



Importance of Effective Marine Resource management to Nigerian Economic Development: Abundance of Fish and Shrimp Resources

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ABSTRACT

The study adopted the descriptive research survey method in assessing the importance of marine resources to Nigerian economic Development in the production of Fish and Shrimp resources. The study purposively selected the Makoko area of Lagos state, where various fishing activities occur in which 200 respondents were selected randomly to take part in the study. Three research questions were formulated to guide the study and a self-made questionnaire was adopted for data collections. Given low literacy level of the participants, the researcher recruited research assistants in collecting the data from the respondents. The research assistant assisted the artisans in reading and interpreting the questionnaire. All data collected in the course of this study was analyzed descriptively using frequency and percentages; mean and standard deviations. The result from this study identified some of the challenges confronting the production of Fish and Shrimp resources in Nigeria waterways to include Illegal and unregulated fishing; Destructive fishing practices; Coastal development; Poor water quality management; Lack of technical information for modern aquaculture; Climate change as well as open access nature of marine resources. Again, the result of this study revealed that marine resources are essential for the economic growth of the nation and finally, the result of this study revealed that the management of marine resources play essential roles in enhancing fish and shrimp production through: ensuring the continued satisfaction of human needs for present and future generation; providing coastal protection; reducing illegal fishing; and by encouraging sustainable fisheries management. Based on these results, this study recommends that the Nigerians should develop a good culture of properly managing and maintaining healthy fishing culture to avoid the extinction the shrimps and fish from Nigerian waters. The study recommends strict adherence of artisans to the regulation guiding fishing to minimize illegal fishing activities. Finally, the study recommends that adequate marine resources that will help in promoting fishing productions and thus enhances Nigerian economy development.

Keywords: Importance, marine resources, Nigerian economic development, fish, shrimp.

Introduction

One of planet earth's most valued natural resources is the ocean, given the role it plays in food production, transportation and recreation (Akpabio & Ekanem, 2008). Nigeria is a country blessed with vast natural resources, as well as adequate marine fishery resources. The production of fishery from the marine increases the production of fish in Nigeria, and contributes to economic development. In spite of this abundance, the domestic production of fish is on the low side and does not meet demands. According to Folami (2017), the marine environment with its diverse plants and estuarine animals is an important heritage to the world, both culturally and naturally; as well as possess international significance.

The importance of marine resources to a nation, developing or developed, cannot be overemphasized. Fishery which is carried out in the marine environment is an important subsector given its agricultural contribution to the GDP which is about 3.00–5.00% (Ateme, 2021). The fishery sector enhances development through the provision of quality protein and provision of jobs to fishing communities. This indicates the high relevance of the fisheries sector to the economy, in the face of growing demand and consumption (Olaoye & Ojebiyi, 2018).

Nigeria is lined with a coastline of about 900 km, and the coastal waters support artisanal fishing. Variety of fish belonging to various categories is produced at the marine artisanal level. These various categories include the Sciaenid community such as (bonga, croakers, sardines and catfish, Elopidae, Carangidae, Polydactylus spp. (polynemidae), Sphyraenidae; also palaemonids, sharks, saw fishes, and carid shrimps are part of the categories produced by artisanal fishers. In Nigeria alone, the fish species comprises over 104 belonging to 50 families (Essien-Ibok & Umoh, 2013). The demand for fish is met through domestic production and fish importation. Fish importation is used to augment local production in spite of the vast marine resources lining the Nigerian coastline (Olalekan & Wahab, 2018). Billions of naira is spent annually on the importation of fish largely because of the decreasing local supply, and factors responsible for the increasing value and demand of imported fish includes growth in population.

The depleting production of fish from the ocean is largely attributed to excessive fishing pressure on available resources, which leads to over fishing. Furthermore, the absence of poor enforcement of effective fisheries regulations, the post-harvest losses caused by poor processing methods and inadequate storage system, and harmful fishing methods contribute to the depleting domestic production of fish and shrimps. Directly or indirectly, this negatively affects economic development (Ateme, 2021). The sustainable management and protection of marine resources, and the ecosystem fisheries, from illegal fishing might impact positively on the growth of the marine-connected economy sectors as well as minimize or eliminate pollution, hunger and poverty.

Statement of research problem

The Nigerian marine environment possesses the capability of sustaining the growth of the nation; however its significance is grossly understated in view of the benefits offered in terms of employment and food provision especially to coastal communities. The ocean or marine as a natural resource is a source of foreign reserve earnings and Gross Domestic Product (GDP). Despite the marine being a significant resource, it is exposed to exploitations of various sorts in the course of resource extraction, which is a challenge to the nations' economic development. In addition to the above challenge, are issues such as climate change, marine litter accumulation, hazardous waste, flooding, and coastal erosion, which harm the environment and directly affect the habitat, people and animals around (Onuoha, 2021).

Fishery is an economic sector which provides enterprise development, employment, food security and foreign exchange earnings. Globally, people depend on healthy oceans to meet with a lot of needs. The marine resources have been reported to enhance growth and build wealth, yet it is threatened by human activities; resulting in the deterioration of fish stocks caused by overfishing and other forms of human exploitation (Ateme, 2021). The destructive fishing practices, pollution and coastal development put a heavy strain on fish habitats and undermine fish stock recovery. This therefore underscores the importance of effectively managing this important resource. Based on the foregoing, this study is undertaken to assess the importance of marine resources to Nigerian economic Development in the production of Fish and Shrimp resources.

Research objectives

This study specifically seeks to:

1. Identify the challenges confronting the production of Fish and Shrimp resources
2. Determine the impact of marine resources on economic development
3. Investigate the extent to which management of marine resources enhances fish and shrimp production

Research questions

This study specifically seeks to:

1. What are the challenges confronting the production of Fish and Shrimp resources?
2. What is the impact of marine resources on Nigeria's economic development?
3. To what extent will the management of marine resources enhance fish and shrimp production?

Literature review

The marine environment is a fundamental part of the natural and cultural legacy globally, with its essential diversity of marine and estuarine animals, plants, and communities, which are major components of self-sustaining systems of local, national, regional, and global significance (Folami, 2017). Marine resources can be defined as the materials and elements found in the ocean that are thought to be valuable and this value can be inherent or financial. These resources include biological diversity, oil and gas, fish and seafood supplies, sand and gravel, tourism potential, minerals, renewable energy resources, and unique ecosystems like coral reefs. These resources even without monetary value are unique and are an opportunity for education and human enhancement. The way these resources are managed is of great importance (Marine Resources: Characteristics, Formation & Management, 2018).

Marine resources often serve significant ecological functions, offer coastal protection, and are important resources for food, tourism, energy and economic development. In many parts of the world, such marine and coastal systems are under strain or are endangered from both human and natural sources (Davis, 2021).

Economic development refers to the structural transformation of a country's economy by introducing more automated and efficient technologies to increase labour productivity, incomes, employment, and the general standard of living of the population (Panth, 2021).

Marine resources in Nigeria include fisheries, oceanic energy, shipping, mining, tourism, marine biotechnology and marine aquaculture (Ateme, 2021). The fisheries subsector in Nigeria is essential for rural development through provision of high quality protein, income and socio-economic development (Olaoye et al., 2016).

Challenges that hinder the development of marine resources in Nigeria

Inadequate scientific data bank for marine resources: lack of basic research and unscientific misuse of marine resources, destabilizes the environment and results in an indefinite conclusion as to whether the different resources that comprise ocean resources are fully exploited. The need to develop state, regional and national data banks of species of fish and of other marine resources are pressing as insufficient and unreliable data can cause them to be unmanaged (Ateme, 2021).

Varying government policy: government policies toward the development of marine resources in Nigeria are poor. Sustainable government policies to help utilize marine resources in Nigeria are nonexistent and the ones formulated have been inconsistent. This has stalled the development of marine resources greatly and the repetitive changes in government policies have posed several threats to the country's advancement both economically and socio-politically. Foreigners now fish in our waters, diminishing fish stock and putting local fishermen at their mercy (Folami, 2017).

Climate change: fisheries activities and the distribution of fish populations are affected by climate change. Changes in the temperature of water can affect marine species habitats. Climate change causes oceans to become hotter and more acidic (Whited, 2016).

Open access nature of marine resources: open access means that there is no restriction of entry into a common property regardless of who owns it and this affects marine resources in Nigeria such as marine fisheries where unrestricted access puts pressure on stocks.

Over exploitation/pollution: overpopulation is a problem in Nigeria as there is no permissible catch policy in fishing in coastal waters thereby affecting stocks. Pollution also affects the viability of marine resources (Ateme, 2021).

Empirical review

Sugiawan, Islam and Managi (2017) explored the state of global marine fisheries and empirically analyzed its relationship to economic factors. By applying the pooled mean group estimator method, 70 fishing countries were examined for the period of 1961-2010, using both catch and the probable size of stock as proxies for marine ecosystems. The results confirmed that economic growth initially led to the deterioration of marine ecosystems but had favorable impacts of economic growth on the sustainability of marine fisheries.

Ateme (2021) investigated the prospects and challenges of developing marine resources in Nigeria by reviewing existing literatures and documents from secondary sources. It was revealed that the challenges in harnessing marine resources in Nigeria are an inadequate scientific data bank, climate change, inconsistent government policy and insufficient manpower.

Schuhmann, Skeete and Waite (2017) carried out a study on the economic importance of marine resources in Barbados. Visitors' spending, activities, ratings of coastal and marine attribute in Barbados and potential responses to changes in environmental conditions were measured using questionnaire which was administered to over 3,000 visitors. Results showed that visitors perceived the existing coastal and marine environment to be of high quality and were greatly involved in recreational activities in the coastal zone. Most of the visitors were eager to pay a fee to help finance the long-term protection of coastal and marine resources in Barbados. It was agreed that tourists have high preferences for clear water, healthy coral reefs and quality beaches. Findings implied that guests were eager to pay much more for higher sea-water quality, better coral reef and marine life, lower storm risk and wider beaches.

Theoretical framework

Classical Growth Theory

This is a modern category of economic theory that explains economic growth to be a result of capital buildup and the reinvestment of profits resulting from specialization, the division of labour, and the quest of comparative advantage. The main driving forces of economic growth are seen as division of labor, the profits from trade and the accumulation of capital (Kenton, 2021). Productive investment of marine resources and the reinvestment of profits are mechanisms that can produce continuous economic growth, so changes in the rate of profit will be a decisive reference point for an analysis of the long-term evolution of a nation's economy.

Methodology

The study adopted the descriptive research survey method in assessing the importance of marine resources to Nigerian economic Development in the production of Fish and Shrimp resources. The study purposively selected the Makoko area of Lagos state, where various fishing activities occur. Adopting the random selection method, 200 artisan fishers were selected as respondents for the study. Questionnaire was used as the primary source of data and was distributed with the aid of research assistants. Given the low literacy level of most of the respondents, the research assistants had to assist them in filling out the questionnaire by reading the contents out and interpreting it to their understanding. The data derived from this instrument was descriptively analyzed using frequency and percentages; mean and standard deviations.

Data Presentation, Analysis and Discussion

Research Question 1: What are the challenges confronting the production of Fish and Shrimp resources?

Table 1: Descriptive Statistics showing the challenges confronting the production of Fish and Shrimp resources

Items	Agreed (%)	Disagreed (%)	Mean	S.D.	Decision
Illegal and unregulated fishing	147 (73.5%)	53 (26.5%)	2.97	0.61	Accepted
Destructive fishing practices	158 (79.0%)	42 (21.0%)	3.12	0.52	Accepted
Coastal development	189 (94.5%)	11 (5.5%)	3.44	0.41	Accepted
Poor water quality management	183 (91.5%)	17 (8.5%)	3.43	0.40	Accepted
Lack of technical information for modern aquaculture	149 (74.5%)	51 (25.5%)	3.06	0.57	Accepted
Climate change	197 (98.5%)	3 (1.5%)	3.71	0.38	Accepted
Open access nature of marine resources	198 (99.0%)	2 (1.0%)	3.78	0.36	Accepted

Mean benchmark is $\bar{x} \geq 2.50$

Table 1 above presents the result from the descriptive statistics analysis of the respondent's opinions on the challenges confronting the production of Fish and Shrimp resources. With all the items in the table exceeding 2.50 being the mean cut-off (according to the decision in this study), all the statements in the table were accepted. This shows that the production of Fish and Shrimp resources face challenges such as: Illegal and unregulated fishing (Mean 2.97; standard deviation=0.61); Destructive fishing practices (mean 3.12; Standard deviations 0.52); Coastal development (mean 3.44; standard deviation 0.41); Poor water quality management(mean 3.43; SD. = 0.40); Lack of technical information for modern aquaculture (mean 3.06; and SD=0.57); Climate change (mean 3.71; and SD=0.38); Open access nature of marine resources (mean 3.78; SD=0.36). This result confirms that for some previous studies that also identified similar challenges as confronting the quality and quantity of fish and shrimp production such as Ateme (2021) and Hussan, Choudhury, Vinay, and Gupta (2016).

Research Question 2: What is the impact of marine resources on Nigeria's economic development?

Table 2: Determine the impact of marine resources on economic development

Items	Agreed (%)	Disagreed (%)	Mean	S.D.	Decision
Provision of employment	108 (54.0%)	92 (46.0%)	2.77	0.64	Accepted
Serves as critical resources for food, energy and tourism	111 (55.5%)	89 (44.5%)	2.81	0.66	Accepted
Serve as highways for sea-borne international trade	114 (57.0%)	86 (43.0%)	2.69	0.68	Accepted
Provision of coastal habitats for humans	121 (60.5%)	79 (39.5%)	3.32	0.69	Accepted
Improves food security	101 (50.5%)	99 (49.5%)	2.52	0.61	Accepted
Provides low cost and reliable mode of transportation	114 (57.0%)	86 (43.0%)	2.69	0.68	Accepted

Mean Benchmark $\bar{x} \geq 2.50$

Table 2 above presents the respondents opinion on the impact of marine resources on Nigeria's economic development. The result of the study indicated, with a mean score above 2.50 that marine resources has important impact on economic development. This is because it enhances employment (mean=2.77; and SD=0.64); Provision of employment (mean 2.81, and SD 0.66); Serves as critical resources for food, energy and tourism (mean 2.69; SD= 0.68); Serve as highways for sea-borne international trade (mean 3.32, SD=0.69); Provision of coastal habitats for humans (3.32 and SD=0.69); Improves food security (mean 2.52; SD = 0.61); and Provides low cost and reliable mode of transportation (mean 2.69; S.D= 0.68). The result of this study is in consistent with that carried out by Olaoye and Ojebiyi (2018); Sugiawan, Islam and Managi(2017) and Schuhmann, Skeete and Waite (2017) respectively who also found marine resources as essential for the economic growth of the nation.

Research Question 3: To what extent will the management of marine resources enhance fish and shrimp production?

Table 3: Descriptive Statistics showing the extent to which management of marine resources enhances fish and shrimp production

Items	Agreed (%)	Disagreed (%)	Mean	S.D.	Decision
Management of marine resources will contribute to the growing need for seafood products	184 (92.0%)	16 (8.0%)	3.34	0.54	Accepted
Management of marine resources will ensure the continued satisfaction of human needs for present and future generations	173 (86.5%)	27 (13.5%)	3.25	0.55	Accepted
Management of marine resources provides coastal protection	116 (58.0%)	84 (42.0%)	2.75	0.69	Accepted
Management of marine resources will reduce Illegal fishing	129 (64.5%)	71 (35.5%)	2.80	0.61	Accepted
Management of marine resources will encourage sustainable fisheries management	191 (95.5%)	9 (4.5%)	3.51	0.42	Accepted

Mean benchmark is $\bar{x} \geq 2.50$

Table 3 above presents the respondents opinion the extent to which management of marine resources enhances fish and shrimp production. According to the result indicated in the table above, the management of marine resources can enhance fish and shrimp production by contributing to the growing need for seafood products (mean 3.34; SD=0.54); by ensuring the continued satisfaction of human needs for present and future generations (Mean =3.25; and SD=0.55); by providing coastal protection (mean 2.75; SD=0.69); reducing illegal fishing (mean 2.80; SD=0.61); and finally, by encouraging sustainable fisheries management (mean 3.51; SD= 0.42).The study supports Ateme (2021) who also revealed that management of marine resource plays essential in enhancing fish and shrimp production.

Conclusion and Recommendations

The result from this study identified some of the challenges confronting the production of Fish and Shrimp resources in Nigeria waterways to include Illegal and unregulated fishing; Destructive fishing practices; Coastal development; Poor water quality management; Lack of technical information for modern aquaculture; Climate change as well as open access nature of marine resources. Again, the result of this study revealed that marine resources are essential for the economic growth of the nation and finally, the result of this study revealed that the management of marine resources play essential roles in enhancing fish and shrimp production through: ensuring the continued satisfaction of human needs for present and future generation; providing coastal protection; reducing illegal fishing; and by encouraging sustainable fisheries management. Based on these results, this study recommends that the Nigerians should develop a good culture of properly managing and maintaining healthy fishing culture to avoid the extinction the shrimps and fish from Nigerian waters. The study recommends strict adherence of artisans to the regulation guiding fishing to minimize illegal fishing activities. Finally, the study recommends that adequate marine resources that will help in promoting fishing productions and thus enhances Nigerian economy development.

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**IMPORTANCE OF MARINE RESOURCES TO NIGERIAN ECONOMIC DEVELOPMENT: ABUNDANCE OF FISH AND SHRIMP RESOURCES
REQUEST FOR INFORMATION**

Dear Respondent,

I am carrying out a study on “Importance of Marine resources to Nigerian economic Development: Abundance of Fish and Shrimp resources”, and you have been chosen to be part of the study. This questionnaire is only for academic purposes. Kindly select the response which applies to you and all information will be kept confidential

Instructions: Please tick (√) as appropriate where

SA = Strongly Agree (SA), A = Agree, D = Disagree (D), SD = Strongly Disagree (SD)

Key: Strongly agree (4), Agree (3), Disagree (2), and strongly disagree (1).

S/N	ITEMS	SA	A	D	SD
RQ1	What are the challenges confronting the production of Fish and Shrimp resources?				
1	Illegal and unregulated fishing				
2	Destructive fishing practices				
3	Coastal development				
4	Poor water quality management				
5	Lack of technical information for modern aquaculture				
6	Climate change				
7	Open access nature of marine resources				
RQ2	What is the impact of marine resources on Nigeria’s economic development?				
8	Provision of employment				
9	Serves as critical resources for food, energy and tourism				
10	Serve as highways for sea-borne international trade				
11	Provision of coastal habitats for humans				
12	Improves food security				
13	Provides low cost and reliable mode of transportation				
RQ3	To what extent will the management of marine resources enhance fish and shrimp production?				
14	Management of marine resources will contribute to the growing need for seafood products				
15	Management of marine resources will ensure the continued satisfaction of human needs for present and future generations				
16	Management of marine resources provides coastal protection				
17	Management of marine resources will reduce Illegal fishing				
18	Management of marine resources will encourage sustainable fisheries management				