# The Trapping Survey in The Fanga'uta Lagoon

23th March 1988
A Member of JOCV
Hiromichi Kawasaki

♠ Introduction;

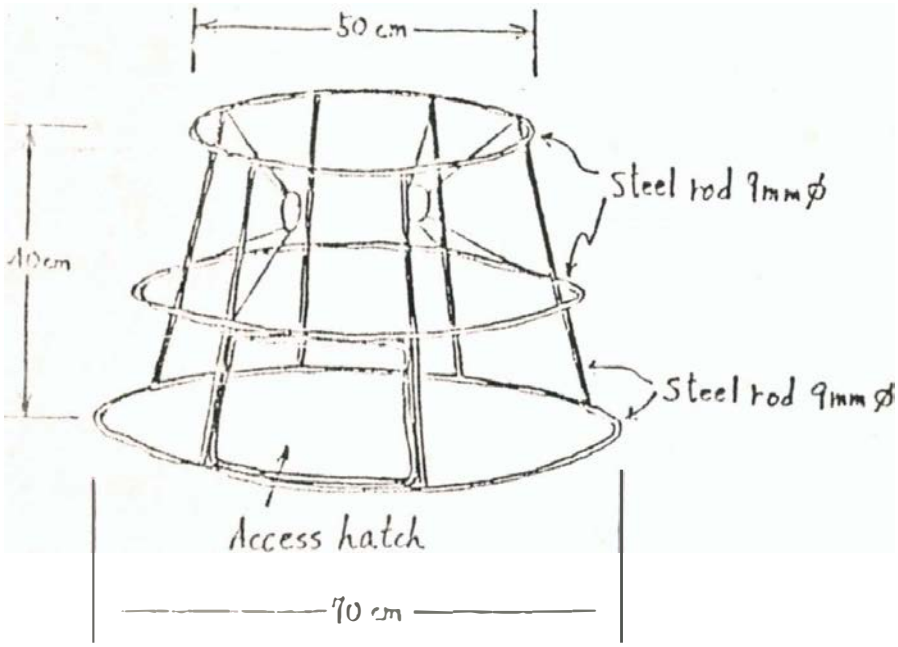
The Fanga'uta lagoon covers an area of 2.7km². The lagoon is shallow, with a mean depth of 1,4 m and maximum of 6m.

The local fishermen subsist on some species of fish (Mullets, Snappers, Parrot fish, etc.), that are caught by gill net and angling. The other kind of marine species (Prawns, Crabs, etc.) are not fished by local fishermen but exist in the lagoon.

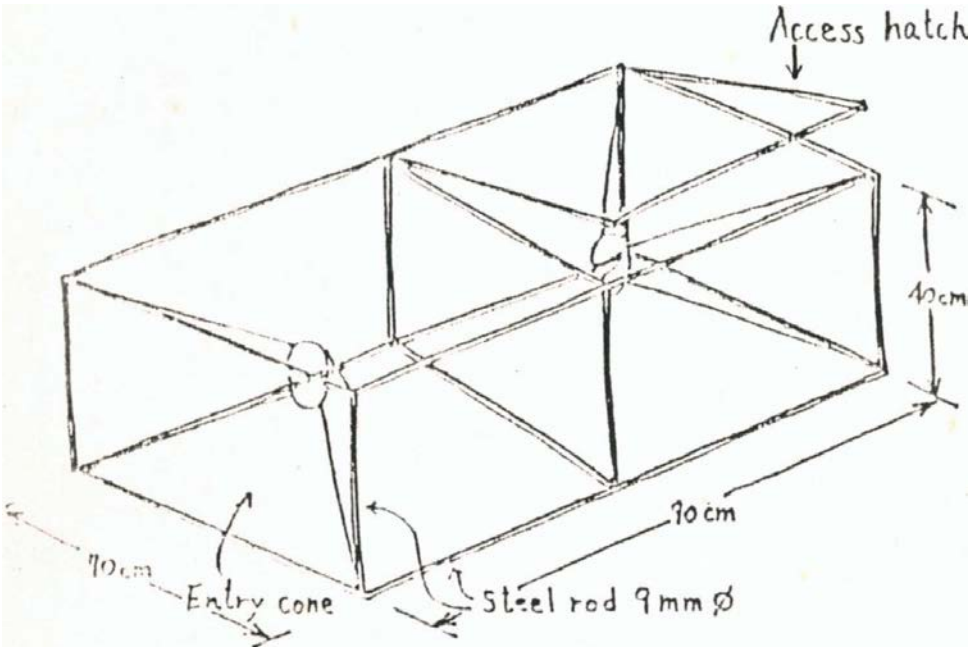
The purpose of this trapping survey is for judging, if this fishing method can be put onto a commercial base or not.

♠ Procedure;

Two types of traps were used. Each trap has two entrance cones and a bait bag. The frozen saury was used for bait. The shape and size of traps are given in fig.1.




type C
"conical" trap.




type S
"Square" section trap

Fig.1. Two Types of Traps Used.

✦ Results;

The trapping survey was carried out 9 times, with a total number of 44 traps. A lot of Mangrove Crab and some kinds of small fish were caught, but prawn was not caught (two species of penaeid prawns, Penaeus semisulcatus (De Haan) and Metapenaeus ensis (De Haan) were caught in trawl net 1975-1976, by Richard D. Braley. 1976).

Table 1. Small Fish Taken in the Trap.

| English | Tongan | Japanese | Scientific |
|---|---|---|---|
| Snapper | Tanutanu | Fuedai | Lethrinus sp. |
| Sea perch | Fate | Fuedai | Lutjanus sp. |
| Jacks | Lupo | Onihiraaji | Caranx papuensis |
| Glass perch | ----- | Takasago -ishimochi | Ambassis sp. |
| Cardinalfish | Matapula | Tenjikudai | Apogon sp. |
| Gobie | ----- | Haze | Gobiinae sp. |

Most important species cought by trapping is the Mangrove Crab. A total number of 70 crabs were caught, 33 crabs were measured. Fig.2 shows the caught number of crab vs. maximum width of carapace.

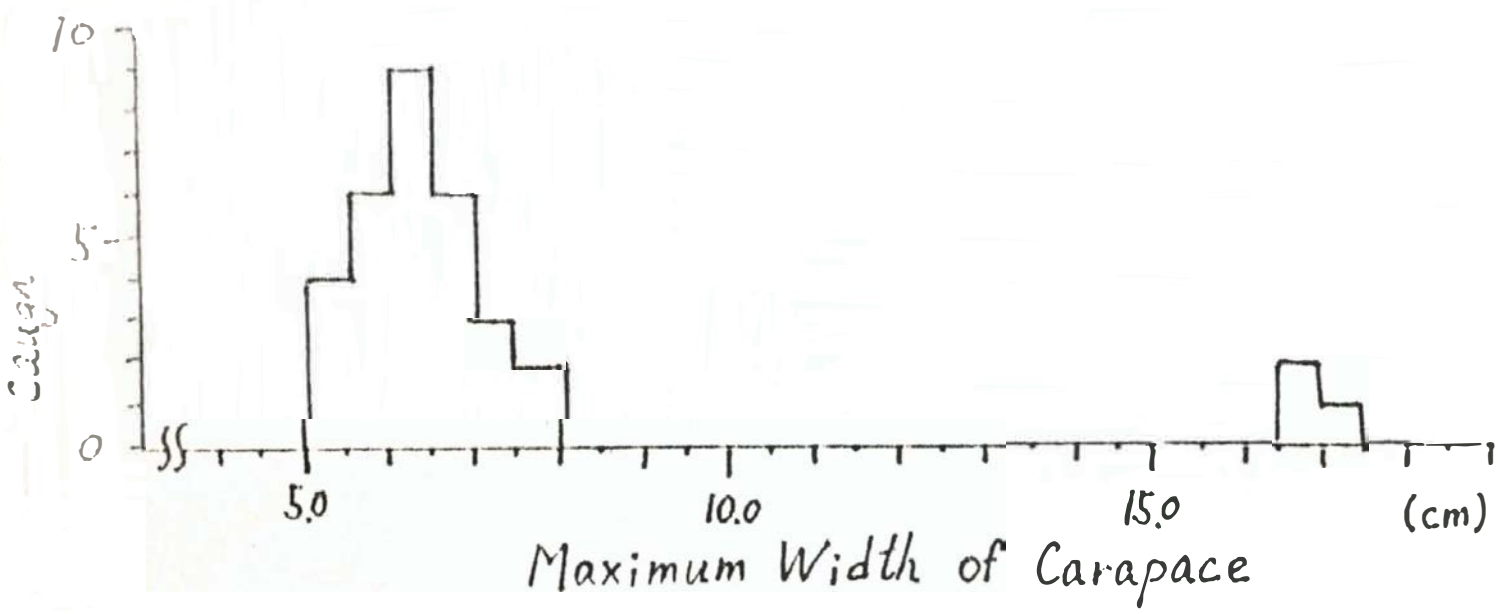



Fig.2 The Caught Number of Crab vs. Maximum Width of Carapace.

The crabs seprate into two groups. Maybe the group division is related to age but analysis of the groups ratio is limited because the maximum size of the crabs is controlled by the size of the entrance holes.

Table 2 Composition of the two types of traps.

| Trap type | Entrance size shape | The number of used trap | The number of caught crab. | | | The average Catch per trap |
|---|---|---|---|---|---|---|
| | | | small size Crab | big size crab | Total | |
| Conical type | ø 10 cm circle | 18 | 20 | 0 | 20 | 1.11 |
| Square type | 12cm x 10cm square | 26 | 47 | 3 | 50 | 1.92 |
| Total | — | 44 | 67 | 3 | 70 | 1.60 |

The catch in the square trap is the greater. Thesquare shape trap is more suitable for crab than the conical shape trap. The big crabs were traped only in the square shape trap, perhaps this depended on entrance size, because the average carapace length of big crabs was about 11cm.

♠ Data on the Mangrove Crab.

Mangrove Crab, Scylla serrata (Fors kal, 1775)
Paka(Tongan), Nokogiri-gazami(Japanese)

This crab mostly inhabits the mangrove belts in tropical sea areas. It has been on the west coast of India, the coast of Hawai Islands, the south coast of Japan, the South Pacific, and Austra ia. The breeding season is between October to December in the Philippines. Mangrove Crab aquaculture is being carried out in the Philippines, Thailand, Hongkong, Singapore and Malaysia. Artificial hatching production has been proved successful. The maximum width of carapace in this species is 25cm.

Conclusions and Suggestions

The Mangrove Crab are becoming the main subject of trap fishing in the Fanga'uta Lagoon.

The big size crab are an expensive commodity for restaurant, but the number of caught crab was very little. The trap fishing method equires baiting. The frozen saury were used. This bait is too expensive campared with the valve of the catch using this method.

Therefore, it is concluded that this method will not be able to be put onto a commercial base. If very cheap baits are found, maybe this method cost effective, but only as side not the main fishing in the Fanga'uta Lagoon. Then it would be more effectent to you larges traps with larges entrances compared with the traps used in this survey.

The possibility of Mangrove Crab aquaculture is uncertain.

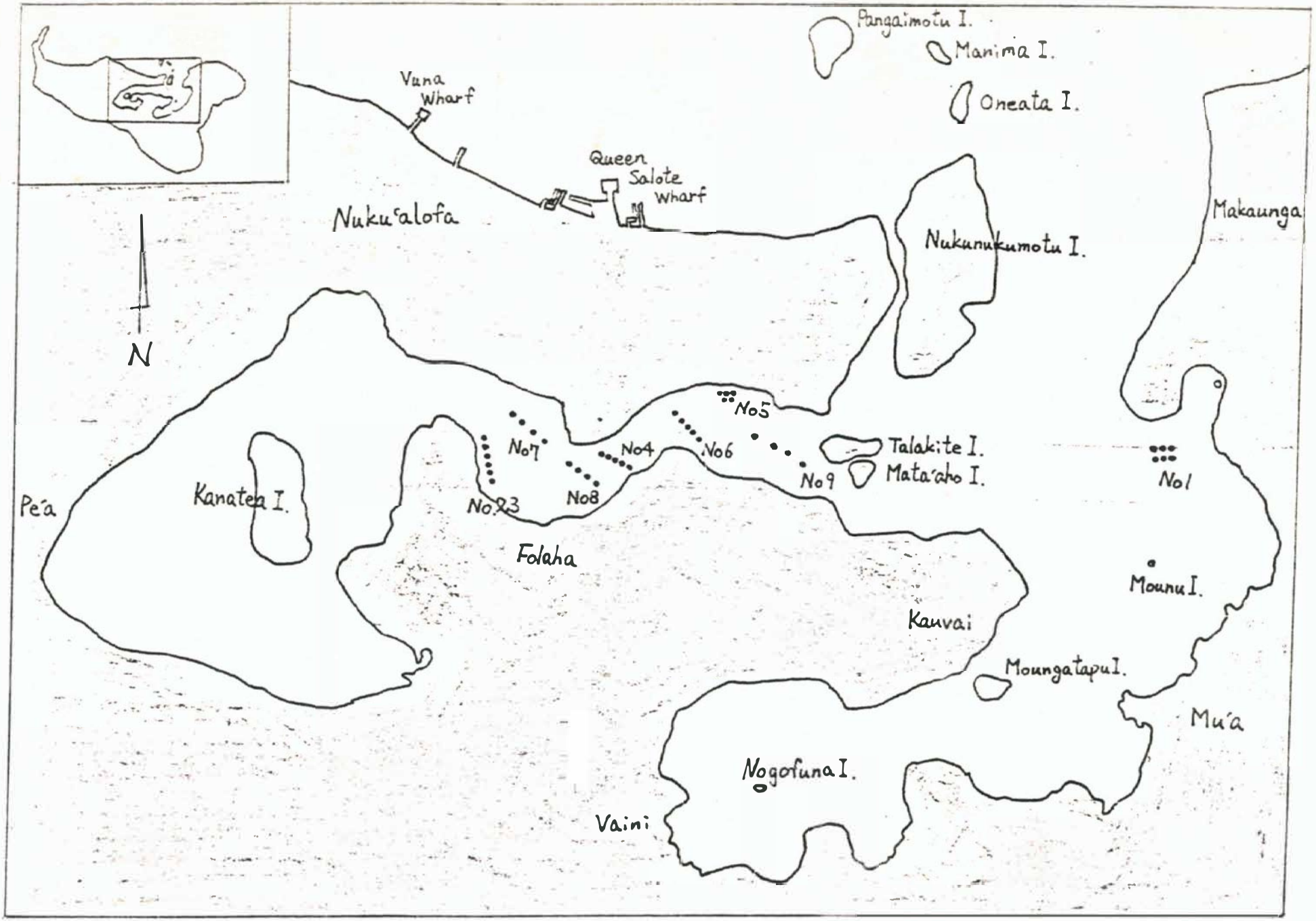



Fig. 3. Trapping Points in Fanga'uta Lagoon

# Table 3. Trapping Data

| Trapping date and time | | Trapping hours | Depth | Trap No. | Trap type | Caught fish |
|---|---|---|---|---|---|---|
| Set | Haul up | | | | | |
| | | | | 1 | C | Snapper 1, Starfish 1 |
| 6 th | 8 th | | | 2 | C | Crab 2, Starfish 1 |
| Jan. | Jan. | 46.5 h | 5 m | 3 | C | |
| 16:30 | 15:00 | | | 4 | S | Crab 1, Cardinalfish 1 |
| | | | | 5 | S | Crab 2, Starfish 2 |
| | | | | 6 | S | |
| | | | | 1 | C | |
| 11 th | 12 th | | | 2 | C | |
| Feb. | Feb. | 24.5 h | 1 m | 3 | C | |
| 12:45 | 13:15 | | | 4 | S | |
| | | | | 5 | S | |
| | | | | 6 | S | lost trap |
| | | | | 1 | C | Cardinalfish 8 |
| 12 th | 15 th | | | 2 | C | |
| Feb. | Feb | 75.25 h | 1 m | 3 | C | |
| 13:15 | 16:30 | | | 4 | S | Cardinal fish 15, Gobie 1 |
| | | | | 5 | S | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 15th Feb. 17:30 | 16th Feb. 6:30 | 13.0h | 3m | 1 | C | Crab 7, Sea perch 1, Glass Perch 1 |
| | | | | 2 | C | Crab 3 |
| | | | | 3 | C | Crab 2 |
| | | | | 4 | S | Crab 1 |
| | | | | 5 | S | Crab 4 (big Crab 1), Gobies 1 |
| 16th Feb. 7.00 | 17th Feb. 16:30 | 33.5h | 1.5 m | 1 | C | Crab 1 |
| | | | | 2 | C | Crab 1 |
| | | | | 3 | C | |
| | | | | 4 | S | Crab 3, Glass perch 1 |
| | | | | 5 | S | Crab 1 |
| 17th Feb. 18:30 | 18th Feb. 7:00 | 11.5h | 4m | 1 | C | Crab 1 |
| | | | | 2 | C | Crab 1, Cardinal fish 1 |
| | | | | 3 | C | Crab 2 |
| | | | | 4 | S | Crab 3, Cardinal fish 2 |
| | | | | 5 | S | Crab 1 (big size) |
| 24th Feb. 18:30 | 25th Feb. 7:00 | 11.5h | 3m | 1 | S | Crab 2 (big size 1) |
| | | | | 2 | S | Crab 4, Gobies 3 |
| | | | | 3 | S | Crab 9, Snapper |
| | | | | 4 | S | Crab 7, Snapper 1, Cardinal fish 3 |
| 25th Feb. 17:30 | 25th Feb. 17:30 | 10.0h | 3m | 1 | S | Crab |
| | | | | 2 | S | Crab 3 |
| | | | | 3 | S | Crab 2 |
| | | | | 4 | S | Crab 2 |
| | | | | | | |
| | | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 25th Feb. 18:30 | 26th Feb 7:00 | 12.5h | 3m | 1 | S | Crab 1, Snapper 1 |
| | | | | 2 | S | Crab 2, Snapper 1<br>Jacks 2, Cardinal fish 1 |
| | | | | 3 | S | |
| | | | | 4 | S | Crab 1 |

※ All of the crabs are Mangrove Crabs.