

## A REVIEW OF THE CRAYFISH FISHERY OF NIGERIA WITH SPECIAL REFERENCE TO THE CROSS RIVER STATE

By

**N. U. Nsentip**  
Fisheries Division  
Calabar, Nigeria

### ABSTRACT

The fishery for crayfish is of considerable importance in the maritime region of the Cross River State, where it forms an important occupation of a host of fishermen. Crayfish landings from this State contributed 11% to the national marine fish landings within the period 1980 to 1984 and also in the same period the volume of crayfish alone formed 26% of the marine fish landings within the State and was valued at ₦119 million. The species exploited as crayfish include *Palaemon hastatus*; *Hippolytina hastatoides*; and *Macrobrachium* sp; mixed with the larval, and juveniles of pink shrimp *Panaeus dourarum*. They are generally small in size ranging from 7 cm (maximum) to 2.5 cm. Crayfish are caught all year round along the Niger delta, but particularly along the river estuaries and littoral waters of the Cross River State with the highest production occurring in March to May. Crayfish are usually smoked, and occasionally sun-dried, and they form an indispensable food item in the diet of the people of the entire southern States in particular and Nigeria in general.

It appears that crayfish landings could be substantially increased without depleting the stock, if a proper exploratory survey is undertaken of the Niger delta, and the Cross River estuaries to chart potentially rich grounds of this resource.

### INTRODUCTION

The crayfish fishery has been an important occupation of a host of fishermen in the Cross River State from time immemorial, and presently more than 10,000 active fishermen are engaged in the production of crayfish in this State. The overall consideration of the crayfish fishery resources in this paper is based on the catch statistics of crayfish from the commercial landings by these local fishermen all over the scattered maritime fishing centres in the State. From all indications, it has become clear that crayfish form a very significant fishery in this part of the country. For instance, from 1980–1984, the National coastal and brackish water fish landings was 1.60 million tonnes and crayfish from this State alone contributed 164,658 tonnes thus, forming 11% of the national fish landings. In the Cross River State, and within that period, a total 628,849 tonnes of fish was landed, while crayfish contributed 164,658 tonnes, forming 26% of the marine fish landings in the State. The crayfish fishery has played a significant role in both the national and the Cross River State economy. In 1980, a total of 25,066 tonnes of crayfish was landed and valued at ₦17.5 million. For a period of 5 years, crayfish landed in Cross River State was 164,658 tonnes with an estimated value of ₦119 million. The upward trend in crayfish production in this State during the period has resulted from the pumping of modern fishing inputs into the industry by both the National and State Governments, at highly subsidized prices to the fishermen. This effort by the Federal and State governments in supporting this fishery should not be relaxed. From these data, it is true to say that the crayfish fishery is an important one and plays a major role in sustaining the economy of the Cross River State in particular and the Nation in general, but so far, information/data about this fishery is not included in the National Year Book of Fisheries Statistics. This situation has, therefore, necessitated a close look at the current status of this fishery from the data available from the Cross River State Fisheries Division. It is hoped that in future a proper study will be incorporated at the National level to appraise this fishery towards an integrated development in order to further enhance the economic role it offers to the people of this State and to Nigeria in general.

### Composition of Crayfish

In Nigeria, what is generally referred to as crayfish are mainly the small shrimps composed of three families: Palaemonidae, Hippolytidae, and Sergestidae. The species exploited include *Palaemon hastatus*, *Hippolytina hastatoides*, and *Macrobrachium* sp., all mixed with the larval and juveniles of pink shrimp *Penaeus duorarum* which normally move into the coastal and estuarine areas to mature. The size composition of crayfish ranges from 2.5 cm to 7 cm (maximum without the long rostrum), though the most abundant and easily exploitable ones average in sizes from 3 cm to 4.5 cm. The bigger sizes are caught at estuaries open to the sea, while the smaller sizes are common in the littoral zones.

### Distribution

Shrimp/crayfish fishing is practised in the Lagoon system east of Lagos, but significant fishery for crayfish extends from the eastern part of the Niger delta to the wider estuary of the Cross River up to and beyond Abana Ntuen in the Nigerian/Cameroun border in the Sea.

### Catch Trend

For the period 1980 – 1984 the total catch of crayfish in the Cross River State and the national fish landings are given in Table 1.

**Table 1 – National Fish Landings/Cross River State Crayfish Catch Data  
(in metric tonnes 1980–1984)**

Year	National Inshore and Brackish water Fish landings (A)	Crayfish Landings from Cross River State (B)	(B) as a Percentage of of (A)
1980	274,158	25,066	9.14
1981	323,916	31,332	10.0
1982	377,683	40,896	11.0
1983	370,040	42,931	12.0
1984	227,659	24,433	11.0
<b>Total</b>	<b>1,573,456</b>	<b>164,658</b>	<b>10.5</b>

**Source:** (A) = Fisheries Statistics of Nigeria  
(B) = Marine Fish Production by species/value  
in the Cross River State (1980–1984).

In 1980, crayfish contributed 9.0% to the national fish landings of 275,158 tonnes. In 1980 to 1984 the landings for crayfish established at 10.5%, that is around 32,932 tonnes. From 1980 to 1983, the crayfish fishery showed an increase from 25,006 to 42,931 tonnes which portrayed an annual growth of 3.25% in 4 years.

Cray fish alone contributed 164,658 tonnes, which represents 10.5% of the national marine fish landings of 1.60 million tonnes for 1980 to 1984.

The landings of crayfish, and the total marine fish caught within the period 1980 to 1984 in the Cross River State are presented in Table 2.

**Table 2 – Cross River State marine fish/crayfish catch data  
(in metric tonnes) 1980–1984**

<i>Year</i>	<i>Marine Fish (A)</i>	<i>Crayfish (B)</i>	<i>(B) as a Percentage of (A)</i>	<i>Value of Crayfish in Naira (N)</i>
1980	122,544	25,066	20.45	17,546,200.00
1981	123,221	31,332	25.43	21,933,044.00
1982	146,148	40,896	28.00	29,199,744.00
1983	157,376	42,931	27.30	31,554,285.00
1984	79,560	24,433	30.71	81,813,410.00
<b>Total</b>	<b>628,849</b>	<b>164,658</b>	<b>26.20</b>	<b>N119,046,683.00</b>

*Source:* As in Table 1.

The sharp drop in fish/crayfish production in 1984 has been attributed to the high cost of fishing inputs and the lack of government support in subsidizing these fisheries in the Cross River State. For the entire period of 1980 to 1984, the marine fish landed in the State was 628,849 tonnes and crayfish contributed 164,658 tonnes to the landings forming 26% of the catch and valued at N119.05 million. The increase observed up to 1983 in the fishery has been attributed to the mechanisation of the indigenous fishing crafts and the use of improved fishing gear made available through both the State and Federal Government subsidized fisheries schemes.

#### AREAS AND FISHING SEASON

Crayfish form a very important fishery in the estuarine fishing villages in the Cross River State particularly along Kwa-Iboe, and the wider Cross River Estuary. The big landing settlements for crayfish in the State include Oyorokoto, on the Bight of Bonny near Ikot Abasi (See Figure 1). Here, more than 3,000 crayfish fishermen from Ikot Abasi, Ete and the suburb assemble and engage in crayfish fishing. Iko, Okoroette, Nta Ikang, Itak Ibang, Okposo, and Inua Abasi all on the Bight of Bonny are the other big centres where more than 2,000 fishermen are engaged in this fishery.

In Ibeno/Eket, bonga fishing is the predominant occupation of the fishermen of the area, but even there about 1,500 fishermen are engaged in the crayfish fishery. The greatest volume of crayfish in the Cross River State comes from Efiat/Mbo (Oron). This region is on the wider estuary of the Cross River and extends up to the Nigerian/Cameroun border in the sea. The main crayfish fishing settlements in Efiat/Mbo include Esuk Ekwang, James Town, Mkpang Utong, and Ine Okon Edu, all with a crayfish fishing population of about 2,500 fishermen. The largest crayfish fishing settlement in this area is Utan Brama with more than 5,000 fishermen engaged in the fishery alone. Other centres in this area include Mbo Ndoro (with 1,000 active crayfish fishermen) and Abana Ntuen (with 3,000) both located in the sea near the Nigerian/Cameroun border. Crayfish fishermen from Oron, Ebughu, and Nwaniba/Uyo migrate and stay at Utan Brama up to Abana Ntuen and participate in this fishery. Oron, and Nwaniba/Uyo form the ready land base for marketing of crayfish. These are about 2,000 crayfish fishermen engaged in this fishery in Ikang near Calabar.

Just as in Bonga fishing, Ikot Abasi crayfish fishermen at Oyorokoto, Iko, and Okoroette bring in their crayfish landings mostly from the estuaries of the Niger delta, while the Oron and Nwaniba/Uyo crayfish fishermen bring in their catches from Efiat Mbo on the wider estuary of Nigeria/Cameroun border.

Although crayfish are caught all-year -round, the real fishing season starts from October to June with the highest production occurring in March to May.

### FISHING CRAFT AND GEAR

Crayfish fishing is carried out using the traditional craft and gear. In the Cross River State, two main sizes of these traditional dug-out canoes (large and small) are used. The large size measures about 9-12 meters in length; the width is about 0.9 meters with a depth of 0.8 meters and generally with a displacement of about 2.7 to 4.5 tonnes. This type of canoe is used by the fishermen who are based and operate from Efiat/Mbo in Oron sector (which include Esuk Enwang, James Town, Mkpang Uong, Ine Okon Edu, Utan Brama, Mbe Ngoro, and Abana Ntuen). These fishermen are operating at the wider estuary of the Cross River opening to the sea. The fishermen from Oyorokoto, Iko, and Okoroette near Ikot Abasi also use this type of canoe.

The other type of dug-out canoe is smaller in size and ranges in length from about 8 meters to 9 meters. The width is about 0.9 meters with a depth of 0.8 meters and displacement of about 1.8 tonnes. This type of canoe is used by the crayfish fishermen who are fishing mostly in the Creeks and occasionally entering the wider estuary of the Cross River mostly during the peak season. They operate at Ibeno/Eket; Nwaniba/Uyo; Uruan, and in the Creeks all over the fishing settlements. Some of these canoes have been motorized with outboard motor ranging from 18 - 40 Horse Power (HP). About 98% of these outboard motors have been supplied by both the national and State Governments at highly subsidized prices to aid these fishermen in increasing their landings, and make the catches available in the market for public consumption.

The type of gear used for crayfish fishing is a fixed bag net, and is usually fixed in the sea by either stakes or bouys. The largest size of these nets has a rectangular mouth opening ranging from 2.4 m to 3 meters, by 1.8 meters - 2.4 m, with a net body measuring about 7m or 9 m, and extending from the mouth, and narrowing to a terminal point. Various sizes of these nets are prepared and used in waters where the current is strong and high enough to keep the nets in a horizontal and expanded position.

### PROCESSING OF THE CATCH

Crayfish landings are usually sun-dried, especially during the dry season which corresponds to the peak period for this fishery. Smoking is the alternative method used when sun-drying is impossible because of the frequent rains during the rainy season. Crayfish are usually spread on top of a mat for drying in the sun; or over an oven in a smoke house. During smoking, only heat and smoke are preferred (warm smoking) without the actual flame.

As they dry, crayfish are then packed in bags and marketed throughout the country.

### DISCUSSION

As here presented, the crayfish fishery occupies an enviable position in the fishing industry of Nigeria generally, and contributes directly to the economy of the Cross River State. Huge amounts of crayfish are landed by artisanal fishermen from the inshore and various fishing grounds along the coast of the Cross River State. The enhanced trend in crayfish production has been attributed to Government participation over the last seven years by the provision of fishing inputs like outboard motors, synthetic nets, fibreglass boats, etc, at highly subsidized prices to the fishermen, fishermen cooperatives, and viable fishing communities.

This effort of the Government has been very remarkable, and should be continued. It seems obvious that with the availability of sufficient crafts and gear to venture to the inshore and off-shore areas of the Cross River State, the utilization of crayfish fishery resources from this State could be substantially increased, without fear of depletion since the area fished at present is much smaller than the area available for fishing. Quite unlike other types of fisheries which have definite

seasons, crayfish is abundant throughout the year. Therefore, any careful selection, and improvement on the fishing crafts which can withstand unfavourable weather conditions, and of efficient gear would prove very useful in ensuring a more regular supply of crayfish for our needs throughout the year.

The crayfishery as practised in this State is relatively less labour intensive, and more income yielding than fishing for other types of fish. The present method of preserving crayfish by sun-drying and smoking appears to be satisfactory and inexpensive, and the fishermen have used this method for many decades, and should continue to do so unless better methods of preservation can be discovered.

Since the crayfish fishery offers considerable scope for further exploitation, this paper, therefore, calls for a proper survey and charting of the water areas extending from the Niger delta to the wider estuary of the Cross River, in order to have an adequate knowledge of the distribution and abundance of this resource. It is also to be realized that the juveniles of *Penaeus duorarum* (our export prawn) are equally caught as crayfish. An attempt should be made with the survey to find out ways of regulating the crayfish fishery to allow maximum numbers of these juvenile prawns of *P. duorarum* to return to the sea to be caught at full and mature sizes so that our prawn resources in the country are not adversely affected, while the crayfish fishery continues.

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