

APPENDIX B

BAITFISH CULTURE

Several species of potential baitfish have been brought to Hawaii for culture studies in an attempt to alleviate Hawaii's baitfish problem. Two species which have shown some promise were the threadfin shad, Dorosoma petenense, and tilapia, Tilapia mossambica.

Threadfin Shad

An economic feasibility study of producing threadfin shad as live bait for the Hawaii skipjack tuna fishery was carried out by Shang and Iversen (1971). Break-even prices of \$14.6/bucket and \$13.8/bucket based on 10% and 16% mortality, respectively, were calculated. They also estimated that 9-13 ten-acre ponds were necessary to produce enough shad to satisfy the annual needs of the Hawaiian fleet. The cost of constructing one of the 10-acre ponds was estimated at \$78,782, including the ancillary equipment. The annual cost of operating the facility was estimated at \$19,274. The operating cost included a land-lease rental calculated at 2% of the value of cheap agricultural land not located close to where the vessels dock. More suitable sites are scarce in Honolulu and considerably more expensive. The authors also calculated the cost of building 10 one-acre ponds which was much higher at \$108,999 for construction and equipment.

Tilapia

The experimental tilapia-rearing program carried out during 1958 and 1959 (Hida, Harada, and King, 1962) showed that this species could be produced for about \$7/bucket, not including the cost of land rental. This projection was made for a hatchery producing 6,000 buckets per year. The Hawaii State Division of Fish and Game experimented with a larger-scale rearing of tilapia after the pilot study. They produced some bait but met with resistance from the fishermen in that they would not accept the tilapia even at no cost to them. Because of this reluctance to accept tilapia, the project was abandoned. There are data showing that skipjack tuna were caught at nearly the same rate as with nehu.

The above experiences point to the possibility of going the route of bait culturing in order to solve the baitfish problem existing in Hawaii as well as in other areas of the central and western Pacific. However, they also point to the numerous problems that must be reckoned with, realistically. These include high costs of constructing and operating bait culturing facilities, availability of suitable land, disease problems, effectiveness of cultured species as live bait, and acceptance of cultured bait by the fishermen.

While bait culturing should not be abandoned completely, a more logical and direct approach would seem to be to examine the feasibility of moving bait from one area to another.