

Summaries of research projects
and other articles

Survey of the shrimp stocks of the Sierra Leone inshore shelf - a summary report outlining objectives, observations and recommendations on the status of the Sierra Leone shrimp fishery.

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Introduction

From the 7th to 13th June 1977, a short survey was carried out to assess the condition of the stocks of commercial shrimps in inshore waters of the Sierra Leone shelf. In particular, attention was focused on the catch rates of the different species, their latitudinal and bathymetric distribution and the size composition of the different species in the catches.

Two Soviet shrimpers, identical in their construction, were provided for the survey. Each vessel had the following specifications: 23.7m length; 225 HP engine and 9 knots average cruising speed. Each boat towed a single shrimp trawl with the following characteristics: length 20m; head-rope length 12.5m; ground-rope length 16.2m; lead chain weight 22kg; cod-end mesh size 18mm. The otter-boards were approximately 2 x 1m.

Trawling was carried out at night between 19.30 and 05.30 GMT in depths of 10 to 70m; each trawl lasted for an hour. Four locations were investigated:

1. off Sulima;
2. off north Turner's Peninsula and Sherbro Island;
3. off Bullom and Scarcies and
4. off Western Area Peninsula.

Eight trawls were made at each of the locations 1, 2 and 4 and six trawls only at location 3. It is felt that the results obtained from these four areas gave an adequate picture of the status of the shrimp stocks off the Sierra Leone coastline at the time of the year.

Observations.

The principal results of the survey are outlined below:

1. The average catch rate of shrimps (heads-on) off Sulima was 9kg per hour. The species consisted mostly of Parapeneopsis atlantica, a commercially valuable species but smaller in size (maximum mean lengths of males and females were 7.3 and 11.9cm respectively) than the pink and tiger shrimps. An average catch rate of 10kg per hour of this species in the area is a fair estimate. Small quantities (1 to 2kg) of Parapeneus longirostris were also taken here at the deeper stations in sub-thermocline waters. The average lengths of males and females of this species were 8.5 and 9.7cm respectively.
2. Off north Turner's Peninsula and Sherbro Island, the shrimp catch averaged 10.5kg per hour, consisting almost entirely of P. atlantica.
3. Off Bullom-Scarcies, 1kg per hour of Parapeneopsis atlantica was obtained in 10-12m depth. In 20-25m depth, an average of 8.5kg per hour of the large tiger shrimps (Penaeus kerathurus) were taken. The maximum mean lengths of male and female tiger shrimps were 15.2 and 17.4cm respectively.

4. Average catch rates off the northern Western Area Peninsula were 50% lower compared to those off Sulima, but off the southern Western Area Peninsula, they were double the yield taken off Sulima. The catch consisted dominantly or entirely of the valuable pink shrimp, Penaeus duorarum notialis. The maximum mean lengths of males and females of this species were 14.3 and 18.9cm respectively. At one station off the north Western Area Peninsula, the species was mixed with the tiger shrimp.
5. At all the trawling sites, large quantities of fish were also taken in the shrimp net. The average total fish catch was about 110kg per hour, usually made up of 50-60kg of good fish (such as lady, shine-nose, sole, crocus, grouper and snapper) and the rest of trash species (such as caiman, butterflyfish, two species of flat fishes, Monacanthus and another yet unidentified small species). All the trash species mixed with the young (10-20cm) of the valuable species were thrown overboard.
6. Off Sherbro and Turner's Peninsula, considerable numbers of young lady or capitán (Pseudotolithus senegalensis) and sole (Cynoglossus sp.) were caught and thrown dead overboard after the shrimps and large fishes have been removed from the catch. Off Bullom and Western Area Peninsula, many young snappers (Pagrus ehrenbergi) were also caught and thrown dead overboard. Thus, it appears that the shrimps live in the same places as the young of these commercially important species of fish and in fishing for the shrimps, the young lady, sole and snappers are also killed.

Recommendations

On the basis of these initial observations, the following recommendations were made:

1. There is room for expansion of the Sierra Leone-based inshore shrimp trawling fleet. Three fleets, each of 7-10 shrimpers fishing off (i) Turner's Peninsula and (ii) Western Area Peninsula and (iii) Bullom-Scarcies-Yelibuya, seem a reasonable proposal.
2. The very low catches of the valuable pink shrimp off the Sherbro and Turner's Peninsula was very puzzling and further studies similar to the present one are planned to find out the causes of its apparent absence. Are the reasons ecological or is it that heavy exploitation over the past several years has already wiped out the stocks?
3. The inshore shrimp trawling grounds need to be mapped out and their extent established. The size of the stocks on these grounds need continual monitoring and study, so that appropriate scientific advice can be made to the fishing industries of Sierra Leone on the deployment of vessels. This spells out an important aspect of our future responsibilities.
4. The complex problem of shrimps being fished together with the young of commercially valuable species of fish needs immediate investigation. This is an important but difficult problem; an attempt to resolve it is urgent. If the fleets expand, it will be an important consideration in determining allowable shrimp-ing intensity.

5. Surveys similar to the present one are very useful for providing spot checks on the condition of the stocks of shrimps and inshore demersal fishes. They are necessary for the continual review and implementation of management policies.

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