

WATER PARAMETERS IN ILAJE LOCAL GOVERNMENT AREA ONDO STATE

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ABSTRACT

Ilaje Local Government Area of Ondo State is blessed with many rivers, lagoons, tributaries lakes and a very long coastline, of about 180km extending making the State as a coastal state with the longest coastline in Nigeria. The people are predominantly fishermen. The fish produced from this area could be further boosted through farming of fish especially in cages along the available creeks at not much cost to the inhabitants. This study shows that the waters of ILG were found optimal for fish production.

INTRODUCTION

Water quality determines to some extent the success or otherwise of aquaculture. Ilaje Local Government area of Ondo State is a riverine area with the possibility of producing adequate fish and other aquaculture products for the teeming population of the state if well managed. This study aims at assessing the water potentials of some water bodies in this area over a period of one year.

MATERIALS AND METHODS

The study area is Ilaje Local Government Area of Ondo State. Ilaje Local Government Area was created out of the defunct Ilaje/Ese-Odo Local Government in, 1996. It is made up of about 500 towns and villages, covering an area of 3,200 square kilometres. The vegetation of the area is predominantly mangrove swamp, with low grasses covering expanse of undulating lowland of mud and silt deposit in the south and rainforest vegetation with abundant raffia palms in the north of the local government. The area is blessed with many rivers, lagoons, tributaries lakes and a very long coastline, of about 180km extending from the boundaries of Delta State to the boundaries of Ogun State with Ondo State, thereby making Ondo State as the coastal state with the longest coastline. The 2006 Population Census put the local government population as 141,396 (NPC, 2006). The people are predominantly fishermen, while others engage in lumbering, crop-farming, water transportation and trading in fishery products (Ondo State Demographic Variable, 2000).

The area is affected by the dry and rainy seasons. During the dry season (December – April), water levels fall and then during the rainy season, the water level rises gradually reaching a peak of up to 9m or more height (around August to September) causing floods. The coastline of Ilaje consists of estuaries located at Awoye, Abereke, Oke-Siri/Idiegben, Seluwa and a recent one at Oroto. The high tides carry saline marine waters into the rivers, creeks, canals, lakes and undulating lowlands via the estuaries, while low tides reverse the flows. These scenario influence physico-chemical parameters and in particular salinity of the areas with ranges of 0.02 to 0.12‰ for fresh water, 0.53 to 21.5‰ for brackish (NIFFR, 2000) and marine waters 32-42‰ (Beveridge, 1987). These hydrological changes could cover 25 to 30km inlands. The study area was divided into three (3) zones for the purpose of this study based on salinity differences namely; Marine/Estuarine Zones (A), Brackish Zones (B) and Fresh water Zones (C). The year was divided into three seasons as: Pre-raining period (February-May), Raining period (June- September) and Post-raining period (October-January). Water quality parameters were carried out: temperature with a glass mercury thermometer, pH with a pH meter (Mettler Toledo 320), Dissolved Oxygen with a Dissolved Oxygen Meter (9071, Jenway), turbidity with a Turbidimeter. Other physio-chemical parameters that could not be done on the field were carried out in the Fisheries Laboratory of Federal University of Technology, Akure.

RESULTS AND DISCUSSION

The temperature range across the zones and in all seasons was between 26°C – 28°C. This temperature range is within the ideal temperature of 25°C- 32°C (Adekoya *et al*, 2004). The result also reveals that the average temperature before the rainy period is 26°C, during rain 28°C, while after the rain 26°C. Temperature was only slightly higher by in the dry season over the rest of the seasons. This shows that there was minimum temperature variation across the zones was ideal for fish growth. The pH ranged from 4.9 – 8.07. The pH is slightly acidic in the brackish and fresh water zones than the Estuary/Marine Zone. This may be as a result of the nature of the soil in this area, which is one of the characteristics of a mangrove forest. The average pH in all zones was slightly higher during the

raining season. This is probably due to the washing of the acid soil into the environment by rain water.

The dissolved oxygen ranged from 6.0 – 8.53mg/l seasonally and across zones. Dissolved oxygen was highest during raining season 8.53mg/l, probably due to high water current during this period of the year. The dissolved oxygen for optimal fish growth must not be less than 4mg/l (Adekoya *et al.*, 2004). BOD ranges from 4.40 – 952.8mg/l. BOD highest during the dry season. This coincides with the period of high temperature, as well as higher decomposition organic matter compared to other seasons.

Turbidity is highest during the dry season and in the estuary because of constant disturbance of water by large numbers of fishing boats passing through the estuaries and for the fact that all the debris collected from the upland pass through the estuaries into the sea. Salinity is the total concentration of the mineral salts, generally expressed as part per thousand (‰). The salinity of the water in all the zones ranges from 0 – 2.89‰. This shows that zone B and C are entirely fresh water throughout the year, except Alape lagoon which was brackish during the dry season, as a result of incoming sea water into the lagoon during high tides. The water in Zone A was fresh during the raining period but brackish during the rest of the season. This is because during the raining season, the incoming upland water dilutes the water in this zone. The salinity has effect on the availability and the type of fish that can be cultured in a place. TDS was highest during and after the raining season, probably due to the high volume of solids brought into the environment by the incoming flood water.

The waters of Ilaje Local Government Area of Ondo State are ideal for the rearing of fish (Adesulu, 2001). This is further buttressed by the fact that the area has been an active zone of fish production for ages. This historical perspective is been considered as the baseline in this study for perpetuating the culture of fish and other aquaculture species in this area. Using of cage for fish culture would be ideal in this zone as the requirements are met in terms of water parameters (Bocek, 2005)

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