

ISSUE NO. 35
SEPTEMBER 1989

A PUBLICATION OF



For Fisheries Development

BAY OF BENGAL PROGRAMME

BAY OF BENGAL NEWS



Danida



AGFUND

“WE WANT A FISH MARKET!”



Fisherwomen of Besant Nagar, Madras, about to meet the officials of the Corporation of Madras



“WE WANT A FISH MARKET!”

So say the women fish vendors of Besant Nagar, Madras, who presently sell fish on the roadside (above) and badly need an organized facility with regular and easy access to fish buyers. With assistance from BOBP – through design of a fish market, the services of a social worker and contacts with local authorities such as the Special Officer of the Madras Corporation – the women are edging closer to their goal.

by N. Valli & P. Townsley

Earlier issues of *Bay of Bengal News* discussed a BOBP extension activity in Madras city, about the effort of a group of women fish vendors from two fishing villages in the Besant Nagar area of South Madras, Oorur and Olcott Kuppam, to improve their access to fish marketing facilities,

How did BOBP come into the picture? The beachlanding craft IND-20 commenced technical trials from Elliotts Beach on the sea front of Besant Nagar in May 1987 with assistance from local fishermen. During the course of BLC operation, the villagers approached BOBP for a donation to the village temple fund. To meet this request it was agreed that a portion of the revenue from the catches would be placed at the disposal of the community. However, during the course of discussions, a number of other problems faced by them were raised by the fisherfolk. These related to:

- diminishing catches
- illegal fishing by mechanised boats and its adverse effects on them
- poor sanitary conditions in the villages.

To help the villagers to think through the real causes of their problems, analyse them and suggest options based on the analysis, BOBP provided the services of a community development worker in August 1987 to work closely with the community. The community development worker spent several months with them to get an insight into their problems, their general outlook and their fishing practices. A semi-structured study was also undertaken at the same time to understand their living conditions.

An exhibition was organised in Feb.'88 in the village to highlight problems and issues expressed by the villagers during the survey. The exhibition was thought-

provoking and stimulated discussion among the fisherfolk.

A main problem that emerged out of all this was the deep concern of the fisherfolk for better marketing facilities for fish vendors. It was observed that for over two decades fish vendors had been using a private piece of land opposite Eros theatre as their marketing site. When the owner of the land suddenly decided to evict them two years ago, they moved to a low-lying piece of land nearby which got frequently water-logged during the monsoon, seriously hindering their marketing. They were eventually able to secure a place near the old market with the help of a local politician. But they were once again displaced, following complaints from the residents. Driven from pillar to post, the women sought help from the Commissioner, Corporation of Madras, and obtained an open space behind the Besant Nagar bus terminus.



As the open land did not provide shelter or infrastructure facilities, the women found it difficult to operate. They have reverted to using a cattleshed near the old market. However, the space there is limited, forcing the women to divide themselves between two sites : the old cattleshed and a nearby roadside used by other fish vendors from neighbouring fishing communities. This has led to some tension with other vendors who feel that the women of Oorur and Olcott are encroaching on their space. The problems faced by the women fish vendors seem never-ending.

However, BOBP felt that the women's marketing problems also provided opportunities on several fronts. First of all, it was clear that in order to address their problems, women needed to organize themselves and develop a better sense of collective strength in order to articulate their needs and make sure that the authorities concerned became aware of them. Right from the start, BOBP made it clear to the women that it could not solve any of their problems, but would only help them to solve their own problems themselves, or seek out those authorities and agencies that could. But what sort of organization would be most appropriate for a small group of women, mostly illiterate, who want to exercise greater control over their

marketing activities? It was hoped that the process of working with the women of Oorur and Olcott would help develop a model for an appropriate organization.

Secondly, how could such a group approach the local authorities about their marketing problems and encourage action to be taken? It can be seen that in spite of the inevitable problems of an overburdened and overburdening bureaucracy, the women have benefited greatly from having an "open" local authority that is expected to be responsive to public needs. At least in theory, government officials must receive representations from all their constituents, and women have had valuable experience in approaching local government, in the form of the Corporation of Madras, and seeing how it works. Undoubtedly in this area, BOBP's role in helping the women to gain an audience has been considerable, but it is hoped that the Corporation has also gained by having the opportunity to hear of fisherwomen's problems directly from them.

Lastly, BOBP saw the opportunity to encourage the development of appropriate low-cost, fish marketing facilities in Madras. Although Madras is a major fishing harbour, the city authorities themselves lament the lack of any purpose-built fish markets. The

result of poor marketing facilities is poor-quality fish for the consumers, terrible wastage of valuable food protein and insecure incomes for fish vendors who often cannot be assured vending space in the limited facilities available.

The needs of the women fish vendors of Oorur and Olcott Kuppam and their representations to the Corporation of Madras for the construction of a facility thus represented an opportunity to encourage local authorities to build something cheap, that could be easily replicated and that responded to the needs and requirements of its users.

Lastly, we hope through this activity, to see how the benefits of such a facility can be channelled towards those who are most directly involved in the fish marketing process i.e. vendors and customers. To date the generally unsatisfactory fish markets in Madras are all either privately owned, or the lease is auctioned off by the Corporation of Madras to the highest bidder. In both cases, stalls are then sub-let on a daily basis to individual sellers. Undoubtedly this arrangement is not the only reason for the present condition of Madras fish markets, but if vendors were more directly involved in the administration and maintenance of the markets they utilize, work in, and depend on for a living, it would be reasonable to expect



Waiting for buyers. Below : Kattumarams at Besant Nagar — declining catches.

a greater level of care and maintenance, and improved conditions for selling and purchasing fish.

Thus, BOBP is also concerned in this activity with ascertaining whether non-literate women like the fish vendors of Oorur and Olcott can effectively administer a fish marketing facility, ensuring its efficient operation, proper maintenance and commercial viability.

So, what have been the achievements to date? By lobbying the local authorities, the women have had land and funds allotted to them for constructing

a market. A British consultant provided by BOBP discussed an appropriate market design with the women vendors themselves, and the resulting design has been accepted by the Corporation engineers and developed into a plan. After a series of bureaucratic delays, construction of the facility commenced in July, 1989. In the meantime, the Corporation of Madras has agreed to lease the market on a trial basis to a registered organisation formed by the participating fish vendors. BOBP would like to leave the decision on the precise form of organisation to the women,

who can thus formulate whatever rules and regulations they feel are most appropriate. Thus they may be able to avoid the complex bureaucracy governing a structure like a cooperative society and set up a simpler, more streamlined organization better suited to their specific purposes, and acceptable to the Corporation of Madras.

To prepare the women to take over and run the market, a series of one-day training sessions have been held. To date these have concentrated on building the self-confidence of the women as a group, and their awareness of the need for group action to enable them to improve their living and working conditions. Already, the women show a much greater sense of responsibility towards the group, readiness to take action, and the capacity to organize themselves. As the market approaches completion, training will concentrate more on the practicalities of running a fish marketing facility than on awareness-building or group action. How can this be done by a group? How should decisions be made? How can disagreements be overcome? How can book-keeping and the distribution of benefits be made 100% secure and open for all the vendors to see and understand?

To handle these more technical questions, the trainers (from BOBP and,



THE FISHERWOMEN SPEAK

Chinnapenn, Anjalai, Kalaichelvi, Krishnaveni, Jeeva, Malarkodi, Vadivambal, Vasanthi, Vanam, Roja, Desam, Desapattu, Rani, Kausalya, Kuppu, Rajabai — these are some of the Besant Nagar fisherwomen whom BOBP has been working with. Their ages range from 20 to 60.

For most of these fisherwomen, daily life is a hard grind : large families, problematic husbands, low fishing incomes, poor housing, inadequate credit ... Their own income from purchase and sale of fish (they buy either at the local Besant Nagar Market or at the Royapuram fish landing centre 25 km away) is often what sustains the family. The prospect of an organized fish market with easy and regular access to customers means a lot to them.

When the idea of the fisherwomen meeting corporation officials to represent their case for a fish market was first mooted, some fisherwomen were sceptical. Kuppu, 20, asked "Can we talk frankly? Will be allowed to express our feelings?". After the meeting, however, Kuppu was bubbly with enthusiasm. She exclaimed "The Special Officer spoke very freely

with, us. He asked us about our villages and families, our present market site, what problems we face, howfar we have to walk if we get the new market, and so on."

The meeting with the Corporation officials was an eye-opener for many other fisherwomen too. Says Anjalai, 34: "We now know how to approach the authorities with any grievance. We have acquired self-confidence, we have become bolder." But fisherwomen aren't exactly timid, are they? Don't they have a street-fighter image? The fisherwomen exchange glances when asked this question, then burst into giggles. "We are aggressive on our home ground, in the fishing village ... we are lost outside it", Chinnapenn, 50, exclaims.

What else have the fisherwomen learned during the past 15 months, ever since their struggle for a fish market began? "We have learned the need for harmony" says Anjalai. "We may compete with each other in buying and selling fish, but all of us want a fish market and we must work together for it."

"The idea for a women's development fund grew out of all the discus-

sions we have had," says Malarkodi, 25 : "We contribute Rs. 5 each to the fund every now and then... Our kitty now contains more than Rs. 1,000... Once the market starts, this money will come in handy. It will also finance loans for fish purchase".

Vasanthi, 33 recalls : "We attended six BOBP training sessions... There were games, exercises, discussions, talks, we learnt group songs. For me, all this was a new experience".

Jayalakshmi, 42, says : "We made a field trip to the Saidapet fish market. The co-operative that runs the market has fixed the rates for the stalls, also rates for fish vendors who sell there... We could institute a similar system at our new market."

How exactly will a fish market improve the women's circumstances? Says Anjalai, a mother of six, "I deliver fish door to door for some regular customers. Sometimes I've to walk up three floors with fish containers . With a proper fish market life will be easier. I'll also run my large family more comfortably with the additional money I get."

Kalaichelvi, 29, and mother of four daughters (aged 11, 9, 8 and 2), says "My husband gave up fishing after an accident he sustained several years ago. He now does odd jobs, money from which is irregular ... I hope the fish market income will help me educate my children — that's my sole ambition".

Mochagandhi, 52, says "Selling on the roadside is not safe. And there's hostility from fish vendors of the neighbouring kuppam... Our business is affected. The new market will enable us to sell in comfort and peace".

The circumstances of the Besant Nagar fisherwomen vary ... but for all of them, the proposed new fish market is a symbol of hope. And the struggle for the market has strengthened, hardened and emboldened them in their quest for a more comfortable tomorrow. — N.V. & S.R.M.

Anjalai — "With a fish market, life will be easier".





Fisherwomen at a training session organized by BOBP.

Loyola College, Madras., hope to work together with the Samakhya Trust from Hyderabad, using the latter's experience in developing successful co-operatives to create some appropriate training materials for fish marketing groups such as the women of Oorur and Olcott. Needless to say, such training will facilitate inputs on post-harvest technology aimed at improved handling, fish quality and value.

Obstacles remain, of course. The clearance process for the fish market plans, and now for construction, has proved long and has been wracked by painful bureaucratic procedures. In an urban environment there is intense competition for land resources and local funds. Thus, inevitably, there are complaints and objections to be appeased. It could perhaps be argued that BOBP might have done better to quickly build a

low-cost model market as a concrete example for demonstration and replication. However, this could not have guaranteed the sense developed over the last two years of work among the fish vendors that this is something they are working for. Likewise, it would not have guaranteed the replicability of the project for the competent local authority, in this case the Corporation of Madras. Now this market will be entirely their market, but with their resources, and if the venture succeeds, its replicability will be easier to ensure. BOBP's input has been limited to the work of a Community Development Consultant who has guided and supported the women in their development, plus some training, with space provided by the Tamil Nadu Directorate of and Stella Mans college.

If all goes well, Besant Nagar fisherwomen will have their own fish market. That will represent nothing less than a triumph of group action — which ought to inspire similar endeavours elsewhere to give fisherwomen a new voice and a new status.

Fisherwomen meet the Special Officer of the Madras Corporation, Mr L M Menezes.





Crab Traps in Ranong Province, Thailand —

YESTERDAY'S FLOP, TODAY'S HIT

Crab traps of new design fared poorly when introduced in Ranong province, Thailand, two years ago. But reintroduced this year the same traps are in wide demand among fisherfolk. Sanchai Tandavanitj and Hanna Kristensen examine the reasons for the phenomenon.

What failed in 1987 is a booming success this year. How did this happen? The BOBP subproject in Ranong is probing its experience with crab traps.

Crab traps are not new to Ranong. Fisherfolk here have been catching mud crabs (*scylla serrata*) with a crab lift net (a long bamboo pole with a circular net containing bait at the bottom) for years. The poles are stuck into the bed of rivers and mangrove canals. When a crab comes to the bait, the pole moves and with a quick movement the fisherman traps the crab. These lift nets are efficient and cheap. Disadvantages: they catch only one crab at a time; have to be watched continuously; and fishermen must be alert, else the crabs will escape.

Therefore, it was decided to try out a new type of trap (introduced in Thailand by SEAFDEC and modified by the fishing technologists at the Andaman Sea Fisheries Development Centre or ASFDC, Phuket) and make it cheaper. These traps are made of iron frames, covered with netting, and are collapsible; fishermen can carry many of these traps in their small boats. They are placed at the sea bottom and left

for a couple of hours. Bait is placed inside the trap in a small net bag or other kind of device; its smell (rather bad) is expected to lure in the crabs. Contrary to the lift net, the trap can catch several crabs at a time. Either they enter the trap through the openings; or their claws get caught.

In April 1987, 15 fisherfolk and some provincial fisheries officers were trained to construct and use these traps. Later the same year about 30 more fisherfolk were trained (by workers from the Community Development Office) with BOBP support. The fisherfolk were given 25 traps, considered the right number for a reasonable income. But by early 1988, the experiment seemed to have failed. Most of the trained fisherfolk preferred the old lift nets. Why? A mid-1988 investigation revealed that the traps rusted too easily; disintegrated because of twigs and branches in the water; needed watching anyway to prevent theft, so no time was saved. In other words, the new trap had not shown itself superior to the traditional lift net. Fisherfolk did not consider it worth their while to spend Baht 150 on a new trap when

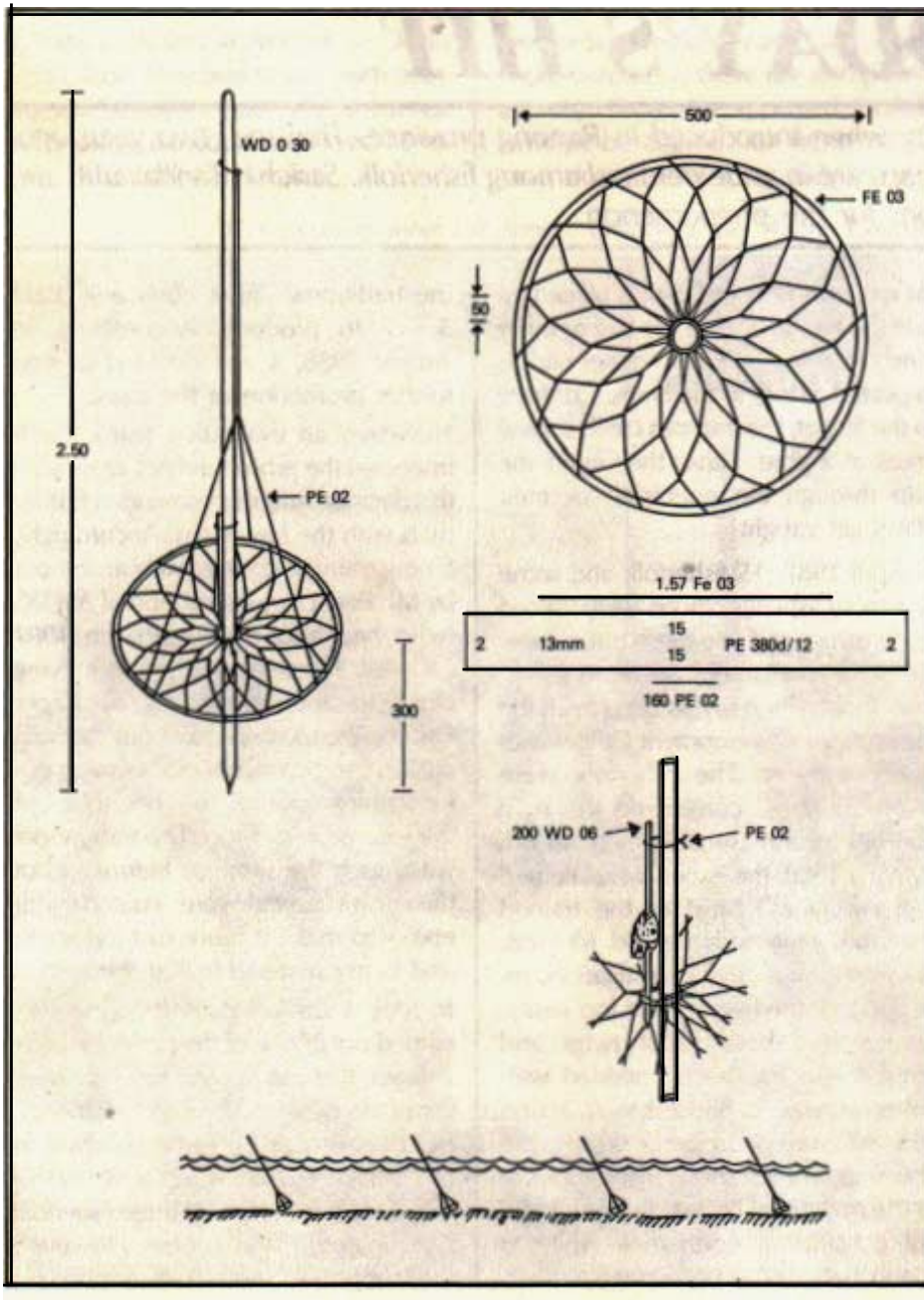
the traditional liftnet costs only Baht 5 - 7 to produce. Accordingly, in August 1988, it was decided to stop further promotion of the traps.

However, an evaluation team which inspected the project did not agree with this decision and recommended further trials with the new traps. Accordingly, a new training course was carried out by Mr. Peera Aowosomboon of ASFDC (who had also conducted the 1987 courses). He selected fisherfolk living close to the mangroves of Kaper District, the most suitable crab catching area in the province. Emphasis was put on training not only the fisherfolk, but the extension staff too. The trap model was much the same as before — but the iron frames were coated with epoxy to make it more rust-resistant; and better material was used.

In May a similar training course was carried out in one of the project's target villages, Kor Lao (by Mr. Kitiwat Khongrit of the BOBP subproject in Ranong). BOBP had built up some goodwill in this village by setting up a system of social services. Yet, only three fisherfolk participated in the course. However, the subproject now had a pleasant



Above: Crab traps under construction. Below: These sketches illustrate the traditional crab liftnet (Raew Poo), one of Thailand's oldest fishing gears. Fishermen use it in shallow water from a rowing boat or longtail boat, to catch mangrove crab and blue swimming crab. (Sketches courtesy : SEAFDEC).



surprise. While this course was on, a group of 13 fisherfolk from another village, Lam Nao, came to the BOBP office and asked for a training course.

This trend continued; in July a fourth course was conducted in Kor Lao at the request of the villagers, this time with 17 participants; and the following month a fifth course in Bang Ben village for 18 fisherfolk.

By mid-August, 61 trainees were operating an average of 26 traps each, all reporting very good results. Ironically, fishermen were getting trained to use the very traps nobody wanted in 1987 and 1988.

External factors are obviously not the cause for this radical change in interest — the prices of mud crabs, for instance, are the same this year as in the previous years. It would of course, be very tempting for the parties involved to say that extension work was carried out much better this time. To some extent this is true. Certainly the project had learned from its earlier experience of failure, and a different approach was adopted. The trap itself was changed and made slightly cheaper. Geographically the emphasis was put on the most suitable areas (in Kaper district and the southern parts of Muang district). Fisherfolk here have been long engaged in catching crabs by lift net, and the resource is considered to be ample. (Most of the fisherfolk trained in 1987 lived north of Muang district at the Kraburi river where crabs are not so abundant.)

An investigation shows that the 1987 trainees had not been chosen properly. Many participated through happenstance rather than interest, motivation or need. Some were young and about to take up some other profession, others belonged to the upper strata of society and had other opportunities. The potential trainees had not been contacted directly by the project or the provincial fisheries officers, but by a little-informed village headman, who was also responsible for the selection. In 1989 more effort was put into reaching the target group. Direct contacts were made with the fisherfolk, groups of individuals were oriented on the new technique before the training. Care was taken to see that the participants had motivation and interest, that they would put the gear and the labour to good use, also to ensure that they had easy access to the resource. At the actual training

sessions the focus was on learning by doing (not the case in 1987). The participants were made to form groups, one for each village — because groups can construct and use traps better than individuals can. These groups have yet another purpose. In 1987 the traps were given free, this time the participants were charged a small fee per trap. The money was pooled as a reserve fund to be used for maintaining traps. Further, each group received a set of tools needed to construct and repair the traps. So the trainees were able to pass on their skills to others.

Thus in 1989 the crab trap introduction was prepared and performed more carefully. However, the “failure” of 1987 was perhaps not really a failure. It was declared as such too early, and the activity called off somewhat superficially. Actually, the first extension effort reached only a small number of not very appropriate beneficiaries.

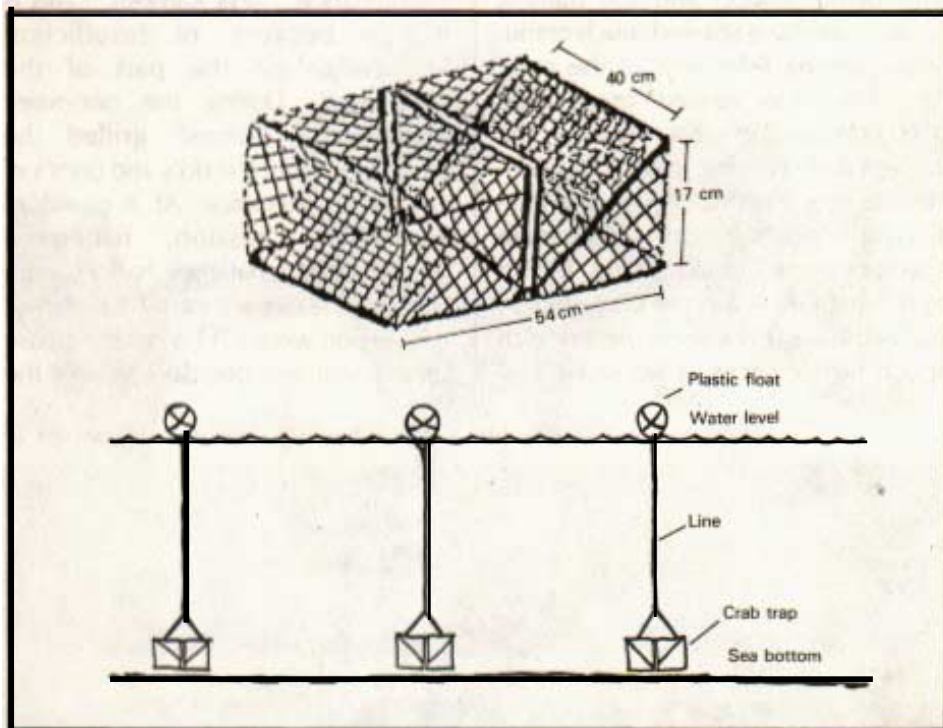
In 1987, the complaints of trainees had been looked into — but only those of people living on the banks of the Kraburi river. No detailed survey was made in Kaper district, where there is much interest in crab traps. Possible shortcomings in the extension approach were not assessed; the appropriateness of the selected target groups and of the target area were not considered either. Moreover, the experiment itself was too short for a definitive assessment of the trap's feasibility.

Second, an experiment like this needs close contact and cooperation between fisherfolk and the extension staff. In 1987, the project had not yet established close relations with the fishing communities. It's no coincidence that in 1989, those fisherfolk who took the trouble of approaching the project and requesting the training were the ones the project knew. And other requests for assistance came about after visits by project staff to fishing communities or some such interaction.

Third, there are fisherfolk who, like any other group, are prudent and cautious and do not jump at anything new; they would prefer to wait and watch before they risk failure with a new endeavour. It's possible that given more time, even the inefficient 1987 approach to crab trap extension may have succeeded. Change is a gradual process, it doesn't happen overnight.



Sketch below shows design of crab trap and how it is deployed.
Above : Crab caught in trap.



It's possible that this year's “success” may well be an eventual failure. A crucial question is whether the resource base is sufficient; no study has yet been made of the mud crab resource. Cheer over good catches and quick acceptance of the new traps is tempered with concern about possible over-exploitation of crabs; the new traps catch more juveniles than the old liftnets do. Technologists at ASFDC warn against further expansion of crab traps until a proper stock assessment has been made. As for the fisherfolk, some say they are not worried. If crabs disappear from one plate, they will emerge somewhere else. But many other fisherfolk are indeed worried. Says a successful crab trapper from Lam

Nao : “Right now there are enough crabs for us to catch. But not if 10 more fisherfolk put out traps.” The project thus faces the proverbial dilemma — while the resource must be protected, fisherfolk need to earn more. Conservation or management measures are certainly required, or will be, but on what should they be based in the absence of any studies? And, how can they be enforced? Will the fisherfolk themselves agree to limit their fishing effort?

Those involved in promoting the crab traps are skeptical about any announcement of success — which may turn out to be as premature as last year's announcement of failure.

IND-20 COMES TO TAMIL NADU

Will IND 20, the BOBP-designed fibreglass beachcraft, recreate in Tamil Nadu the success it has enjoyed in Orissa and Andhra Pradesh?

BOBP's fibreglass beachcraft IND-20, of which more than 200 are fishing in Orissa and Andhra Pradesh, has now been introduced in Tamil Nadu. A one-year demonstration of the craft began early this year at Thirumullaivasal near Seerkazhi; and a one-week training programme for 15 fishermen and half a dozen fisheries officials of the state was held in August.

The demonstration and the training programme have sparked much enthusiasm among fishermen of the area. The boat has earned more than 100,000 rupees in eight months — the highest daily earning was Rs. 5,000 — despite very few fishing days and relatively low prices for catch. (The main species caught — tuna, sharks, bilifish and flying fish — are not the favourite fish of the area. The same species fetch much higher prices in Kerala.)

During the training programme, BOBP engineer V. Ramesh ran practical demonstrations on the operation and maintenance of the boat, the engine, the sails and a beach-hauling device. A Tamil video film on engine maintenance, and an instruction manual, were useful training tools.

"A common problem with beachcraft everywhere has been poor engine maintenance", says Ramesh. "This is mainly because of insufficient knowledge on the part of the fishermen". During the one-week programme, Ramesh grilled the fishermen about the do's and don'ts of engine maintenance. At a question-and-answer session, fishermen recapitulated what they had learned. Sample questions shot by Ramesh at this session were: "How much grease should you use per day? What's the

capacity of the engine oil sump? What grade of oil is used in the engine? How often should you clean the air filter? What's the normal daily loss of fresh water from the engine?" More than 80 per cent of the answers were, right, indicating that the fishermen had learnt their lessons well. This was reflected also in the assurance they displayed in handling the boat.

The fishing techniques used on IND-20 have generated impact too. Masterfisherman Anthony Wilson from Kanyakumari used tiolling lines — which Thirumullaivasal fishermen are not familiar with — to catch fish around the buoys of an oil-drilling rig nearby. He subsequently explained the use of trolling lines to fishermen of the area. However, the nylex material used as artificial lure with trolling lines is not available locally. A shop for fishing materials is likely to be set up soon in Thirumullaivasal, and BOBP's community development officer A. Alexander is trying to ensure that this shop obtains a stock of nylex material. Another masterfisherman from Kanyakumari, Aruldas, is now continuing the use of trolling lines by IND-20. Motorized craft of Thirumullaivasal have started taking to drift longlines and to rigging

How to use a beach-hauling device — fishermen undergo training.



S.R. Madhu

sails for emergencies — practices popularized by IND-20. The crew of the craft are also using brushpiles with driftnets to catch flying fish — a technique that has generated a lot of interest. "There is much scope for technology extension", says BOBP fishing technologist C Pajot.

How can Thirumullaivasal fishermen acquire IND-20? Together with fishing gear, the boat costs Rs. 170,000. A Government of India scheme implemented by NCDC (National Co-operative Development Corporation) is available under which a fisherman pays 5% of the cost of the boat; a 50% subsidy and a 45% bank loan are available. The disadvantage of this scheme is that it applies only to co-operatives. Experience shows that individual fishermen-owners operate and maintain boats much better than co-operatives do.

The Tamil Nadu government has now introduced a scheme under which an individual pays 20 per cent of the boat cost and the government pays a 20% subsidy. A bank loan has to be obtained for the remaining 60%. Fishermen complain that banks want collateral for the loan and do not accept boats as collateral. Says fisherman Vetrivel "We are prepared to pay Rs. 20,000 immediately and buy an IND-20, if a bank loan is available for 60% of the boat cost."

Community development officer A. Alexander (who is from the fishing community himself) says "Banks should study the potential of IND-20, and its costs and earnings, and extend loans to fishermen for purchase of the boat." The fisheries department of Tamil Nadu has already initiated contacts with banks and hopes for a positive response.

"We are impressed with the IND-20", says Mr. Theodore Selvaraj, Deputy Director of Fisheries, Tamil Nadu. "We hope more and more fishermen acquire the boat, so that they can improve their earnings and also tap offshore resources."

The Thirumullaivasal demonstration will continue throughout 1989. Similar demonstrations are then planned in a couple of other centres in Tamil Nadu, in co-operation with the state fisheries department. A scenario is hopefully emerging whereby IND-20 can recreate the success of Orissa and Andhra Pradesh in Tamil Nadu.

— S.R.M.



IND-20 under sail.



BOBP engineer V Ramesh briefs fishermen.



Fisherfolk community at Thirumullaivasal.

"Shark steak? No, no, sorry Madam, that we don't have", the restaurant owner said, giving me an astonished look. But when she realized I was not interested in the lobster, shrimps or squid listed on the menu, she quickly added: "But tomorrow

This conversation took place in Negombo, Sri Lanka, where shark is landed throughout the year, hundreds of them every week during the peak season (October to May/June). (Most of the shark are caught by longlines, a few by gillnets.) What happens then to all these sharks? If you follow them from the landing site through the wholesale market to the retail market you will soon realise that shark meat is sold at relatively high prices — 50-60 Rs/kg on the retail market is not uncommon. In comparison, tuna is sold for 60 Rs/kg and pomfret for 35 Rs/kg (April 1989 prices).

Before the 1950s, shark was eaten mainly in the northern part of Sri Lanka, usually by the affluent. In the southern parts it was not popular then — it was regarded as a poor man's food. In general, shark was eaten fresh by coastal populations and in dried form inland. However, shark production gradually developed in the south and southwest coasts of Sri Lanka; this fact coupled with the rising demand for fish, made shark popular in the south too. It is now on the menu of middle-income groups of coastal and inland populations, both north and south, many of whom own refrigerators and want easy-to-prepare food. Shark steak (when fresh) is one way to meet this demand. Heads of sharks, when little meat remains, are sold for Rs 10 a piece, dried viscera for less.

The processing of salted/dried shark meat differs from that of fresh shark meat even at the cutting stage. Fresh meat is cut into steaks 2 cm thick; meat used for salting is cut into rectangular fillets 150mm long, 10mm broad and 15-20 mm thick. After cutting, which often takes place on the shore, the fillets used for salted meat are washed in the sea, granular sea salt is rubbed into the surface. The meat is then packed into watertight containers where it stays for 18 hours. Salt to shark ratio is 1:5. It is then placed on mats spread out on the sand and dried for three days. The fillets are turned over regularly, and at night they are stored in plastic bags in a shed. In Sri Lanka around 60% of the shark meat is sold salted or dried, depending on the production centre and the season. The market prices of salted/dried shark fillets are Rs 40-60/kg.

Smoked shark meat is the in-thing these days; any impression that this is just another cheap alternative to salted/dried shark meat, will be dispelled quickly — the bill for smoked shark meat is Rs 250/kg. Why so expensive? Is it because it is a new product, is it the processing method, or is it that a very expensive species of shark was used and if so what species? The answer is "baby shark". Smoked shark meat is sold only at a few major restaurants in Sri Lanka.

There is scope for selling more shark meat in Sri Lanka, says the Meat Production Manager of Elephant House (one of Sri Lanka's largest food companies), Mr J F M Pathamperuma. Elephant House started selling fresh shark meat in May 1989 and smoked shark meat a year earlier, but is seriously considering using minced



Food



Health products



Sharkmeat is delectable, prepared smoked; sharkfin soup is a prized Sharkskin products — wallets, be distinction. Shark liver oil can be as beauty products. The viscera ofS well is this incredible creature util

RKS

e D. Kristensen



Sharkskin
before processing

shark meat for fish fingers and other similar products.

The meat, however is not the only part of the shark for which demand could jump. Sharkskin is an even greater money-spinner. Shoes, dresses, belts, wallets, handbags and purses made of sharkskin are fast becoming a rage in western countries the same way as snake skin or crocodile skin. The price of good quality shark skin is US \$ 3.50 per "linear foot" (semi-processed). Good quality means no flay cuts in the hide. Curing has to be done in the shade and with good quality sea salt; otherwise the hide might get contaminated with halophilic bacteria, which could lead to red spots. Proper tanning is equally important.

The best quality hide usually comes from species like tiger shark (*Galeorhinus tigris*), black tip shark (*Carcharhinus limbatus*), hammer head shark (*Sphyrna spp.*), silky shark (*Carcharhinus falciformis*), white tip shark (*Carcharhinus melanopterus*), and blue shark (*Prionace glauca*) — all of which seem to have good qualities for processing. Moreover, these varieties often come in big sizes, a great advantage. Some notable species in Sri Lanka are silky shark, blue shark, white tip shark, and hammer head. BOBP is obtaining information on the magnitude and composition of shark landings in Tamil Nadu, India, and hopes to get a clear picture in the near future. In view of optimism about the potential of sharkskin, collaboration in the experimental curing and tanning of shark has been started by BOBP with CLRI (Central Leather Research Institute), Madras.

The fins are the most valued parts of the shark SRI Rs Qf(1) - 1 100 (Indian

Rs. 400 - 450) is the price traders from Singapore pay for one kg of dried fins. From Singapore sharkfin is re-exported to Hong Kong or China, where the final product, sharkfin soup, is regarded as a delicacy. In Sri Lanka, as well as in India, a few people monopolize the trade in shark fins. This can be seen at the landing site in Negombo and Beruwela where boat owners cut off the fins so that they alone tap this "gold mine". Traders in India complain of low prices for dried shark fins, but this could be because of the quality of the cutting; often too much meat remains on the fins. (The importer wants only the fin, no meat attached.)

Other parts of the shark — like jaws, teeth, pancreas, cartilage, viscera and ovaries — also have various commercial applications. The cartilaginous parts and the viscera, for instance, are used for fish meal; they also serve as poor man's food. The use of shark liver has made a comeback in western countries after it had been considered redundant for many years because of synthetic fabrication of vitamins A and D. Recently shark liver pills have been discovered to counteract the side effects of chemotherapy (used to treat cancer). In India, vitamin pills dispensed in government hospitals are sometimes made from shark liver oil. In Sri Lanka, until 1970, shark liver oil was provided to all government hospitals free of charge; it is also being exported for use in cosmetics, lotions, cakes and vitamin pills.

The uses of shark seem countless. Quality? Let me point out that the shark steak I got the following day at the restaurant I was talking about was indeed delicious.

Beauty products



Fish meal



i in any form — fresh, dried-salted or d delicacy in Hongkong and China. belts, shoes, dresses — are marks of converted into vitamin pills as well shark are excellent as fish meal. How utilized in the Bay of Bengal?

NIAS IN A

BOBP has initiated some activities in Nias, one of a cluster of islands that constitute the Indonesian archipelago, 60 miles offshore along the west coast of Sumatra in the Indian Ocean. This article, which presents a primer of basic facts on Nias, is based partly on information provided by Mr. A. E. Mandrofa, Chief, Provincial Fisheries Service, Gunung Sitoli, Nias island.

Q: *How accessible is Nias? What's the population of this island and what are the major occupations? What percentage of the population are fishermen?*

A: Nias is perhaps distant but no longer remote. Over the years, access to Nias by air and sea has improved a great deal. You can fly every day from Medan (North Province of Sumatra) or fly once a week from Padang (West Province of Sumatra), or take a daily ferry service from Sibolga (a major harbour in the west coast of north Sumatra).

Road communication on the island, however, is poor. You must negotiate collapsed bridges and mud-and-gravel pathways to reach fishing villages. Sometimes it's easier to go by boat from one part of the island to another.

Nias has a population of 528,000 (1986 census). Engaged mainly in farming and forestry, they produce rubber, timber, coconut (copra oil), rice, species, fruit. Some 3,000 fishermen live in 70 fishing villages scattered along the coastline. Some 900 more engage in ancillary occupations (fish handling, marketing, boatbuilding). Some 80% of the fishermen are Muslims. Literacy level among the fishermen is low, but about equal to that in the rest of the island.

Q: *What are the fishing villages of Nias like? What are the major fishing craft and gear?*

A: Each fishing village is by itself a small landing centre where fishing craft are hauled on the beach or anchored in protected waters or moored near stilt platforms in small water outlets.

There is no proper fishing harbour with shore facilities for large motorized fishing boats. Concrete jetties are available for small cargo and passenger boats in Gunung Sitoli, Lahewa, Taluk Dalam and Hinaka. The fact that fishing

Table 1

COMPOSITION OF FISHING FLEET

Types	Non-motorized	Motorized	
		OBM	IBM
1. <i>Indigenous craft</i>			
1.1 Small outrigger dugout canoe (4 6m)	2121	67	—
1.2 Dugout canoe (16 - 7.5m) with or without outrigger	20	4	5
2. <i>Introduced craft</i>			
2.1. Planked open boat (7-10m)		32	—
2.2. Plank half deck boat (8-12m)	—	—	28
Total	2141	103	33



NUTSHELL

Left: Fish landing centre in Gunung Sitoli, Nias, showing gillnetters (above) and traditional boats (below).



villages are scattered along the coast facilitates access to most fishing grounds and resources.

There is no medium or large-scale fisheries sector in Nias.

However, an unknown number of large boats from Sibolga or Padang operate seasonally in inshore or offshore waters and land catches on their home base.

Some 2,300 indigenous fishing craft operate round the year in the coastal zone, and offshore to a much less extent. Table 1 sets out the composition of the fleet; 96 per cent of the craft are very small non-motorized dugout canoes. They can fish only inshore.

Q: *What's the fishing production in Nias? What are the species caught? How rich is the resource?*

A: Total fish production in 1980 was estimated at 3,500 tons. Small-scale fisheries accounted for the bulk of the production. Pelagic species (tuna, sharks, billfish) made up most of the catch, followed by demersal species like rockfish and small pelagic species (sardines and anchovies).

There has been no survey of the fishing potential of Nias island. Since most fishing crafts are small-sized and operate inshore, it would appear that there's scope for expanding the fisheries further offshore. This would require a change in the composition of the present fleet, and much effort in fishing craft development and in motorization.

Hook and line is the most important fishing gear used by small-scale units, followed by gillnets and beach seines. Hook and line fishing methods have been used for decades, but small-mesh gillnets, trammel nets and large-mesh driftnets were introduced during the early 1980s after the ban on trawling in Indonesia.

Table 2 describes the type and number of fishing management units.

Q: *What's the marine environment in Nias like?*

A: It rains throughout the year in Nias, but mostly from September to December; frequent rains hamper fish drying. Sea conditions are generally very fair and the wind force is low. Sails cannot be used for offshore fishing except in emergencies. Should fisherfolk venture further offshore, there is a good case for using motorized craft.

Table 2

TYPE AND NUMBER OF FISHING MANAGEMENT UNITS

Hooks & Lines	Gill nets	Beach Seines	Others	Total
479	37	3	111	630
467	27	16	136	646
135	16	5	25	181
153	10	5	32	200
44	8	—	5	57
425	50	7	223	705
432	65	—	123	620
140	10	—	43	193
276	—	—	79	355
117	—	—	70	187
2668	223	36	847	3774

Many small river outlets are scattered along the coast. Their shallowness and the seasonal formation of sand banks limit access to the water outlets by ensuring that only shallow draft craft can ply these waters. The continental shelf of Nias is rather narrow: it extends from 1 km to about 15 km in most parts of the 400 km long coastline. The total shelf area is **estimated to be about 500 km²**. The narrowness of the continental shelf could prove a blessing for fishermen; if they are provided with small motorized craft, they can easily reach deep-water and offshore zones and tap their resources.

Q: *How's the fish marketed and processed?*

A: Most of the marine fish is landed fresh and eaten in the immediate vicinity. When landings are heavy, fish is salted and dried or iced for sale in the public market, or transported to the interior.

Fish is marketed mainly by small private traders riding bicycles, motorcycles, private buses or boats. Fishermen are not committed to any particular trader; they negotiate daily sales with one or several traders. But there is no organized auctioning system.

A small fraction of the production, high-value shrimp and fish, go to Sumatra. Thanks to a government export drive, iced tuna for Nias is taken to Medan and exported in frozen form to Thailand. There is a strong case for improving the export of marine products. Because of the demand for low-value fish in the interior of the island, small varieties, salted and dried, are "imported"

While freshwater aquaculture for carp and catfish has been practised in the hill areas, there is no tradition of brackishwater or marine aquaculture. The culture of penaeid shrimp in brackishwaters found in mangrove areas holds out limited promise. Aquaculture experts see potential for the marine culture of seaweed.

Q: *Who's responsible for fisheries development in Nias? What's the administrative set-up? What is BOBP doing there?*



A: The District Fisheries Service manages and coordinates all government fisheries-related field-level activities.

Though the government accords priority to small-scale fisheries development, the financial and technical resources made available to small-scale fisheries are meagre. Recent development has been mainly at the initiative of the private sector; and the benefits have gone to entrepreneurs.

To reach less privileged fisherfolk, the Government of Indonesia has with BOBP support launched a project to demonstrate how appropriate fishing craft and gear can harvest unutilized and under-utilized resources and improve the earnings of the fisherfolk. The first phase of this project is now on. Three prototype outrigger canoes of different sizes employing different types of gear began commercial fishing trials late 1988. If the end results are positive, they will be extended to fisherfolk during a second phase. **G.P.**

Motorcyclist rides on suspension bridge. Road communication in Nias is not very well developed. Above : Location of Nias island.



TABLE 1
OPERATIONAL DATA OF NW35, 1987 AND 1988

	1987	1988
(a) Number of trips	35	37
(b) No. of sea days	152	160
(c) No. of fishing days	119	129
(d) Fish catch (kg)		
— Gillnet	16,262	28,295
— Longline	3,664	1,431
— Troll	83	1,350
Total	20,009	31,076
(e) Catch rate (kg):		
— per sea day	131.6	194.2
— per fishing day	168.1	240.9
(f) Income from sale of catch (Rs.)	392,850	453,359
(g) Total operation cost (Rs.)	405,320	527,732

TABLE 2
CATCH RATES IN GILLNET FISHERY (KG/OPERATION)

Year	North West	West	South West	South	Whole
1987	142	173	154	133	152
1988	91	205	252	324	223

the two years are presented in Table 2. Catch rates obtained for most areas were higher in 1988 compared to those obtained in 1987. Also, it is of interest to note that when catches in the south/southwest are low, high catch rates were obtained in the west/north-west and vice versa.

A comparison of catch rates between ranges is affected by inadequate and unequal coverage of all ranges (see diagram). Considering pooled data collection between the 30 to 50 and 50 to 100 mile ranges, a reduction of catch rates is evident from south northwards. In the west, catch rates within the 30-50

mile range were higher than those within the 50-100 mile range.

The highest catch rates were obtained during the southwest monsoon months, from April to October. Areawise too, the highest catch rates occurred within the above period. So also the best season for skipjack as exemplified by the catch rates. Yellowfin, however, showed higher catch rates just before and at the tail end of the monsoon period. The overall catch rate of skipjack was higher within the 50 to 100 mile range than within the 30 to 50 mile range during both years.

The relative distribution of skipjack and yellowfin in the offshore range was found to be similar to what has already been established for the coastal zone — i.e. a decrease in concentrations of skipjack northwards and southwards of south-west, and an inverse pattern for yellowfin.

GILLNET SELECTIVITY

The target species in the gillnet fishery, skipjack and yellowfin, made up 71% of the gillnet catches. While the majority of the skipjack (62%) were found gilled, the proportion of fish entangled was high among yellowfin (63%). A high ratio of entanglement was also seen in other varieties caught in the gillnet fishery such as billfishes, sharks, skates, dolphinfish and small tuna.

In relation to mesh size, the 6" mesh net had the largest proportion of gilled skipjack and the 7" net the largest proportion of gilled yellowfin. Length frequency data for skipjack (also yellowfin to an extent) showed that small-meshed nets gilled more of small fish while large-meshed nets gilled more of large fish.

Considering the total gillnet catch, the 6" net was found to be the most efficient in terms of weight of catches during both years. In terms of numbers of fish caught, 5" and 6" nets were efficient in 1987 and 1988 respectively. However, differences between the performance of 5" and 6" nets in both years were very small.



Tapping the offshore tuna resource : BOBP experiment in Sri Lanka

by Leslie Joseph

During 1987-88, BOBP on behalf of FAO helped conduct exploratory tuna surveys in Sri Lanka. Data generated will help further expansion and development of the small-scale tuna offshore fishery in the island. This article discusses the survey's findings.

The exploratory tuna fishery survey conducted in the western and southern offshore waters of Sri Lanka during 1987 and 1989 generated valuable information on the abundance of the resource, catching methods, economics of operations etc. The survey itself was funded by FAO (under its TCP or Technical Co-operation Programme) and executed by the Marine Biological Resource Division and the Engineering and Technology Division of NARA (National Aquatic Resources Agency), with technical assistance from BOBP. This and a similar FAO/TCP project executed in Maldives during 1988 were the outcome of the UNDP-funded project "Marine Fishery Resources Management in the Bay of Bengal" executed by BOBP during 1983-1986.

The survey could not have come at a better time for Sri Lanka. With the coastal tuna resources said to be fully exploited (producing around 35,000 tons of tuna per year), there has been a rapid expansion into the offshore during the last 4 to 5 years. Further expansion and development of the small-scale offshore tuna fishery therefore stands to benefit from the data generated during this survey.

A 10.4m combination boat, NW35 (gillnetter-cum-longliner) provided by the Ministry of Fisheries was used for the survey. Fishing gear on board included 60 panels of gillnet of 5", 6" and 7" mesh, 30 to 35 bundles of longline and troll lines. The boat was manned by a crew of five and provided with a fish-hold, crew accommodation, radio communication, satellite navigator and an electronic log etc, to undertake multi-day fishing trips.

The survey strategy envisaged four fishing trips a month, covering each of the four sub-areas once, with four fishing days per trip. Operations were confined mainly within the 30 to 100 mile range of the survey area. (Data from the 1987 survey were summarized and reported in the March 1988 issue of *Bay of Bengal News*). The results of the survey during the two years are summarized in Table 1. The boat made 72 trips during the two years, spent 312 days at sea and fished during 248 days for a total catch of 51,085 kg (gillnet 87%, longline 10% and troll lines 3%). Income generated through sale of fish amounted to Rs 846,209 while operational expenses totalled Rs 933,052.

The high operational costs, which led to an overall loss, were on account of:

- Additional running hours to cover the whole of the survey area.
- Fishing operations at pre-determined locations and not in the best fishing areas as in commercial fishing.
- Use of only two bases (Negombo/Galle). Result: high running costs.
- High boat maintenance costs (over 10% of total operational costs).

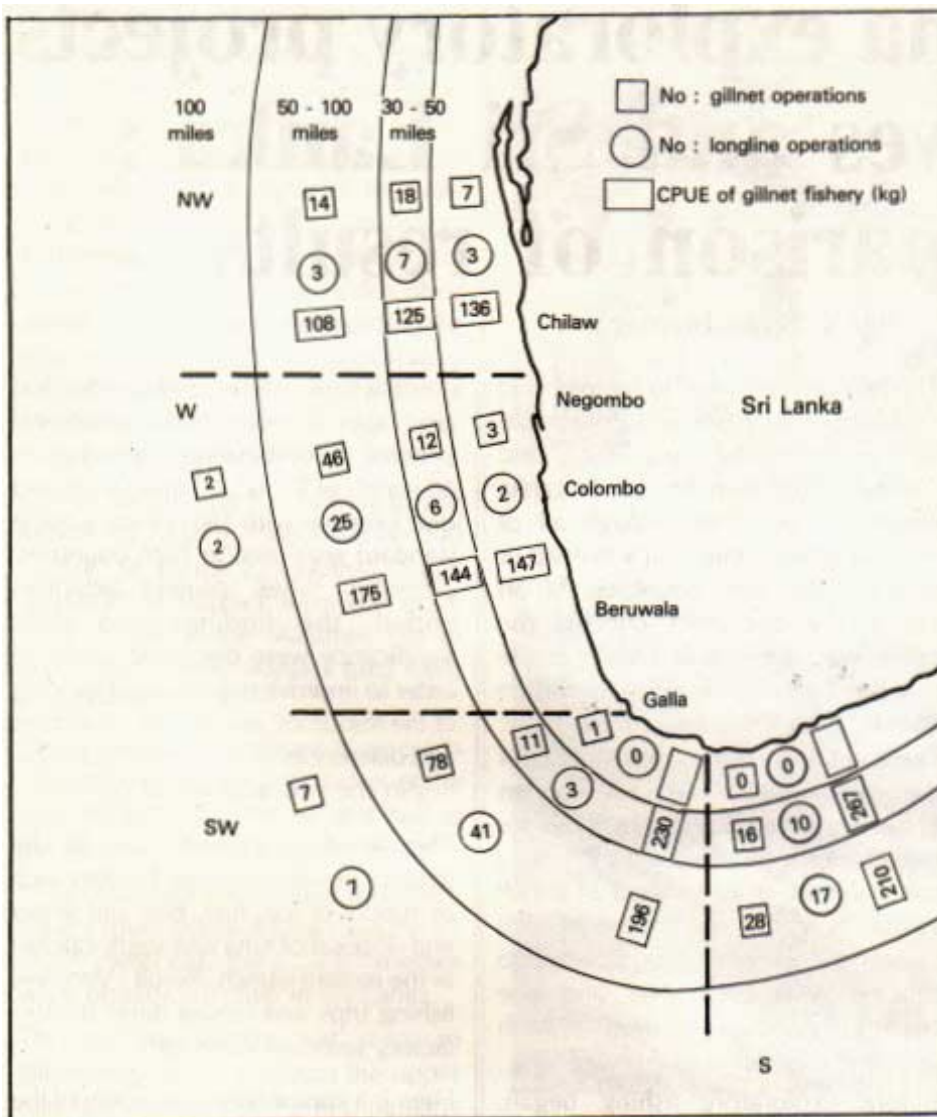
GILLNET CATCH RATES

Gillnet catches consisted of skipjack (55%), yellowfin (19%), smaller tuna (2.3%), sharks (14.5%), billfish (9.5%) and others (skates, rainbow runner, dolphin fish etc).

The mean annual catch rates (catch per operation) estimated for the whole area as well as for the four sub-areas during

Tuna landings in Negombo.





Exploratory tuna fishing in Sri Lanka — fishing operations and CPUE (catch per unit effort) in the gillnet fishery.

LOGLINE FISHERY

Attempts to try out tuna longline during the survey were handicapped by lack of good quality bait. Catches made with shark longlines were also somewhat disappointing, when one considers their role in the commercial offshore fishery. While longline catches made up 18% of the total catch in 1987, they dropped to a low 5% in 1988. However, it must be noted that longlines were tried out during 74 fishing days in 1987 and 51 days in 1988, as against 114 and 129 days of gillnet fishing during the two years.

Drift longline catches consisted of sharks (78.4%), billfish (1.2%), yellowfin (7%), and others (2.6%). Swordfish, *Xiphias gladius*, made up the bulk of the longline catches.

The efficiency of catching different species at different longline depths was estimated in terms of numbers of fish caught in different hooks. Results showed the shallower hooks (hook numbers 1 and 2) getting more fish than the deepest hook No. 3.

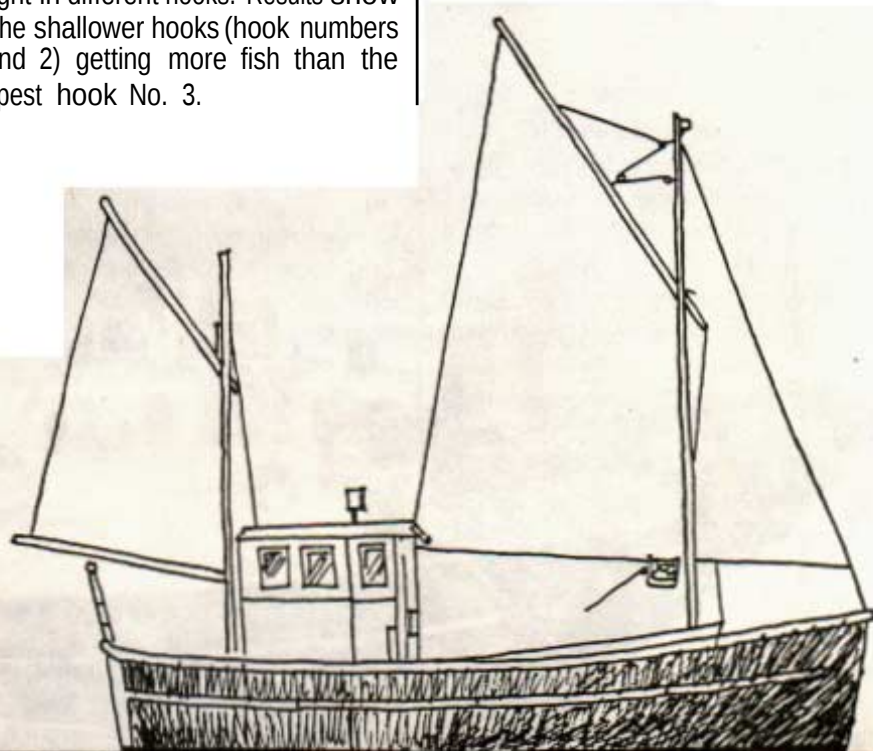
SHARKS IN OFFSHORE CATCHES

Sharks constitute an important component in the offshore catches, making 78% and 14% respectively of the catch in longline and gillnet fisheries. The silky shark *C. falciformes* made up 70% and 88% of the shark catches in gillnet and longline fisheries respectively. Other prominent shark species in gillnet catches included the oceanic white tip *C. longimanus* (15%), the milk shark, *R. acutus* (8%), the hammerhead shark, *S. lewini* (1.7%) and the thresher, *A. superciliosus* (1.1%). Shark catches in the longline fishery also included *S. lewini* (7.2%) and *C. longimanus* (2.1%).

The silky shark is evenly distributed in the study area. Others show some interesting variations. The oceanic white tip was more prominent in the south west and south while the hammerhead *S. lewini* and the milk shark catches were high in the west and northwest, compared to the southern areas.

Information and data gathered through field observations and sampling also included the following:

- Biological studies — reproductive and feeding biology as well as length frequency studies on various species encountered.
- studies on fish parasites
- sightings of tuna schools
- sightings of marine mammals and birds.



Vessel used for exploratory fishing in Sri Lanka — a 10.4m gillnetter-cum-longliner.

Offshore tuna exploratory projects in Maldives and Sri Lanka: A comparison of results

by K. Sivasubramaniam

During 1987-88, the BOBP carried out exploratory fishing projects in the offshore waters of both Sri Lanka and Maldives, under TCP (Technical Co-operation Programme) agreements between FAO and the two countries. These activities were recommended by the BOBP project "Marine fishery resources management in the Bay of Bengal".

How abundant are surface tunas and pelagic sharks in the two countries? Can an economically feasible small-scale fishery (drift gillnet- cum-longline) be developed beyond ranges presently exploited, up to 100 miles from the shore? These are some questions both projects sought to address. The Maldives project also studied the possibilities of a driftnet tuna fishery and the exploitation of pelagic shark resources. Fishermen were trained on multi-day trips.

The two projects were to be executed simultaneously. Since Sri Lanka began fishing operations early 1987 and Maldives only late in the year, Sri Lanka extended operations through all of 1988 to achieve one year's overlap of activities for both countries. In Sri Lanka, the operations covered the entire west and south coasts; in the Maldives, only the eastern side of the islands, 30 to 100 miles from the shore. These are areas of the adjacent EEZs of the two countries. The 52 ft wooden vessel *Mata Hari* built in the Maldives was chartered for exploratory fishing in the Maldives. In Sri Lanka a 34 ft FRP vessel "NW 35", from a fleet of such vessels built under the Abu Dhabi fund scheme, was used. Net and line hauling devices were used in both countries.

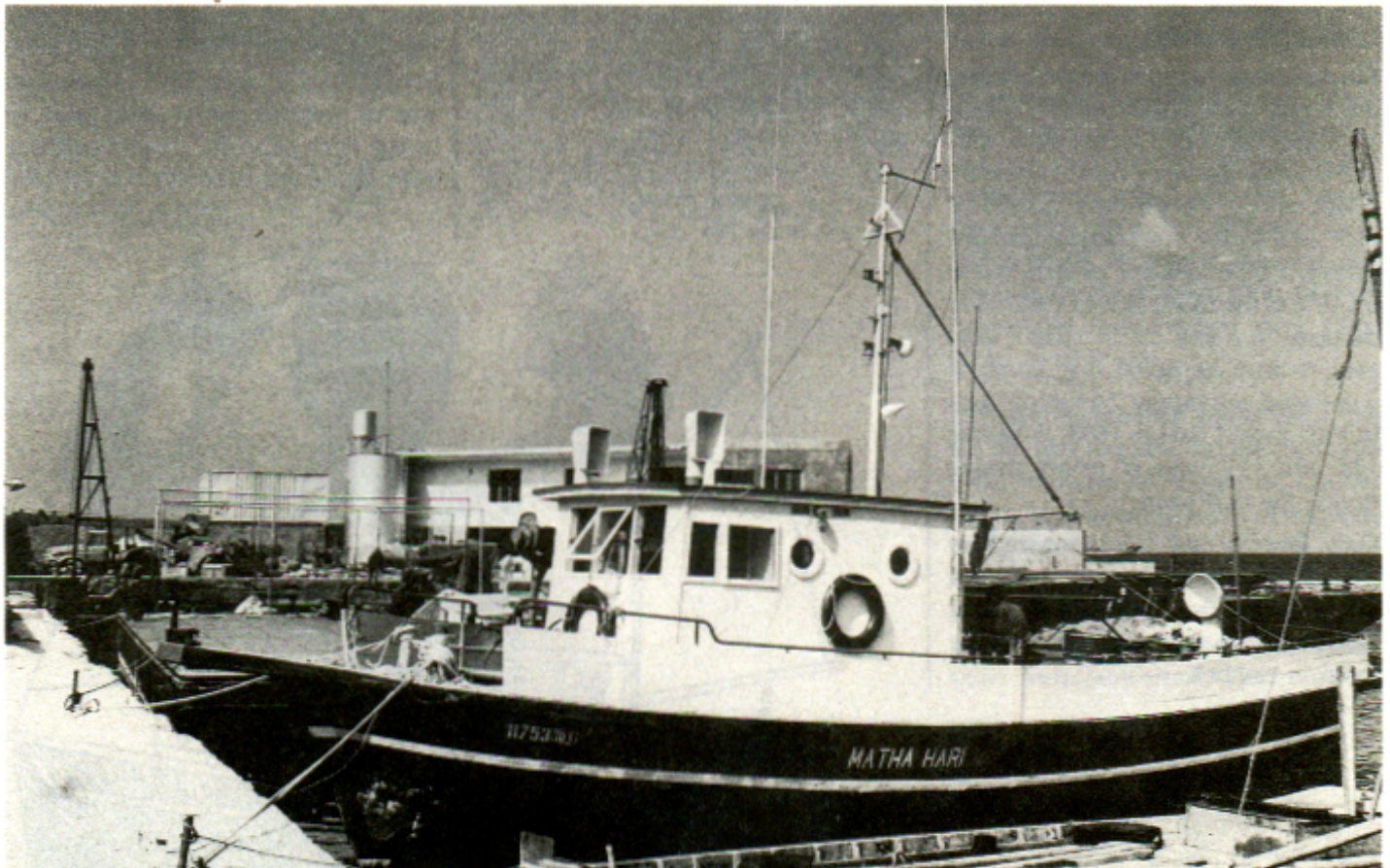
Before exploratory fishing began, scientists and officials of the two

countries met and agreed on identical gear specifications and operational patterns. A combination of gillnets with 60 panels of 5", 6", 7" mesh sizes and drift longlines with 150 hooks, was the standard gear used in both countries. Likewise, when project activities ended, the findings and their significance were discussed jointly in order to improve overall understanding of the resources, and identify similarities and differences in resource characteristics in the two adjacent EEZs.

The Maldives project was hit by logistics problems in base facilities such as supply of ice, fuel, bait and water and disposal of tuna and shark catches in the eastern islands. Result: Very few fishing trips and fishing days; unsatisfactory seasonal coverage.

Here is a comparative discussion of the findings of the projects.

The 52 ft. vessel Mata Hari, used for exploratory tuna fishing in the Maldives.



Performance of fishing crafts

The Sri Lankan project led to recommendations for further improvements to offshore fishing craft and to a new proposal for the offshore tuna and shark fishery. In the Maldives, the crew were assisted by a Sri Lankan fishery technologist and masterfisherman. However, logistics problems described above, limited crew experience and the type of vessel available for exploratory fishing made a proper evaluation of performance difficult.

Gillnet catch rates:

Overall average catch rates were similar in both countries in 1988 (Maldives 240 kg/day; Sri Lanka 220 kg/day). Equal quantities of skipjack tuna and shark were caught in the Maldives; but in Sri Lanka far more skipjack tuna were caught than shark.

In the Maldives, offshore tuna catch rates were similar for both halves of the year; In Sri Lanka, the second half of the year was better than the first.

In the Maldives the 5" stretched mesh caught more skipjack tuna than the 6" or 7" mesh net; the 5" - 6" meshes were equally effective in Sri Lanka.

The mid-area of the net seem to gill/entangle more fish than the upper part or lower part of the net, hanging vertically in the water.

Longline catch rates:

The mean catch rate for all species in the Maldives was more than five times as high as that in Sri Lanka mainly because of high shark catches in the Maldives. (Shark catch rate was 223 kg/100 hooks as compared to 34 kg/100 hooks in Sri Lanka). This in turn is perhaps because pelagic shark in the open sea have been relatively untapped so far in the Maldives, while shark longline and drift gillnet fisheries in Sri Lanka have been well established for over two decades.

Size composition of tuna:

The average sizes of skipjack tuna caught by the same mesh size were more or less similar in the Maldives and Sri Lanka, but the mean size increased with the mesh size. For example, the 5" mesh size nets caught 46 cm size tuna in the Maldives and 46.8 cm size in Sri Lanka. The 6" mesh size net caught 55 cm size tuna in the Maldives and 56.5 cm size tuna in Sri Lanka, and the 7" mesh size caught 66 cm size tuna in both countries.



Hefty landings of tuna in Male.

Distance and catch rate

In the Maldives no significant differences in catch rates were observed at different distances from the shore. In Sri Lanka the catch rate was higher in the 30-50 mile range than in the 50-100 mile range and beyond the 100 mile range, except on the west coast.

Commercial fisheries:

In the Maldives, tuna catch per day from the commercial pole and line fishery far exceeded catch per day from exploratory drift gillnets for the same period. In Sri Lanka, however, the exploratory fishery beyond the 50 mile range recorded higher catch rates than the commercial gillnet-cum-longline fishery in exploited ranges up to 30 miles.

Economic feasibility:

In the Maldives, the vessel used for exploratory fishing was much larger than the required size because a craft of suitable size was not available, and hence the operational costs were also very high. Further, the average price

per kg of tuna and shark is relatively low in the Maldives. So the cost of operation exceeded revenue. In Sri Lanka, the economic feasibility of gillnetting cum-longlining in the 30 to 100 mile range was established.

Follow-up action:

In the Maldives there is no immediate scope for tuna gillnet fishery, but shark longlining offshore has high potential. Any follow-up should be directed towards the commercial fishery for shark longlining. In Sri Lanka, more fishery gear experiments are needed to determine the optimal soaking time, the possibility of organizing two operations per night and the variability of gillnet and longline catch rates with depth, in order to improve the income and quality of the catch; Access to the Negombo harbour must be improved to minimize repairs and reduce problems in refuelling and loading of ice. The work in Sri Lanka led to recommendations for improving the Abu Dhabi offshore fishing craft and for developing a new offshore fishing craft.

glimpses into BOBP projects

Malaysian fisherfolk discuss oyster culture

On the island of Langkawi in Malaysia's Kedah state, BOBP's oyster culture trials, carried out in cooperation with the Fisheries Research Institute, Penang, are beginning to produce promising results. Earlier stages of the trials have already been documented in the *Bay of Bengal News* (Nos 30 & 32) and now at least one of the methods tried out seems to be technically viable. A local fisherman, Pak Man, assisted by BOBP's Field Biologist in Langkawi, Ruslan Shamsudin, has been growing the *Ostrea folium* species of oyster on net panels suspended from a raft. Results have been good to date. Now further trials will have to establish the economic viability of this method.

But what do local fishermen think of the new technology? If BOBP's trials are successful, what problems would fishermen face in taking up small-scale oyster culture? Are they even interested? To find this out, fisherfolk from six communities on Langkawi were recently invited to a meeting to see what BOBP's work on the island has achieved so far and to give their views and criticisms. 36 fishermen and women, several of whom are already active in collecting oysters from the wild stocks, attended the meeting. After a condensed presentation of the results of the trials, fisherfolk asked questions, made comments and then drew up a list of what they felt were the main problems involved in oyster culture. Staff from BOBP, the Fisheries Research Institute and the Department of Fisheries were on hand to answer the many questions and doubts expressed by the participants.

What problems did fisherfolk raise? Above all, they were worried about the relatively high initial investment required to take up oyster culture. Where could they get credit to start up when their collateral is limited? Can the costs

be reduced? Secondly, they were concerned about their unfamiliarity with the techniques of oyster culture. Lastly a stir of excitement was caused when the fisherfolk were shown the prices paid for oysters at markets off Langkawi such as Penang, which can be more than twice the local rate. Fisherfolk's obvious question: how can we gain access to those markets?

BOBP and their counterparts now have their work cut out for them. The agenda: to answer the questions posed by fisherfolk through continuing trials before attempting to extend the new technology on a wider scale.

Kattumaram family study

During March-April 1988, Ms Kristina Rosen, a young Swedish anthropologist, conducted a "Minor Field Study" of two fishing families in

Pattipulam, 50 km south of Madras. ("Minor field studies" are sponsored by SIDA and enable Swedish students to carry out academic studies for two or three months in developing countries.) The report of Ms Rosen's study has now been published by the National Swedish Board of Fisheries (Fisheries Development Series, no.33). It contains useful factual and reference information about the lifestyle, workstyle and living conditions of the Pattipulam fisherfolk community. The photographs in black & white have an appealing simplicity and dignity.

Fisherfolk and traditional media

An array of theatre personalities from Tamil Nadu — including Prof. R. Ramaniyam of Tamil University, Thanjavur and Mr. Na Muthuswamy, noted playwright — attended a four-hour seminar at the BOBP on "Fisherfolk and traditional media". The object was to discern and discuss whether and how BOBP could tap traditional media like street theatre and villupattu to communicate ideas, techniques and technologies effectively to fisherfolk. Participants agreed that in-depth plumbing and probing of the subject must precede action: the rural audience, its milieu and the indigenous media of the location must be well-understood before the media is taken up to influence behavioural change.

Kattumaram fisherfolk community of Pattipulam village studied by Ms Kristina Rosen



On the Forest and the Boats

Text and sketch by Signar N. Bengtson

(Text translated from the Swedish)

The Indian Ocean is the cradle of traditional craft and sailing vessels.

Men still build elegant outrigger canoes, giant tree-trunks dug out for voyages along coasts and rivers; they still stitch together beautiful wooden shapes into sailing vessels.

An abundance of rugged logs and crooked trunks is needed.

Nowadays it is more and more difficult to find good wood of the right thickness, at the right distance, at an acceptable price.

The industrial substitutes for wood create their own problems.

Wood's properties and possibilities rarely permit translations into plastic, steel and aluminium.

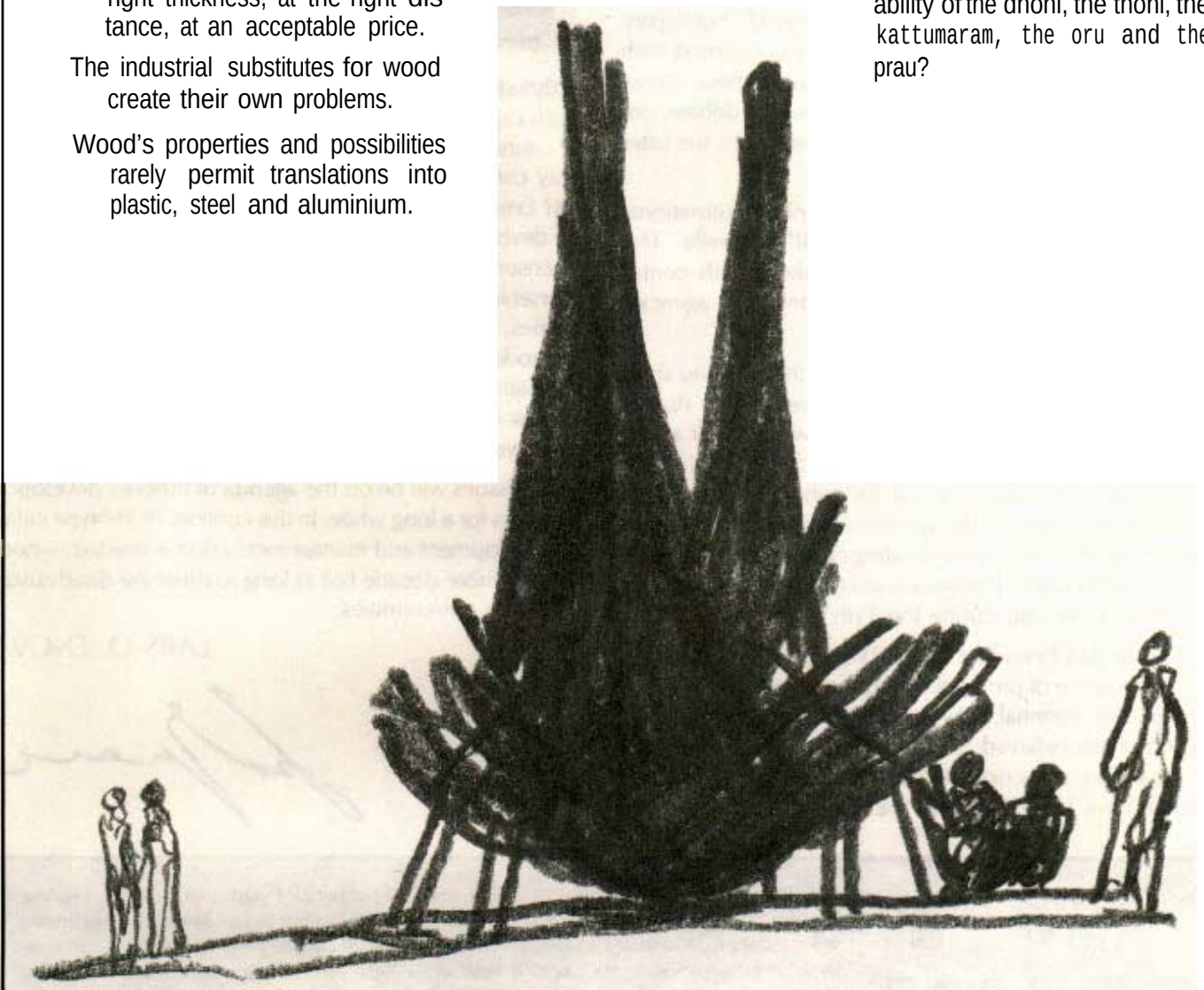
And one can no longer build for each individual need.

The distance increases between the limits of industrial production and the practical and aesthetic needs of the user.

Soon boats will no longer be built on the beaches.

Soon one must look elsewhere for new boats, for maintenance and repairs.

In the future will we miss the economic, social and cultural adaptability of the dhoni, the thoni, the kattumaram, the oru and the prau?



LETTER FROM THE PUBLISHER

The BOBP office was set up in Madras in April 1979 and the first decade has therefore just been completed. It is a short time-span from the development standpoint. But during a period of ten years quite a few things happen — and in “project” terms it is a long period. What has happened during the past decade? What has been accomplished? Was it worthwhile? What is there far the future?

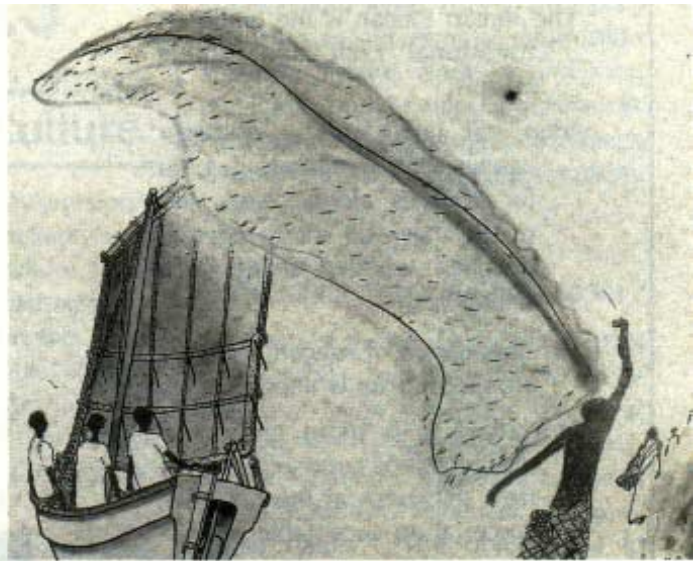
Some success stories stand out — such as cage culture of fish in Thailand and beachlanding craft in India. There are many smaller ones: motorization of Chandi boats in Bangladesh, extension officer training in Orissa, pond culture in Malaysia and boat development in Sri Lanka. Some other activities generated experiences and results of great potential value: non-formal education materials for fisherfolk, and the various training packages for fisherwomen are examples. Numerous studies, experiments and trials “failed” but expanded knowledge on the subjects. Whether concerned with success or failure one must not forget the awareness, knowledge and skills that have been built up through debate, on-the-job-experience and organized training activities, the latter alone amounting to 150 man-years.

Another reflection of the impact is that nine international agencies now function under the BOBP umbrella. The seven member countries themselves make a cash contribution as well. At the start there were only two agencies (SIDA and FAO), and five countries.

The BOBP experience makes it clear that there are no short cuts to development. There are few development opportunities left by which a better boat or a new engine or a new gear could raise fisherfolk catches and incomes. If such opportunities do exist, they call for substantive technical development inputs, trials, demonstrations, training, etc. Introduction of BOBP's beachlanding craft along India's east coast took eight years. The work is still ongoing, with demonstrations and training, during the 11th year.

Much store had been laid by brackishwater culture as an alternative source of production and incomes for small-scale fisherfolk. The potential, however, appears to be much lower than commonly believed. Shrimp culture has expanded, and this expansion will continue. But, how many small-scale fisherfolk have benefited from the boom?

A DECADE OF BOBP



Although there is limited scope for increased production from both capture and culture fisheries, every opportunity should of course be taken to exploit the potential. But, in what other way can small-scale fisherfolk be assisted to improve their lot? Even before we get to that, perhaps mechanisms must be devised on how to conserve the fishery resource and how to ensure a fair share of it to the small-scale sector to prevent worsening of the socio-economic condition of fishing communities. Other measures should aim at higher value added of products; lower costs of production and marketing; better education to facilitate resource management and rational exploitation; better access to other sources of income; and improved infrastructure and social services.

These issues will be on the agenda of fisheries development planners for a long while. In this context, BOBP-type catalysis of development and management effort is needed — not just for one more decade but as long as there are disadvantaged fisherfolk communities.

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Bay of Bengal News is a quarterly publication of the Bay of Bengal Programme (BOBP), a regional fisheries programme which covers seven countries bordering the Bay of Bengal — Bangladesh, India, Indonesia, Malaysia, Maldives, Sri Lanka, Thailand. The BOBP's main project is “Small-scale fisherfolk communities in the Bay of Bengal” (GCP/RAS/1 18/MUL). Fxt'cuted by the FAO (Food and Agriculture Organization of the United Nations) and funded by Denmark and Sweden, the project develops techniques, technologies and methodologies through pilot activities to improve the conditions of small scale fisherfolk in the seven member-countries. The project began in 1987 for a duration of five years. It succeeds an earlier BOBP project. “Development of small-scale fisheries in the Bay of Bengal”, which terminated 1986. A five-year post-harvest fisheries project, executed and funded by ODA (U.K.), is also part of the BOBP.