

Water Pollution and Fish Migration: Potential Treath of Specie Extinction (Case Study of Niger Delta Region of Nigeria)

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Abstract—Environmental pollution renders the ecological system unfit for survival. This is the order of the day in the oil – rich Niger Delta region of Nigeria. The activities of oil explorers have inflicted lots of harms to the water environments of the region.

Once the environmental factors for survival become unbearable to an organism, the option of migrating to a new environment becomes paramount.

Fish migration is a behavioural response in response to certain changes in their environment. Among the reasons fishes migrate are to move to more tolerable habitats.

Their migration is either annually or generational.

This review paper highlights the causes of fish migration in the polluted waters of the Niger delta region. It also emphasised on the possible threat of loss of biodiversity with regards to specie composition and possible extinction of some vital indigenous species.

Keywords: Pollution, Migration, Ecology, Biodiversity, Extinction

1. INTRODUCTION

The Niger Delta of Nigeria is the heart of the Nigerian oil wealth. It is situated in the central part of southern Nigeria. It lies within latitudes 4 degrees north to 6 degrees north of the equator and longitude 5 degrees east to 8 degrees east of the Greenwich (Chinedum and Chinua, 2001)

The Niger Delta is a geographical landmark that grew out of the fanning of the River Niger into thousands of square kilometres of swamps, waterways, vast flood plains, mangrove forest areas, and fishing villages.

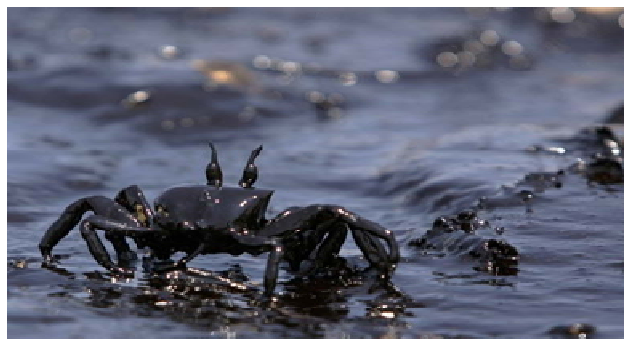
The region encompasses the most extensive fresh water swamp forest in West and Central Africa, and manifests an intricate network of creeks, rivers, streams, swamps, braided streams and Oxbow lakes, besides a stretch of flat and fertile land mass (Afinota and Ojajorotu, 2009).

Sadly, the region has not got all the attention an economy driver of a Nation should get. The activities of oil exploration have inflicted serious ecological problems to the region. Gas flaring, oil spillage, degradation and pollution of water bodies, pipeline explosions and oil theft and illegal or local crude oil

refineries are majority of the environmental problems in the region. Most water basins are seriously polluted by oil spillage. Crude methods and pipe leakages are some causes of oil spillages in the region.

Many factors have contributed to the destruction of fish habitats. Hydroelectric dams, water pollution and other environmental changes have resulted in the eradication of natural stocks.

The fear of complete loss of some important native species and biodiversity cannot be overruled. Fish migration and fish kills from unfavourable environment are some of the contributing factors.



Courtesy: Elizabeth, (2014).

Fig. 1: Polluted aquatic habitat

2. NATURAL HABITATS

According to World Bank - WAP, (2013), natural habitats are land and water areas where:

- i. The ecosystem's biological communities are formed largely by native plant and animal species.
- ii. Human activities have not essentially modified the area's primary ecological functions.

Based on the description above, all natural habitats therefore have important biological economic and existence value. They may occur in freshwater lakes and rivers, coral reefs, among others.



3. WATER POLLUTION: CAUSES AND DAMAGE TO FRESHWATER BIOTA

The Niger Delta is a wetland and the health of the environment and lives of people are intertwined with the health of the water system. The Niger Delta ecosystem is particularly sensitive to changes in water quality such as salinity or pollution.

Pipeline explosions, oil theft and illegal or local crude oil refineries are majority of the environmental problems in the region that bring about the pollution of water bodies. All of these activities result in oil spillage into water basins in the region.

Tens of thousands of families in the Niger Delta rely on fishing in in-land water bodies as well as offshore for both income and food.

Damage to fisheries is widely acknowledged by government and non – governmental sources as one major impacts of the oil industry. Oil spillage has major impacts on ecosystem into which it is released and may constitute fish kills.

4. MIGRATION

Generally, some fishes migrate at some stages in their life cycles. This migration may be in the early stages of life or late.

Fish migration in rivers is triggered by physiological state of the fish, as influenced by hormones and external triggering factors.

Others are environmental stimulus such as current, temperature or light and may act as a “director” of migration (Northcote, 1984).

Accumulation of pollutants in water basins from oil spillage can raise the water temperature, thus affecting other water quality parameters.

Water temperature can not only increase the solubility of toxic compounds, but it can also influence an organism’s tolerance limit (Bhadja and Vaghela, 2013).

5. CONCLUSION

The effect of pollution from oil spillage on specie biodiversity is worrisome. It is so alarming because some important indigenous fish species could be lost.

Migration of fishes can be prompted due to polluted and un-conducive environment for survival.

Species extinction could also be prompted by:

- Mass Fish death due to anoxic and polluted environment
- Destruction of breeding grounds
- Physiological and hormone imbalances.

6. RECOMMENDATIONS

- Government should oversee clean up of oil impacted areas.
- Carryout independent inspection of oil operation and to sanction non compliance with laws and regulations.
- Make assessment of the impact of all oil and gas projects mandatory to oil exploration companies
- Formulate programmes that will encourage the conservation of biodiversity and natural habitats.

REFERENCES

- [1] Afinota, L.A. and ojakorotu ,V.(2009) : The Niger delta crisis: issue, challenges and prospects
- [2] Bhadja. P. and Vaghela. A. (2013). Effect of temperature on the toxicity of some metals to
- [3] Chinedum . I. and chinua. A. (2001):Niger Delta Nigeria :issue challenges and operation for aquitable Development .Nigeria world feature
- [4] Department of petroleum resources (2014) The 14th international HSE biennial oil and gas industry in Nigeria.
- [5] Labeo bata. International Journal of Advanced Life Sciences (IJALS), 6(3).
- [6] Northcote , T.G. (1984): Mechanism of fish migration in Rivers. NATO conference series volume 14. Pp: 317-355.
- [7] Ugochi, E.E. (2014). The management of oil spillage in the Niger delta region of Nigeria.
- [8] World Bank and West Africa, Agricultural productivity programme WAP,(2013) : Environmental Safe guard. Training manual.