

SPC/Fisheries 22/WP.8
16 July 1990

ORIGINAL : FRENCH

SOUTH PACIFIC COMMISSION

TWENTY-SECOND REGIONAL TECHNICAL MEETING ON FISHERIES
(Noumea, New Caledonia, 6-10 August 1990)

**REPORT ON A VISIT MADE FROM 26-30 MARCH 1990 TO INSPECT JUVENILE
TROCHUS TRANSPLANTED ON LIFOU REEFS**

C. HOFFSHIR, J. DUBOIS, P. HAMEL, H. MEITE

Centre ORSTOM
Noumea
New Caledonia

Report on a visit made from 26 to 30 March 1990 to inspect juvenile trochus transplanted on Lifou reefs

C.Hoffshir, J. Dubois, P. Hamel, H. Meite

A last visit to inspect the results of introductions of juvenile trochus on Lifou reefs was made from 26 to 30 March 1990, one year after their first introduction (20-25 March 1989, 26-30 June 1989).

The purpose of this visit was to determine the survival and growth rates of juvenile trochus raised by aquaculture and transplanted into a natural environment. It was carried out under the terms of an agreement between ORSTOM and the Loyalty Islands region.

Programme of the visit

Satisfactory weather conditions made it possible to visit all the 20 juvenile introduction stations around the island.(figure 1)

One station was made from rocks piled together on a continuous slab in order to provide a shelter for the young trochus.

Specimens were sought around each station by scuba divers. The original sampling radius of 10 to 15 m was extended to 25 to 30 m to improve recapture prospects. 19 living trochus were recovered in all (table 1).

Results: recorded growth

The mean growth of transplanted juveniles was 45 mm + 4 mm after approximately 11 months in the natural environment. This is on average 12 mm higher than the results obtained in the aquaculture breeding ponds (33 mm + 3 mm for the same period).

This would suggest that the juvenile trochus found on the reefs of Lifou have adapted satisfactorily to their new environment.

Sexual maturity: breeding

The average size of a trochus at maturity in New Caledonia is 54 mm. Reproduction is 100 % effective with specimens measuring 57 mm. (BOUR, 1989). Of 19 trochus found, 16, or 84 %, were of the required size for breeding.

Trochus raised in farms and transplanted into the natural environment may therefore have been able to spawn at the beginning of 1990, or approximately twelve months after transplanting and 23 months after birth.

Conclusion

5709 juvenile trochus were transplanted on Lifou; 19 were found alive one year after first introduction. The recapture percentage was 0.33%. In view of the length of time that had elapsed and the dispersal of juveniles over the reefs, (by natural events and cyclones, etc) it may be assumed that many juveniles are still present on the reefs of Lifou even though they have not been seen. Indeed, even though a thorough search for juveniles was carried out around each station, over a maximum radius of 30 m, the area searched is small in relation to the huge total reef area. Should this assumption prove correct, the transplanting of *Trochus niloticus* can be viewed as a success on the island of Lifou and the hope can be entertained that they will develop into a resource that local fishermen will be able to exploit on a long-term basis.

April 1990

Table 1: Size development of juveniles transplanted between March and June 1989 and March 1990.

| Station No | Mean size at transplanting mm | Size at recapture mm | Estimated growth since transplanting mm |
|-------------------------|-------------------------------------|----------------------------|---|
| Station 6 | 19* | 59 | 40 |
| Cap des Pins | " | 57 | 38 |
| | " | 60 | 41 |
| | " | 63 | 44 |
| Station 9 | " | 62 | 43 |
| Luengoni | " | 58 | 39 |
| Station 12 | " | 73 | 54 |
| North of Sandalwood Bay | " | 66 | 47 |
| Station 16 | " | 74 | 55 |
| South of Sandalwood Bay | " | 71 | 52 |
| | " | 70 | 51 |
| | " | 73 | 54 |
| | " | 66 | 47 |
| | " | 53 | 34 |
| | " | 49 | 30 |
| | " | 69 | 50 |
| | " | 74 | 55 |
| | " | 72 | 53 |
| Station 17 | " | 49 | 30 |
| South of Sandalwood Bay | | | |
| Mean | 19 | 64 | 45 |

* : These are the mean sizes of the juveniles of the 3 batches transplanted between March and June 1989 (1st batch, mean size = 23 mm; 2nd batch, mean size = 18 mm; 3rd batch, mean size = 16 mm) or a mean of 19 mm for the transplanted juveniles as a whole. The survival rates recorded for juveniles increased with size and it may therefore be inferred that larger specimens rather than smaller ones were recaptured.

Zone 3, N = 1593

| st. | i1 | + i2 | = i |
|-----|-----|-------|-------|
| 10 | 100 | + 200 | = 300 |
| 11 | 100 | + 200 | = 300 |
| 12 | 120 | + 200 | = 320 |
| 13 | 117 | + 200 | = 317 |
| 14 | 156 | + 200 | = 356 |

Zone 1, N = 866

| st. | i1 | + i2 | = i |
|-----|-----|-------|-------|
| 1 | 120 | + 0 | = 120 |
| 2 | 120 | + 281 | = 401 |
| 3 | 120 | + 0 | = 120 |
| 4 | 125 | + 0 | = 125 |
| 5 | 100 | + 0 | = 100 |

Zone 2, N = 1600

| st. | i1 | + i2 | = i |
|-----|-----|-------|-------|
| 6 | 100 | + 600 | = 700 |
| 7 | 100 | + 200 | = 300 |
| 8 | 100 | + 200 | = 300 |
| 9 | 100 | + 200 | = 300 |

Zone 4, N = 1650

| st. | i1 | + i2 | = i |
|-----|-----|-------|-------|
| 15 | 150 | + 0 | = 150 |
| 16 | 100 | + 200 | = 300 |
| 17 | 100 | + 200 | = 300 |
| 18 | 100 | + 200 | = 300 |
| 19 | 100 | + 200 | = 300 |
| 20 | 100 | + 200 | = 300 |

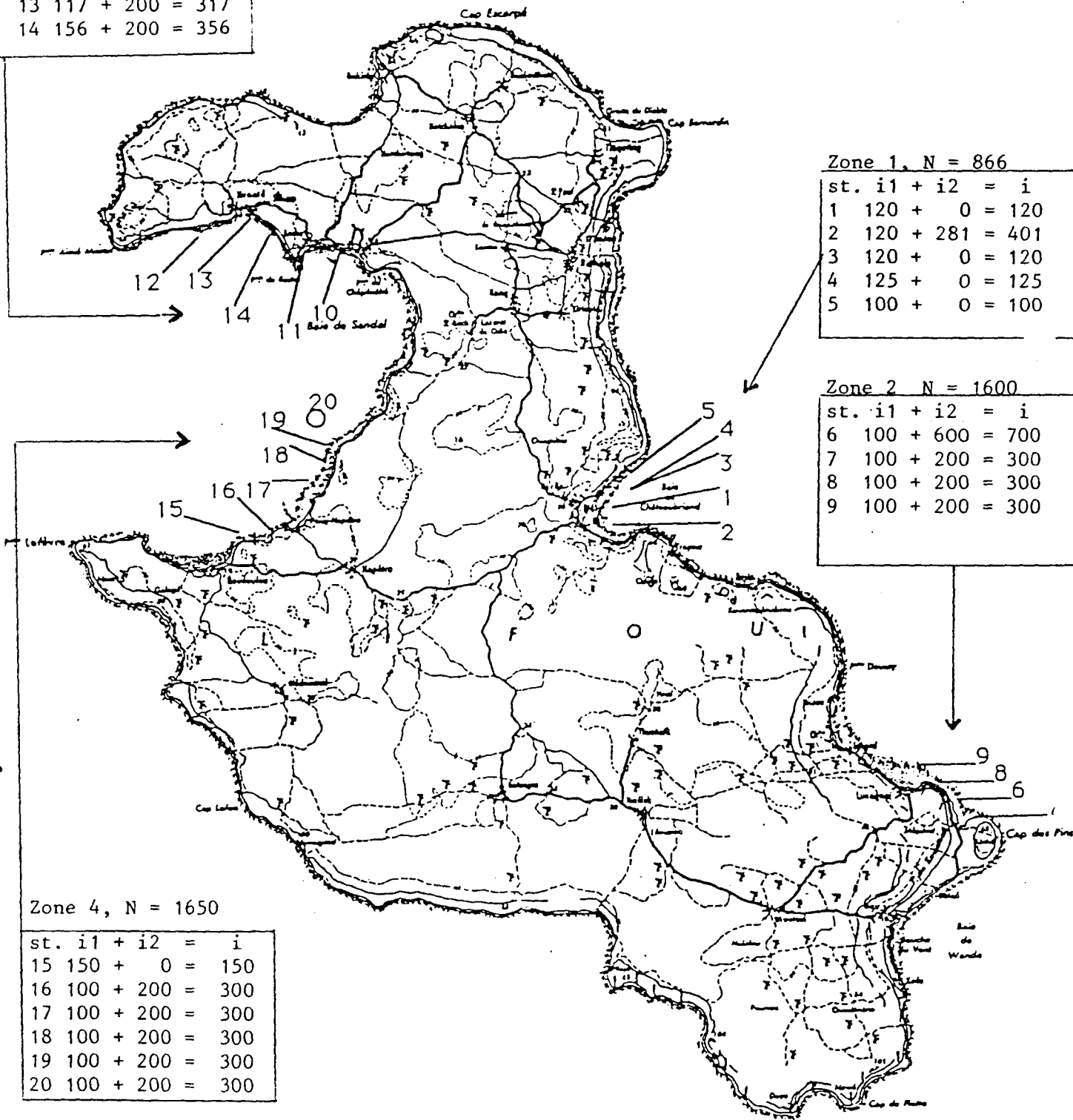


Fig 1. - Location of stations used to introduce juvenile trochus to Lifou: i1 were introduced from 20 to 25 March 1989 (2228); i2 (3481) were introduced from 26 to 30 June 1989; i=i1 + i2=5709 juveniles.

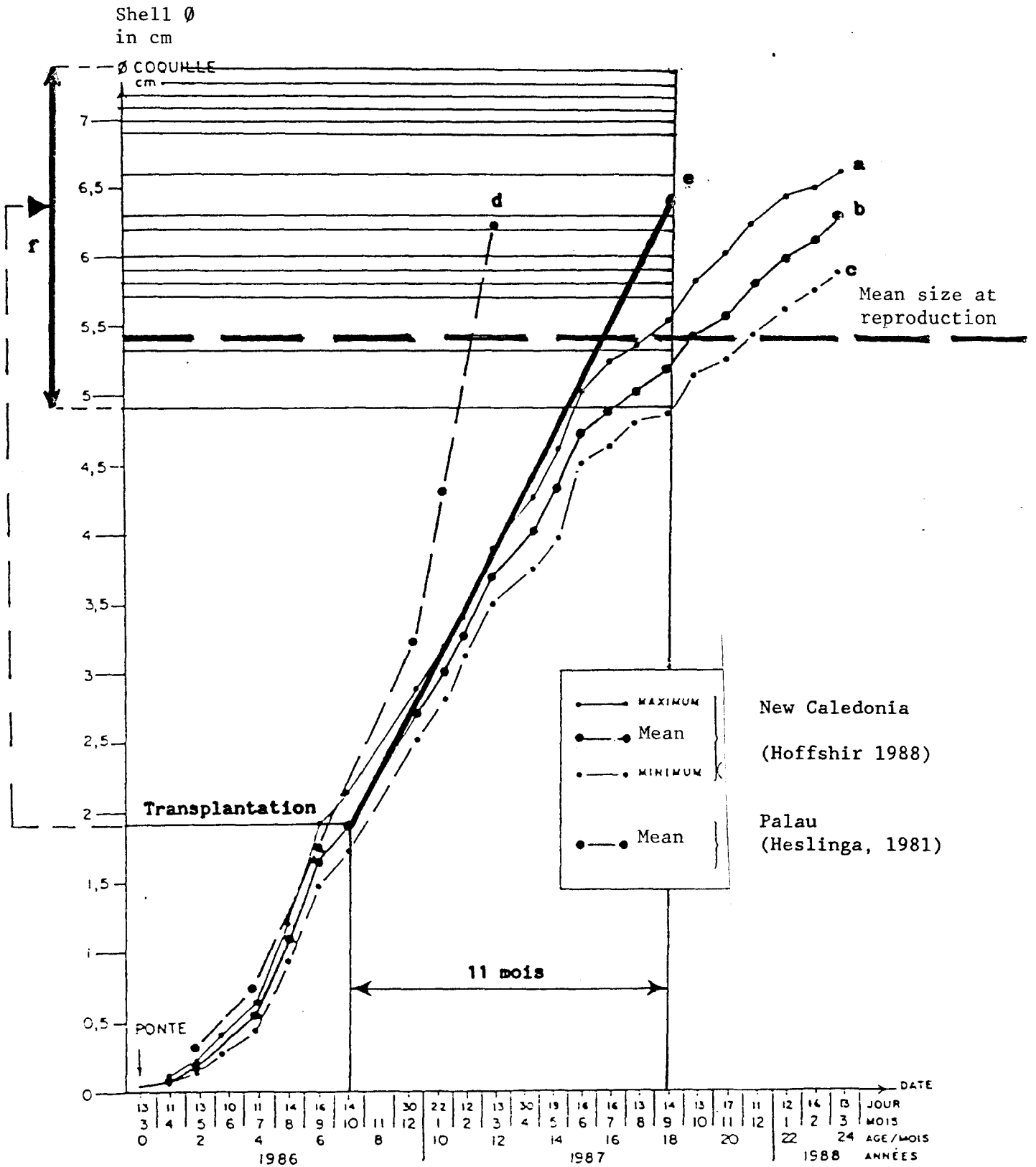


Fig.2 - a,b,c,d: Growth curve for juveniles trochus in the breeding ponds (a,b,c : New Caledonia; d: Palau, Micronesia).

- e: Mean growth of juveniles transplanted in Lifou
- f: Size range of juveniles recaptured after an average of 11 months in the natural environment. These specimens measured 19 mm on average at the time of transplanting.