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PRELIMINARY RESULTS OF THE "CEPROS" CRUISE PROSPECTING THE DEEPWATER CRUSTACEAN AND FISH RESOURCES OF THE SLOPE OF THE MAHE PLATEAU

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Island slopes in the intertropical zone have a demersal fauna rich in species, some of which have a high economic value. This includes Caridean shrimp such as Plesionika and Heterocarpus which are exploited commercially in parts of the Pacific and Indian Oceans, decapod crabs of the genus Geryon and valuable fish species such as snappers.

The objective of the "CEPROS" cruise was to prospect the potential resources of the southeast Mahé plateau. It was organized by the Seychelles Fishing Authority and ORSTOM, taking advantage of the presence of the oceanographic research vesel "ALIS", on passage to her home base in Nouméa, New Caledonia.

1. Methodology

The fishing gear (longlines of rectangular, semi-cylindrical and conical traps and electric reels) was provided by the Seychelles Fishing Authority which had already tested this gear in the course of diverse fishing operations. Three staff of this organization (1 biologist and 3 technicians) also took part in the cruise in order to operate the gear and study the catch.

In total, thirteen radials were made with trap sets and electric reel fishing, each about ten miles apart.

1.1 Trap fishing

Two types of trap were used:

- truncated conical crab traps. The mouth is on the top of the trap and has an opening of about 20 cm. The volume varies from 0.1 to 0.2 m^3. The covering is of 4 to 5 cm bar netting and was covered with fine meshed netting (1.5 cm bar) in order to prevent the escape of shrimp.

- rectangular or semi-cylindrical shrimp traps having a volume of about 0.25 m^3 with two mouths of about 7 cm diameter on opposite ends. These were covered with square or hexagonal meshed wire netting (1 to 1.5 cm bar), covered with cloth, except for the faces having a mouth.

The bait used was skipjack (Katsuwonus pelamis) taken aboard before departure, or line-caught fish (Caranx sp., Seriola rivoliana, Euthynnus affinis).

The traps were mounted onto the mainline by a 12 mm ø branchline 2 m long, and were spaced by 20 or 50 m. Each end of the mainline had a grapnail anchor and chain from which went the buoylines, which were set at 15-30% more than the depth. This in practice often proved insufficient, and in future a scope of 1.4 should be used. At the surface, each buoyline had 4-5 20 l floats, the last having a mast with a flag or a radar reflector.

A total of nine radials were studied at depths of 200, 400, 600 and 800 metres, and four radials at 350, 500 and 750 metres. Each trap set lasted about 20 hours.

1.2 Electric reel fishing

Electric reels are operational on some boats of the schooner fleet. They are placed on the rail of the vessel and are powered by 12 V DC electric motors supplied from batteries. A wire line 300 m long is used, with terminal tackle in nylon with 4 to 8 tuna circle hooks attached by a swivel.

Most of the fishing was at depths varying between 60 and 100 m, although the 120 - 200 m depth zone was also prospected occasionally. The number of reels in use varied from one to four at any one time.

2. Fishing Results

2.1 Basket traps (Table 1)

The weight of shrimp caught varied with the depth:

SPECIES DEPTH	RANGE (m)	PREFERRED DEPTH (m)
Plesionika longirostris		200
Heterocarpus ensifer	200 - 400	200
H. laevigatus	400 - 600	400
H. dorsalis		600

Two less abundant species were caught and will be identified later.

The crab, Geryon quinquedens was caught between 350 and 800 m.

The yields per trap set by depth reproduced below are underestimates, in particular for the shrimp, as account was taken both of shrimp and of crab traps in the longlines.

	200m	350m	400m	500m	600m	750m	800m
Shrimp	0.9	0.35	0.38	0.29	0.21	0.19	0.13
Crabs		0.5(**)	1.23	0.43	2.0	3.1	2.3

(*) Yields are in kg/trap/set of about 20 hours.
(**) Not significant as only 1 trap set at this depth.

1.2 Electric reels

In total 29 species were caught, the most abundant being the following:

- Lutjanidae (Pristipomoides filamentosus, Aphareus rutilans, Aprion virescens, Etelis marshi, Etelis carbunculus),
- Serranidae (Epinephelus morrhua, E. flavocaeruleus, . multinotatus, E. chlorostigma),
- Carangidae (Seriola rivoliana)

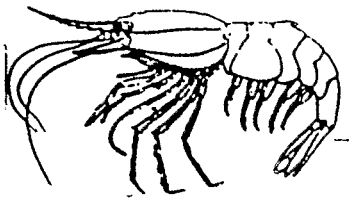
The total catch was 1893.55 kg for an effort of 133 reel/hours, ie a mean of 14.24 kg/reel/hour (from 3.6 to 24 kg/hr).

3. Conclusions

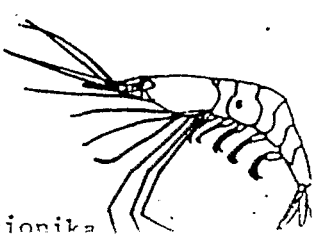
These preliminary results demonstrate the existance of a potential resource of deepwater crustace and and fish. Yields appear relatively satisfactory, but, in particular for the crustaceans, more prospection is needed in order to better assess the potential. If this fishery were to develop, however, the fleet will need to re-equip with fishing gear (linehaulers, electric reels) and navigation equipment (echo-sounders).

Pandalid Shrimps

Source: FAO Species Identification Sheets for Fishery Purposes
Western Indian Ocean
Fishing Area 51
Volume 5
Food and Agriculture Organization of the United Nations



Heterocarpus



Plesionika