Accra and Douala, will have to produce significantly more fish by just to meet domestic demand. Pressure on the coastal resources is therefore likely to increase significantly in the immediate future. Despite nutritional requirements and current population growth rate, the industrial commercial fisheries sector in the countries within the GCLME export fisheries products exacerbating the problems associated with food security in the region. The contribution of the artisanal fishery to food security, employment and the conservation of socio-cultural traits deserve special attention. In the area of employment, the canoe industry has produced important fleets varying from country to country. Direct employment in terms of fishermen is also high. In Guinea, current estimates based on recent trawl surveys indicate a total biomass of demersal resources to be around 140,000 tonnes, of which 44,000 tonnes are of high or medium commercial value. It was suggested that this change in biomass was related to the recent increase of small-scale artisanal and industrial fishing efforts. Interactions with the more commercial large-scale fisheries have led to major problems for the traditional artisanal fishery. Fishery production of the coastal area up to 20 m depth was estimated at about 40,000 tonnes per year. Trawl surveys carried out on the Guinea continental shelf have shown that between and the estimated biomass of coastal resources in waters less than 20 m deep roughly up to 15 nm offshore declined from 140,000 to 49,000 tonnes during the rainy season and from 72,000 to 48,000 tonnes during the dry season. This reduction between and can be explained by the increase in fishing activity of trawlers in inshore areas. In Sierra Leone, the artisanal fishery exploits small pelagic species only. Their current level of catches ranges between 22,000 and 30,000 tonnes. Acoustic surveys have estimated biomass to be between 70,000 and 100,000 tonnes, suggesting that catches are still sustainable. Current annual landings for demersal stocks by trawlers ranged from 8,000 to 20,000 tonnes between and . Reduced catch rates are currently observed in the fishery and the level of exploitation of demersal fish stock is considered high. Current annual production of Southern pink shrimp in Sierra Leone was found to fall within the MSY estimate of 2,000 to 3,000 tonnes. Reduced catch rates are currently observed in the fishery, and the level of exploitation of shrimp is considered high. In the 17 west and central Gulf of Guinea, potential catches of shrimps were estimated at 4,000 tonnes, and stocks were considered overexploited. Demersal resources are fully exploited with biomass estimates ranging between 64,000 and 100,000 tonnes. Domestic and industrial pollutants have mostly been associated with the large coastal cities in the region such as Accra, Abidjan, Lagos, Douala, Port Harcourt and Luanda. Most of the industries operating in the region are located in or around the coastal areas and discharge untreated effluents directly into sewers, canals, streams and rivers that end up in the GCLME causing widespread deterioration in the water quality and the health of the coastal inhabitants. Pollution from municipal, industrial and agricultural sources significantly affect transboundary waters and living marine resources of the GCLME. Although most impacts of chronic deterioration in water quality are localized national issues, they are common to all of the countries and require collective action to address them.

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Moreover, chronic pollution favours the development of less desirable species, and result in species migration. Catastrophic events such as major oil spills and maritime accidents produce impacts across country boundaries, requiring cooperative management and sharing of clean-up equipment and manpower. Eutrophication and HABs occur in most of the sixteen countries, and these face similar problems in terms of impacts and management, and which require collective regional action to address. Domestic sewage and other wastes, but also coastal and upstream non-point-sources of pollution from agricultural, forestry and hazardous waste sites constitute sources of contamination of the 18 fresh drinking water and the water quality in general, both for the surface and groundwater resources. The water quality degradation is generally associated with health problems because of the presence of pathogens and other micro-organisms, excess of nitrates and persistent organic micro-pollutants, etc. It is clear, consequently, that human interference with the land-based activities in the region, superimposed on natural degradation processes in the coastal and marine areas could induce huge disturbances with large impacts in the concerned environments loss of habitats and productivity and biodiversity, water quality decline with consequences in the coastal population health, changes in the natural coastal and marine environment equilibrium with frequent, increasing harmful effects; i. Agriculture constitutes one of the major sources of income in the region and its intensification through irrigation and extension to marginal lands has led sometimes to the excess use of nutrients, pesticides and other herbicides and organo-chlorine substances, including certain forms of POPS. The intensity of the use of POPS varies from country to country depending on the type of agriculture, but they constitute a source of pollution that are of importance for the GCLME region. Because of the non-existence of substitutes not only for pesticides, but also for substances against diseases and public health vectors, chlorinated insecticides have been used for more than 30 years. This is likely to continue if international efforts to ban them or strictly regulate their usage or find better substitutes are not made. Oil pollution, which is widespread in the Niger Delta, also results in ecological and 19 public health problems to which women and children are particularly susceptible. The socio-economic impacts of oil spills are enormous. Social disturbances resulting from reactions to oil spills have unquantifiable impacts on the economy of the immediate areas and communities as well as the nation as a whole. Ghana alone, for instance, discharges about 1, tons of waste oil daily or , tons annually, and it is estimated that the entire sub-region discharges about 4,, tons of waste oil into the GCLME annually. Pollution from shipping and maritime transport constitutes another source of degradation of the marine environment and deterioration of the water quality of the GCLME and represents a transboundary problem in the region. Ship source pollution is mainly from the discharge of ballast water into the sea and oil spillage from ships. Undoubtedly, globalization has continued to put demand on maritime transport. In , seaborne trade came to a record high of 5. Most countries of the GCLME are primary exporters of raw materials that feed the major industrial economies. At the same time these countries rely heavily on imports for their socio-economic development and serve as transit ports for neighbouring landlocked states. The increases in maritime transport have come with corresponding pollution and destruction of the marine environment and ecosystem of the GCLME region. There are standards and conventions regulating ship source pollution within the umbrella of the IMO. Certainly, the emphasis for coastal states is the institution of effective coastal and port state regulation and enforcement and the establishment of facilities such as port reception facilities. In some cases the manpower capacity to ensure 20 effective regulation of ship source pollution is weak and completely lacking in some places. Poverty is also a major contributing factor to the present degradation of the coastal and marine environments in the GCLME, since it constitutes a major impediment to the adoption of new practices or behaviours which are less damaging to these environments. The presence of bilharzia and other water-borne diseases constitutes another important health risk resulting from the deterioration of the quality of water in the freshwater environment. This is due in particular to the changes occurring as a result of the construction of river dams.

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## Chapter 2 : The Gulf of Guinea large marine ecosystem | IUCN Library System

*The Gulf of Guinea volume is part of a series on the Large Marine Ecosystems. This volume combines the latest research on the Gulf of Guinea from scientists working primarily in the region and from Europe.*

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for the Advancement of Science, Les saisons marines devant Abidjan. Long sequence time series evaluation using standardized principal components. Marine Ecology and Fisheries. Marine Fisheries of Nigeria: Recent investigations, resource evaluation, state of exploitation and management strategies. Marine Fishery Resources of Nigeria: A review of exploited fish stocks. Microwave remote sensing of coastal zone salinity. Mixing and stabilization of phytoplankton distributions on the northwest European continental shelf. Modelling of the tropical oceanic circulation. MOS a spaceborne imaging spectrometer for ocean remote sensing. Note on swarms of Thaliacea in the Gulf of Guinea. Nutrient provinces in the sea: Concentration ratios, reaction rate ratios and ideal covariation. Observational and numerical evidence for wind-forced coastal trapped long waves. Observations of vortex dipoles on the Benguela upwelling front. Concepts of Ecosystem Ecology. Oceanic forcing of the wintertime North Atlantic Oscillation and European climate. On coastal waves trapped at low latitudes. On the generation of the seasonal coastal upwelling in the Gulf of Guinea. Patterns in the Ocean: Ocean Processes and Marine Population Dynamics. California Sea Grant College System, Persistence of sub-Saharan drought. Planetary gravity waves in an equatorial ocean. Primary production required to sustain global fisheries. Prograde and Retrograde Fronts. Propagation of the seasonal upwelling in the eastern equatorial Atlantic.

### Chapter 3 : Large marine ecosystem - Wikipedia

*Gulf of Guinea Large Marine Ecosystem Project 29 The long-term objective of the Global Environment Facility project is to restore and sustain the health of the Gulf of Guinea Large Marine Ecosystem and its living resources, particularly with regard to biological diversity and the control of water pollution.*

### Chapter 4 : AN APPRAISAL OF THE GUINEA CURRENT LARGE MARINE ECOSYSTEM | SUINYUY DE

*This volume combines the latest research on the Gulf of Guinea from scientists working primarily in the region and from Europe. It covers the dynamics of the oceanic and coastal waters of the region, the major biological resources, pollution in the marine environment and the socio-economics and.*

### Chapter 5 : Benguela Current Commission - The Guinea Current LME

*Large marine ecosystems (LMEs) are regions of the world's oceans, encompassing coastal areas from river basins and estuaries to the seaward boundaries of continental shelves and the outer margins of the major ocean current systems.*