

Catch Assessment of *Sardinella maderensis* in the Ocean Division, Cameroon

T. DJAMA

L. NKUMBE

Fisheries Research Station

P.M.B. 77 Limbé

Cameroon

F. IKOME

Zootechnical Research Antenna

B.P. 343, Kribi

Cameroon

Abstract

Catch assessment estimates for the motorized and non-motorized canoes at Boa-Manga (Cameroon) were found to be 5.13 and 2.70 t/year, respectively, leading to an estimated lower limit for the production of the Ocean Division (100 km coastline) of 1,190 t/year. The net economic benefit for the motorized canoes is higher than that of non-motorized canoes. It appears better to modernize only the existing non-motorized craft.

Introduction

Artisanal pelagic fishery catches constitute 80% of the total fish production in Cameroon. *Sardinella maderensis* is one of the main components (40%). To date, there have been no assessments of this important resource in the country, on which studies (acoustic surveys) have been conducted in the Côte d'Ivoire (Oliver et al. 1987) and in Gabon (Oliver et al. 1986).

Materials and Methods

Catch statistics were recorded at the Boa-Manga landing site (Kribi) from October 1988 to June 1989. Two groups of fishermen were involved: the artisanal fishermen using motorized canoes and those operating non-motorized oared canoes. Catch per effort (C/f) was estimated from the data. The average monthly catch was obtained by multiplying the average daily catch by the number of fishing days per month and the final monthly catch was calculated by dividing the total catch of the nine months to a whole year. The catch estimates from the motorized and non-motorized canoes were compared and converted into value estimates (one kilogram of *Sardinella maderensis* ≈ US\$1).

To estimate the total catch of the Ocean Division (shaded area in Fig. 1), the average monthly catch

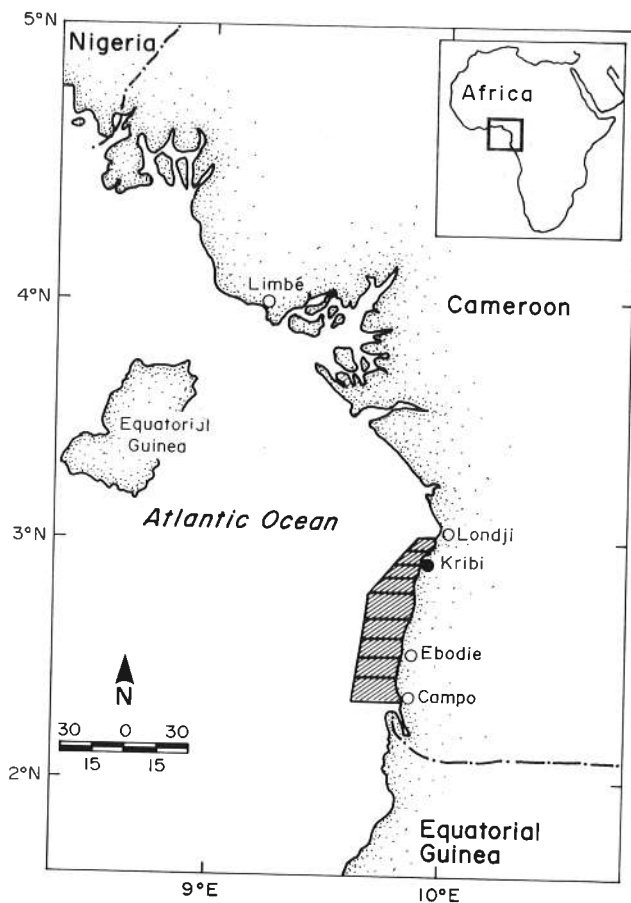


Fig. 1. Location of the Ocean Division, Cameroon, and of some sites in Table 2.

per canoe was multiplied by the number of canoes obtained during a frame survey which was carried out by the Kribi Zootechnical Research Antenna in 1988.

Results and Discussion

The catch of motorized canoes (MC) shows a steady increase from February to April 1989, and a

Table 1. Monthly catch of motorized/non-motorized canoes^a.

Month	Weight of sample (kg) (A)	No. of sampling days (B)	Average daily catch (A/B = C)	No. of fishing days in a month ^b (D)	Average monthly catch (C x D = E)
October	125.0/ 10.0	7/ 2	17.8/ 5.0	26	463/130.0
November	88.2/ 32.9	6/ 3	14.7/10.9	26	382/283.4
December	91.3/ 18.0	6/ 7	15.3/18.0	20	306/360.0
January	6.4/ 54.8	1/ 3	6.4/14.9	26	166/387.4
February	58.8/205.4	7/11	7.5/18.6	23	172/427.8
March	195.7/111.2	14/14	14.0/ 7.9	25	350/197.5
April	137.5/ 20.8	3/ 2	45.8/10.4	25	1,145/260.0
May	168.6/ 70.0	10/ 9	17.0/ 7.7	24	408/184.8
June	200.0/ 72.9	3/ 4	66.7/18.2	26	1,734/473.2

^aSmall inconsistencies are due to rounding off errors.

^bApplying to both types of canoes.

decrease of the catch of the non-motorized canoes during the same period. This difference may be explained by the fact that this period coincides with the small wind and rain season for which the non-motorized canoes are not appropriate. The catch of the motorized canoes remains higher from February to November during both the small and big rainy seasons, then drops from November to January following their transition to demersal fishing. This period corresponds to the dry season and also to higher catch by non-motorized canoes.

The total catch for motorized canoes from the 56 units at Boa-Manga using a net of 800 m (4-5 cm stretched mesh size) was 5.13 t/year, while that of non-motorized canoes (33 units) using a net of 600 m (4-5 cm stretched mesh size) was 2.7 t/year (Table 1). Comparing our results (7.83 t/year) with three years' catch statistics (30.6 t/year) recorded at Ebodie (Fig. 1), and the estimates of non-motorized canoes of three t/year plus 15 t/year for the motorized canoes (from the Ministry of Livestock, Fisheries and Animal Husbandry), our values appear to represent minimum estimates.

Using results from a frame survey carried out by Kribi Zootechnical Research Antenna (Table 2), a rough estimate of the total catch of the Ocean Division was derived as 75 t/month.

The corresponding values of motorized canoes and non-motorized canoes per month should be US\$427 and 225, respectively. Although the motorized canoes require more capital input (maintenance, fuel, etc.), one-third of the US\$202 can be used monthly and the fishermen are still left with a reasonable surplus of US\$135. The net revenue of motorized canoe is therefore higher than that of non-motorized canoes. It is thus worth modernizing the non-motorized canoes presently used (and no more) for higher production (US\$54,000 surplus) as the resource is not yet fully exploited (Anon. 1983). The motorized canoes can switch over to demersal fishing which is also economically very profitable due to higher price of bottom fishes.

All the same, the economic benefit of non-motorized canoes is not negligible (US\$225) when comparing their net revenue with that of farmers (US\$111).

Table 2. Selected result of Fisheries Frame survey in the Oce Division, Cameroon.

Fishing Village	Number of canoes	
	Motorized	Non-motorized
Boa-Manga	56	33
Bouambe	4	59
Campo ^a	3	14
Ebodie ^a	3	28
Eboundja	3	12
Lobe	2	23
Londji ^a	7	6
Lycée	2	33
Ngoe	12	45
Nlende Dibe	-	6
Nziou	-	7
Total	92	266
% Pelagic fishery	45	75

^aSee Fig. 1 for locations.

References

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