SPC/Fisheries 7/WP. 10
2 July 1974

ORIGINAL : ENGLISH

SOUTH PACIFIC COMMISSION

SEVENTH TECHNICAL MEETING ON FISHERIES
(Nuku'alofa, Tonga, 15 - 19 July 1974)

# PRELIMINARY "MOLLIE" LIVE BAIT TRIALS - AMERICAN SAMOA

by

Stanley N. Swerdloff
Director of Marine Resources
Government of American Samoa

Summary

The following is a summary of skipjack fishing trials utilizing cultured Mexican Mollies (Poecilia mexicana) as live bait. The total amount of cultured bait used (100,000 mollies) was far from adequate, but it was decided that preliminary trials should be held before upgrading the production facility. Delays in construction of water circulation and aeration systems resulted in essentially stagnant pond conditions with consequent low production. The mollies ranged in size from ½" to 1½" at age four months, a stunted condition due to poor water quality. (Control experiments resulted in 2" size at four months under more suitable water conditions.) It was estimated that 12,000 stunted mollies were equivalent to one "Hawaiian bucket" (approximately 7½ lbs.).

Five field trials were conducted during February, March, and April 1974, four aboard the 50' pole-and-line vessel Alofaga. The fifth trial was essentially a carrying experiment aboard a 28' trolling boat.

Two of the four fishing trials were successful in terms of attracting, holding and catching tuna. For the two trials, 4½ buckets of mollies produced 160 skipjack and yellowfin, with an additional 180 fish landed after supplementary natural bait was "chummed". Catch rates for mollie-produced tuna were 2.3 and 2.0 fish/hook-minute for the two successful trials.

---

Preliminary "Mollie" Live Bait Trials - American Samoa

The following is a summary of skipjack fishing trials utilizing cultured Mexican Mollies (Poecilia mexicana) as live bait. The total amount of cultured bait used (100,000 mollies) was far from adequate, but it was decided that preliminary trials should be held before upgrading the production facility. Delays in construction of water circulation and aeration systems resulted in essentially stagnant pond conditions with consequent low production. The mollies ranged in size from 1/2" to 1-1/2" at age four months, a stunted condition due to poor water quality. (Control experiments resulted in 2" size at four months under more suitable water conditions). It was estimated that 12,000 stunted mollies were equivalent to one "Hawaiian bucket" (approximately 7-1/2 lb).

Five field trials were conducted during February, March, and April, four aboard the 50' pole-and-line vessel Alofaga. The fifth trial was essentially a carrying experiment aboard a 28' trolling boat.

1. February 6, 1974: Three buckets of mollies and three buckets of mixed natural bait (Sardinella and Caranx) were carried aboard the Alofaga. Sea was calm with light winds and scattered clouds. A mixed yellowfin and skipjack school was located at 1030 hours 15 miles east of Tutuila Island. Following multiple hook-ups on trolling lines, the school was chummed with mollies. Feeding response to the mollies was almost immediate, the first "pole fish" coming aboard after 1/4 bucket was chummed. Approximately 80 fish were landed by four fishermen in an eight minute period, at which time a scupper plug was dislodged and blood entered the water resulting in the school sounding. Approximately two buckets of mollies had been chummed. The scuppler plug was replaced and the school approached a second time. Response to chummed mollies was immediate, with an additional 40 yellowfin and skipjack landed in a five-minute period utilizing the remaining one bucket of mollies. Three buckets of Sardinella and Caranx were subsequently used, resulting in an additional 130 fish in a 15 minute period. Total catch for the trial was 150 yellowfin (6-8 lbs.) and 100 skipjack (4-6 lbs.). Three buckets of mollies produced 120 fish in 13 minutes, three buckets of natural bait produced 130 fish in 15 minutes. Catch rates (from time of first pole fish landed) were 2.3 fish/hook-minute for mollies, 2.2 fish/hook-minute for Sardinella and Caranx. Total weight of the catch was approximately 1500 lbs.

2. February 8, 1974: Alofaga left port at 0800, carrying two buckets of mollies. Sea was calm with light wind and scattered clouds. No skipjack schools were sighted until 1430 hrs., three miles east of Tutuila Island. The school was approached and one bucket of mollies chummed. Skipjack

were observed feeding on mollies; however, the school was not attracted to the vessel. Five skipjack (4 lbs.) were caught on trolling lines.

3. March 2, 1974: One bucket of mollies was placed in a 2 x 4' x 2' wooden fish hold aboard the 28' demonstration vessel Autele. Oxygen aeration was used in the absence of a water circulation system. Density was approximately one bucket of mollies in 40 gallons of water. Autele left port at 0900 hrs., sighting first skipjack school at 1500 hrs. Sea was moderate, with heavy rain. Fish were identified as large skipjack, 20-25 lbs. One bucket of mollies was chummed, but the school was not drawn to the boat. In the six hours of scouting, no bait mortality occurred.

4. April 26, 1974: Alofaga departed Pago Pago Harbor at 0700 hrs. carrying three buckets of mollies and 1/2 bucket of small scad (Trachurops). Wind was 15-25 knots, rough seas, and scattered showers. A large school of skipjack was sighted 20 miles east of Tutuila Island at 1030 hrs. and pursued until 1200 hrs. after moving about 12 miles in a southwesterly direction. Several 12-20 lbs fish were landed on trolling lines, but response to one bucket of chummed mollies was minimal. Fish were observed feeding on the mollies, but the school would not approach the vessel. The one-half bucket of 5" Trachurops was then chummed and eight fish landed on pole-and-line. Alofaga returned to port because of rough seas.

5. April 30, 1974: Alofaga left port at 0700 hrs. carrying two buckets of mollies placed on board the previous week, plus one bucket of mixed Sardinella, Caranx, and Trachurops. Mortality of the mollies was less than 0.1 percent in six days. Sea was moderate, wind 10-15 knots, scattered clouds. School sighted 15 miles east of Tutuila Island at 1000 hrs. Several 5 lb. skipjack were landed on trolling lines and chumming commenced in a sporadic manner for 15 minutes before the school slowed down and was attracted to the boat. About one-half bucket of mollies was chummed before the first pole fish was landed. Approximately 40 skipjack were caught in a five minute period with one bucket of mollies, and an additional 50 fish landed with a mixture of 1/2 bucket of mollies and one bucket of natural bait. The school remained with the boat even after the bait supply was exhausted. Catch rates were estimated at 2.0 fish/hook-minute for straight mollies and 2.5 fish/hook-minute for the mixed bait.

The field trials herein described are very preliminary in nature, but the results have prompted the Government of American Samoa

to expand and improve its bait culture facility. Larger scale mollie field trials are scheduled for the latter part of 1974, using 10-20 buckets of 2" mollies per trial. The preliminary trials have indicated that modifications in school approach and lure design may be necessary to gain maximum efficiency from the mollies, and these modifications will be included in the next series of trials.