

THE FOOD OF THE PERUVIAN ANCHOVY

The Peruvian anchovy (*Engraulis ringens* J.) supports by far the biggest single fishery in the world, averaging over 8,000,000 tons per year. This high production may be due, as suggested by SCHAEFER (1965), to the fact that the anchovy's principal food is the phytoplankton. It is known that the related species *Cetengraulis mysticetus* in the Gulf of Panama feeds largely on diatoms (BAYLIFF, 1963).

Some studies regarding its way of feeding have shown that the adult anchovy has, in effect, preference for the phytoplankton; however there is a seasonal variation in the proportion of phyto and zooplanktonic organisms.

Quantitative evaluation of the relative contributions of phyto- and zooplankton to the food of the anchovy is difficult because in most of the stomachs examined digestion has advanced so far as to make identification difficult, nor is much known of the relative food values, or rates of digestion of plants and animals.

Quantitatively it may be seen that some months of the year stomachs contents are pink, with identifiable remains almost entirely zooplankton, and others are green or grey and are mainly phytoplankton. An attempt at a more quantitative analysis is shown in Figure 1 (p. 434). This gives the frequency of occurrence of phyto- and zooplankton, as a percentage (in the combined stomach contents of all fish sampled) of the identifiable organisms in the stomachs in samples taken at Chimbote in each month of 1955-1958. These fish were collected from the catches of commercial purse seiners landing at Chimbote. These vessels fish only during the daylight, and all the fish sampled were caught during the morning. An average of 20 fish (between 44 and 6) were examined each month. The sizes of fish examined were from 78 to 145 millimetres standard length. A weighting factor has been applied to the number of identified zooplankton remains to allow for the very much larger size of zooplankton organisms, and for the fact that several pieces of the same partially digested animal may be identified and counted.

The figure can, therefore, only be considered as a rough guide to the relative volumes of the two types of plankton, but does show a fairly consistent seasonal pattern. At times, e.g. in October, when surveys show the phytoplankton to be very abundant in the sea, the anchovy is eating almost entirely phytoplankton.

At other times when the phytoplankton is less abundant in the sea, e.g. in May, the food may be almost entirely zooplankton, including quite large animals such as euphausiids up to 20 mm. in length or the stomachs can be empty. Studies are now in progress to obtain more quantitative estimates.

Preliminary studies being carried out at the Instituto del Mar, Callao, on larvae and post-larval fish up to 40 mm length, show they eat almost entirely zooplankton, mainly eggs and early stages of copepods, indicating that there exists a difference in the way of feeding in accordance to the age. Further information will be obtained by working a larger quantity of samples.

REFERENCES

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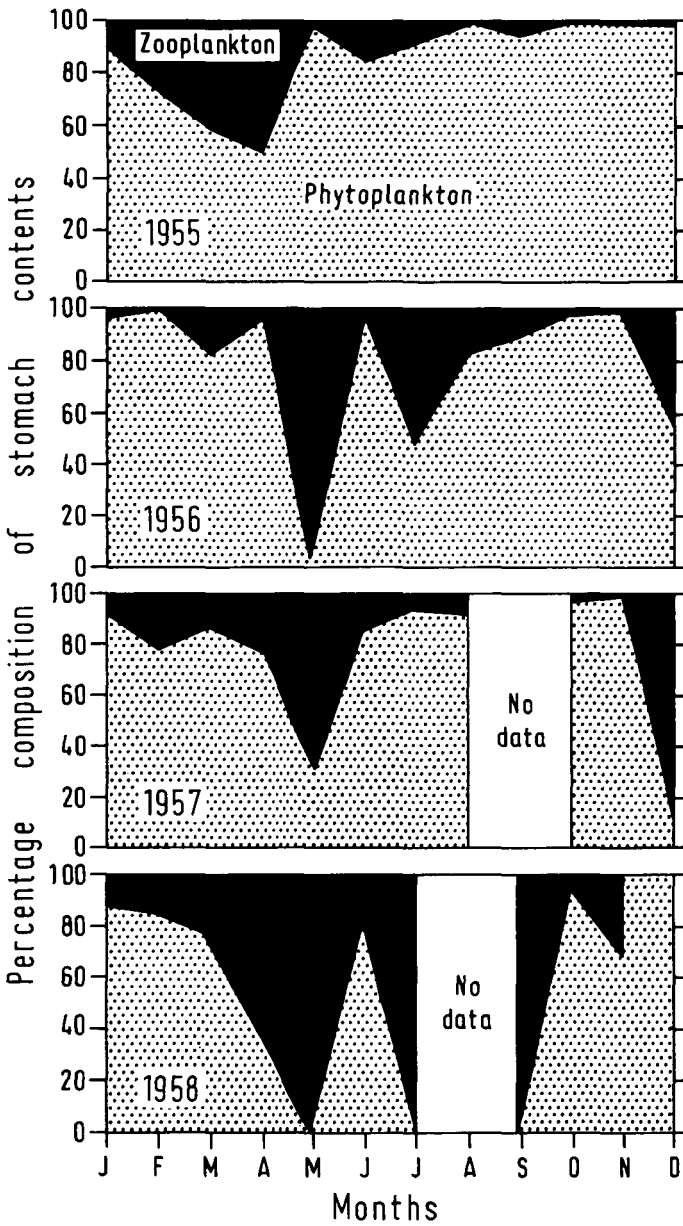


Figure 1. Percentage composition of stomach contents of the Peruvian anchovy.

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