

IMPACT OF WATER HYACINTH ON SOCIO-ECONOMIC ACTIVITIES: ONDO STATE AS A CASE STUDY

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Abstract

The infestation of water hyacinth which has been reoccurring in the riverine areas of Ondo State for over one decade now, posed a serious threat to the social and economic activities of the entire citizenry of the State. The infested area is the major supplier of fish products - a readily available and affordable protein source in the family food time-table. This paper highlights the effect of the weed on the commercial activities especially the fishery with a view to finding possible and practicable solutions for the economic emancipation of the people in the 21st century.

INTRODUCTION

The best known species of water hyacinth is *Eichhornia crassipes* out of the six varieties, five of which are indigenous to Northern and Central South America, while the sixth one is native to Equatorial Africa.

Eichhornia crassipes that infested Nigerian waterways almost one and a half decades ago belongs to the family Pontederiaceae and sub-family Lilolinaeaceae. *Eichhornia crassipes* is a large floating tropical aquatic plant with an attractive, pale-violet flower and broad, bright-green leaves. Native plants are able to undergo rapid vegetative propagation by sending out offsets which are connected to the parent plant by brittle stolons. Bock (1969) reported that these stolons are easily

broken by wave action and the offsets are set free to act as potential colonizers.

In 1984, Nigerian waterways were infested by the weed from neighbouring Republic of Benin via Badagry Creeks (Oso, 1988). Since then, the weed had infested most of the creeks and inlets of Nigerian coastline. Water hyacinth has blocked waterways against ships causing problems in water transportation, fishing and other commercial activities in the waterways.

The high rate of proliferation of water hyacinth has made its control ineffective in the 20th century. Measures adopted as practised in countries where it has occurred are biological, chemical, mechanical and utilisation (Ogunlade, 1992). Despite these control measures, water hyacinth has continued to have a

serious impact on the fishery activities in riverine areas especially among the women folk in Ondo State (Ogunlade, 1997).

This paper takes a critical analysis on the impact of water hyacinth infestation on the socio-economic activities of the entire people of Ilaje and Ese-odo Local Government areas in the past decade. Ese-odo Local Government Area is made up of two major groups of people who are closely related culturally, the Ijaw-Arogbos and the Pois with a population of about 100,000 by 1991 census. The Apois stay partly upland and partly in the riverine area. The major occupation in the area is fishing which is done mainly by the females. The males concentrate more on lumbering, palmwine tapping and subsistence farming to some extent. On the other hand, Ilaje Local Government area consists of five hundred towns and villages covering an area of about 3,000 square kilometers. Based on the 1991 population census figure, the local government area is one of the most populous Local Government areas in Ondo State. The local government area can boast of about 180 kilometers long shoreline thereby making Ondo State, the longest coastline in Nigeria. The major occupation of the Ilaje people is fishing. Since access to good road or water in this area, is an asset to viable socio-economic activities, the menace that water hyacinth constitutes cannot be over-emphasised.

It has also affected availability of good drinking water as mats of water hyacinth

covered stagnant waters, preventing reception of large inflows of water which are deoxygenated.

MATERIAL AND METHODS

Random sampling techniques were adopted to administer about one thousand questionnaires on the people of Arogbos-Ijaw communities in Ese-odo Local Government Area and the Ilajes in Ilaje Local Government Area. The questionnaire was directed to the difficulties encountered by the Ijaw-Arogbos, Apois and Ilajes in paddling of canoes; fishing; the impact of Government in combating the spread of the plant and the age group of the generality of people involved in the main fishing occupation.

RESULTS AND DISCUSSION

The population of people in fishery activities was investigated, namely those operating during water hyacinth invasion (WH) and those operating when there was no water hyacinth (NWH).

The people are involved in three types of fishery activities (Table 1) viz:

- making and selling of fishing gear
- fishing process - the major occupation, and
- marketing of fish

The following data emerged from the investigation:

The investigation also examined the fishery activities of the people by age group under two categories when there was infestation of water hyacinth and without infestation. The people were categorised into six age groups.

Six age groups were investigated (10 - 15); (16 - 21); (22 - 27); (28 - 33); (34 - 39) and (40 - 45). The data collected as in Table 2.

The data as presented in Table 1 suggests that as a result of the infestation of water hyacinth, many people abandoned fishery activities for subsistence farming and petty trading. Table 2 shows that from 1989 when water hyacinth infested the areas, there was gradual decrease of people, which cut across the ages that were involved in fishery activities. This was due to the blockage of most of the waterways by the weed. About seventy per cent (70%) of the responses of the people strongly agreed that the presence of water hyacinth in the waterways made navigational routes hazardous because paddling of canoes became a hectic task. The free movement of boats to catch fishes was highly impeded.

Figure 1 shows the histogram obtained from Table 2 with and without water hyacinth infestation for a period of ten years (1986 - 1996).

The data are summarised for the period, the means and standard deviation are reproduced in Table 3 for the period when there was no water hyacinth and when there was infestation of the weed.

The number of fishes caught greatly reduced by the infestation of water hyacinth, which affected the earning capacity and cash flow in the area. More than 55% of the people agreed strongly that water hyacinth had become a regular problem affecting their roles in fishery activities compelling them to shift focus to other menial jobs such as farming, lumbering and palm wine tapping.

Figure 1 clearly shows that for every age group of the people in the area, fishery activities when there was no water hyacinth infestation far exceeded when there was infestation.

People within the age group 22 - 27 years had the highest percentage at both periods suggesting this as the most active

Table 1: Fishery Activities in Riverine Areas (Ilaje and Ese-Odo Local Government Areas)

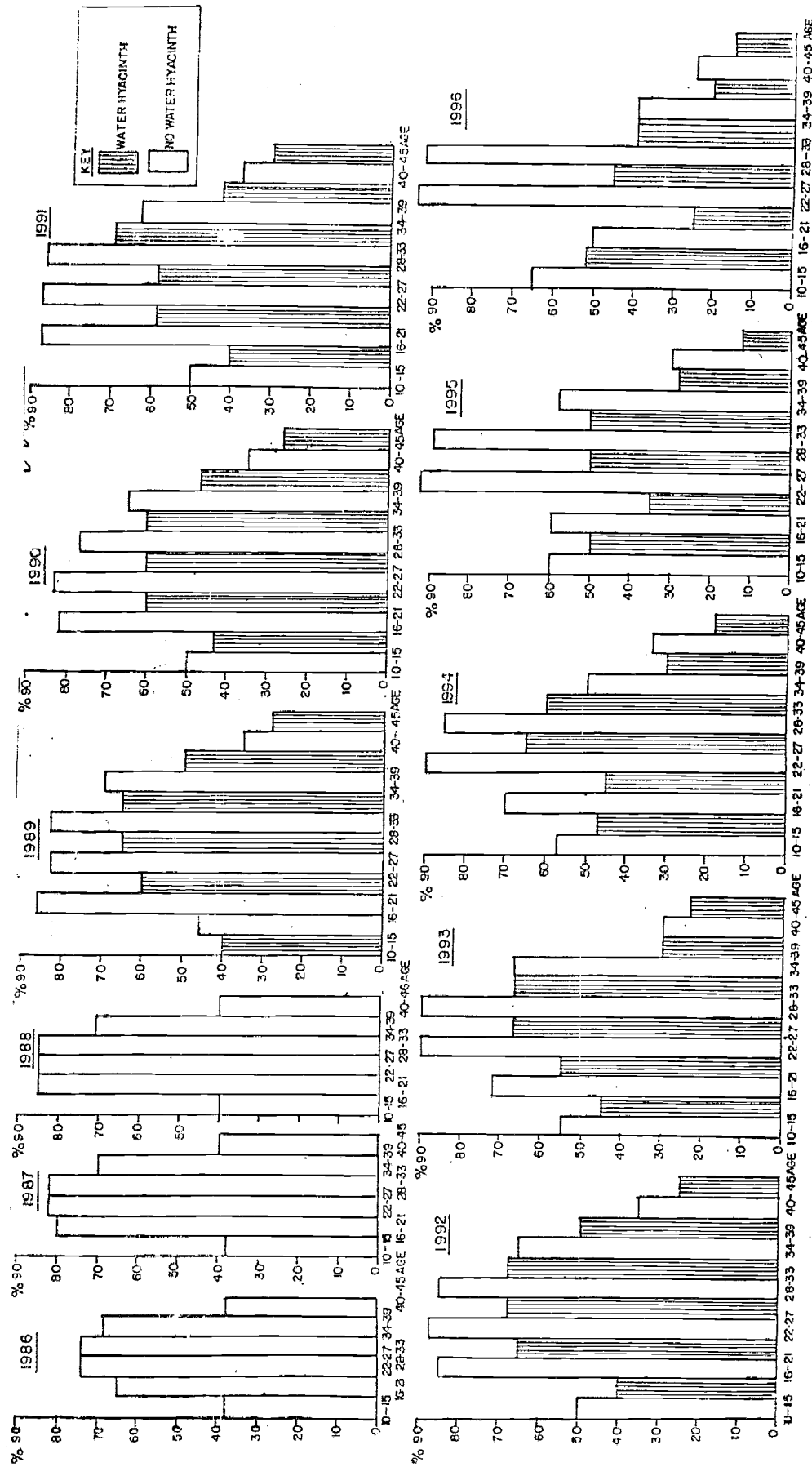
Activity	% People Participation	
	NWH	WH
I. Fishing gear	20	55
II. Fishing	75	20
III. Marketing of Fish	15	75

Table 2: Percentage of People in Fishery Activities in Ilaje and Ese-Odo Local Government Areas

Year Age	1986		1987		1988		1989		1990		1991		1992		1993		1994		1995		1996	
	NWH	WH	NWH	WH	NWH	WH	NWH	WH	NWH	WH	NWH	WH	NWH	WH	NWH	WH	NWH	WH	NWH	WH	NWH	WH
16-21	70	80	80	85	85	87	60	60	84	60	87	60	85	65	75	55	70	45	60	35	50	25
22-27	80	82	85	85	85	88	60	65	85	60	88	60	90	70	91	68	93	65	95	50	97	45
28-33	80	82	85	85	85	88	60	65	85	60	88	60	90	70	91	68	93	65	95	50	97	45
34-39	75	70	70	70	68	65	45	50	68	45	65	45	67	40	68	30	50	25	58	25	40	10
40-45	40	40	40	40	35	32	28	30	35	28	32	25	33	25	30	20	28	15	26	12	25	10

Key: NWH – No Water Hyacinth Infestation

WH – Water Hyacinth Infestation



1. HISTOGRAM SHOWING THE PERCENTAGE OF PEOPLE PARTICIPATING IN FISHERY ACTIVITIES IN ILAJE - ESE-ODO AREAS OF ONKO STATE BEFORE AND DURING WATER HYACINTH INVASION (1986 - 1996)

Table 3. Summary of the Data for the Period Under Investigation

Age in Years	10 - 15		16 - 21		22 - 27		28 - 33		34 - 39		40 - 45	
	NWH	WH	NWH	WH	NWH	WH	NWH	WH	NWH	WH	NWH	WH
Mean % participation	50.30	45.25	75.73	50.63	88.27	60.38	86.09	60.38	63.64	35.00	33.36	20.63
S.D.	8.16	4.24	11.63	13.33	5.17	8.20	3.99	9.92	9.85	10.61	5.42	7.07

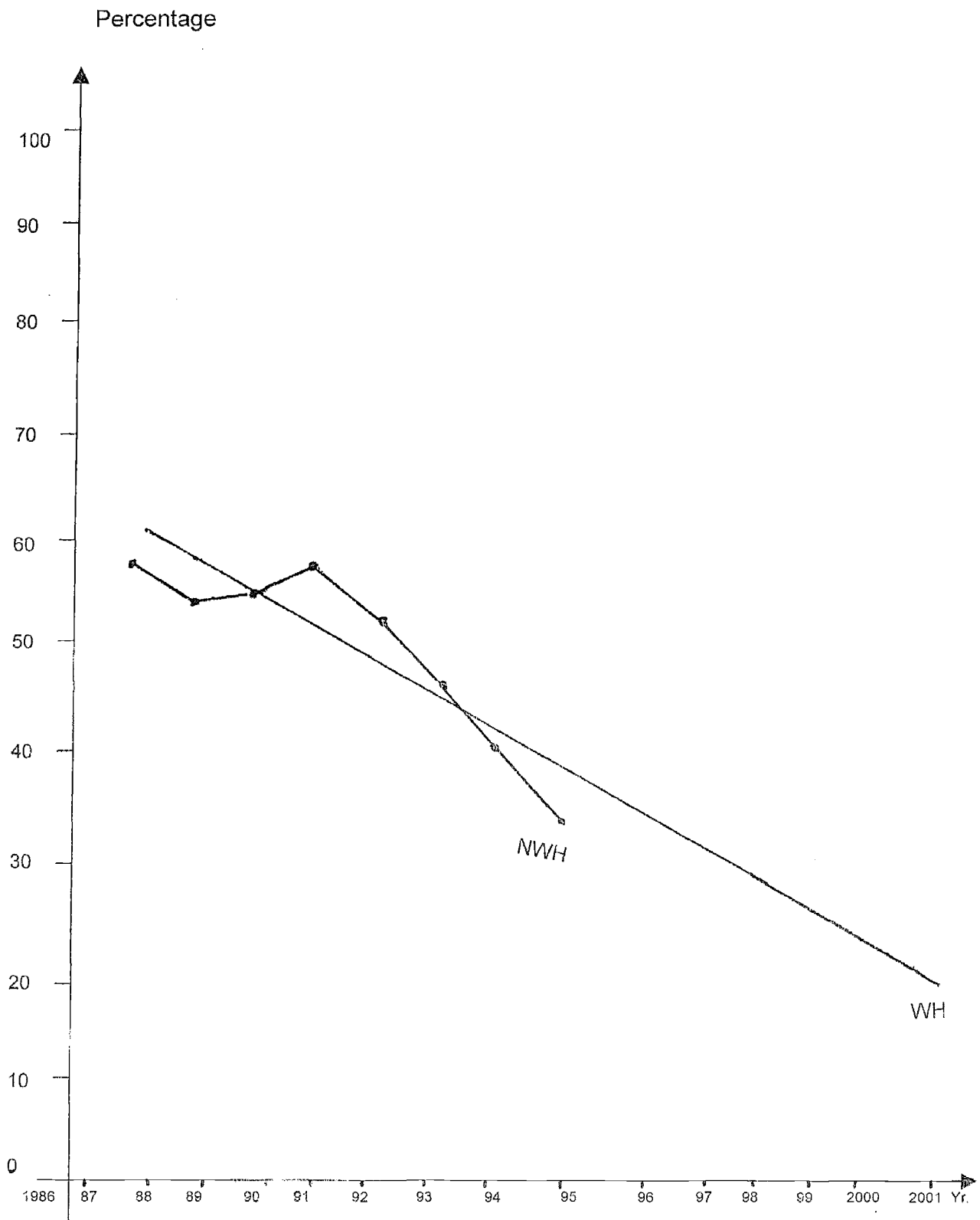


Fig 2: % of People population in Fishery Activities in Ilaje and Ese-Odo Local Govt. Area.

Time Series Graphs for All Age groups (10-45 Yrs)

age group involved in fishing. The least active at both periods was 10 - 15 and 40 - 45 age groups who could not probably withstand the hardship of paddling their canoes through the mats of water hyacinth.

In Figure 2, the straight line graph shows negative impact of water hyacinth infestation on the fishery activities of the people in the area while the curve indicates positive effect when there was no infestation of the weed on the waterways. By inference, water hyacinth infestation negatively impacted the socio-economic activities of the people.

CONCLUSION

The infestation of waterways by water hyacinth has kept reoccurring in the riverine areas of Ondo State for over one decade now. It has no doubt affected adversely the socio-economic activities of the people in the communities. Majority of the population have bandoned the main occupation - fishing.

It is hoped that Government will intensify her efforts in controlling the weed using an integrated approach in the 21st Century.

Other measures, which can alleviate the suffering imposed on the people by the invasion of water hyacinth, include:

Introduction and implementation of self-employed scheme for the generality of the people especially to the most active age group 22-27 years

as other ways of livelihood apart from fishing.

- Small scale industries should be sited at strategic locations along the streets to convert the weeds into animal feeds which can be used as fodder for herbivores, leaf protein concentrates in feeds, fertilizer and biogas. This will in turn provide employment for the people.
- Simple-skilled technologies should be evolved to aid fish processing (storage and preservation) to enhance earning capacities of the people.
- Ondo State Government should make a special allocation of funds for the clearance of the weed at periodic intervals either manually or by mechanical means.
- A special working committee comprising of researchers, fishermen and industrialists should be set up for a practical and urgent implementation of research findings and efforts on control and utilisation of Water hyacinth in this 21st Century.

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