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## Length/Weight Frequencies for Five Species of Fish in Lake Nicaragua.

RICHARD J. BEATTY AND KURT W. KOENIG

This paper places on record data on the length/weight frequencies of five commercially important species in Lake Nicaragua: *Megalops atlanticus*, *Centropomus parallelus*, *Lepisosteus tropicus*, *Cichlasoma citrinellum* and *Cichlasoma nicaraguense*.

The data were collected between November, 1971 and June, 1972, during a preliminary study of the fishery of Lake Nicaragua. The program was sponsored by the Instituto de Fomento Nacional (INFONAC) of Nicaragua, with financial and technical assistance provided by the United Nations Food and Agricultural Organization (FAO) and the United States Peace Corps.

The area sampled and the collection technique employed varied with the species. *M. atlanticus*, *C. parallelus* and *L. tropicus* were collected along the eastern shore of the lake, between the town of San Miguelito and the Rio Tipitapa. The samples were obtained with 4" and 4½" stretched mesh(SM) multifilament and 3"(SM) monofilament gill nets. The nets were set in the shoreline and backwater areas at depths of 3 to 10 feet. Specimens of the two cichlid species were obtained at 92 trawling stations located throughout the lake. The stations were never located less than 1 km from shore nor in less than 10 feet of water. A 45-ft, semi-balloon shrimp trawl was the collection device.

Data collected on length and weight for the five species are presented in Table 1. *L. tropicus* appears to prefer the shallow, protected areas of the lake, 95% of their total number having been caught in this habitat. Although the young of this species probably inhabit the same region, we were unable to demonstrate this as the gill nets were size-selective against the smaller fish. *C. parallelus* was caught mainly in open water. The absence of smaller individuals of the species indicates that they probably migrate into the lake only after reaching a certain size. *M. atlanticus* was caught exclusively with gill nets, although this may have been a function of their ability to escape the trawl-net. The lack of small individuals once again indicates that this species migrates into the lake after spending the first part of its life elsewhere. *C. nicaraguense* dominates *C. citrinellum* in the open water, as evidenced by its greater biomass.

In evaluating these figures, consideration should be given to the very light fishing pressure applied to these populations throughout the collecting area. During the sampling period, less than 10 full-time fisherman were located and interviewed. They fished from dugout canoes, using homemade gill nets and harpoons. Their catch was usually dried or smoked and sent to the market in Granda. Numerous other people were seen fishing with hook and line, but their catch was relatively small and was used as a supplement in their own diet.

TABLE 1. Length/weight frequencies for five species of fish in Lake Nicaragua

Species	Total length(cm)	Number	Average weight(kg)
<i>Lepisosteus tropicus</i>	54.5 - 59.4	5	1.043
	59.5 - 64.4	43	1.361
	64.5 - 69.4	57	1.497
	69.5 - 74.4	86	1.905
	74.5 - 79.4	27	2.576
	79.5 - 84.4	23	2.812
	84.5 - 89.4	1	4.990
	89.5 - 94.4	7	5.489
	94.5 - 99.4	1	6.804
	99.5 - 104.4	3	7.348
	104.5 - 109.4	1	9.526
109.5 - 114.4	2	9.979	
<i>Centropomus parallelus</i>	19.5 - 29.4	6	0.195
	29.5 - 39.4	2	0.445
	39.5 - 49.4	4	0.726
	49.5 - 59.4	8	1.501
	59.5 - 69.4	4	2.858
	69.5 - 79.4	16	3.720
	79.5 - 89.4	3	7.122
	89.5 - 99.4	2	11.794
<i>Megalops atlanticus</i>	99.5 - 109.4	1	10.433
	109.5 - 119.4	3	12.111
	119.5 - 129.4	3	17.690
	129.5 - 139.4	5	22.226
	139.5 - 149.4	3	27.670
149.5 - 159.4	3	30.981	
<i>Cichlasoma citrinellum</i>	4.5 - 9.4	5	0.017
	9.5 - 14.4	36	0.082
	14.5 - 19.4	33	0.133
	19.5 - 24.4	15	0.218
<i>Cichlasoma nicaraguense</i>	4.5 - 9.4	255	0.023
	9.5 - 14.4	273	0.041
	14.5 - 19.4	28	0.095

### SUMMARY

Data are placed on record on the length/weight frequencies of five commercially important species in Lake Nicaragua: *Megalops atlanticus*, *Centropomus parallelus*, *Lepisosteus tropicus*, *Cichlasoma citrinellum* and *C. nicaraguense*.

### RESUMEN

Se registran datos de las frecuencias de longitud/peso en cinco especies comercialmente importantes del Lago de Nicaragua: el sábalo real (*Megalops atlanticus*); el róbalo (*Centropomus parallelus*); el gaspar (*Lepisosteus tropicus*) y las mojarras *Cichlasoma citrinellum* y *C. nicaraguense*.