BAY OF BENGAL NEWS

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Surf Trials—IND 11 cuts through a breaking wave at the Ennore beach.

BETTER BEACHBOATS FOR INDIA'S EAST COAST

"We Are on the Right Track," Experts Say

Experts from Norway, Australia and India are together working on a project to build one or more intermediate fishing craft for India's east coast. Success in the project may eventually mean a higher fish catch and a better life for many thousand fishermen and more fish for consumers.

The project is being executed by the Bay of Bengal Programme with the co-operation of the governments of Andhra Pradesh and Tamil Nadu. It began in 1979; its progress has been encouraging. Experts concerned with the project are optimistic but cautious.

Why is an intermediate boat necessary? And why should it be a beachboat? To answer these questions, it is necessary to take a look at India's east coast fisheries. Some 64,000 traditional craft—kattumarams, navas, masuli boats—operate from nearly 900 villages, situated mainly at exposed sites along the coast. Nearly 150,000 fishermen utilise these craft, and their incomes sustain more than half a million people. These traditional low-cost craft are admirable in many ways. 'No craft can do what the remarkable kattumaram does at its cost,' says an expert. The 33,000 kattumarams of Tamil Nadu, for example, are robust, unsinkable, easy to assemble or take apart, simple to operate and maintain; but their limitations—low speed and mobility, poor gear-carrying capacity—mean modest fish catches.

Any significant improvement in the catches and earnings of these fishermen can only come through an intermediate boat—a boat that travels faster than the kattumaram and carries more gear.

And these boats have to be beachianding boats, since harbours are impractical for even a fraction of the 900 east coast fishing villages. But beachianding boats on the east coast of India face a problem of great severity and complexity — a vicious surf that produces 'plunging breakers', waves that burst on the face of the beach with great violence. The lowly kattumaram just cuts through the surf; a conventional boat on the other hand, can be swamped if it attempts to cut through the surf. And if the boat is motorized, it runs the risk of engine damage besides swamping. So craft other than kattumarams have to ride over the surf to cross it.

So then, the characteristics of the intermediate boat get to be ever so imposing. It has to be more spacious than the kattumaram, yet light enough for crew handling; it has to be faster and more mobile than the kattumaram; it has to be a beachianding surf-crossing boat. And it has to be inexpensive.

Thus the intermediate boat has to be a versatile craft, a many-in-one contraption. Little wonder that past efforts at producing an intermediate boat failed.

ABOUT OURSELVES

Bay of Bengal News is an occasional publication of the Bay of Bengal Programme (BOBP) which is funded by the Swedish International Development Authority (SIDA) and executed by the Food and Agriculture Organisation of the United Nations (FAO). The BOBP, with headquarters in Madras, India, seeks to develop and demonstrate new technologies that will help improve the conditions of small-scale fishermen in the five member-countries (Bangladesh, India, Malaysia, Sri Lanka, Thailand).

The first issue of **Bay of Bengal News** is devoted entirely to the activities of the BOBP. Future numbers will feature small-scale fisheries news outside the Programme as well.

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The effort was too sporadic, the task too complex.

The BOBP beachcraft development project represents a sustained and systematic attack on the problems involved, mobilising expertise, funds and institutional and governmental cooperation on the scale necessary.

Oyvind Gulbrandsen of Norway, one of the world's leading experts in small beachcraft development, was engaged by BOBP as consultant forthe project. He advised a multi-phased action plan as follows:

(1) design of a few models of intermediate beachcraft.

(2) building of prototypes from these designs using locally available labour, skills and construction materials.

(3) technical trials of the prototypes to assess their beachlanding and surf-crossing capabilities.

(4) selection of the most promising prototypes.

(5) fishing trials of the selected prototypes to assess their economic viability.

Gulbrandsen designed four intermediate craft to meet the unusual conditions of India's east coast. They were to be about 7 metres long, equipped with sails and motors. They were labelled IND 10, IND 11, IND 13, and IND 14.

IND 11 was to consist of polystyrene blocks enclosed in a non-watertight framework; this would be a self-draining boat like the kattumaram. IND 10 and 13 would be decked boats, one of teak (IND 10) and the other (IND 13) of marine plywood. IND 14 would be a twin hull craft of marine plywood.

Construction of the prototypes was supervised by BOBP's fishing craft expert, R.Ravikumar. The problem, says he,'is that there are very fewboatbuilding yards for small craft on the east coast of India.'

Three yards willing to build the prototypes were locatedAquamarine Private Limited, Madras; Indian Sea Crafts Limited, Madras; and the boatyard of the Andhra Pradesh Fisheries Corporation at Kakinada.

The absence of modern wood working tools and the novelty of the design lengthened the construction time for the prototype craft and made constant supervision necessary. Often, material of the required specification was not readily avilable; this led to rejection, compromise and further delay. The four prototypes were finally ready for trials by May 1980.

An engine of the right horse powerhad to be fitted to each prototype. A locally manufactured 4.8 hp air-cooled industrial engine— usually used to drive small pump sets—was selected. A water-tight box was later built for the engine to shield it from water.

Ennore, a fishing village 20 kilometres north of Madras, was selected as the site for beachlanding surf-crossing trials. It was an ideal test venue; it provided access to open sea on one side and calm water lagoon on the other. A surf specialist from Australia—Geoff Gowing, of the Australian Surf Life Savers Association—was engaged to assess the worthiness of the prototypes. Four fishermen from Ennore served as crew for trying out the prototypes; also at hand were six fishermen from Andhra Pradesh. Preparations for the trials included thorough training for the crew on handling the craft, and on using and maintaining the engines. The surf trials were held before an excited Ennore fishing community—young and old, male and female – for six weeks of May-June 1980. Each of the four prototypes were subjected to four tests: launching of the craft into the water—going out through the surf zone—turning and returning through the surf zone – landing the craft on the beach.

The two beachcraft prototypes selected for intensive fishing after the Ennore trials. IND 11 (below) is a kattumaram-type boat with buoyancy provided by polystyrene logs. IND 13 (above) is decked, and built of marine plywood.

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MAKING FISHING GEAR BETTER AND CHEAPER

BOBP Experiments in Sri Lanka and Bangladesh

BOBP trials with large-mesh driftnets in Beruwala. Sri Lanka.

Improving the efficiency of traditional fisheries in member-countries is one of the objectives of the Bay of Bengal Programme. In Sn Lanka and Bangladesh, the BOBP has been conducting experiments on improving large-mesh driftnets, an important traditional gear. The experiments have been conclusive and have yielded similar findings in the two countries:that nylon nets of thinner twine, which cost less than thicker-twine nets, also catch more fish. (Papers BOBP/WP/3 and BOBP/WP/5 contain details of the experiments and the findings). The BOBP has recommended promotion and extension of the thinner twine nets in both countries.

In Sri Lanka, large-mesh driftnets are used by more than 2,000 mechanised boats, mainly 26—28 ft long. Some 500 small-sized boats, 17—18 ft long, also use these nets.

In 1978, large-mesh driftnets captured 30,000 tonnes of fish, a whole quarter of the entire fish catch for the year. Fish species caught by them included seer fish, jack, trevally, tuna, shark, marlin, sailfish, spear fish, rock fish and skate.

In Beruwala, a 34-year-old fisherman, Bennet Fernando, used both the traditional nets (27-ply twine) and thinner-twine nets (21-ply) supplied by the BOBP. In Velvettiturai, a private fisherman used both kinds of nets.

The main conclusion from the experiments was that thinner-twine nets—which cost 20% less than the thicker twine nets—caught 20 to 25% more fish.

It was also found that polypropylene is cheaper as a framing rope for the nets than polyvinyl alcohol (kuralon), and that larger cylindrical floats are less expensive than—and as effective as—small longitudinally grooved floats.

The Sri Lanka Government has begun extending the findings of the experiments on large-mesh driftnets to fishermen. An extension leaflet has been printed. Manufacturers and importers of fishing gear have also been told about the findings of the experiments.

In Bangladesh, the experiments were carried out for four months of the 1979-80 winter season in cooperation with CARITAS, a social service agency. through its Kalidaha Fishing Project. near Chittagong. Two CARITAS boats used traditional nylon nets and nets supplied by the Bay of Bengal Programme respectively. The main findings were: the BOBP-supplied nets, which were 40% cheaper than the traditional nets, caught 40% more fish. Polyethylene nets, also tried out, caught more fish than nylon nets but sustained more damage.

A demonstration and extensIon programme in one of the major fishing centres for traditional heavy-twine nets began end-October 1980. Trials are also being carried out to determine the most suitable mesh sizes for the large-mesh driftnets.

BETTER BEACHBOATS

(Continued from page 2)

The three experts and the crew agreed that IND 10 was heavy and difficult to handle, that IND 14 posed problems during launching and landing. But the performance of IND 11 and IND 13 was quite acceptable. IND 11 was the favourite of the Ennore fishermen, resembling as it did the kattumaram. IND 13 was preferred by the Andhra Pradesh fisherrnen:it was lighter and afforded more shelter than IND 11, a factor important in Andhra Pradesh where long fishing trips are common.

A dramatic incident during the trials was an IND 11 capsize while surf crossing The crew overturned, and as they righted the boat. they observed that the engine continued to run. From that point. IND 11 was the firm favourite of the kattumaram fishermen.

What after Ennore? The results of the June 1980 trials have been discussed at length by BOBP experts and consultants. They have also been reviewed by an expert consultation on fishing craft (convened by BOBP in Madras, October 1980). There is now general agreement that no single beachcraft will serve the needs of all of the east coast.IND 13 is obviously suitable for the Andhra Pradesh stretch of the east coast. Three boats of IND 13 design were built after the Ennore trials. They are presently undergoing intensive trials in Kakinada. The trials will go on till mid 1981.

IND 11 is likely to undergo similar testing in Tamilnadu. The IND 11 prototype tested at Ennore has been sold to the Ennore crew at a subsidised rate at the suggestion of the Director of Fisheries. Tamil Nadu. Its performance is being monitored by the Tamil Nadu Fisheries Department.

A new sailcraft as an alternative to the kattumaram was suggested at the Madras consultation. Its relevance in the context of ever-increasing fuel prices was emphasised. The design for such a craft is already available:it is possible that BOBP will build and develop the craft.

"More experiments are needed before the best intermediate craft are selected for different places on the east coast," says Gulbrandsen. "It means more designs. more prototypes, further technical and fishing trials. But we are on the right track. The work done so far should be regarded as an essential first step."

Profile

0. Guibrandsen

It was a wet winter morning in Ennore, the fishing village north of Madras. The rain came down in torrents, and anxious faces scanned the sea. IND 11, the BOBP beachcraft prototype, had gone out for a test run. The boat was away a long time, but it came back buzzing breezily, and four thoroughly drenched men leaped ashore. At their head was a lean, wiry, long-limbed European, grinning from ear to ear and enthusiastically backslapping the others. "That was good," he said.

Oyvind Gulbrandsen enjoys his outings in the sea, come rain or shine. "I grew up close to the sea," he says in his deep drawl. "Norway has a long coastline and I took a liking to boats."

That early yen for boats has now become a lifelong affair. The 45-year-old naval architect has designed, developed and worked with sailing boats, fast patrol boats, hydrofoil boats and fishing boats at home in Norway, at the FAO headquarters in Rome and at field projects, mainly in Africa and the Pacific.

Graduating in naval architecture (from the Technical University of Norway) in 1961, Oyvind worked in his country for a few years before joining the FAO as an associate expert in the field. He assisted small-scale fishery development in Senegal, Dahomey and other west African countries. In 1969 he became a regular FAO staffer based in Rome, advising, providing the technical "backstopping" or support for the development of small-scale fishing craft of various kinds—mainly small craft up to 50 feet long.

Oyvind stayed on at the headquarters for several years, and the itch for field work gripped him. In 1974 he went to Western Samoa as Fisheries Adviser. The main task before him was to make this little country (population 150,000) self-sufficient in fisheries and reduce the heavy financial burden caused by fish imports. This meant designing new craft, setting up boatyards to build them, ensuring the supply of engines, gear and spare parts. An interesting sidelight of the boatyard programme was the rehabiliation of lepers: lepers were given jobs as carpenters and boat-builders, and with proper training, they did well.

In three and a half years the project built 150 new boats between 18 and 28 feet long, complete with engine and gear. They proved effective in tapping the rich tuna resources off Samoa's waters. Today Western Samoa is much more happily placed in the area of fisheries than it was five years ago.

"It was hectic at Samoa," Oyvind recalls, and he relished the total freedom he was given as fisheries planner, boat designer and administrator. But he decided it was time to return home to his native Norway, and he resigned from the FAO.

When the Bay of Bengal Programme was launched in 1979, Oyvind was back in the field as consultant In March 1979 he travelled all along the east coast, as far as Visakhapatnam, and helped devise the programme's strategy for beachcraft development

Gulbmndsen feels that India's traditional east coast craft—kattumarams, navas, masuli boats—will be around for quite some time. The kattumaram, for instance, will certainly be in business during the lifetime of most of us. "It is a remarkable craft," he says, "but not unique. Brazil has a surf-landing log raft called the *jangada.*

"The BOBP beachcraft project," says Oyvind, "aims at producing a craft that will represent the next stage in fishing craft development." Talking about IND 11 and IND 13, the two prototypes selected for intensive fishing thals, O!, Mnd describes them as the "smallest size of mechanized craft that can be economically utilized from beaches with heavy surf."

What is Gulbrandsen's main strength as a naval architect? R. Ravikumar, BOBP's fishing craft expert, says, "I admire the meticulousness with which Oyvind studies the local ethos, the local environment and capability before starting a design. There is always a sound rationale for his decisions."

AOvera, fisheries engineer with BOBP, who worked with Gulbrandsen in Samoa says: "Oyvind has this rare gift of designing simple low-cost boats, while still retaining the good performance and long life one expects from bigger boats."

Oyvind is lucid and beautifully precise in explaining technical concepts in English—a felicity derived at least partly from his English-born wife. For all his flair as an outdoors-man and his love for the sea, he is a home-bird. Home includes two children— boy and a girl, 7 and 9 respectively.

Gowing (left, with cap), discusses beachcraft problems with Gulbrandsen.

Profile

G. Gowing

Australian surf expert Geoff Gowing 39, is helping assess the surfworthiness of the beachcraft prototypes developed by the Bay of Bengal Programme. At the trials held in Ennore May-June 1980, Gowing trained the test crew of beachcraft prototypes in craft handling, launching and landing operations. He also supervised the surf-crossing performance of the prototypes. At his suggestion, a protective box was designed for the engines of the prototypes. This box ensures that the engine runs even when the boat tilts, turns or capsizes. To the man in the boat therefore it is a source of strength, a powerhouse of security.

Gowing and the other two specialists—Gulbrandsen and Ravikumar—were unanimous on the selection of two prototypes (IND 11 and 13) from the four tested. Gowing is quite appreciative of the design of the prototypes. He says they are underpowered by Australian standards, being equipped with only 5 hp engines, yet tackle high surf quite competently.

What's the difference in surf conditions between Indian and Australian beaches? Surfis pretty much the same everywhere, says Gowing, but its behaviour at a particular time depends on the weather and on the slope of the beach. Unlike in India, most Australian boats are equipped with powerful motors, and they take off from harbours or from sheltered bays.

Gowing has had 25 years of experience with the Australian surf as a swimmer, as a trainer and as a boat operator. The surf craft he has driven include jet boats and inflatable raft, and he has recorded over 500 hours of driving time in all types of surf and all weather conditions. He has been actively associated with the Surf-Life Savers Association of Australia, of which he was National Power Craft Officer for some time. The SLSA trains members to avert and overcome surf disasters, mainly drowning deaths. Gowing, an energetic trainer, has himself been directly involved in saving 15 people from drowning deaths. The most recent occasion was about a year ago, when a few people were washed off the rocks at Adelaide beach.

It's not always that saving people from the surf is a grim life and death affair. It's a spectator sport too. The Australian Life Saving Championship held every year is razzle-dazzle event. Some 4,000 surf enthusiasts are cheered by 40,000 excited spectators as they try to outswim and out-acrobat one another on surf boats. There are fake crises: people "drown" and six-man teams swing (swim) into action to "rescue" them. Judges award prizes to the sharpest and the smartest among the rescuers.

Rich .in experience, Gowing is most happy when he shares it with his fellowmen. He says he has derived tremendous satisfaction from his work on BOBP's beachcraft development project. "I will feel most rewarded if the BOBP boat helps India's fishermen."

Surf activities have taken Gowing far and wide. In 1978, Gowing took part in a world conference on life-saving in the United States, where he presented a paper. He recently visited South Africa to introduce two new types of rescue craft. Surf enthusiasts of SA. were trained by him on driving, operating and maintaining the craft.

However, Gowing earns his material rewards from electrical, not surf expertise. He is a training officer with the Electricity Trust of South Australia, which generates and supplies power to all of the state. It is a demanding job, but Gowing manages spare time to engage in his pet passion, surf. However surf-riding isn't the athletic Gowing's only hobby. He likes to run. He warmed up for his India trip by "doing" a marathon on the morning of the long flight. He completed the 26 miles in 3 hours and 42 minutes.

Gowing enjoys an occasional vacation at his holiday home at Port Elliot, 50 miles from Adelaide, with his wife May (a secretary) and his two children—Sarah, 12 and Nicholas, 7. Geoff's immediate ambition is to add a fishing boat of his own to the attractions of Port Elliot.

BOBP AND SMALL-SCALE FISHERIES: CONTINUING QUEST

(Continued from page 7)

BOBP's activities in the area of fish utilization include demonstration of the use of insulated fish boxes to improve the quality of high-priced hilsa in Orissa; improved fish drying in Andhra Pradesh; and the demonstration of simple facilities to receive, store and handle fish in Adiramapattinam village of Tamil Nadu.

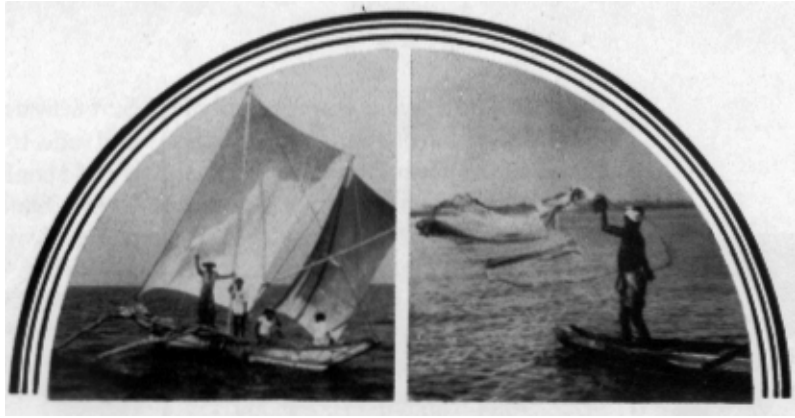
Coastal Aquaculture: can significantly raise fish production and the incomes of subsistence rural communities. Demonstration projects in coastal aquaculture funded by BOBP are in progress in Malaysia and Thailand; both countries accord very high priority to fish farming. The Programme is also promoting the exchange of experts on aquaculture.

Extension: The Programme seeks to assist in the development of effective extension services for small-scale fisheries. At present BOBP-funded extension projects are in progress in Sri Lanka, as also in Orissa and West Bengal, India.

Women: The BOBP has a particular interest in improving the status and the responsibilities and raising the incomes of women from the fishing community. Some BOBP activities have a "women's component". Examples: the aquaculture demonstration project in Thailand, the fish drying project in Andhra Pradesh, the extension project in Adhiramapattinam, Tamil Nadu. Resources surveys are being conducted in Sri Lanka, India, and Bangladesh.

Upgrading technical capability: The Programme seeks to upgrade technical capability in the region through a series of short-term consultations, workshops and training courses implemented in close collaboration with local institutions.

Information Dissemination: A significant Programme activity is the dissemination of information on BOBP and On small-scale fisheries to technical and non-technical audiences in the region. The idea is to stimulate development through greater interchange of knowledge, ideas and information.



BOBP & SMALL-SCALE FISHERIES
The Continuing Quest

Kattumarams, Navas and Masuli boats in India. Shore seines in Sri Lanka. Setbag nets in Bangladesh. Fish farms in Malaysia and Thailand. The people who operate these traditional devices are subsistence fishermen in the Bay of Bengal region: their catch and incomes are low, marketing outlets few and political influence infinitesimal.

There are a few million of them in the region, including their dependents.

The Bay of Bengal Programme, started in 1979 with headquarters in Madras, seeks to improve the lot of this community with the help of experts drawn from far and wide.

How did the BOBP come into being?

In 1974, an expert Mission mounted by the FAO/UNDP Indian Ocean Programme (lOP) visited countries bordering the Bay of Bengal. The Mission was sponsored by the Swedish International Development Authority (SIDA):

The Mission concluded that the Bay of Bengal region —which had a large impoverished fisheries population and substantial underexploited fisheries resources— needed development support. It recommended specific projects for traditional fisheries, fishery technology and resource surveys. The findings and recommendations of the Mission were endorsed by the Indian Ocean Programme, the Indian Ocean Fishery Commission and the FAO Committee of Fisheries. The FAO then requested support from SIDA.

During the consultations that ensued, FAO and SIDA experts agreed to concentrate on traditional and small-scale fisheries. They also decided to initiate a preparatory phase and obtain the data necessary to formulate a larger development project.

To facilitate the process of active participation by all parties concerned in project formulation, review and monitoring, an Advisory Committee was established. (See box)

The preparatory phase was launched by the Indian Ocean Programme with SIDA funding during mid-1976. Under this phase, available information on small-scale fisheries in the Bay of Bengal region was studied and consolidated. Working papers in concise factual form on the status of marine small-scale fisheries in Bangladesh, Sri Lanka and in India's east coast states were completed, as also papers on the problems and needs of each area. The services of the staff of the Colombo-based FAO/UNDP project, Development of Small-Scale Fisheries in South West Asia, were utilized for the purpose. The basic factual foundation for a project proposal was thus laid.

At the Second Advisory Committee meeting at Madras in June 1977, a working group prepared a detailed project request, on the basis of the findings of the preparatory phase. This request was submitted to SIDA, and its approval for a five-year project was received mid-1978. Funds to the extent of Swedish Kronor 20.2 million were allocated for the first three years of operation.

The project as approved became operational in January 1979 and is entitled "Development of Small-Scale Fisheries in the Bay of Bengal". From 1980 it has been designated a "Programme" and abbreviated BOBP (Bay of Bengal Programme). Its stated goals are to improve the conditions of small-scale fisherfolk of the region and boost supplies of fish.

How can these goals be attained? To improve the living standards of fisherfolk, a higher income is essential; this can be attained by catching more fish; by securing a higher price for fish; by lowering the cost of operations. The BOBP tries to fulfil one or more of these objectives in its pilot projects which are carried out at various locations in the Programme region. These projects try to develop or demonstrate appropriate technology and methodology in the areas of fishing craft, fishing gear, fish handling and utilization, coastal aquaculture and extension.

The work of the BOBP is executed by a team of international and national

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The Advisory Committee is the, main overseeing mechanism of the Bay of Bengal Programme. It meets every year in one of the five member-countries. It is composed of representatives of member-countries, FAO, and SIDA.

The Advisory Committee reviews the Programme's performance during the previous year; advises on the orientation of the Programme and on current priorities; exmines the work programme for the following year; and discusses Government inputs and support.

The Committee has met five times: Colombo (1976), Madras (1977), Chittagong (1978), Phuket (1979) and Penang (1980). It will meet in Coloniho in 1981.

The first two meetings of the Advisory Committee, held during the Programme's preparatory phase, helped to finalise the Programme's scope, objectives and approach. Subsequent meetings have been devoted to thorough analysis and discus sion of ongoing and future activities.

The Advisory Committee has proven to be a very useful and effective instrument for monitoring the Programme. It also facilitates active participation by the countries and agencies concerned and promotes cooperation between the countries. The recommendations of the Committee which have financial or administrative implications not provided for in the original "project document" are reviewed by FAO and SIDA immediately after the Committee meeting every year.

officers and support staff. The team is led by the Director, Mr. L.O. Engvall (Sweden), and assisted by consultants, national and international, who may be masterfishermen, craft designers, stock assessment specialists or whatever. Member-governments assign "counterparts" for day-to-day execution and monitoring. These counterparts work with BOBP experts in each activity and ensure technology transfer.

Private organisations or Government agencies in the member-countries are frequently contracted for implementation of entire projects or project components. There are for instance at any time several privately owned small fishing boats engaged in experimental work and demonstrations of fishing gear and methods for the BOBP.

A summary of the various BOBP activities is outlined below:

Fishing Craft Technology: The fishing craft provides the platform for the fishing operations. It holds and carries the crew and fishing gear, and transports the crew from base to fishing area and back. Most of the traditional craft

A' view of the BOBP office at Abhiramapuram in Madras.

in the region have serious shortcomings in providing these essential services. Result: low productivity and poor incomes.

The BOBP executes projects to improve these traditional craft and devise new ones. They relate to the improvement of kattumarams (in Tamil Nadu, India), the development of intermediate beachcraft (Tamil Nadu and Andhra Pradesh, India; and Sri Lanka); the development of suitable fishing boats, for Bangladesh; the motorization of existing craft (Bangladesh).

Fishing Gear Methods: The main problems with existing technology are the high cost of material, the use of inappropriate gear and methods, the use of inadequate quantities and variety of gear. The BOBP seeks to determine the most efficient combination of crew, craft type and gear to ensure the best returns.

The Programme's activities include the improvement of large-mesh driftnets in Sri Lanka and Bangladesh; the improvement of setbag nets in Bangladesh; the tapping of demersal resources in Sri Lanka; the use of high-opening bottom trawls to reduce the pressure on shrimp and improve the catch of food fish in India and Bangladesh; the development and demonstration of simple net-hauling and line-hauling devices.

Fish Utilization: Fishermen can secure higher prices for their catch through better handling and processing methods to improve its quality. The need is for simple low-cost facilities that do not involve heavy investments.

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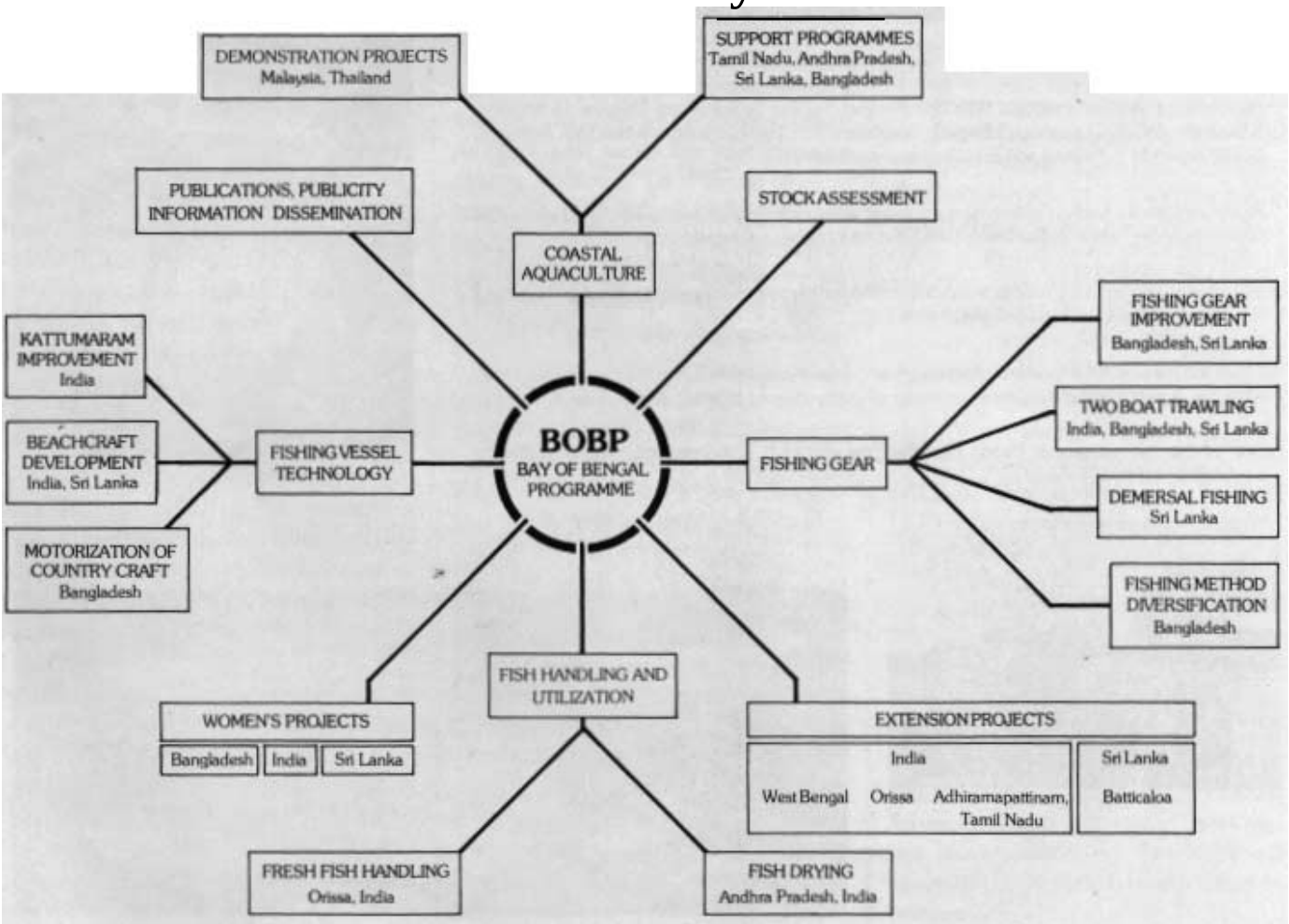
BOBP Activity Chart



glimpses into BOBP projects

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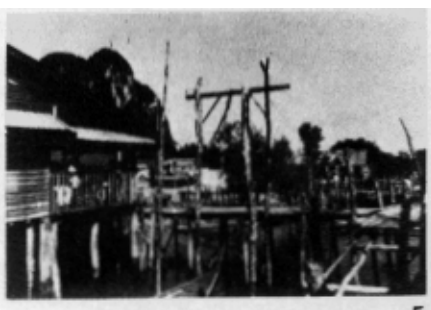
1. Andhra's Minister for Small-Scale Industries and Fisheries, Mr. N. Bhasker Rao, presented certificates (November 25, 1980) at the end of a 2-week training course for fish marketing personnel of Andhra Pradesh. With the Minister on the occasion **are** Director **of** Fisheries SBanexjee, BOBP Director L.O.Engvall, Consultant Ron Nicholson from White Fish Authority, BOBP expert **M.T.** Nathan and the 25 course participants.

2 **BOBP** and the Sri Lanka **Government** are together engaged in a project to tap the demersal **fish** resources of Sn Lanka. A **fish** being gaffed during the trials on the east coast.

3. In Nuwalarevu, Andhra Pradesh, women from the fishing community **are** trying **out** an improved fish drying method, using polyethylene tents.

4. This is the site of a BOBP-funded pilot project on coastal aquaculture in Ban Merbok, Kedah State, Malaysia. A part of **the** dense mangrove swamp will be deared to set up **shrimp** ponds.

5. One of the **five villages of Phang Nga Bay, the site of a demonstration project in** coastal aquaculture funded by the BOBP.



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BOBP Supports The Fair Sex

How can the talents and skills of women be best harnessed to ameliorate the fishing communities of the BOBP region? The BOBP is trying to do this by reinforcing technological improvements in fisheries with activities to upgrade the skills of women.

Examples:

* Sn Lanka a BOBP-funded resources survey is being carried out by the Women's Bureau of Sri Lanka. The bureau is collecting data on fishing families from eight representative villages of the country, and on the role of women in them. The data will help identify specific projects for women.

* Nuwalarevu in Snkakulam district of Andhra Pradesh, the BOBP, in cooperation with local authorities and the enterprising women of the locality, is testing a simple hygienic fish drying device – raised platforms under polythene tents. The tents have been distributed for experimental use to 15 women-members of a cooperative society in Nuwalarevu.

*The role of women in the Thai aquaculture demonstration project is described below.

Aquaculture in Malaysia

Aquaculture —the "farming" of fish as opposed to its capture – is the rage of today, and more and more governments are launching or planning major projects. The BOBP will soon have an aquaculture expert on its staff. It already funds two demonstration projects in coastal aquaculture in Malaysia and Thailand. These seek to show that fish farming can handsomely supplement the Incomes of hand-to-mouth farmers and fishermen, and also raise fish yield.

In Malaysia, a 1975 study identified the mangrove forests of the Merbok estuary, which are natural nursing grounds of many species of finfish and prawn, as a viable aquaculture site. 15,000 fishermen and farmers live here. Their earnings from agriculture are meagre, and it is believed that aquaculture can substantially improve them.

A two-phased aquaculture project for the area, to be spread over several years, has now been drawn up. Under the "pilot phase" of the project, to be funded by the BOBP, 24 acres of mangrove swamp will be cleared to set up shrimp ponds for six families. After the ponds become viable they will be handed over to selected farmers. Under the "development phase" of the project, 400 acres of swamp will be cleared to setup ponds for 100 farm families.

The site for the location of shimp ponds was finalised in January 1980 (see picture). Construction of the ponds and a hatchery began late in 1980.

And Thailand

The BOBP-funded coastal aquaculture demonstration project in Thailand covers five villages of Phang Nga bay, located in mangrove and mudflat areas. "Subsistence" fisherfolk live here; their houses stand on stilts in the sea, and are accessible only by boat.

Highlights of the three-year project, which began in 1980:

Cockles, mussels and oysters are being cultivated in three villages (Ban Ko Mai Pai, Ban Ko Mak Noi, Bank Ko Pan Yi). Seabass and groupers are being farmed in cages in two villages (Ban Ko Pan Yi, Ban Ko Khiam). Progress of culture has vaned forthe five fish species: Cockle culture has beenthe most successful so far.

*Community development is being promoted through self-help. In Ban Bang Ling, the village population is helping build a 500 cubic meter concrete tank to store rain water for use in water-scarce summer. Two water storage tanks complete with windmill pump are being built at Ban Ko Khiam and Ban Ko Mak Noi. The feasibility of small-scale solar distillation units to provide drinkingwater supply is being studied.

*The skills and earning capabilities of women in the five villages are being upgraded. Training courses have been conducted for them on handicrafts, fish processing and the making of fish products. Study tours have been organised within the region.

The effectiveness of the Thai aquaculture demonstration project is seen in the support it has won from the provincial government of Phang Nga. The tiny cockle culture demonstration at Ban Ko Mai Pai has inspired a $90,000 Government funding for a commercial cockle culture project in the area. $20,000 will be provided for developing mussel culture as well.

SaysMr.Kachomsak, of the Thai fisheries department: "The Phang Nga project has given us some valuable guidelines on ways to improve the socio-economic conditions of rural fishing communities".

Fish Marketing Course in Hyderabad

The Andhra Pradesh Minister for Small-Scale Industries and Fthenes, Mr. N. Bhasker Rao, on November 25 presented certificates to 25 Andhra Pradesh officers who had completed a two-week training course on fish marketing. The course was organised jointly by BOBP and the state's Department of Fisheries. and held at the Administrative Staff College of India in Hyderabad.

Two experts from the White Fish Authority—'Keith Heywood and Ron Nicholson— helped conduct the course, which consisted of lectures, group discussions, films and a "business game" – a tried and tested management training tool.

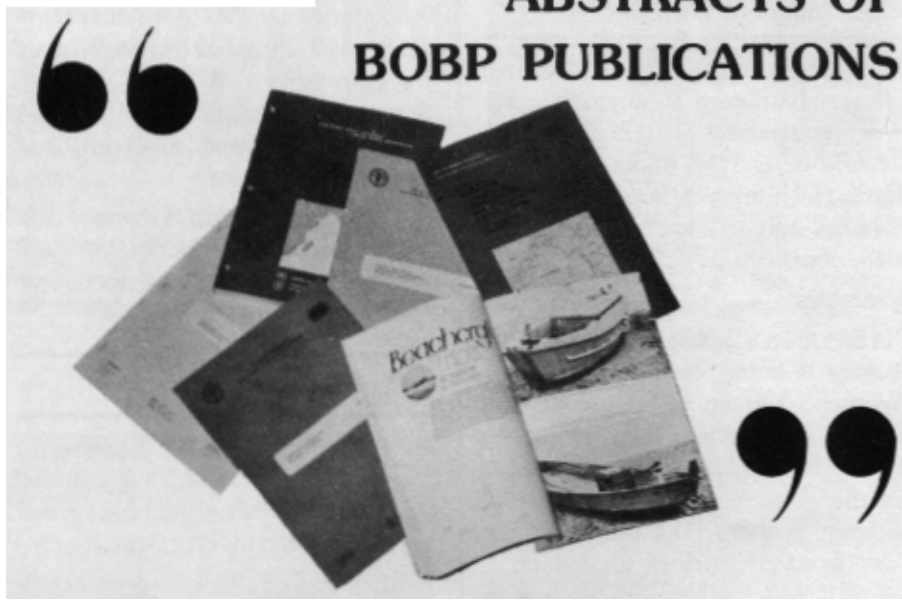
Mr.Lars Engvall, Director of BOBP, praised the excellent cooperation from the Andhra Pradesh Fisheries Department in the organization of the training course, as also in other BOBP activities in the State.

A strong local counterpart input is essential if BOBP activities are to produce the best impact, Mr.Engvall said. In this respect, the programme's experience in Andhra Pradesh has been extremely positive.

Probing the Sea's Depths in Sri Lanka

An experimental project to tap Sri Lanka's resources of demersal (bottom dwelling) fish was undertaken by BOBP in Sri Lanka forsix months during 1979-80 in co-operation with the Ministry of Fisheries. Fishing trials were held using bottom set longlines. The catch was disappointing, perhaps because of the exploratory nature of the trials (conducted on different locations employingdifferent kinds of gear and bait) and also because the resources were scattered in thin patches over a wide area (Paper BOBP/WP/6 discusses the trials and the results). However, the trials yielded valuable information and highlighted the problems involved in the use of bottom-set longlines. Since the existence of demersal resources has been indicated by surveys, the project was resumed by Sn Lanka Government in August 1980 with monitoring by a BOBP consultant. Four 3 tonners are being used for the fishing trials along the east coast and the north west coast. The trials will continue through 1981, with periodic reviews.

ABSTRACTS OF BOBP PUBLICATIONS



BOBP/REP/1:Report *of the First Meeting of the Advisory Committee— October 28-29, 1976, Colombo, Sri Lanka,*

This report sets out the agreement among participating countries of BOBP on the main problems and constraints to development, and the material and technical inputs necessary for the small-scale fisheries sector of the Bay of Bengal region. The report appears as Appendix 1 of the publication 'Project for the Development of Small-Scale Fisheries in the Bay of Bengal:Preparatory Phase, Volume 1'.(IOFC/DEV/-78/44.1, FAO, Rome, 1978).

BOBP/REP/2: *Report of the Second Meeting of the Advisory Committee— June 29-30, 1977, Madras, India.*

This report records the deliberations of the meeting and the final agreement among member-countries of the problçms to be solved, the ultimate purpose and approach of the BOBP. The report contains the text of the 'Project Request' approved by the committee on the basis of which BOBP project activities were later formulated. The report appears as Appendix 2 of the publication 'Project for the Development of Small-Scale Fisheries in the Bay of Bengal:Preparatory Phase, Volume 1.'(IOFC/DEV/78 44.1, FAO Rome, 1978.)

BOBP/REP/3: *Report of the Third Meeting of the Advisory Committee-Chittagong, Bangladesh. 7-10 November, 1978.*

This report records the conclusions of the meeting and the progress made by the BOBP during the .year and discussions on the outlines of future work.

BOBP/REP/4: *Role of Women in Small-Scale Fisheries of the Bay of Bengal.*

The report presents the conclusions that emer9ed from a April 1979 meeting in Madras on the training of women extension workers in Bay of Bengal region. It reviews the overall status of women in small-scale fisheries in the region and discusses ideas to tap their potential.

BOBP/REP/5: *Report of the Workshop on Social Feasibility in Small-Scale Fisheries Development. September 3-8, 1979, Madras, India.*

This report discusses why social feasibility is important for a small-scale fisheries project, why some projects are not socially feasible. It contains a checklist of factors which small-scale fisheries planners should consider while proposing fisheries projects to ensure their social feasibility,

BOBP/REP/6: *Report of the workshop on Extension Service Requirements in Small-Scale Fisheries, October 8-12, 1979, Colombo, Sn Lanka.*

The report discusses the status and the problems of the existing extension services in the Bay of Bengal region and presents the conclusions of the workshop. It also contains detailed 'data' on an imaginary country, Ruatha, on the basis of which workshop participants were asked to devise an extension service for the country. Their suggestions for an extension seMce are summarized in the report.

BOBP/REP/7: *Report of the Fourth Meeting of the Advisory Committee. November 27-30, 1979. Phuket, Thailand.*

The report records the deliberations of the meeting, the progress made by the BOBP in 1979 and the work programme for the following year.

BOBP/REP/8: Pre-Feasibility Study of *a Floating Fish Receiving and Distribution Unit for Dubla Char, Bangladesh.*

A tvo-member mission of the Bay of Bengal Programme examined the possibility of setting up a floating fish receiving and distribution unit in Dubla Char, a low-lying island which forms the outermost area of the Sunderbans region at Bangladesh. The report discusses in detail the technical and managencal pre-requisites for such a unit and recommends an alternative and more viable scheme to utilize fish catch in the region.

BOBO/REP/9:Report *of the Training Course for Fish Marketing Personnel of Tamil Nadu.*

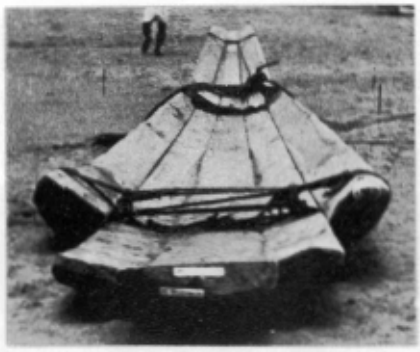
21 middle-level Tamil Nadu officials underwent a two-week training course on fish marketing in Madras in December 1979. The report describes the conduct of the course and the mechanics of the "business game" devised by the White Fish Authority, U.K. which constituted the core of the course. The report also reprints the manual distributed to participants containing the data necessary for the business game.

BOBP/REP/10.1:Report the *Consultation on Stock Assessment for Small-Scale Fisheries in the Bay of Bengal. Chittagong, Bangladesh, June 16-21, 1980. Volume 1: Proceedings.*

This report contains subject summaries on various aspects of fish stock assessment discussed at the Chittagong stock assessment consultation, June 1980. Subjects include:methodologies adopted by member-countries for stock assessment, problems in collecting and interpreting data, measures required to manage fishery resources. summaries are based on the views of participants, papers submitted, and other published information. The report also presents the conclusions of the consultation.

BOBP/REP/10.2: *Report of the Consultation on Stock Assessment for Small-Scale Fisheries in the Bay of Bengal. Chittagong, Bangladesh, June 16-21, 1980. Volume 2: Papers.*

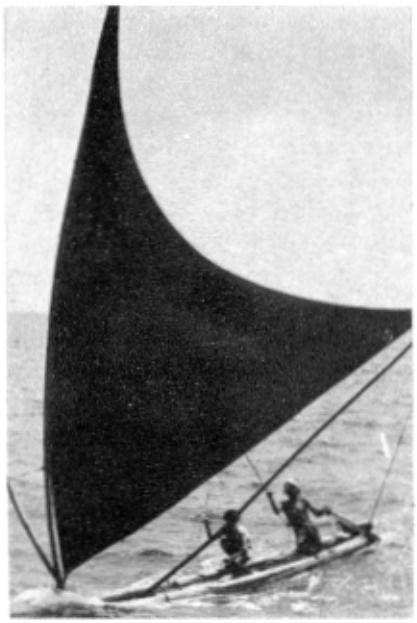
This report reprints the papers submitted to the consultation by BOBP member-countries on the status of stock assessment in their respective countries.



An assembled five-log kattumaram a the Marina in Madras.

BOBP/WP/1: *Investment Reduction and increase in Service Life of Kattumaram Logs by TR Balan.*

This paper presents proposals for physical and chemical treatment of kattumaram logs to make them stronger and longer-lasting. It also discusses new sources for kattumaram logs so that they may be bought cheaper.



Sail rig of the Tamil Nadu Boat Kattumaram.

BOBP/WP/2: *Inventory of Kattumarams and their fishing gear in Andhra Pradesh and TamilNadu. TR. Menon.*

This paper presents the results of a survey conducted late 1979 and early 1980 in some fishing villages of Andhra Pradesh and Tamil Nadu. Information was collected on the types of kattumarams used on the east coast of India, the kinds of fishing gear used with kattumarams, the methods of operation, catches and costs. The paper presents this information through words, pictures and tables. It includes a glossary of terms used by kattumaram fishermen to describe their craft and gear.

BOBP/WP/3: *Improvement of Large-Mesh Driftnets for Small-Scale Fisheries in Sri Lanka by G. Pajot*

This paper presents the rationale, the mechanics and the findings of experiments conducted in Sn Lanka to improve large-mesh driftnets. It explains how thinner-twine nets are cheaper and more efficient than thicker-twine nets. It also presents conclusions concerning the floats and the framing lines used for the large-mesh driftnets.

BOBP/WP/4: *Inboard Motorisation of Small GRP Boats in Sri Lanka.*

This paper discusses the how and the why of the motorization of Sri Lankan fishing craft with low-powered inboard diesel engines. The paper describes the trials conducted with inboard engine and presents a detailed cost analysis of the merits of an outboard engine vis-a-vis an inboard diesel engine. It recommends subsidy schemes to promote inboard motorization.

BOBP/WP/5: *Improvement of Large-Mesh Dnftnets for Small-Scale Fisheries in Bangladesh, by G. Pajot*

This paper discusses experiments conducted for four months during 1979-80 on improving large-mesh driftnets in Bangladesh. The conclusion was that thinner twine nylon nets cost 40% less during the experiments than traditional nets, and caught more fish. Polyethylene nets were also tried out. They caught more fish than nylon nets but sustained more damage,

BOBP/WP/6: *Fishing Trials with Bottom-Set Longlines in Sri Lanka by G. Pajot and K. T. Weerasooriya.*

This paper discusses the results of experiments to tap Sn Lanka's resources of demersal fish with bottom-set longlines, The fish catch during the experiments was disappointing, but the conclusions resulting from them are useful for future work. The experiments are now continuing as part of a large demersal fishery project conducted by the Sri Lanka Government,

BOBP/WP/7: *Technical Trials of Beachcraft Prototypes in India by O.Gu!brandsen, G.P. Gowing, R. Ravikumar.*

This paper presents the first report of beachlanding and surf-crossing trials of four beachcraft prototypes especially designed and built for India's east coast. The report discusses why intermediate craft are necessary and the technical considerations that this craft should satisfy. It describes in words and pictures the four prototypes tested, the conduct of the trials and findings they yielded.

BOBP/WP/8: *Current knowledge of Fisheries Resources in the Shelf Area of the Bay of Bengal by B.T Antory Raja.*

This paper was an outcome of the consultation on stock assessment for small-scale fisheries in the Bay of Bengal held in Chittagong, May 1980. The paper summarises available information on exploited and exploitable resources of the Bay of Bengal region.

BOBP/WP/9: *Boathuilding Materials for Small-Scale Fisheries in India*

This paper summarises the results of a study on the avilability and prices of materials used to construct the hulls of small fishing craft in India. The materials covered are timber, plywood, FRP, ferro-cement, steel and aluminium.

BOBP/WP/10: *Fishing Trials with High-Opening Bottom Trawls in TamilNadu, India by G. Pajot and John Crockett.*

Experiments with high-opening bottom trawls were held in Palk Bay off Mandapam in Tamil Nadu from March to July1980. The object was to find out how well this gear could tap food fish in the Palk Bay area and thus enable the utilisation of shrimp trawlers for non-shrimp catch in the non-shrimp season.

Marianad fishermen haul a bumper catch ashore.

BOBP/MIS/1: *Fishermen's Cooperatives in Kerala: A Critique by John Kurien.*

This paper discusses the history of fishermen's cooperatives in Kerala and the reasons for their disappointing performance. It also describes the experience of a successful fisheries co-operative – in Mananad village of Tnvandrum district—and probes the reasons for its success.

BOBP TRIES OUT HIGH-OPENING BOTTOM TRAWLS: GOOD RESULTS

A fish-catching device popular in Europe and in some other parts of the world was fabricated in India and introduced to Indian waters this year by the FAO's Bay of Bengal Programme. The results have been heartening.

The new net—the high-opening bottom trawl—can be used by traditional shrimp boats to capture substantial quantities of food fish (as opposed to shrimp). It can thus reduce the pressure on fast-dwindling shrimp resources; help to tap much-needed food fish resources at low energy cost; and harness idle trawler power in the non-shrimp season. Thus the benefits of this gear are three-fold.

The BOBP has been conducting experiments with high-opening bottom trawls at Palk Bay, off Mandapam, and in the Gulf of Mannar, off Tuticorin. The Mandapam experiments were held in March-July 1980, the Tuticorin experiments in July-September. Further experiments, to continue till early 1981, have been alternating between the two centres. The clear superiority of the high-opening bottom trawl to conventional trawis for catching food fish has been demonstrated by the experiments.

At Mandapam, while the shrimp trawl yielded an average catch rate of 103 kg, of fish per hour, the high-opening bottom trawl yielded 282 kg. per hour with two boats. The catch composition of the fish was equally striking. As much as 95% of the haul of the shrimp trawl consisted of silver bellies, a low-priced fish. The high-opening bottom trawl, on the other hand, netted substantial quantities of higher priced varieties such as sardines, carangs, pomfrets and cat-fish.

Explaining the working of the high-opening bottom trawl, G.Pajot,BOBP fishing technologist, says:"A trawl is a conically-shaped net-bag that is pulled or towed by one or two boats. There are many kinds of trawis, each with a different kind of mouth-opening. Conventional shrimp trawls used in India have a maximum mouth-opening of about one metre. The high-opening bottom trawl, on the other hand, opens up 2'/2 metres (about eight feet) high, when pulled by one boat. When towed by two boats—a method of fishing known as pair trawling or two-boat trawling—the trawl.opens as much as five metres (nearly 15 feet) high to trap the fish herded into it."

'The high-opening bottom trawl uses larger-sized mesh and more webbing than the conventional trawl,' says Pajot. 'It is lightly rigged at the bottom of the ground rope. On account of the light rigging, the trawl skims the sea-bed instead of scraping it. The trawl therefore catches very little shrimp; it mainly catches food fish varieties.

Pajot adds:"The high-opening bottom trawl is fuel-efficient and can increase food fish supplies at relatively low fuel cost. It can also put idle shrimp trawlers to good use during the off-shrimp season."

The high-opening bottom trawl was fabricated locally, under close BOBP supervision. The webbing of the trawl bag was done by machine, everything else by hand. 'There are some excellent net-riggers here,' says Pajot.

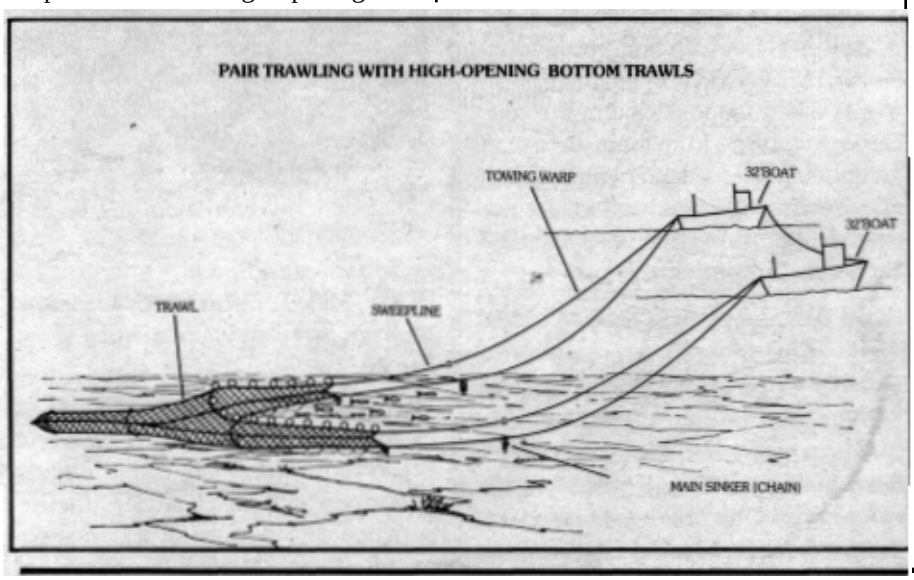
Two net-makers rigging a high-opening bottom trawl at the BOBP office in Madras for use in Bangladesh.

A crew of half a dozen operated the high-opening bottom trawls at the Mandapam and Tuticorin trials, using two 32-ft boats owned by the Tamil Nadu Fisheries Development Corporation. John Crockett of Scotland, who has nearly two decades of experience in handling high-opening bottom trawls, serves as FAO's masterfisherman consultant for the project. On behalf of th'e Department of Fisheries, Tamil Nadu, P.V. Ramarnurthy and S. Pandurangan serve as the local counterparts.

"The high-opening bottom trawl is bound to catch on," says Ramamurthy. "The fishermen have seen how much fish it catches. They have noticed the difference between this trawl and the old trawl.

What is the advantage of two-boat trawling over one-boat trawling? The main advantage is that two boats create a 'herding effect'. Result A bigger catch, also a better-priced catch of both pelagic (surface) and semi-pelagic species.

Isn't the high-opening bottom trawl over-efficient? Won't it lead to rapid resource depletion? 'Any gear used in large numbers can wipe out a fish resource,' says Pajot. 'Careful management is necessary.'



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