

SOUTH PACIFIC COMMISSION

FOURTH TECHNICAL MEETING ON FISHERIES

Noumea, New Caledonia

(21 - 29 October 1970)

THE TUNA BAIT FISH OF FIJI

I N T R O D U C T I O N

Work on the identification and distribution of bait fish was commenced in March 1970 with the object of providing background information for the proposed UNDP/FAO feasibility study into the establishment of a Local Tuna Fishery.

METHODS AND GEAR

Observations and collections were made in course of visual surveys for live bait during daylight and while fishing for live bait during both day and night. In fishing for live bait at night we attracted the bait to the vessel by a submarine, mercury vapour lamp. On a few occasions those thus attracted were captured by a lampara bait net. However, only small samples were obtained due to a lack of sufficient operators. Each time a baiting station was set up, the date, time, locality, turbidity currents, moonphases, depth and weather conditions were noted. Samples were placed in 5% formalin and returned to the Fisheries Laboratory in Suva for analysis.

Results:

Six types of common tuna-bait fish have been recorded in Fiji waters. Three belong to the family Engraulidae while the others belong to the Culpidae, Dussumieridae and the Atherinidae.

1. Family Engraulidae: (Anchovies)

The anchovies are small, delicate fish which occur mainly in tropical seas. In Fiji, two species enter freshwater while a third is found exclusively at sea.

- (a) Hawaiian Anchovy: Stolephorus purpureus
(Fowler).

Local Names: Avu (Fijian)
 Nuhu (Hawaiian).

Distribution:

- 1) Northern Vanua Levu, large schools of over 3 or 4 acres in diameter have been observed between the inshore reef and the Great Sea Reef during the day. Night baiting with a submarine mercury vapour lamp has also shown that appreciable quantities are available.

- 2) Bau waters: Schools of over 100 buckets have been observed. These schools are often associated with schools of little tuna (Euthynnus affinnis) and flocks of white capped noddies and fairyterns.
- 3) Mamanuca & Yasawa Groups: Here again bait appears to be plentiful. Although only one cruise has been taken through the groups it is clear that great bait potential exists in this area. "Sheans" of jumping bait fish can be observed during the summer months; these being pursued by Spanish Mackerel and little tuna.
- 4) Kadavu: Excellent reports on the occurrence of Stolephorus have been received from the following sources:
 - (a) the village people of Bulia.
 - (b) Game fishing boat - "Southwind".

The captain of the 'Southwind' observed large shoals on the Great Astrolabe reef.

- (c) South Seas Marine (1946-1949).

Exploratory bait fishing trips by this company revealed large quantities of bait fish in the Galoa and SoSo Bay area. The Fijian people of these bays appear to have known a great deal about the life history of this fish. They also have different names for various stages and sizes in the fishes life cycle.

- (b) Thrissocles baelama:

Local name: Vaya (Fijian)

Distribution:

The Via is found in creeks throughout the group. Some rivers however are known to have large numbers all the year round.

Baulailai	(Vanua Levu)
Mau	(Viti Levu)
Navua	(Viti Levu)
Natusara	(Kadavu).

Experiments have not as yet been carried out as to the mortality rate when confined in bait wells but it is believed that is not a hardy fish.

- (c) Scutengraulis commerson:

Local name: Vaya (Fijian).

Distribution:

This species is also found in the F.W. streams and is often found in mixed schools with Thrissocles. Specimens have also been obtained from night baiting stations inside the Great Sea Reef near Kia; 3 buckets were caught in the Lampara net.

2. Family Culpidae:

The Sardine: Sardinella melanura.

Local Name: Daniva.

Distribution:

The sardine is probably the most common schooling fish found in the Fijian group with habitats ranging from white sand beaches where the water is clear and almost oceanic to bays where the turbidity is very high.

A few islands in the group are exceptional in that huge concentrations of fish containing hundreds of buckets can be found all the year round.

Examples are:

North Vanua Levu - Kia.

North Viti Levu - Vomo and Nalouwaki and Nananu.

Night baiting in almost all areas produce quantities of the sardine. There is no correlation between abundance on beaches and abundance about the light in adjacent night baiting areas.

3. Family Dussumieridae:

The Friar Herring: Spratellode delicatulus

This fish is present in small quantities wherever night baiting stations are taken up.

It occurs most abundantly in the great Astrolabe lagoon where up to 20 buckets were observed about the submarine light. During the day large schools of spratelloides were also observed.

4. Family Atherinidae:

Fijian Silversides. Allanetta ovalana (Herre).

Local Name: Sara (Fijian).

Distribution:

This fish is found in similar localities to Sardinella and they are often found in mixed schools. Areas which are noted for the seasonal appearance of Sardinella are equally famed for a similar seasonal appearance of Allanetta.

Night baiting stations always produce quantities of Allanetta. These quantities have never been exceptional except during one set off the Island of Kia where up to 300 buckets were observed. Just before sunrise on that evening the fish were so numerous that the submarine light was completely blacked out.

* * * * *

Original text: English