

SOUTH PACIFIC COMMISSION

SEVENTEETH REGIONAL TECHNICAL MEETING ON FISHERIES
(Noumea, New Caledonia, 5 - 9 August 1985)

DEEP TRAP FISHING

Initial results of a trial undertaken by a fisherman
in New Caledonia

SUMMARY

From March to June 1985, 1390 Z-shaped traps were set by a commercial fisherman on the outer reef slope in the south-western part of New Caledonia, at depths ranging from 90 to 140 m. Mean set time for the traps was 24 hours. Skipjack and mullet were used as bait at a rate of 2.5 kg per trap per day. 7,667 fish, totalling 12,368 kg, were caught, giving a mean CPUE of 8.9 kg per trap per day. The mean weight of individuals was 1.6 kg, which corresponds to an easily marketable average size.

The Lethrinidae-Serranidae species, which are marketed as fillets, represented 45% of the total catch. The hussar (Lutjanus amabilis) alone accounted for 31%. These fishing trials allowed hitherto little known species (Pristipomoides spp.) to be introduced on the local market. Furthermore, the setting of 24 traps at 400 m showed that catches of Nautilus macromphalus were much higher at this depth (38 individuals per trap per day) than at depths of 90 to 140 m (1.3 individuals per trap per day).

It would be desirable to try and reduce the operating costs of this technique, which are still comparatively high because of the cost of the traps and their loss rate.

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INTRODUCTION

A deep water trap fishing trial was undertaken in New Caledonia in March 1985 by a Noumea-based commercial fisherman using a 11.5 metre craft equipped with a 330 h.p. diesel engine and having a crew of three.

The results of 1390 trap sets made over 73 fishing days (i.e. an average of 19 trap sets per day) were collected on catch record forms (cf. Annex I) and analysed by the Territorial Department of the Merchant Navy and Maritime Fishing of New Caledonia.

EQUIPMENT AND TECHNIQUES USED

Trap type and sets

The traps used were the FAO recommended Z traps (trap designs shown in Annex II). These traps are anchored in series of 5 units spaced about 300 m apart.

50% of the traps were lost during the trial period, mainly on fairly shallow bottoms (90 cm - 1.4 m). (1)

Length of trap sets

The traps are brought up once a day and repositioned in a slightly different place so as to fish the area evenly. Fishing trips last for 4 to 8 days.

Bait

About 2.5 kg of bait are used per trap per day. The bait is enclosed in a bag made of netting so that it cannot be eaten by the fish caught. Skipjack, used exclusively during the first trips, proved difficult to obtain on a regular basis and mullet was gradually substituted. However, catches per kilo of bait seemed lower with mullet.

(1) Cost of a locally manufactured trap: about 20,000 CFP francs (approximately 122 US dollars).

Location and fishing depths

During the trial period, the fishing effort was confined to the south-western waters of the Isle of Pines, in an area where the outer reef slope drops off sharply at a depth of about 100 m. Apart from 24 traps anchored at a depth of 380-390 m, all the traps were anchored at depths of 90-140 m.

Catch composition

1. Fish

Table 1 shows catches by species and by numbers, weight (kg), percentage of total weight and catch per unit of effort (number and weight per trap per day). All weight data are expressed as "live fish", the weight of the fillets and of the gutted fish being multiplied respectively by 3 and 1.11.

45% of the catch by weight consists of species of medium commercial value marketed as fillets (Serranidae and Lethrinidae). The deep snappers (Etelis spp. and Pristipomoides spp.) which were the main initial target of this trial only accounted for 16% of the total catch by weight, in the area and at the depths fished. Lutjanus amabilis, the hussar, alone accounted for 31%.

The mean CPUE was 8.9 kg of fish per trap and per day, i.e. nearly 3.6 kg of marketable fish per kilo of bait.

The mean weights of the various marketable species ranged from 0.6 to 4 kg, which corresponds to sizes in demand on the market.

2. Nautilus

The CPUE for nautilus (Nautilus macromphalus) was estimated from the catch record forms which show catches in relation to depth.

Between 90 and 140 m, which is the good depth range for fish, nautilus catches were poor, with only 1.3 nautilus per trap per day.

At greater depth, nautilus appeared to be much more abundant however. For the 24 traps set at 380 to 390 m, the catch rate was 38 nautilus per trap per day.

In view of the high market value of nautilus shells (400 to 500 CFP frs each for uncleaned and untreated "first sale" shells) and subject to prior assessment of the stock's ability to tolerate such fishing pressure, the setting of a few deep traps in addition to the shallower fish traps can provide fishermen with a worthwhile supplementary income.

CONCLUSIONS

Trap fishing on the outer reef slope being a recent activity in New Caledonia, it is not yet possible to draw any final conclusions, especially as regards the economics of this type of fishing; the following points can however already be made:

- More experience with the trap setting technique should lead to a decrease in trap losses. If this were not the case, deep trap fishing could prove uneconomic;
- This technique allows diversification of consumer products by introducing hitherto little known species such as Pristipomoides on the local market;
- Traps capture fish of a useful size for marketing;
- Capture of nautilus can provide a significant additional income.

Trapping of deep water fish species seems to be a promising technique for the exploitation of the resources of the outer reef slope. It would be desirable to refine this technique and its means of application (suitable crafts and gear, shape of traps) in order to achieve maximum cost effectiveness.

Table 1: Results of deep bottom trapping in New Caledonia
(March to June 1985 - 1390 trap sets)

Species	Number	Live weight (kg)	% Total Weight	Mean Weight	CPUE No/trap/day	Kg/trap/day
Lethrinidae-Serranidae	1,972	5,587.5	45.1	2.8	1.4	4
<u>Lutjanus amabilis</u>	2,173	3,848.4	31.1	1.8	1.6	2.7
<u>Pristipomoides filamentosus</u> + a few flavipinnis	2,318	1,441.3	11.6	0.6	1.7	1
<u>Pristipomoides multidentis</u>	205	502.8	4.1	2	0.1	0.4
<u>Etelis carbunculus</u>	11	42.7	0.4	3.8	-	0.03
Other	998	945.2	7.7	0.9	0.7	0.7
TOTAL	7,677	12,367.9	100	1.6	5.6	8.9

ANNEX II: Trap Designs (FAO recommended)

POT

Red Snapper
Española
Venezuela

NASSE

V. vanneau
Langouste
Venezuela

NASA

ASTARUE
Langouste
Venezuela

REFERENCE

T. Mazine
FAO

VESSEL BATEAU BARCO

LOO	Lht	E1	10 m
GT	TJB	TB	-
hp	ch	cv	20-30

