

GROWTH AND REPRODUCTION OF THE MARQUESAN SARDINE

(Sardinella marquesensis) IN HAWAII

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ABSTRACT

Holding experiments showed that the smallest regular increments found on the sagittae of *Sardinella marquesensis* are formed daily. Based on this finding the ages of 106 sardines, ranging from 17mm to 122mm S.L. were determined. A two cycle Gompertz model was fitted to the data.

Batch fecundity, sex ratio and certain aspects of spawning were also determined for the Marquesan sardine. Batch fecundity estimates ranged from 1,100 to 6,300 eggs per spawning, and relative fecundity was 227 ova/g. Males predominated in the night catches made in open, relatively deep water, but both sexes were equally well represented in the day samples taken near-shore in shallow water. The ova size distributions of mature females and the age data of the smallest sardines indicated that spawning was not synchronous and did not follow any short-term cycle (such as lunar). Observations of juvenile sardines in the field and the seasonal changes in the gonad/somatic weight ratio indicated that spawning occurred throughout the year but probably peaks during the summer months. It is possible that the sardines spawn repeatedly but frequency, timing, and location remain unknown.