

Administration Report
of the
Department of Fisheries



Madras

1953-54

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DEVELOPMENT DEPARTMENT

ADMINISTRATION REPORT
OF THE DEPARTMENT OF
FISHERIES—MADRAS

FOR THE YEAR
1953-54

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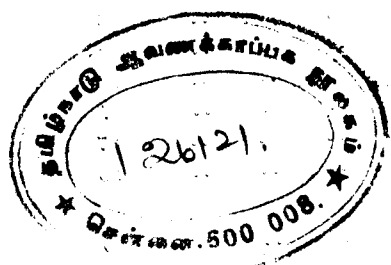
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ADMINISTRATION REPORT OF THE FISHERIES DEPARTMENT FOR THE YEAR 1953-54.

I. DIRECTION.

Sri K. N. Anantaraman, M.A., I.C.S., was in charge of the Fisheries department. During the absence of Sri Anantaraman abroad as one of the members of the Indian Purchase Mission of the T.C.A. from 24th August to 27th November 1952, Sri V. John, B.A., F.Z.S., Deputy Director (South), acted as Director of Fisheries as ordered in G.O. Ms. No. 3431, Development, dated 7th August 1952, and G.O. Ms. No. 3073, Development, dated 30th August 1952. Consequent on the partition and formation of Andhra State, the services of Sri K. N. Anantaraman was allotted to that State with effect from 16th September 1953 and Sri V. John was put in additional charge of the post of the Director of Fisheries from 16th September to 18th October 1953 afternoon as ordered in G.O. Ms. No. 4636, Development, dated 19th October 1953, and G.O. No. 2832, Public (Partition), dated 13th October 1953, the post of the Director of Fisheries was abolished with effect from 19th October 1953.

The department in the residuary State was amalgamated with the Departments of Industries and Commerce and controlled commodities with effect from 7th November 1953 afternoon as per G.O. No. 4636, Development, dated 19th October 1953, and Sri E. P. Royappa, M.B.E. (Mily.), I.A.S., took charge as Director of the three combined departments from the same date and continued as such till the end of the year.

Sri V. John, B.A., F.Z.S., and Sri D. D. Peter Devadas, B.A., continue as Deputy Director of Fisheries (South) and (North) respectively during the year.

II. FISHERIES RESEARCH.

A. MARINE FISHERIES RESEARCH.

Investigations on marine fisheries were continued during the year in the four Marine Biological Stations.

Sri M. Devidas Menon, M.A., F.L.S., continued as Assistant Director of Fisheries (Marine Biology) till 18th August 1953 afternoon when Sri P. I. Chacko, M.A., F.Z.S., took charge and continued till the end of the year.

1. West Hill Biological Station.

(i) Meteorological and Hydrographical studies—

Air temperature—	
Minimum	62° F—December 1953.
Maximum	94° F—January 1954.
South-west monsoon	In early June 1953.
Total rainfall	81.9 inches (87.09 inches last year).
Surface temperature—	
Minimum	25.9° C—July.
Maximum	29.8° C—April.

Specific gravity—

Minimum	..	..	1.075—July.
Maximum	..	..	1.030—June.

pH value—

Minimum	..	..	7.9.
Maximum	..	..	8.7.

Salinity—

Minimum	..	..	18.08 parts per 1,000—August.
Maximum	..	..	35.05 parts per 1,000—May.

(ii) *Plankton studies*.—Surface plankton was collected on 56 days. Phytoplankton was found predominant during the major part of the year, the peak being 94 per cent in August 1953 and 96 per cent in January 1954.

(iii) *Studies on fish and fisheries of the West Coast—Indian Mackerel* (*Rastrelliger Kanagurta*).—Investigations on the bionomics and ecological conditions influencing the mackerel fishery formed the major part of the work. Nine hundred and sixty-eight specimens at random were examined during the season. Studies on the age of mackerel and year groups forming the fishery were continued. It was deduced that maturation in Indian Mackerel is intermittent and spawning protracted.

The Indian Oil Sardine (*Sardinella longiceps*).—Seven hundred and fifty-eight specimens from representative catches were examined. Studies on the age and size groups were continued. Spawning appeared to be successful during the year.

Other fishes.—Random sampling of 4,223 specimens of important fishes like the Horse Mackerel (*Caranx* spp.), seer (*Cybius* spp.), Thread fin (*Polynemus* spp.), Pomfret (*Alectes* spp.) and Cat fishes (*Siluroids*) were made during the year and their bionomics were recorded.

Fish statistics.—The statistics of fish landed along the West Coast (Malabar and South Kanara districts) were tabulated and maintained up to date. The fishing operations were better than last year both in the quantity of fish caught and value realized.

The Oil Sardine fishery occupied not only the first rank among the fisheries of the West Coast but was unprecedented during the last quarter of a century. The peak period of the fishery was December 1953 when a large number of guano and oil factories functioned in the coastal villages. The estimated outturn was over 23 lakhs maunds. The outlook for the fishery during the next year is bright. In this connexion, it will be worthy of mention that the cause for the successful fishery of Oil Sardine is due to the efforts of the department in enforcing fishery laws for the protection and conservation of the immature fishes of this variety during the previous years.

The mackerel fishery was a failure inasmuch as only six lakhs maunds were landed during the year.

Besides Cat fishes, Silver-bellies (*Leiognathus*), Jew fish (*Sciaena* spp.), Sole (*Cynoglossus* spp.), Shark, Skate and Ray and Horse Mackerel (*Caranx* spp.) have also contributed to the success of West Coast fishery.

Study of drag net fishery in Kurumbranad taluk (Malabar).—The kinds, sizes and quantities of fish caught by this net are under study to determine whether it is destructive to small fishes.

Survey work.—Survey of Ramanthalay estuary (about 40 acres in extent near Payyanur in Malabar district) was conducted with a view to converting

it into a fish farm but it was found not suitable due to its very low level and submersion under water during rains.

Supply of biological specimens.—Seven sets of South Indian fish were sold to seven educational institutions.

Seed collection and stocking.—Twenty thousand, three hundred and fifty fingerlings were collected and stocked in the Malampuzha reservoir.

2. *Krusadai Biological Station.*(i) *Meteorological and hydrographical studies*—

Air temperature—

Minimum	..	..	77.9 F—January 1953.
Maximum	..	..	83.4 F—July 1952.

North-east monsoon—

Total rainfall..	..	..	30.6 inches.
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Surface temperature—

Minimum	..	..	25.6 C.
Maximum	..	..	28.7 C.

Specific gravity—

Minimum	..	..	1.0193—December 1953.
Maximum	..	..	1.0249—September 1953.

pH value

..	..	..	8.3 to 8.4.
----	----	----	-------------

Salinity—

Minimum	..	..	29 parts per 1,000.
Maximum	..	..	36 parts per 1,000.

(ii) *Plankton studies*.—There was an uniform distribution of diatoms during the year with a peak period from June to August. A correlation between abundance of diatoms, silicate contents and oxygen saturation was also observed. Attempts were made to correlate the abundance of the planktonic organisms with the local fisheries and it was found that the sardines were abundant in June and July when copepods were common.

(iii) *Studies on fish and fisheries*.—Collection of data on the biology of Rainbow Sardine (*Dussumeria hasseltii*) was continued and an account was prepared. Its fishery was estimated to occupy only the seventh place this year due to abnormally adverse weather conditions.

(iv) *Survey work*.—The survey of Rameswaram island, surrounded by the Gulf of Mannar and Palk's Bay, was begun in July 1953 in order to estimate the total landings of the various fishing centres of the island. Nineteen-thousand, four hundred and fifty maunds of fish comprising predominantly of Silver bellies, Sardines and to a lesser degree Seer and Silver-bar fishes were caught in Madi valai (Boat seine), Kola valai (drift net), Kara valai (shore seine) and Dunlop net (drift net).

(v) *Study on weeds*.—Studies on the estimation of population of sea-weed beds and the seasonal variation in the yield of alginic acid in the various species, were made during the year. It was computed that about 2,100 maunds of sea-weeds can be harvested around Rameswaram island. Experiments on percentage of alginic content in the sea-weeds are continued.

(vi) *Supply of biological specimens*.—Specimens of corals and sea-weeds were sold to visitors who came to the island.

In G.O. Ms. No. 3943, Development, dated 1st September 1953, collection of specimens by numerable college parties visiting the island for natural study

was prohibited to save depletion of the flora and fauna. The student parties are, however, permitted to study the flora and fauna under natural environmental conditions. An artificial bridge near the Galaxea Reef, was constructed.

(vii) *Seed collection and stocking*.—About 18,000 fry and fingerlings of Chanos (Milk Fish) were collected and supplied to departmental officers for stocking inland waters.

(viii) *Pearl oyster farm*.—The oysters in the farm continued to thrive well.

3. Ennore Biological Station.

At this station, special attention was being directed towards the elucidation of the bionomics and biology of the principal estuarine fishes.

(i) Meteorological and hydrographical studies.—

Air temperature—

Minimum 92° F.

Maximum 94° F—May.

North-east monsoon.

Total rainfall.

Surface temperature .. Minimum.

Specific gravity—

Minimum 1.018—November 1952.

Maximum 1.038—August 1952.

pH value.

Salinity—

Minimum 39.1 parts per 1,000.

Maximum 42.5 parts per 1,000.

(ii) *Plankton studies*.—One hundred and forty hauls of plankton were collected from the estuary both near the oyster beds and near the bar regions. The volume ranged from 1.0 to 7.0 c.c. the maximum being in August 1953.

(iii) *Studies on fish and fisheries*.—Study on the biology of the Perch (*Gerres filamentosus*) was continued during the year. The fish contributed to a major fishery in the estuary.

The marine fisheries showed wide fluctuations. Silver bellies (*Leiognathus* spp.), Ribbon fish (*Trichiurus* spp.) and Big-jawed Jumper (*Lactarius lactarius*) formed the major fisheries. The other fishes of importance were the Pomfret (*Alectes*), Jew-fish (*Sciaena* spp.), Horse Mackerel (*Caranx*), Anchovies (*Engraulis*), Seer (*Cybium*) and the Silver-bar fish.

In the estuary, Mulletts (*Mugils*) formed the bulk of the catches. The Gizzard Shad (*Anodontosoma*), Silver-bellies (*Leiognathus*), Silver perch, Squeaking perch (*Therapon*) and Prawns were the other fishes of importance.

(iv) *Survey work*—(a) *Pulicat lake fishery*.—A regular hydrographical survey of the lake, together with the bionomics of fishes, efficiency of the different tackles used, analysis of the catches and statistics of fishing crafts and fishermen, was initiated during the year and valuable data are being gathered. It was observed that the lake is rich in flora and fauna. About 65 species of fishes were recorded from the lake and of these preliminary observations of 24 species, were made. Mulletts and prawns contributed to the bulk of the catches of the fisheries. The fluctuations in the salinity of the lake due to the influx of the rain water and evaporation during the summer, has a profound influence on the biota.

(b) *Vellar estuary fishery*.—Vellar estuary is situated near Porto Novo. This is connected to the Bay of Bengal throughout the year and is subjected to diurnal tidal variations which extend to ten miles upstream. Consequently there is a regular ingress and egress of planktonic organisms and fishes from the inshore regions of the sea. Over 400 fishermen of seven villages are engaged in fishing in this estuary. Prawns, mullets and other coastal fishes are caught. The fish fauna in this estuary indicates that the nearby sea is a favourable area for spawning of these marine fishes. A detailed technical report is under preparation.

(v) *Seed collection and stocking*.—Twenty-four thousand, one hundred and ninety fingerlings of mullets and other varieties were collected and supplied to the departmental officers for stocking inland waters.

4. Tuticorin Biological Station.

(i) Meteorological and hydrographical studies.—

Air temperature—

Minimum 77.5° F.

Maximum 94.2° F.

North-east monsoon.

Total rainfall.

Surface temperature—

Minimum 26.5° C.

Maximum 30.8° C.

Specific gravity—

Minimum.

Maximum.

pH value 8.3 to 8.6.

Salinity—

Minimum 35.913 parts per 1,000.

Maximum 38.296 parts per 1,000.

(ii) *Plankton studies*.—Phytoplankton and Zooplankton predominated the inshore and off-shore areas respectively in the plankton hauls. The plankton population was high in the Tholayiram par (central banks) and other northern banks and sparse in the southern banks.

(iii) *Pearl fisheries*.—The following 27 pearl banks were inspected in detail from December 1953 to March 1954 :—

Tholayiram par.

Patharai par.

Saithu Onbathu par.

Utti par.

Vadaolipathu par.

Kodamuthu par.

Kanawa par.

Karaikaruvai par.

Odakaran par.

Athonbathu par.

Koothandiar par.

Pulipoondur par.

Uduruvai par.

Karai Pulipoondur par.

Saithu Kodamuthu par.

Nadumalai par.

Velangu Karuvai par.

Melonbathu par.

Pasi par.

Vadaonbathu par.

Nagara par.

Kilathi par.

Rajavukku Sippi Sodicha par.

Kadayan par.

Periamalai Piditha par.

Tiruchendur Poonthottam par.

Nenjurichan par.

(iv) *Study on fish and fisheries—Chank fisheries.*—Experiments on marking of chanks and studies on their migration and growth were continued.

(v) *General fisheries.*—Observations on the bionomics of the local fishes and their fisheries were made during the year. Tunny (*Thynnus thunnina*) and Perches (*Serranus miniatus* and *Serrdhus undulatus*) formed the major fisheries.

(vi) *Seed collection and stocking.*—Forty-eight thousand and seven hundred fry and fingerlings of Chanos (Milk fish) were collected and supplied to departmental officers for stocking inland waters.

5. Ennore Biological Supply Station.

(i) *Supply of biological specimens.*—Ninety-three orders for supply of specimens from educational institutions, firms and private individuals from India, Pakistan and Ceylon, were complied with during the year and a revenue of Rs. 10,878-14-6 was realized.

(ii) *Supply of edible oysters.*—Forty-eight thousand, three-hundred and twenty-six oysters were sold to hotels, clubs and private individuals and a revenue of Rs. 1,246-10-0 was realized.

(iii) *Supply of shell grit.*—Two thousand, two hundred and ninety-eight pounds of shell grit were sold to 39 parties including Animal Husbandry Institutions in Madras, Andhra, Travancore, Cochin, Mysore, Hyderabad and Bombay States and a revenue of Rs. 197-2-0 realized.

B. INLAND FISHERIES RESEARCH.

Sri P. I. Chacko, M.A., F.Z.S., from 1st April to 15th July 1953, Sri G. Lakshminarayana Rao, M.A., from 16th July to 7th October 1953 and Sri M. Devidas Menon, M.A., F.Z.S., from 8th October 1953 till the end of the year, acted as Assistant Director of Fisheries (Fresh Water Biology), Madras.

With the formation of the Andhra State, the Research Stations at Dowleshwaram and Hospet were transferred to the Andhra and Mysore States respectively on 30th September 1953. The headquarters of the Research Assistant (*Algology*) was shifted to Bhavanisagar with effect from 15th November 1953.

The results of the research conducted at the station were made available to the departmental officers. Technical advice on fish culture and aquarium keeping, were rendered to several private fish culturists and aquarists from all over India.

1. Biological Research.

(i) *Plankton studies.*—Regular weekly hauls of plankton were carried out in Chetput ponds, Bhavanisagar Fish Farm, and Bhavanisagar reservoir, and investigations on the diurnal variations and vertical distribution of the plankton were made.

(ii) *Survey work—(a) Upland lakes at Ootacamund, Kodaikanal and Yercaud.*—Studies on the limnology of the lakes were completed. A paper on Hydrography, Planktology and Phytology were compiled for publication.

The fish populations of Ootacamund and Karkal lakes were estimated.

(b) *Rivers, reservoirs and backwaters.*—The hydrological and biological surveys of rivers like Araniar, Vaigai, Periyar, Vamsadhara (Andhra State),

Amaravathi and Cauvery (from upper anicut to southern mouth of river Coleroon) rivers, were carried out. Details on distribution of fish fauna, planktology, physico-chemical conditions of the rivers, fishing methods and statistics of fishermen and fish landings were collected and furnished to the regional officers.

Limnological study of the fishes of the Periyar and Bhavanisagar reservoir, is under way.

Limnological study of Pulicat (Chingleput district) and Muthupet (Tanjore district) backwaters with special emphasis on Mulletts (*Mugil* spp.), Milk fish (*Chanos*) and Bektu or cock up (*Lates Calcarifer*) was made and valuable data on the age, rate of growth, food and migration of these fishes were gathered.

(iii) *Study on fish and fisheries—Population study.*—Detailed studies on the bionomics of various fishes of Bhavanisagar are under way with a view to assess its fish population.

Spawning.—Studies on the bionomics of the fishes of Cauvery delta simultaneously with field experiments at Chetput are under way to estimate the physiology of spawning of carps.

Age and rate of growth.—Investigations were started on the utility of various types of age indices for the determination of the age and rate of growth of certain fresh water fishes. To begin with the study on the Fringe-lipped carp (*Labeo fimbriatus*) was taken up and completed.

Tilapia Mossambica.—Experiments on the influence of Tilapia on the growth of other carps were carried out and data on the growth, fecundity, food, survival and productivity of Tilapia were gathered. It is found to feed on hydrophytes and to grow to a length of 107 mm. in 3 months and to breed in its third month. About 100 lb. of fish were obtained per acre in a seasonal tank retaining water for 4 months at Chetput. Thus the studies reveal that Tilapia does not affect the carps adversely and on the other hand it forms a valuable food fish for culture.

Fish pets.—The life histories of Dwarf Gourami (*Trichogaster fasciatus*), Zebra fish (*Brachydanio rerio*), Nuria danrica and Tilapia Mossambica were studied.

(iv) *Fish parasites.*—Investigations on the Black-grub parasites on Catla, Catla and Copepodan and Hirudinarian (leech) parasites on fishes, were made.

(v) *Seed collection and stocking.*—Thirty-two thousand fish seeds were collected and supplied to departmental officers for stocking.

(vi) *Public health fish farming.*—Several private waters were surveyed and suitable public health fishes were supplied and stocked in those waters.

Studies on public health fishes like *Trichogaster*, *Macropodus*, *Aplocheilichthys lineatus*, *Gambusia*, *Ambassis*, *Barulius bekeri*, *Barbus melanampyx*, *Danio aequipinnatus*, *Rasbora daniconius* and *Rasbora elanga*, were made, and 2,600 specimens were examined in detail.

Ten thousand public health fishes were collected. Of these 3,200 were supplied to private parties, 2,750 to panchayat boards and 2,400 to departmental units and a total sale-proceeds of Rs. 764-2-0 were obtained.

(vii) *Lectures and training.*—Departmental trainees and polytechnic students were given training and lectures at the station.

2. Hydrological Research.

Sri R. Srinivasan, M.A., continued as Hydrologist during the year.

The office and laboratory of the Hydrologist were shifted to Bhavanisagar with effect from 12th November 1953 as ordered in G.O. Ms. No. 4212, Development, dated 16th September 1953. Two hundred and twelve water samples were examined and analysed during the year.

1. *Studies on pollution of water.*—Two cases of pollution of inland waters of the State were investigated during the year—

(i) *Pollution by Jute-retting in tanks (Srikakulam district).*—Jute industry is one of the main occupations of the majority of the people in this area. The average daily production of jute is said to be 1.5 tons. The Tamara tank near Palagara village (Srikakulam district) was examined in May 1953 at the instance of Assistant Director, Visakhapatnam. Immersion of jute takes place for 3 to 4 months during winter in this tank. The details of water analysis were as follows :—

pH	8.6 (alkaline).
Carbonates	13.5 parts per million.
Bi-carbonates	231.8 p.p. million.
Oxygen	6.3 p.p. million.
Colour	Greenish.
Flora	Phytoplankton only. (Amphora, Navicula, Nitzschia, Synedra, Ankistrodesmus).
Fauna	Zooplankton (Cyclops, Diaptomus, Bosmina, Daphnia, Macrothrix, Nauplius, Cypris, Brachionus, etc.).
Fish	Cat fish, Murrel, Barbus ticto, B. dorsalis, Rasbora daniconius, loaches.

The assay conducted in May 1953 (summer) showed that the hydrobiological conditions were not harmful to fish life. A proper study and analysis during the winter months when the retting is in maximum, should be undertaken to judge the effect. Judging from the kinds of fish population, the loss of fishery may not be considered much and the annual yield of Rs. 300 to Rs. 400 is fairly satisfactory.

(ii) *Pollutions of Cauvery river by factory effluents from Erode Cauvery Textiles, Limited, Bhavani.*—The Erode Cauvery Textiles Limited have established a factory on Mettur Road at Bhavani for the processing of handloom cloth, viz., bleaching, printing and finishing and have been letting their effluents into the Cauvery river since September 1953. The total quantity of waters from one cycle of operations (i.e.), designing, their boiling, bleaching and souring the wash water from the various processes come to about 23,000 gallons for a batch of about 800 to 2,900 pieces of handloom cloth dealt with in one operation lasting 72 hours. The pollutional effects of the waste waters on the fisheries of the Cauvery river were examined in December 1953 and February 1954. The untreated effluents were found to be harmful to the fries and fingerlings of *Labeo* spp., *Cirrhina* spp. and *Barbus* spp. present in the river and had to be diluted at least 200 times to render them harmless to the fish population of the river. The dilution cannot always be ensured in the river especially during the summer months when the flow of water in the river is very low. Further the effluent discharge pipe ends on the bank of the river, where there is no flow of water during the summer months and this results in the accumulation and stagnation of waste waters in the river bed. To prevent this and to ensure adequate mixing of the wastes with the

flowing river water, the discharge pipe should be extended further into the river bed to a point where there is a copious and rapid flow of water. Treatment of the effluents before letting into the river with 20 grains of lime followed by 10 grains of alum per gallon of effluents as suggested by the King Institute, Guindy, will remove the suspended matter and ensure greater safety for the fish population of the river. The Manager of the factory has been advised strictly to follow the above recommendations.

2. *Experiments on the control of aquatic vegetation.*—The experiments on the control of aquatic vegetation with the plant hormone 2,4-D were continued from January to May 1953 with a view to finding cheap and more effective derivatives of the hormone than Dicotox. The ethyl ester of 2,4-D 'Ferno-xene,' the sodium salt of 2,4-D and a product of the Imperial Chemical Industries, Limited, was found useful in killing submerged vegetation like *Hydrilla verticillata*, *Potamogeton indicus*, *Najas Najas* and *Nymphaea* spp. but was ineffective against the rooted *Vallisneria spiralis*. A series of field experiments showed that a concentration of 2 p.p.m. of the chemical is necessary to kill the vegetation in about 18 days. The above concentration of the chemical was also not harmful to fishes like *Tilapia Mossambica*, *Etioplos maculatus*, *Barbus* spp., *Aplocheilichthys lineatus*, *Trichogaster fasciatus* and *Gambusia affinis*.

Experiments were also done on the use of the chemical in the control of excessive growth of algae in fish ponds. Copper sulphate (CuSO₄) was tried in August 1953 in Pilliarkulam in Chingleput where an overgrowth and decay of the algae *Microcystis* spp. was responsible for the bad odour emitted by the tank. The tank had a water spread of 1.11 acres with a maximum depth of 5 feet. The floating scum of algae was first removed by a fine cloth and then a solution of 1.75 lb. of copper sulphate in 15.0 gallons of the pond water was sprayed over the entire water spread by means of a Hyject foot pump sprayer. Following the treatment there was a decrease in the density of algae in the tank. The Inspector of Fisheries, Chingleput, was advised to frequently remove the surface algal scum from the tank and to periodically treat it with copper sulphate as described above to keep the tank free from foul smell. Introduction into this confined piece of water of a few fingerlings of *Tilapia Mossambica* which is a voracious eater of algae was also recommended.

3. *Survey work.*—Pulicat lake in Chingleput district, Muthupet swamp in Tanjavoor district, Hope lake in Tirunelveli district, Tavarakere and Ramasamudram (Karkal) lakes in South Kanara district, Bhavanisagar reservoir and fish farm in Coimbatore district, Pundi and Eduguru swamps in Srikakulam district and departmental fish farms in Tanjavoor, South Kanara, Visakhapatnam and Srikakulam districts, were surveyed and results of survey made available to the departmental officers with suggestions for improvement.

4. *Experiments on segregation of carp fry.*—Investigations were started to evolve a method of segregating the economic fish fry from the uneconomical ones at the collection centres near Bhavani toward the close of the season. The basis of the method is the differential requirements of dissolved oxygen by fish fry of different groups. A known number of fry to overcrowding were kept in tin containers, the dissolved oxygen in water being allowed to deplete quickly. A large number of fry were found crowding at the surface in apparent distress due to lack of oxygen depending upon their oxygen tolerance. They were carefully skimmed out and kept separately in fresh water.

This operation was repeated till the entire collection of fry was separated into 5 or 6 lots. Each lot was reared separately to find out its species composition. Minnows like Rasbora, Chela, Nuria, etc., were found to come to the surface first and were dominant in the first two lots. This experiment is being continued to arrive at final conclusions.

5. *Effect of Gammaxene spray on fish.*—Gammaxene-P. 520. is a product of the Imperial Chemical Industries, Limited, and is widely used by the Health Department in their anti-mosquito larval measures. It is sprayed on the margin of ponds as a suspension (prepared at 1 oz. to 1 gallon of water) at the rate of 1.4 c.c. per square foot of the surface. Field experiments revealed that the application of the above chemical does not have any adverse effect on fishes like *Etrophus suratensis*, Catla Catla, *Labeo* spp., Mirror carp and Golden carp.

6. *Lectures and training.*—Two batches of departmental trainees, one batch of students from Veterinary Research Institute, Izzatnagar, and one batch of students from the Central Polytechnic, Madras, were instructed on the various methods of hydrobiological research.

The Hydrologist gave a lecture on "Fishery Research" in Tamil to the fishermen at Pudumanaikuppam and Arambakkam fishing hamlets near Madras.

Future programme of the station.—(1) The study of Bhavanisagar reservoir fisheries with a view to develop its fishery,

(2) Studies on water pollution with the object of taking steps to conserve the fluviatile fishes,

(3) Experiments on the segregation of carp fry on the basis of their oxygen requirements,

(4) Determination of optimum conditions for the growth and resistance of some phytoplanktonic organisms, and

(5) Hydrobiological studies of fish ponds for standard classification.

3. Mettur Dam Reservoir Research Station.

The research was directed towards the study of intensive exploitation and its effects. The biometrical data gathered are being assessed for finding out if there is any overfishing.

The percentage composition of carps and cat fishes and their length frequencies are continued.

Gravid specimens of Rohu (*Labeo rohita*) and Mrigal (*Cirrhina mrigala*) were caught in the reservoir. The ovaries were in an advanced stage and the eggs were in stage V. Fingerlings of Mrigal were noticed near Hogainakal. Thus it was found that Bengal carps are successfully establishing themselves in the reservoir.

Fingerlings of *Etrophus* and stray specimens of Gourami were found in large numbers below the dam near the Power House, thus proving the success of intensive stocking of the reservoir over a period of years.

The question of declaring a close season in the licensed area below the Hogainakal falls up to Palar to prevent ruthless catches of breeders of catla and other fishes is under examination.

C. FISHERIES TECHNOLOGICAL RESEARCH.

1. Fisheries Technological Station, Kozhikode, Malabar.

Sri R. Venkataraman, M.Sc., A.R.I.C., continued as the Superintendent throughout the year.

1. *Nutritional investigations.*—A total of 106 samples comprising of 61 samples of fishmeal, 16 of fish manure, 4 of oils, 4 of cured fish, 5 of fresh fish and 10 water samples were analysed and data furnished.

(i) *Salt analysis.*—Fifty samples of Salt (sodium chloride) received from various parts of India and that supplied to the departmental fish-curing yards, were analysed at the station to determine the various impurities present which affect the quality of cured fish.

(ii) *Salted fish experiments.*—Experiments were continued on the cured fish and it revealed that high moisture content was one of the major causes for the rapid deterioration of fish. Fixing of standards for the quality of cured fish is under study.

(iii) *Experiments in fish drying with infra-red lamps.*—Drying of fish on the West Coast is found to be a difficult problem due to the coincidence of peak fishery season with monsoon. Preliminary experiments were conducted to dry the salted fish with infra-red lamps. Big-sized salted Pomfret was dried in 6 hours under infra-red lamps and a 20 per cent dryage was obtained. It was also found 99.95 per cent of bacteria originally present were killed, thus making the fish wholesome. Prawns and other fishes were similarly dried and results are being worked out.

(iv) *Experiments in canning fish.*—Mackerels and Sardines were canned in 116 lacquered tins during the year. Some canned fish tins obtained from the old Canning Factory at Chaliyam were examined. The causes for the "Swell" of the canned tins, were found to be due to the 'gaseous' spoilage of the fish caused by Anaerobic bacteria. Examinations for food poisoning bacteria is being made.

(v) *Chromatographic studies on the nutritional values of fishery products.*—It is a new method adopted for the estimation of amino-acid and vitamin contents of fish foods. The Research Assistant (Bio-Chemical) was trained in this branch at the Indian Institute of Science. The Lumetron Photo-Electric Fluorescence Meter was used for this purpose.

2. *Bacteriological studies*—(i) *Salt tolerance of marine bacteria.*—As salt is the chief preservative used for preservation of fish, salt tolerance of marine bacteria in fish and sea water was studied. Many of fish spoilage bacteria like *Bacillus*, *Achromobacter*, *Micrococcus*, etc., tolerated high concentration of salt. Only the *Flavobacter* which were of little importance to spoilage were sensitive to salt. Hence high salt tolerance by the bacteria explains the quick spoilage of salt fish.

(ii) *Bacteria on the surface of sharks.*—The bacteria found on the surface of sharks were studied. The dominant species were chromogenic bacteria like *Bacillus* and *Corynebacterium*, bacteria that cause urea-splitting and which is the cause for emanation of bad odours and the bacteria that utilize phenol. Further work is being continued.

(iii) *Bacteria of sea water*—(a) *Calicut off-shore.*—The dominant group of bacteria in Calicut off-shore waters was studied and listed. *Bacillus* (spore-forming and chromogenic), *Pseudomonas* (denitrifiers), *Achromobacter*, *Micrococcus*, and *Flavobacter* were absent, thus giving hopes of preservation of fish by cold storage.

(b) *Tuticorin Pearl Banks*.—The bacterial population of the pearl banks off Tuticorin was studied and it was found to be not appreciable. The pearl oysters were not afflicted by any bacterial disease.

In the sea water coliforms were absent. Many of the bacteria were luminiscent. Some are denitrifiers, algin digesters, chitin digesters, and agar digesters. No cellulose digesters nor urea fermenters were found. Few are chronogenic types.

On the other hand the bottom sands contain a versatile flora-cellulose digesters, agar digesters, algin digesters, chitin digesters, denitrifiers, sulphate reducers, urea fermenters and chromogenic types. The bacteria of chanks (*Xancus pyrum*) which live on the bed resembled those of its habitat. Further work is in progress.

(iv) *Studies on pollution of green mussels*.—The mussel beds at Korapuzha near Kozhikode (Malabar) was studied in detail. The conclusions reached are—

(1) The mussel bed in shallow coastal area are continually polluted throughout the year.

(2) The peak of pollution is attained immediately after the advent of south-west monsoon and there is recovery after the monsoon abates till summer when the coliform counts as well as total counts are low.

(3) The food poisoning bacteria, *Salmonella shigella* and *Vibrios*, were absent but *Paracoli*, *Proteus E. Coli* and *Pseudomonas* were present. It is necessary to regulate the exploitation and marketing of these shell fish which are a poor man's food.

(v) *Home Economic studies—Fish Recipes*.—Numerous recipes from fresh water fish, salted fish, iced fish, mussels, prawns, etc., were prepared and tested. Fish biscuits and bread were made and tested by nutrition experts. Pickling experiments were started.

Instruction classes were held every month to demonstrate the various methods of fish preparations to students of fisheries schools with special emphasis on hygienic handling and elementary principles involved in fish spoilage, etc.

(vi) *Lectures and training*.—Two batches of departmental trainees, a batch of students from the Central Polytechnic, Madras, a batch of trainees of Central Inland Fisheries and student batches of some high schools were given instructions and demonstration in the principle and practice of fish preservation.

(vii) *Programme for next year*.—(1) Studies on the amino-acid contents of fishes and fishery products,

- (2) the vitamin contents of fishes,
- (3) preparation of fermented fishery products and pickled fish,
- (4) further work on salting,
- (5) experiments in canning,
- (6) continuation of the work on the marine microbiology of sea water and bottom materials of Tuticorin including examination of chanks,
- (7) study of shark spoilage, and
- (8) analysis of salts, fish byproducts and preparation of fish recipes.

2. Fisheries Demonstration Factories.

Six factories functioned throughout the State out of which 3 are in the East Coast, viz., Rameswaram (Ramanathapuram district), Adirampatnam (Tanjavoor district) and Pulicat (Chingleput district) and 3 in the West Coast,

viz., Malpe (South Kanara district) and Tanur and Kozhikode (Malabar district). Each of the centres was in charge of an operative. A total of 60,093 lb. of fish manure and 17,097 lb. of fishmeal were manufactured against 59,938 lb. of manure and 93,741 lb. of fishmeal produced last year—

Name of factory.	Fish manure.		Fish meal.	
	1953-54.	1952-53.	1953-54.	1952-53.
	LB.	LB.	LB.	LB.
1 Rameswaram	69	18	..	..
2 Adirampatnam	4,650	19,413	..	75
3 Pulicat (Ennore)	..	..	696	220
4 Malpe	51,637	7,056	..	..
5 Tanur	..	4,013	7,581	2,669
6 Kozhikode	3,737	29,438	8,820	6,410
Total	60,093	59,938	17,097	9,374

Fishery by-products.—Besides fish oil, sea weed compost manure and sea weed ash, brine salt and sediment were also manufactured in these factories, the details of which are given below :—

Serial number.	Fish oil.		Sea weed manure.		Sea weed ash.		Brine salt and sediment.	
	1953-54.	1952-53.	1953-54.	1952-53.	1953-54.	1952-53.	1953-54.	1952-53.
	LB.	LB.	LB.	LB.	LB.	LB.	LB.	LB.
1	1,584	21	22,682	6,462	1,379	255	..	..
2	1,176	1,240	..	..	..	..	..	..
3	..	..	..	..	..	..	..	..
4	..	222	..	..	..	..	..	..
5	650	693	..	..	..	..	574	4,711
6	346	2,099	..	..	..	..	15,746	10,937
Total	3,756	4,276	22,682	6,462	1,379	255	16,320	15,648

The working of all the centres was quite satisfactory and there has been considerable increase in the output of fish products and by-products.

3. Manufacture of semi-dried prawns.

The scheme for the manufacture of semi-dried prawns was abolished at the end of March 1953 and the work was continued at three departmental factories, i.e., Kozhikode, Tanur and Ennore. A total quantity of 3,787 lb. of semi-dried prawns was manufactured and sold during the year against 7,576 lb. produced last year.

	1953-54.		1952-53.	
	LB.		LB.	
Kozhikode	..	300	..	..
Tanur	..	3,468	..	..
Ennore	..	19	..	..
Total	..	3,787	..	7,576

4. *Fish Preservation and Transport.*

(i) *Cold storage.*—The Fisheries Department is putting up two ice plants—*cum*-cold storage and fish freezing plants one at Mangalore (South Kanara district) and the other at West Hill (Malabar district). Each plant has a capacity of production of 5 tons of ice, and quick freezing about 5 tons of fish per day and cold storage accommodation for storing 40 tons of frozen fish, 30 tons of fresh fish and 15 tons of ice. The construction of the building was completed by the Public Works Department. In G.O. Ms. No. 220, Development, dated 15th January 1953, the erection of the plant was also entrusted to the Public Works Department under the expert advice and supervision of Messrs. Volkart Brothers. The services of the Departmental Refrigeration Engineer were made available to the Public Works Department during the erection period so that the valuable experience offered during erection may not be lost. The erection is nearing completion.

Proposals are under consideration to run one of the plants departmentally and to lease out the other to private parties or co-operative institutions subject to the approval of Government.

The Fisheries Refrigeration Engineer in G.O. Ms. No. 228, Agriculture, dated 17th February 1954, was deputed to study the working of the quick freezing plant of the Central Government at Bombay and to gather first-hand information regarding the technical details of erection, maintenance and management of the cold storage.

The department is also considering the installation of another ice plant at Mettur Dam (Salem district) and to acquire a new plant for this under the T.C.A. aid.

(ii) *Transport of fish.*—A noteworthy feature of the year was the transport of iced fresh water fish from Mettur Dam to Calcutta via Madras by rail through refrigerated vans. Four consignments of iced fish weighing 9,152 lb. of fish were thus transported during April and June 1953. The fish consignments were found to be in perfect conditions on reaching the destination and found a ready market at Calcutta.

Besides, iced and fresh water fish from Mettur Dam were sent to several towns in the districts of Madras, Chingleput, North Arcot, Salem, South Arcot, Tiruchirappalli, Tanjavoor, Madurai, Ramanathapuram, Pudukkottai, Coimbatore, Malabar and Nilgiris in Madras State, Anantapur, Bellary, Cuddapah, Kurnool, Chittoor and Nellore in Andhra State, and Bangalore in Mysore State. The fishes were sent either in gutted or ungutted condition. On special orders, beheaded and definned fish were also sent. All the fish consignments were transported properly packed in crushed ice in bamboo baskets well stitched. The consignments reached their destinations in perfect condition except for those that were miscarried or delayed in transit by rail. Much care was taken to send fresh and thoroughly cleaned fish to mufassal stations. On the whole 366,075 lb. (163.4 tons) of iced fish were despatched from Mettur Dam to these places. The cost of the entire quantity of fish sold this year has been collected.

Another feature of the year was the despatch of fish consignments from the departmental catches at Pamban to Madurai during the middle of 1953. The fishes were sent in crushed ice and received at the destination in good condition and became very popular and fetched good price.

D. LIST OF PUBLICATIONS BY DEPARTMENTAL OFFICERS DURING 1953-54.

(a) *Marine Biological Research Station.*

1. Biology of Fouling in the Gulf of Mannar—A Preliminary account—Sri G. K. Kuriyan, M.Sc., Ecology (U.S.A.), Volume 34, No. 4, October 1953.
2. A note on the Fishing Industry of the United States of America by V. John.

(b) *Freshwater Biological Research Station.*

1. A survey of the flora, fauna and fisheries of the Collair lake (Indcom. Journal, 1954).
2. A report on a survey of the flora, fauna and fisheries of the Pulicat lake, Madras State, India (Government of Madras Bulletin, 1953).
3. Determination of the ages and growth of tropical and sub-tropical fishes (Journal of Bombay Natural History Society, 1953).
4. An estimate of the Fish Population of the Ootacamaund lake based on catch effort statistics. (Science and Culture, 1953.)

(c) *Fisheries hydrological laboratories.*

1. Some observations on the spawning of Indian carp in the Bundhs of Bengal, 1953. S. V. Ganapati and P. I. Chacko (Indian Geographical Journal, Volume XXVII, Nos. 3 and 4).
2. Interesting case of mortality of fish in the Public Health fish nurseries at Ennore, 1953—S. V. Ganapati and K. H. Alikunhi (Indcom Journal, Volume VIII, No. 4).
3. Hydrobiology of carp spawning in the river Cauvery at Hogainakal during July-August 1946—S. V. Ganapati, K. H. Alikunhi and A. R. K. Zobeiri (Indcom Journal, Volume VIII, No. 4).
4. Role of Hydrological Research in the development of inland fisheries of India—R. Srinivasan (Indcom Journal, Volume VIII, No. 4).
5. Fish mortality in the rockpools of a quarry near Virudhunagar, Ramanathapuram district—Madras—P. I. Chacko and R. Srinivasan (Proceedings of Indian Academy of Science, Section B, Volume XXXIX, No. 3).
6. Hydrobiology and Fisheries of the Vamsadhara estuary, Calingapatnam, Srikakulam district—P. I. Chacko and R. Srinivasan (Proceedings of Indian Science Congress, Part III, 1953).

(d) *Fisheries Technological Station, Kozhikode, Malabar.*

1. Studies on Mackerel fat variations: Correlation of plankton fat with fat of fish [Proceedings of Indian Academy of Science, 36-B (1953)]. R. Venkataraman and S. T. Chari.
2. A Marine species of slow lactose fermenting Bactereum—R. Venkataraman and A. Sreenivasan (Current Science 22—1953).
3. Spoilage of Mackerel preserved in oil—R. Venkataraman and A. Sreenivasan (Current Science 22—1953).
4. Preservation of Semi-dried prawns—R. Venkataraman, A. Sreenivasan and A. G. Vasavan (J. Sci. Ind. Res. 12-A. 1953.)
5. Studies on the storage of fish meals in sealed tins—R. Venkataraman, A. Sreenivasan and A. G. Vasavan (Madras Agriculture Journal 40—1953).

6. Studies on Red halophilic bacteria from salted fish and salt—R. Venkataraman and A. Sreenivasan (Proc. of Indian Academy Science 39-B 1954).

7. Manufacture and preservation of Semi-dried prawns—R. Venkataraman and A. Sreenivasan [Indian Farming, 3, N. S. (10) 1954].

8. Bacteriology of fresh water fish—R. Venkataraman and A. Sreenivasan [Indian Journal of Medical Research, 41 (4) 1954].

9. Semi-drying, a novel method of preserving and packing prawns—R. Venkataraman and A. G. Vasavan (Ind com Journal, August, 1953).

Besides, the following papers were read at the Indian Science Congress, Hyderabad, 1954 :—

(1) Studies on shell fish pollution—R. Venkataraman and A. Sreenivasan.

(2) Salt limits of marine bacteria—R. Venkataraman and A. Sreenivasan.

(3) Preservation of fish by freezing in the household refrigerator—R. Venkataraman, A. Sreenivasan and A. G. Vasavan.

(4) The alginic acid content of some of the common sea weeds of the Gulf of Mannar area—A. P. Valsan.

(5) Investigation of the quality of salted fish preserved in the fish-curing yards—R. Venkataraman, A. G. Vasavan and A. P. Valsan.

(6) Transport of oysters to distant inland places—R. Venkataraman and S. T. Chari.

III. DEVELOPMENT AND EXPLOITATION.

1. MARINE FISHERIES.

A. Fish-curing yards.

(i) *Yards*.—There were 71 fish-curing yards (68 public and three private yards) in the Residuary Madras State at the beginning of the year. Two private yards (Malpe and Kidiyur) and one public yard (Kirimanjeshwar) (all in South Kanara district) were closed during the year. One public yard (Naduvattam) was newly opened on 1st November 1953 as ordered in G.O. Ms. No. 4330, Development, dated 23rd September 1953 and four public yards [Elathur, Beypore (North), Edakazhiyoor and Kodumbi] were reopened as ordered in G.O. Ms. No. 5433, Development, dated 18th December 1952, in Malabar district. The continuance of the following temporary yards on the East Coast was also sanctioned :—

Periathalai ..	..	} Tuticorin region up to 30th September 1954.	G.O. Ms. No. 136, Agriculture, dated 19th November 1953.
Kootapuli ..	..		
Ovari ..	..		
Idinthakarai ..	..		
Adirampatnam ..	..	} Tanjavoor region ..	G.O. Ms. No. 4781, Agriculture, dated 29th October 1953.
Muthupet ..	..		
Arcot Thurai ..	..		
Attankarai ..	..	} Madurai region..	G.O. Ms. No. 419, Agriculture, dated 23rd December 1953.
Mukkur ..	..		

Thus at the end of year there were 73 yards (72 public and one private) in the State. A list of existing fish-curing yards in different regions is enclosed (vide Appendix I).

The question of opening a public yard at Padu Thonse (South Kanara district) is still under consideration.

(ii) *Yard staff*.—Of the 73 yards, 19 are in charge of Sub-Inspectors of Fisheries and the rest are under petty yard officers. The post of yard officers at Blangad and Palapatty (Malabar district) were converted into Sub-Inspector's during the year.

(iii) *Yard transactions*.—During the year, a total quantity of 1,434,539 maunds 35 seers of fish were let in for curing, 928,456 maunds 18 seers of cured fish were let out and 212,898 maunds 16 seers of salt were issued for curing from the yards against 1,571,413 maunds 21 seers, 994,068 maunds 37 seers and 233,243 maunds 36 seers respectively during the previous year. A detailed statement of transactions in the fish-curing yards is enclosed (vide Appendix II).

There was decrease in transactions all over the State except in Vellore and Madurai regions. On the West Coast it is due to the failure of the major shoaling fishes like Mackerel, Silver bellies, Goggler and Sardines. Only the Oil Sardine which contains much oil and thus is unfit for curing, predominated the West Coast fishery. In the East Coast the failure of the Cat-fish fishery, the late appearance of Ribbon fish (*Trichiurus* spp.), the availability of salt at a much cheaper rate in the local market and the availability of free swamp salt contributed to the decrease in transactions. The increased transactions in Vellore region was due to the increased catches of Ribbon fish and Horse Mackerel.

(iv) *Supply of salt*.—The stock of salt at the beginning of the year was 199,700 maunds 5 seers. A total quantity of 220,177 maunds 4 seers was supplied to the yards during the year and 34 maunds supplied to other departmental institutions. The balance of salt at the end of the year was 198,241 maunds 28 seers after consumption.

Two lakhs three thousand three hundred and ninety maunds of salt (39,960 maunds by rail and 163,490 maunds by sea) were transported from Tuticorin to the West Coast yards during the year. Of this 62,262 maunds 10 seers were supplied to South Kanara yards and 140,740 maunds to Malabar yards. Besides 1,600 maunds of salt were supplied to the yards in Madurai region.

Despite this, there was depletion of salt in some of the yards for a few days during the year.

The special feature of this season was that 10 per cent of the quantity of salt purchased was crushed salt which when tried on fish on the West Coast was found to yield a much better product. Rest of the quantity purchased was powdery salt. The cost price per maund was As. 10-6 for crushed salt and As. 5-6 to As. 6 for powdery salt. Besides cess charges at 2 annas per maund, were paid to the Salt department.

For the first time, tenders for the removal and transport of salt from Tuticorin to West Coast were fixed separately. The rates of transport for 100 bags ranged from Rs. 150 to 190 and hence was much lower than last year.

(v) *Issue price of salt*.—The salt was being sold at the yard at the subsidized rate of Re. 1-4-0 per maund as sanctioned in G.O. Ms. No. 195, Food and

Agriculture (Food Production), dated 21st May 1952, from the beginning of the year. This rate was continued throughout the year on the East Coast. But on the West Coast, the rate was increased to Re. 1-5-0 per maund with effect from 15th September 1953 as ordered in Government Food and Agriculture (Food Production), Memorandum No. 34262-F.P. III-A, dated 5th September 1953. As collection at this rate for small purchases of salt was found impracticable, it was again raised to Re. 1-7-4 per maund with effect from 1st January 1954 as ordered in the Government Memorandum No. 34262/52-18—F.P. III-A, Food and Agriculture Department (Food Production), dated 14th December 1953. The revised rate continued till the end of the year. As the order on the enhancement of issue price was received very late, the collection of differences in rates is reported to have fallen in arrears.

(vi) *Wastage of salt.*—There was a wastage of 64 maunds 20 seers of salt at the beginning of the year. A wastage of 23 maunds 5 seers was ascertained during the year. These were written off the account during the year. Hence the balance wastage to be written off at the end of the year is nil.

(vii) *Curing sheds.*—There was appreciable result in the conversion of Kutoha sheds into hygienic and economic pakka sheds on the West Coast. The difficulty in getting building materials stood in the way of conversion of more kutcha sheds into pakka or semi-pakka sheds. The following are the details of the sheds in existence :—

Nature of sheds.				Number of sheds at the beginning.	Number of sheds at the end.
Kutcha	..	..	..	308	284
Semi-pucca	..	..	..	424	448
Pucca	..	..	..	542	538
Total ..				1,274	1,270

(viii) *Ticket holders.*—There were 1,479 ticket holders at the beginning of the year and 1,359 ticket holders at the end of the year, resorting to the fish-curing yards and 59,644 applications were made for the issue of salt by the curers—

Region.	Ticket-holders.							
	Capitalist.		Middleman.		Fisherman.		Total.	
	Beginning of the year.	End of the year.	Beginning of the year.	End of the year.	Beginning of the year.	End of the year.	Beginning of the year.	End of the year.
West Coast—								
Mangalore ..	93	91	85	81	209	201	387	382
Malabar ..	133	133	350	247	494	486	977	866
East Coast—								
Vellore ..	..	..	..	..	31	31	31	31
Tanjavoor ..	..	..	5	5	13	13	18	18
Madurai ..	55	5	13	13	11	11	29	29
Tuticorin ..	10	11	12	12	15	19	37	42
Total during 1953-54 ..	241	240	465	358	773	761	1,479	1,359

(ix) *Damage to yards.*—No yards were damaged during the year. The sea erosion at Hungarcutta yard (South Kanara district) continued to be severe this year also and affected some of the curing sheds. Hence the question of shifting the yard to a safe place is under consideration. Due to the cyclone on 18th August 1953 on the West Coast slight damages were caused to the yard buildings at Mangalore and Ullal and these were set right at a cost of Rs. 26-12-0.

(x) *Demonstration curing sheds.*—The only shed at Kozhikode yard was transferred to the Superintendent, Fisheries Technological Station, for his experimental work.

(xi) *System of curing.*—The local methods of curing were continued in all the yards. In a few yards like Gangoli, Hungarcutta, Malpe I and Udiawar, Colombo and Ratnagiri methods were also adopted besides the local method and 11,534 maunds 5 seers and 30,056 maunds 12 seers of fish respectively were cured under the above systems.

The brine-curing system is largely prevalent among the public who are curing fish outside the yard, which require to be prevented.

(xii) *Oil and guano factories.*—On the whole, 205 private factories worked during the year. Two thousands and two hundred and thirty tons of oil and 9,717 tons of guano were produced as there was a bumper sardine fishery during the year.

Region.	Number at the beginning of the year.	Number constructed during the year.	Number closed during the year.	Number at the end of the year.
Mangalore ..	111	63	1	173
Malabar ..	32	..	..	32
Total ..	143	63	1	205

(xiii) *Departmental salt factory.*—Opening of the salt factory is still under the consideration of the Government.

B. Pearl and Chank Fisheries.

(i) *Pearl fisheries.*—A preliminary inspection of the pearl oyster beds off Tuticorin was conducted for six days from 7th December 1953 to 12th December 1953 which showed the presence of small pearls in the oysters. Hence a detailed inspection for 15 days during May 1954 was conducted as sanctioned in G.O. Ms. No. 396, Agriculture, dated 12th February 1954. The Assistant Director of Fisheries (Marine Biology), the Assistant Director of Fisheries, Tuticorin, and the Deputy Director (Marine) participated in the inspection. The motor fishing vessel "Gowher Khaleeli" and three canoes with two divers in each were engaged. Twenty-seven pearl banks were inspected and of these 16 showed the presence of pearl oysters. It is hoped after careful examination that a pearl fishery of the following banks can be held early in 1955 :—

Tholayiram par.
Athombathu par.
Koothandiar par.

Vadaombathu par.
Saithaombathu par.
Pulipundu par.

It is estimated that there is a population of about 3 crores of oysters or these banks which compares favourably with that of 1926-28 fishery. Proposals for prohibition of fishing on the pearl banks were submitted and patrolling of pearl banks is carried out regularly.

Tirunelveli Chank Fishery.

(ii) *Chank fisheries*.—The season commenced on 26th November 1953 and continued beyond the financial year. Up to 31st March 1954 fishing was conducted for 98 days as against 92 days in the previous year.

Divers.—At the outset, 257 divers with 38 canoes enlisted themselves as against 240 divers in the previous season. As the fishery progressed, a good number of divers joined the fishing. The maximum number of divers who participated in the fishery during the year was 644 with 54 canoes as against 612 divers with 43 canoes in the previous season.

(Ramanathapuram district) and Travancore besides the local divers (Tuticorin) participated in the fishery. They were given enough accommodation within the office compound and all facilities were provided. The fishery was continued unrestricted as in the previous years.

During the season all the divers were registered and each diver was given a Register number. Separate account of daily catches, amount earned, savings, etc., in respect of each diver was also maintained.

Advances.—No advance was given nor any previous advance was pending recoveries during the season.

Loans.—No loans were issued.

Rate of chank.—The rate of As. 5-9 per full-sized shell was continued during the season. Out of this As. 4-9 per shell was paid at the chank godown and the balance of 1 anna per shell was paid at the end of the season as a "small savings campaign." The rate was increased to As. 6 per shell for the 1953-54 only in G.O. Ms. No. 1456, Agriculture, dated 30th April 1954. The size of gauge of chank was changed from 2½ inches to 2¼ inches and the chanks gauged vertically.

Bonus.—The Government have sanctioned in G.O. Ms. No. 1114, Development, dated 18th March 1952, the grant of bonus of 3 pies per shell fished during 1947-48 and 1948-49 seasons to those divers who participated in the Tirunelveli Chank Fishery and a lump-sum of Rs. 24,000 for the purpose was sanctioned. A sum of Rs. 1,233-9-0 was disbursed to 56 divers during the year.

Catches.—Eight lakhs and ninty-nine thousand five hundred and eighty full-sized chanks, 83,878 under-sized and 61,154 wormed shells were fished during the season against 806,792 full-sized 85,467 under-sized and 39,843 wormed shells fished during the last year.

The largest number of full-sized shells fished was on 27th March 1954 and numbered 57,568.

The largest number fished by an individual diver on a single day was 125 as against 194 in the previous year.

Chank beds fished.—Twenty-two chank beds were exploited during the year against 28 beds in the previous year. Pinnakayal par yielded the maximum number of chanks, viz., 221,755, and Nadumalaipiditha par yielded the minimum number of chanks, viz., 1,592. All the chank canoes were rowed by the three departmental vessels, namely, M.F.V. "Gouher Khaleeli," M.F.V. "Tuticorin" and M.L. "Levertt."

Live shells.—Seventeen thousand four hundred and nineteen live under-sized shells, i.e., nearly 18 per cent of the total catches of under-sized shells were released back into the sea as against 21,087 during last year.

Amenities.—Facilities for supply of light refreshments to the divers (in the premises of the godown) on their return from sea were given as usual.

The community radio set installed at the chank godown was operated daily for the amusement of the divers.

Accidents.—Two accidents occurred during the year. A local diver, Muniandy, aged about 40 years, died due to overstayal in the sea bottom. Grant of compensation to the family of the deceased is under consideration of Government. Another diver, Mohammed Asana Labbai, aged about 53 years, died in the hospital due to cerebral haemorrhage according to Medical authorities. This was also caused evidently as a result of diving and the grant of compensation to the family of the deceased is under the consideration of Government.

Poaching.—A case of illicit fishing by 13 canoes from Kilakarai (belonging to the lessee of Ramanathapuram fishery) on the Vadaithundam Par belonging to Tirunelveli chank bed, was detected by the Assistant Director of Fisheries, Tuticorin, on 24th January 1954. Five sammatties of the canoes were arrested and prosecution was launched against them at the Court of Sub-Magistrate, Tuticorin. The accused have been convicted and fined Rs. 50 each.

Chank-fishing by nets.—Nine hundred and two chanks were against fished 370 during last year by nets at the Eastern Coast of the Madras State as follows:—

	In 1953-54.	In 1952-53.
Idinthakarai	788	370
Ovari	46	Nil.
Periathalai	68	Nil.
Total ..	902	370

Sale of chanks.—The chanks of 1950-51 season totalling 1,077,991 (983,815 full-sized, 63,345 under-sized and 30,831 wormed shells) were sold during the year to Messrs. A.M.S.S.V. and M. & Co., Kilakarai, at the rate of Rs. 1,076 per 1,000 full-sized shells and Rs. 96 per 1,000 under-sized and wormed shells.

The chanks of 1951-52 season also totalling 742,220 (681,006 full-sized, 42,025 under-sized and 19,189 wormed shells) were sold to Messrs. K.T.M.T.M. Abdul Kayoom Sahib Hussain Saheb of Kilakarai at the rate of Rs. 1,131 per 1,000 shells for full-sized and Rs. 96 per 1,000 for under-sized and wormed shells.

On a representation from the Government of West Bengal, the Government have ordered in G.O. Ms. No. 2372, Agriculture, dated 13th July 1954, that 50 per cent of all sizes of the chanks of 1952-53 may be given to the Cottage and Small Scale Industries Department of West Bengal for distribution to the artisans.

2. Ramanathapuram Chank.

The Ramanathapuram chank beds extend along the coast to a distance of 130 miles from Morepanai in the north to Kannirajapuram in the south in Ramanathapuram district and around Rameswaram island.

Consequent on the abolition of the zamindari system in the Madras State, the right of fishing chanks off this coast which was vested with the Raja of Ramanathapuram and Raja of Sivaganga, was transferred to the Madras State Government. Hence the Fisheries department (Assistant Director

of Fisheries, Madurai) was entrusted with the control of this fishery. Accordingly the lease of Ramnad fishery was granted to Messrs. A.M.S.S.V.M. & Co. of Kilakarai who had taken the lease of Ramanathapuram chank fishery for a period of 10 years from June 1946 to June 1956 was cancelled. But he objected to it. As a compromise, the company was allowed to enjoy the lease fully till the end of June 1956 subject to the general control and supervision of fishery by this department. Accordingly a supervisory staff of the department consisting of an Inspector of Fisheries and a Chank Fishery Overseer with headquarters at Kilakarai was sanctioned in G.O. Ms. No. 3726, Development, dated 11th August 1953, and they took charge during September and October 1953. They are entrusted with the work of effecting proper supervision, prevention of fishing of under-sized shells and collection of information regarding chank fishery operations in this area.

Sivaganga fishery.—Chanks were collected in this area by a chank watcher posted at Mullimunai and assisted by the other departmental staff. The following collections were made during the year :—

Year.	Full sized.	Number of chanks fished.		Total.
		Under-sized.	Wormed.	
1953-54	856	76	55	987
1952-53	399	29	41	469

Rate of chank.—The chanks were purchased at the rate of 2 annas per shell.

3. Tanjore Chank Fishery.

Departmental fishing.—The departmental conduct of chank fishery in the coast of Tanjore district extending from Puthukuda to Point Calimere was undertaken as per G.O. Ms. No. 3121, Development, dated 4th July 1953. Besides, chanks fished in nets were purchased at one anna per shell. The chanks were stocked at the chank godowns at Adirampatnam and Sethubava-chatram. The following chanks were procured :—

Year.	Full-sized.	Under-sized.	Wormed.	Total.
1953-54	15,644	3,193	1,076	19,913
1952-53	15,297	5,442	754	21,493

The slight fall in total procurement is due to the marked decrease in the collection of under-sized chanks effected as a result of special instructions.

Sale of chanks.—The chanks of 1951-52 and 1952-53 seasons were sold during the year to Messrs. K.T.M.T.M. Omar Abdul Quadir and Co., Kilakara. A total of 41,119 shells (31,754 full sized, 9,365 under-sized and wormed) have been delivered already and a sum of Rs. 16,254-10-6 and Rs. 253-5-6 sales tax was realized as sale-proceeds.

Fishery lease.—The lease of chank fishery off the Tanjore coast except the area from Puthukuda to Point Calimere for the year was granted to Messrs. K.T.M.T.M. Omar Abdul Quadir and Co., Kilakarai, for a rental of Rs. 9,231 per annum.

4. South Arcot Chank Fishery.

The lease for this area was also granted to Messrs. K.T.M.T.S. Omar Abdul Quadir and Co., Kilakarai, for Rs. 10,725 per annum.

The lease period for the two areas expires on 30th June 1954 and proposals for the extension of lease for another three years were submitted to Government for sanction.

The collection and removal of chanks off the Indian Union enclaves inside the French India territory is still under correspondence with the authorities.

5. Chingleput District Fishery.

This was also leased out to Messrs. K.T.M.T.M. Omar Abdul Quadir & Co. of Kilakarai for a rental of Rs. 3,021 per annum.

C. Deep Sea Fishing.

The continuance of the scheme during the year was sanctioned in G.O. Ms. No. 2299, Development, dated 18th May 1953. Seven centres with five motor vessels and fifteen boats, or canoes or catamarans were engaged in the fishing operations on both the coasts. A total weight of 196,908 lb. fish comprising of 129,732 lb. sharks and 69,169 lb. of other fishes, were caught which yielded a total receipt of Rs. 18,498-10-10 and 11,918 lb. of shark livers to this department—*vide* Appendix III enclosed.)

West Coast.

(i) *South Kanara.*—Three centres with 9 boats against 21 boats last year, viz., Malpe, Padu Thouse and Ullal, functioned during the year. A total quantity of 53,515 lb. of fish (sharks 29,788 lb. and other fish 23,727 lb. was caught during the year against 94,870 lb. (sharks 77,826 lb. and 17,044 lb. other fishes) in 1952-53. Besides 1,938 lb. of shark livers were obtained against 5,100 lb. obtained last year.

The decline in catches was due to the general scarcity of sharks along the coast operation of lesser number of boats than last year and the reluctance of the fishermen to work on the departmental contract system without some more concession.

The following were the terms of the contract system :—

- (1) The department met the hire charges of boats brought by the fishermen,
- (2) the department supplied the required fishing implements and 20 per cent of the cost were recovered as hire charges. If the implements were lost, 50 per cent of the cost was recovered,
- (3) the department got freely all the liver of sharks caught and
- (4) the implements will remain the property of the department.

The fishermen were reluctant to work on the above terms and wanted some more concession. Accordingly, a modified contract system was introduced, the terms of which are given below :—

- (1) The fishermen should supply the boats free of cost,
- (2) the department supplied the fishing implements on payment of 50 per cent of the cost in advance, the balance of 50 per cent to be adjusted against the cost of liver of sharks caught, and
- (3) the implements will become the property of the fishermen at the end.

As the modified contract system was accepted by fishermen at the fag end of the year, more boats could not be put into operation. Beppu fishing (fishing by hooks and line) is the main method of catching sharks and other big fishes. Due to the general decline of fishery on the coast, Beppu fishing is giving way to alternate methods or alternate avocation. Hence the department was forced to introduce the modified system to save the fishermen as well as the fishing industry. Efforts are being made to make the centres self-supporting and also to open additional two units at Malpe and Gangoli.

Recoveries.—The total recoveries outstanding at the beginning of the year was Rs. 7,539-3-6. Rupees 2,287 were collected during the year leaving a balance of Rs. 5,252-3-6 to be collected.

(ii) *Malabar.*—There was no deep-sea fishing operations in this division as the fishermen were reluctant to work on contract system or to work in the departmental boats on one-third share system plus minimum wages offered.

East Coast.

(iii) *Vellore.*—A total quantity of 34,223 lb. of fish all sharks, were caught against 35,443 lb. last year. Besides 2,285 lb. of shark liver were made available for extraction of oil.

M.F.V. "Vizianagar" and M.F.V. "Madras" continued to be operated from Madras. These worked only for 162 and 75 days respectively. Adverse weather and engine trouble were the main cause impeding the progress. M.F.V. "Madras" has become almost unserviceable and proposals were submitted to condemn her. Beppu fishing was conducted on these vessels engaging fishermen on one-third share system plus minimum wages.

Besides, these vessels assisted the local fishermen in towing their catamarans to distant fishing grounds where sharks are likely to be found. Further local fishermen were supplied with shark fishing implements (hooks and line) on loan on condition that all the livers of the sharks caught should be surrendered to the department and that the cost of such implements would be adjusted against the cost of liver supplied. Twenty-one thousand and three hundred lb. of fish were thus landed by fishermen who were rendered assistance by the department.

(iv) *Tanjore.*—Out of the two centres, only one centre at Negapatnam functioned during the year and that too with only one catamaran and fishermen engaged locally. Fishing operations were conducted for 84 days in the year. Revolving chain hooks and line were used. A total quantity of 22,040 lb. of fish, all sharks, was caught against 1,461 lb. of fish during last year. Four thousand three hundred and fifty lb. of liver were obtained in addition. The total receipt estimated will be Rupees 2,382-9-0 including the cost of 1,500 lb. of cured shark flesh and 400 lb. of shark fins on hand.

Adirampatnam centre could not be worked for want of boats. Sanction for Rs. 1,982 has been received for the purpose and the purchase of the boat will be made during the coming year.

(v) *Madurai.*—The deep-sea fishing unit at Pamban consisted of the following vessels :—

M.F.V. "Calicut."

M.L. "Sea Scout", and

Tuticorin canoes (three), one of which was put into operation (from the middle of February 1954 only).

These were concentrated in fishing in two batches to fish in the Gulf of Mannar and Palk's Bay. On the whole, 264 trips were made by these crafts. Fishing was conducted in the Gulf of Mannar from 1st November 1953 to 23rd March 1954 and in Palk's Bay from 1st April 1953 to 30th November 1953 and from 21st March 1954 to 31st March 1954.

A total quantity of 58,223 lb. of fish (21,108 lb. sharks and 37,115 lb. other fish) was caught and sold for Rs. 4,228-14-0 against 38,612 lb. (12,837 lb. sharks and 25,775 lb. other fish) caught and Rs. 6,040-12-6 obtained during last year in this region. Besides 350 lb. of shark livers (430 were obtained).

Line fishing (long lines, revolving chain hooks, hand lines and whiffing lines) predominated besides kolavalai (gill net) and Dunlop net (drift net) in the fishing implements used.

(vi) *Tuticorin.*—The deep-sea fishing unit consisted of the following crafts as last year :—

Craft.	Gear used.	Lb. of fish caught.
M.F.V. "Gouher Khaleeli" ..	R.C. and Whiffing lines.	6,726
M.F.V. "Tuticorin" ..	....	19,355
Tuticorin Canoe (departmental	Valavalai	2,748
—1).		
Tuticorn Canoe (hired) (1) ..	Kolavalai, Patchuvalai Hand lines.	510
Total ..		29,339

A total quantity of 29,339 lb. of fish (22,502 lb. of sharks and 6,837 lb. other fishes) valued at Rs. 6,079-9-3 were landed during the year against 27,287 lb. of fish valued at Rs. 4,598-9-0 during the previous year. Two thousand nine hundred and ninety-five lb. of shark liver costing Rs. 1,481-0-3 were also obtained for extraction of oil. It will be seen from the above that the results of the deep-sea fishing operations have shown remarkable progress over the previous years in spite of the fact that the old vessels have deteriorated more. This is due to the special interest taken by the officers and staff in charge of the work.

The working of the departmental vessels is given below—(vide also Appendix III enclosed).

Power Vessels.

1. *M.S. Lady Nicholson.*—This was kept at anchorage at Tuticorin Port and was not used during the year.

2. *M.F.V. "Gouher Khaleeli."*—This vessel was stationed at Tuticorin and was sent for dry-docking and annual repairs to Mandapam on 26th June 1953 where she lay over for about three months. She was again sent to Mandapam on 17th November 1953 for replacing a new propeller and returned to Tuticorin on 11th December 1953.

Fishing operations were carried on for 62 days with revolving chain hooks and whiffing lines and 6,726 lb. of fish were landed. Besides the vessel was engaged in Pearl Bank inspection and towing of chank canoes.

3. *M.F.V. "Tuticorin."*—This was stationed at Tuticorin and was also dry-docked and annual repairs were carried out at Mandapam on 27th June 1953. She was engaged in Pearl Bank inspection for six days from 7th December 1953 to 12th December 1953 and was hired to the Protector of Emigrants for patrolling duties for one day on 30th December 1953.

Fishing operations were carried out for 149 days using R.C. and whiffing lines and 19,355 lb. of fish were landed during the year.

4. *M.F.V. "Adirampatnam."*—She was at anchorage at Tuticorin port throughout the year as her engine was disabled.

5. *M.F.V. "Mangalore."*—This was also at anchorage at Tuticorin port with disabled engine pending inspection by the Ship Surveyor.

6. *M.L. "Sea Scout."*—This operated for two days at Pamban during the last quarter of 1953 and landed 71 lb. of fish worth Rs. 14-11-0. The rest of

the period she was stationed at Tuticorin and used for towing the chank canoes during the season.

7. *M.L. "Leverett"*.—She was stationed at Tuticorin and was used for the towing of chank canoes during the season.

8. *M.F.V. "Vizianagar"*.—She was stationed at Madras. It was engaged in fishing for about 162 days. Adverse weather, overhauling of the engines and repairs to hull, hampered the operations for a larger period. Local hand lines and shark lines were used for fishing and 27,868 lb. of fish were landed.

Besides, the Zoology students of the University of Madras were continued to be taken on board the vessel for hydrographical studies on a hire of Rs. 50 per trip.

9. *M.F.V. "Madras"*.—She was stationed at Madras. She was engaged in fishing for 75 days only. Fishing for sharks, she landed 6,335 lb. of fish.

Besides, she towed the catamarans of local fishermen freely during her daily trip, thus enabling them to reach the fishing grounds early. However no extra expenditure was incurred.

10. *M.F.V. "Calicut"*.—She was stationed at Pamban. She was engaged in fishing operations for 57 days the vessel being idle due to engine and hull repairs during the rest of the period. On the whole, she landed 31,102 lb. using long lines.

Besides, the vessel was hired out to the student party of Madras Christian College from 11th to 16th July 1953 and a sum of Rs. 99-8-6 was realized as propulsion charges. She was also lent to the Central Marine Fisheries Research Station, Mandapam, for their scientific cruising on 25th March 1953 and a sum of Rs. 66-8-0 was realized. Further the vessel was used in rescue operations. The shore-seine boat of a fishermen of Valinookam by name Abdul Aziz, was lost in the sea. The vessel was used for searching the boat and an amount of Rs. 142-14-0 realized from him as hire charges.

11. *M.F.V. "Kakinada"*.—This vessel was stationed at Kakinada in East Godavari district. Consequent on the formation of the Andhra State, she was allotted to that State.

Sail Row Crafts.

(i) *South Kanara—Dug outs*.—Nine dug outs (21), eight under the departmental contract system in two centres at Malpe and Padu Thonse, one at Ullal on modified contract system, were worked. Accordingly a total quantity of 53,515 lb. of fish (94,870) were caught and a sum of Rs. 1,992-5-1 (Rupees 2,572-13-11) was obtained.

(ii) *Tanjavoor—(a) Catamaran*.—One departmental catamaran was operated at Nagapatinam. Operations for 84 days were carried out with only R.C.H. fishermen were engaged on wages. A total number of 66 sharks weighing 22,040 lb. (161 lb.) were caught 4,350 lb. of liver were also obtained. The total receipts came to Rs. 1,565-7-6.

(b) *Boats*.—The two old boats at Adirampatnam were sold in auction as these were badly affected by cyclone. Sanction for the purchase of two new boats at a cost of Rs. 1,982 was obtained.

(iii) *Madurai—Canoes*.—Three Tuticorin type canoes formed the effective part of the fishing fleet at Pamban centre. Of this, one was put into commission only during the mid-February. Dunlop net and Kolavalai besides long lines were the main fishing implements used.

(iv) *Tuticorin—(a) Departmental canoe*.—From this, Kolavalai, Patchuvalai and Valavalai were operated for 96 days during the first half of the year and 2,748 lb. of fish were landed. The canoe was out of commission during the latter half of the year as it became unserviceable.

(b) *Hired canoe*.—This was used for fishing for about 15 days with long lines and 510 lb. of fish were landed.

D. Craft and Tackle.

Under the scheme for mechanization of indigenous craft sanctioned in G.O. Ms. No. 2593, Development, dated 14th June 1947, a small motor boat, M.B. "Ajit", was constructed for inshore fishing operations off Adirampatnam. As the fishing operations conducted with M.B. "Ajit" proved to be very successful, the Government sanctioned the construction of six additional boats, fitted with inboard marine diesel engines in G.O. Ms. No. 118, Food and Agriculture (Food Production), dated 7th September 1950. Five more boats were again sanctioned in G.O. Ms. No. 419, Food and Agriculture (Food Production), dated 15th September 1951.

Besides, a 30-footer mechanized boat was also sanctioned in G.O. Ms. No. 491, Development, dated 1st February 1951, for the exploitation of Mettur Reservoir Fisheries.

The objective of the scheme is two-fold—

- (1) To augment the fish food production, and
- (2) to demonstrate the advantages and usefulness of the mechanized boats over the ordinary boats to the fishermen.

The emphasis of the scheme is on the latter objective with a view to hasten the mechanization of indigenous crafts for inshore fishing operations at a cost within the reach of the Fishermen Co-operative Societies and well-to-do fishermen.

The cost of each motor-boat fitted with an inboard marine diesel engine came to nearly Rs. 6,000.

The above scheme was continued as sanctioned in G.O. Ms. No. 206, Food and Agriculture (Food Production), dated 27th July 1953.

Out of the thirteen boats built since the commencement of the scheme one (M.L. "Chitra") was allotted to the Andhra State, another (M.B. "Ajit") was badly damaged during the cyclone in Tanjavoor district and the remaining eleven have been working in this State. Of these three were being used in the Mettur Reservoir for transporting the fish caught and procured from distant places and for patrol work. Of the remaining eight, two had frequent engine troubles which prevented fishing operations.

Since the results of the working of the mechanized boats had not been satisfactory during the past few years partly for want of close supervision and partly because they were not stationed in good fishing centres. I placed them in charge of three Inspectors at Tellicherry, Pamban and Porto Novo during the year under report. This has had the desired effect. The results have increased considerably. A total quantity of 115,077 lb. of fish which realized Rs. 11,219-10-6 was caught during the year [vide Appendix IV (a) and (b) enclosed].

E. Food and Agriculture Organization.

Expanded Technical Assistance Programme.

During the last quarter of the year, a Danish fishing boat was received from the Food and Agriculture Organization. It is 22 feet long, 6 feet 10 inches broad with a simple, diesel DAn engine of 9 horse-power. Along with

that, two experts from Food and Agriculture Organization, Mr. Illugason of Iceland, a Master Fisherman, and Mr. Paul Zeiner of Norway, Naval Architect, arrived at Madras to advise the department. The boat is of a good design. Though small, it is quite suited for the coast. The engine is of simple make with low oil consumption and thus very economical. Fitted on to the boat, there are a line roller and a winch to facilitate operation of a large number of lines and nets daily and at any depth.

The boat commenced operation off Madras from 4th March 1954, when Sri E. P. Royappa, the Director of Industries and Commerce, launched the boat. Shark lines, long lines, drift net, purse-seine and trawl net were used for fishing from this boat under the direction of Food and Agriculture Organization Expert, Mr. Illugason. Only the shark lines were found successful. The expert, however, feels that operation in a good fishing ground by other implements will yield better results. The crew of the departmental motor vessels were engaged to work in this boat without any extra expenditure.

The boat operated for 26 days during the year.

The results are summarised below :—

Nature of gear.							Number of days.	Catches in lb.	Shark liver in lb.
Shark lines	..	..	..	..	..	..	14	11,545	1,008
Long lines	..	..	..	..	..	..	3	50	..
Drift net	..	..	..	..	..	..	2	15	..
Trawling	..	..	..	..	..	..	3	Nil.	..
Purse-seine	..	..	..	..	..	..	2	Nil.	..
Bottom net	..	..	..	..	..	..	2	Nil.	..
Total ..							26	11,610	1,008

The total receipt obtained from the catch was Rs. 630-2-6 against a total expenditure of Rs. 451-4-0. Thus the working of the boat during the short period of its operation, was self-supporting.

Mr. Hilman Khrist Johnson of Food and Agriculture Organization another Naval Expert, who visited Madras during May 1953, inspected the departmental motor vessels (M.F.V. "Vizianagar" and M.F.V. "Madras") and opined that the M.F.V.s are too big for commercially successful operations and suggested the provision of line-hauling machines on board each of them for successfully intensifying fishing operations. His suggestions are under consideration.

F. Shark Liver Oil Extraction.

A total quantity of 104,860 lb. of shark livers were procured in the State during the year. Of this, 14,194 lb. were supplied from the Deep-sea Fishing section of the department. Thirty-four thousand and twenty pounds of liver were treated and 25,268 lb. of oil were extracted. Besides, 50,840 lb. of liver (35,446 lb.) were sent to Government Oil Factory, Kozhikode, from the near about centres, for special treatment at the factory and 19,849 lb. of oil were

extracted. On the whole, 45,117 lb. of oil were extracted during the year. Thirty-three centres were engaged in the production of oil and 21 centres (12) despatched livers to the Government Oil Factory during the year (vide Appendix V—a statement of shark liver oil production enclosed).

West Coast.

1. *South Kanara*.—Thirteen centres (16) functioned during the year. Of this 5 centres (6) despatched livers direct to Government Oil Factory while 8 centres (10) treated the livers collected and sent the oil extracted. On the whole, 37,933 lb. (32,234) of liver were procured, out of which 1,938 lb. (5,100) were supplied by the Deep-sea Fishing section. The balance of 35,995 lb. (27,124) were purchased from local fishermen. Out of the total quantity of liver obtained, 26,659 lb. (17,956) were sent to Government Oil Factory and the rest were treated and 5,019 lb. (6,231) of oil were obtained. A total expenditure of Rs. 7,213-11-0 was incurred.

2. *Malabar*.—Twenty-one (21) centres functioned during the year. Of this, 9 (6) despatched 24,181 lb. of liver (17,490) and 16 (15) centres despatched 1,490 lb. (3,284) of oil to the Government Oil Factory. On the whole, 27,498 lb. of liver (28,399) were procured comprising of 239 lb. of liver (13) from the Deep-sea Fishing section and 29,239 lb. of liver (28,346) purchased from local fishermen. A total expenditure of Rs. 5,232-11-6 (Rs. 5,162-11-7) were incurred.

East Coast.

3. *Vellore*.—Three centres (2) worked during the year. Five thousand seven hundred and eighty-eight pound of liver (4,851) comprising of 3,697 lb. of liver (693) from the Deep-sea Fishing section and 2,091 lb. of liver (4,158) purchased from outside, were obtained. A total quantity of 3,024 lb. of oil (2,399) were extracted and sent to Government Oil Factory, incurring Rs. 2,585-11-3 (Rs. 2,326-8-0) towards the total expenditure.

4. *Tanjavoor*.—Six centres (8) worked during the year. Ten thousand and eighty-two pound of oil (5,602) were extracted from 19,115 lb. of liver (11,915) procured. Out of this total quantity, 4,350 lb. of liver (Nil) were supplied from the Deep-sea Fishing section and 14,765 lb. (11,915) were purchased from outside. Rupees 5,687-5-6 (Rs. 3,104-15-0) were incurred towards the cost of liver besides other expenditure.

5. *Madurai*.—Two centres (2) worked during the year. One hundred and forty-four pound of oil (40) were extracted from 255 lb. of liver (135) purchased. Besides 975 lb. of liver (Nil) were supplied by the Deep sea Fishing section. A total amount of Rs. 82-7-0 (Rs. 21-8-0) was incurred towards the same.

6. *Tuticorin*.—Five centres (5) worked during the year. Five thousand and five hundred and nine pound of oil (2,675) were extracted out of 11,316 lb. of liver (3,637) obtained. Of this, 2,995 lb. of liver (957) were from the department and 8,321 lb. (2,680) were purchased locally. A total expenditure of Rs. 3,863-4-10 (Rs. 1,458-5-7) was incurred towards the extraction.

7. *Government Oil Factory, Kozhikode*.—Twenty-six thousand two hundred and ninety-two pounds of oil (20,153) were received at the factory from the various centres on both the coasts. Besides, 50,840 lb. of liver (26,790) sent from the various centres were treated by steam at the factory and 19,849 lb. of oil were obtained.

Thus there was a remarkable improvement in the collection of shark liver and production of oil during the year, as a result of a special drive.

2. INLAND FISHERIES.

A. Fishing Licences.

(a) Backwater—Stake-net Fishing.

(i) *South Kanara*.—During the year, 72 licences were issued to the poor deserving fishermen for fishing with stake nets in the Cheruvathur river. A total amount of Rs. 280 at Rs. 4 per stake net was collected.

Cheruvathur river—

Place.	Number of licences issued.
Orkulam	29
Padinhare Orkulam	5
Kavanchira	22
Chembarakad	9
Kodathawala	2
Kaithakadu	5
Total ..	72

Extension of licensing scheme to other backwaters in the districts is under consideration.

(ii) *Malabar—Taliparamba and Baliapatam river*.—Six hundred and eighteen licences for stake nets and three licences for China nets were issued during the year in Baliapatam and Taliparamba rivers.

Korapuzha river.—Ninety stake-net licences are pending issue in this river.

Chethuvayi river.—Sixty-eight licences for stake-net fishing out of 131 fixed, have been issued during the year.

In G.O. Ms. No. 288, Agriculture, dated 8th December 1953, Government have passed orders framing rules regulating the issue of licences for fishing in the notified waters of this State. According to this, such of those fishermen who have an income of Rs. 900 and above from sources other than fishing, are not eligible for the licence. Hence necessary income certificates from the Tahsildar were insisted upon. As there was delay in the issue of the income certificates, more number of licences could not be issued.

(b) Inshore Waters—Fishing by Trees.

Ramanathapuram district.—Fishing by trees is one of the methods followed in the inshore waters off Ramanathapuram district in Palk's Bay. Littoral fishes take shelter under the trees fixed and the fishermen use encircling nets and catch the fishes by dispersal from their shelter. This was in vogue for a long time, but was suspended temporarily for two years. This system was again revived during the year and 15 licences were issued.

(c) Inland Waters—Net Fishing and Angling.

(i) *Vellore*.—In G.O. Ms. No. 1207, Development, dated 20th March 1951, sanction for the introduction of fishing licences in Adyar backwater, Poondi Reservoir, Kolavoy lake and Vellore Fort Moat was accorded. This was given effect to during the year. A total number of 3,089 licences were issued and a sum of Rs. 915-12-0 was collected. The licences were very nominal, the minimum being As. 3 per month.

Twelve cases of poaching were detected and action taken.

Adyar back-water.—A total of 2,489 licences were issued for seven kinds of fishing gears and an amount of Rs. 915-12-0 was obtained.

Poondi Reservoir.—One thousand five hundred and fifty-four licences (611) were issued for Rs. 3,218 (Rs. 1,288). The increase is due to the remunerative yield obtained by fishermen consequent on the judicious stocking and conservancy of the reservoir.

One hundred and thirty-eight cases of unauthorized fishing were detected and 22 cases were charge-sheeted.

Kolavoy lake.—The licensing system in this lake was introduced as sanctioned in G.O. No. 4331, Development, dated 28th October 1950. A total number of 107 licences were issued and a sum of Rs. 191-8-0 obtained. Proposals were submitted to increase the rate of licence fees and orders of Government are awaited.

Vellore Fort moat.—One hundred and forty-eight licences were issued to fish in the moat and Rs. 176-8-0 were obtained as licence fees—27,037 lb. were landed.

One poacher was caught and charge-sheeted.

(ii) *Tanjavur—Veeranam Reservoir*.—Licensing scheme in this reservoir was sanctioned on a permanent basis in G.O. Ms. No. 372, Development, dated 14th January 1951.

A total number of 853 licences were issued and a sum of Rs. 6,150 was realized during the year. The estimated production of fish from the reservoir was 1,139,300 lb. valued at Rs. 78,518-12-0. The average catch per day for different tackles used ranged from 1 lb. to 30 lb.

The conservancy staff did very good work in rescuing the undersized fish from the irrigation channels and from the catches of licensees and releasing them back into the reservoir. Strict watch over illicit fishing also had the desired effect. One hundred and sixty-six cases of poaching were detected during the year.

Vadavar.—The continuance of the licensing system in Vadavar was sanctioned and 183 licences were issued and a sum of Rs. 896 was realized. Strict vigilance over the catch of immature fish and licensing of fishing had the effect of ensuring the growth of immature fish in the Cauvery system.

Vellar.—The continuance of licensing system in Vellar was also sanctioned in G.O. Ms. No. 1244, Agriculture, dated 19th March 1954. A total number of 846 licences were issued and Rs. 1,263 was realized. But for the low rate of fee charged, the income would have been more. The licensing system had effectively prevented destructive fishing and has very much benefited the inland fishermen of Porto Novo.

(iii) *Madurai—Kodaikanal lake*.—The control of the Kodaikanal lake was taken over by the department on 1st April 1952 for a period of ten years for scientific development and exploitation of fishery in the lake. Since then, 43,483 fingerlings of Mirror carp, Golden carp and Tench have been stocked in the lake. The Golden carp have bred prolifically. During the year, 51 licences for angling were issued realizing a revenue of Rs. 153.

Ootacamund lake.—Besides departmental fishing, licences were issued and Rs. 846 were collected as fee. A total of 4,006½ lb. of fish were caught and sold for Rs. 2,003-4-0 at the rate of Re. 0-8-0 per lb.

Boating in Ootacamund lake is becoming more and more popular. A total of Rs. 3,981 (Rs. 3,430) was realized as boating charges.

ADMINISTRATION REPORT OF THE

The system of hiring out rod and lines introduced in the previous year was continued. A sum of Rs. 6-8-0 was realised as hire charges.

(iv) *Tuticorin—Hope lake*.—Seventy-four licences (99) for fishing were issued and a sum of Rs. 130 was realised during the year. Besides departmental fishing was also conducted. Three lakhs and fifty-six thousand fish seeds were stocked in the lake.

Kadamba lake.—Forty-five licences (1,076) were issued besides departmental fishing and a sum of Rs. 1,796 (Rs. 3,070-8-0) was realized during the year. Thirteen lakhs, sixty-three thousand and one hundred and thirty-one fish seeds were stocked in the lake.

(v) *Mettur Dam reservoir*.—Two hundred licences for fishing with coracles and nets, seven licences for fishing by country rod and line and eight licences for fishing with rod and line for sport were issued. The facilities afforded by the department to purchase their catches for marketing encouraged the fishermen to increase the number of licences taken out and to get increased catches.

Eighty-six cases (54) of poaching were detected, of which 41 were convicted and a sum of Rs. 643 (Rs. 440) were imposed as fine during the year.

Yercaud lake.—In this lake also fishing licences, besides departmental fishing, were introduced. Angling licences were issued realizing a sum of Rs. 35-13-0 (Rs. 43-3-0). Besides, boating charges of Rs. 66 (Rs. 29) and an amount of Rs. 295-1-6, being the value of 589½ lb. of fish caught, were also realised.

B. Intensive seed collection and distribution.

During the year, 20,094,956 fish seeds were collected in the various region of the State (vide Appendix VI—Statement of intensive seed collection and distribution).

Seed collected—West Coast.

1. *South Kanara*.—A target for collection of 200,000 fish seeds were fixed for this region.

Out of this, 372,866 seeds were (279,631) were collected thus exceeding the target. With a view to ensure a substantial increase in the seed collection steps were being taken to exploit all collection centres and to explore and locate new collection centres. As a result, the centres at Nileshwar (Kasargod taluk) and Kodi (Coondapoor taluk) have yielded excellent results. *Etroplus* at Nileshwar and *Chanos* at Kodi were available in abundance besides Mullet and *Megalops*. *Etroplus* collection was remarkable in that nearly 169,700 seeds were supplied to other regions besides stocking local departmental and provincialized waters. Uppinangadi (Puttur taluk), a new centre, was surveyed and seeds of *Barbus* were collected. Besides some centres along the river Netravathi were also located and tapped.

2. *Malabar*.—A total quantity of 435,477 fish seeds (32,730) were collected, thus exceeding the target of 200,000 fixed. The collections consisted of *Chanos*, *Mullets*, *Megalops*, *Etroplus*, *Barbus*, etc., as detailed below :—

Kind of fish.	Number.
<i>Barbus</i>	161,688
<i>Mullet</i>	65,299
<i>Etroplus</i>	19,680
<i>Chanos</i>	4,988

Kind of fish.	Number.
<i>Megalops</i>	2,400
<i>Local carps</i>	166,240
<i>Micropogon</i>	9,602
<i>Public Health fishes</i>	5,600
Total ..	435,477

Steps have been taken to collect more fingerlings during the coming year in the various river projects. A new nursery was constructed during the year in the Ponnani Fish-curing Yard for stocking the daily collections for later transport.

East Coast.

3. *Vellore*.—Eleven lakhs, eighty-eight thousand and twenty fish seeds were collected against a target of 1,200,000 for this region from the centres shown below :—

Kind of fish.	Number.	Centre from which collected.
<i>Mullet</i>	662,360	Tirupporur. Pulicat. Kadapakkam. Adyar.
<i>Etroplus</i>	8,758	Chingleput.
<i>Gourami</i>	904	Poondi.
<i>Barbus Sarana</i>	200,000	Cheyyar anicut.
<i>Cirrhinia reba</i>		
<i>Mrigal</i>	36	Poondi.
<i>Murrel</i>	305,080	Chingleput. Vellore.
<i>Miscellaneous</i>	10,882	Tiruvannamalai. Poondi.
Total ..	1,188,020	

The main collection was Mullet. Great care was taken to acclimatise them before transport. Yet an average mortality of 25 per cent occurred. Trial netting after stocking showed satisfactory growth. Besides *Mullets*, *Barbus sarana* and *Cirrhinia reba* were available in large quantities below the Cheyyar anicut. These were collected and stocked in nearby Mukkur tank.

4. *Tanjavar*.—One crore, twenty-three lakhs, twenty-nine thousand one hundred and forty fish seeds (4,021,079) were collected in the region during the year against a target of 236 lakhs fixed.

Permission to fix saars in certain channels were obtained and every effort was made to collect the maximum number of seeds available. However, the problem of transport of fish seeds from the collection centres to the stocking places and lack of suitable nurseries near the various collection centres were the main handicaps.

5. *Madurai*.—Twenty-nine lakhs, forty-nine thousand six hundred and seventy fish seeds were (1,829,196) collected against a target of 40 lakhs in this region as detailed below :—

Centre from which collected.	Kind of fish.	Number.
Ootacamund ..	English carp ..	4,372
	Mirror carp ..	18,770
Pamban	Tench ..	480
	Chanos ..	2,100,040
	Etmoplus ..	2,916
	Labeo ..	1,320
Bhavani ..	Murrel ..	3,945
	Gourami ..	98
	Barbus ..	809,825
Kodaikanal ..	Golden carp ..	7,904
Total ..		2,949,670

Chanos constituted the major part of the collection at Pamban (Ramanathapuram district). All the creeks around Pamban and Krusadai island especially Chinnapalem creek, proved to be the best collection centres. The collection lasted from mid-March to the end of June 1953.

6. *Tuticorin*.—Twenty-one lakhs, two thousand and five hundred and forty-eight fish seeds were collected in this region during the year, against a target of ten lakhs fixed. Chanos, Barbus, Etmoplus and Mullet were the major varieties collected. Of the above, 1,901,440 seeds were Chanos as detailed below :—

Kind of fish.	Number.
Chanos ..	19,01,440
Barbus ..	1,46,606
Etmoplus ..	19,585
C. reba ..	18,480
Mullet ..	13,978
Murrel ..	1,515
Labeo ..	360
Lates ..	320
Eel ..	264
Total ..	21,02,548

7. *Mettur Dam*.—The target of 500,000 of fish seeds fixed were exceeded by a collection of 63,995 seeds during the year. The collection consisted of Catla, Labeo, Barbus and Cirrhina. Catla and Labeo formed 90 per cent of the total collections.

8. *Marine Biological Section*.—One lakh twenty-one thousand and two hundred and forty seeds were collected by the various research units and the seeds supplied to the respective departmental officers for stocking as detailed below :—

Station.	Number of seeds.
Research Assistant, West Hill ..	20,350
Do. Krusadai ..	18,000
Do. Tuticorin ..	48,700
Do. Ennore ..	34,190
Total ..	1,21,240

9. *Fresh Water Biological Section*.—Thirty-two thousand fish seeds were collected and supplied to the departmental officers for stocking.

It is gratifying to record the collection of fingerlings in all the regions has shown marked improvement over the previous years.

C. Provincialized Waters.

On the whole, 9,696,800 fish seeds to be stocked in the provincialized waters in the residuary State. These waters fetched a substantial revenue to the State besides providing a large quantity of fresh fish to the public.

West Coast.

(i) *South Kanara*.—There were 24 provincialized waters in the district including the river Netravathi. During the year, four tanks in Puttur taluk, seven tanks in Coondapoor taluk, one tank in Udipi taluk and one tank in Mangalore taluk were provincialized, thus bringing the total to 37 at the end of the year. Complete provincialization of all the tanks in the district is under consideration.

Fifty-nine thousand, seven hundred and forty-eight fish seeds were stocked in the provincialized waters during the year. Only seven tanks were fished. One hundred and sixty-two pounds of fish were caught yielding Rs. 54.

The river Netravathi was stocked in its upper reaches with a consignment of Catla and Labeo received from Tanjavoor with a view to establish carps in it. This will be continued and other rivers like Kumaradhari and Payasari will also be intensively stocked with carps. For the first time, leasing of these rivers will be undertaken by the department instead of by the Forest Department.

(ii) *Malabar*.—The only provincialized water in the district is the Vyam lake in Ponnani taluk. The fishing right in this lake was leased out for an annual rental of Rs. 492. This lake and the newly constructed Malampuzha reservoir were stocked with fish seed as follows :—

Name of water.	Number of seeds stocked.	
	1953-54.	1952-53.
Vyam lake ..	106,200	9,760
Malampuzha ..	364,450	332,380
Total ..	470,650	342,140

East Coast.

(iii) *Vellore*.—There are 63 provincialized waters in this region.

District.	Number of waters.
Chingleput ..	48
North Arcot ..	15
Total ..	63

During the year, the right of leasing the fisheries in the Public Works Department tanks was transferred to the Fisheries Department. Accordingly the fishing lease in Chembarambakkam, Dusi-Mamundur and Kaveripauk tanks in Chingleput district were sold in public auction by the department.

The total fishery rental realized in this region during 1954 came to Rupees 21,082-4-0 (Rs. 12,113-1-3) as detailed below :—

Tanks.	Rental.		
	RS.	A.	P.
Chingleput district—			
Chingleput taluk	2,975	0	0
Madurantakam taluk	2,500	0	0
Kancheepuram taluk	2,095	0	0
Sriperumbudur taluk	5,051	0	0
Ponneri taluk	997	0	0
Tiruvallur taluk	730	0	0
North Arcot district	6,751	9	0
Total ..	21,082	4	0

Fishing in one tank, Mukkur Hissa tank in North Arcot district, was conducted departmentally during April 1954 and a total receipt of Rs. 1,845-2-6 was obtained against the usual rental of Rs. 60 per annum. The receipt obtained was only the sale proceeds of two-thirds catches surrendered by the fishermen, which demonstrate the advantages of departmental exploitation.

During the year, all the provincialized waters were stocked with fish seed as detailed below :—

Kind of fish.	Number stocked.
Mullet	269,200
Carps	29,100
Carps fry	200,000
Murrel	140,000
Total ..	638,300

(iii) *Tanjavoor*.—The fishing rights in all the provincialized waters (rivers, channels and tanks) in Tanjavoor, Tiruchirappalli (including the merged Pudukkottai) and South Arcot districts, were leased to the various fishermen Co-operative societies as per G.O. Ms. No. 200, Development, dated 7th January 1950. The details of rentals collected are given below :—

District.	Lease amount for 1953-54.			
	Rivers and channels.		Tanks.	
	RS.	RS.	A.	P.
Tanjavoor	82,483	5,133	7	6
Tiruchirappalli	1,600	..		
South Arcot	12,221	..		
Total ..	96,304	5,133	7	6

Proposals for provincialization of tanks in other taluks of Tanjore district, i.e., Tanjavoor, Thiruthuraipundi, Nannilam, Nagapattinam and Mannargudi taluks, were submitted to Government, and orders are expected. If sanctioned, it will augment the revenue for the State and will also provide opportunities for fishermen to rehabilitate themselves and make available much fish food to the public.

During the year, 6,047,411 fish seeds were stocked in the provincialized waters in the three districts.

(iv) *Madurai*.—Due to the continuous drought, most of the tanks in this region (Ramanathapuram, Madurai, Coimbatore and Nilgiris districts) went dry till December 1953. Hence the revenue on account of fishing lease did not show much improvement. Only 13 tanks fetched a total amount of Rs. 3,181-8-0.

(v) *Tuticorin*.—There are only two provincialized waters in this region, viz., Hope lake (Papanasam project) and Kadamba lake in Tirunelveli district. These were stocked with 2,127,150 fish seeds during the year.

Both the lakes were not leased. Departmental fishing and system of licensing fishing were adopted. The results are summarised below :—

Licensing Lake.	Number of licences.		Amount realized. 1953-54.
	1953-54.	1952-53.	
Hope lake	477	1,076	1,796
Kadamba lake	74	99	131
Total ..	551	1,175	1,927

Departmental fishing—

Lake.	Weight of fish caught.		Amount realized.
	LB.	RS.	A. P.
Hope lake	2,856	1,065	10 6
Kadamba lake	2,205	275	1 9
Total ..	5,061	1,340	12 3

Thus the total receipts from the two waters totalled to Rs. 3,267-12-3. No compensation is, however, payable for both these tanks.

D. Departmental Waters.

Fifty-three lakhs, nineteen thousands, eight hundred and sixty-two fish seeds were stocked in all the departmental waters in the residuary State which contributed substantially to augment the fish food production.

(i) *South Kanara district*.—There are nine departmental waters extending over 70 acres in this region situated as detailed below :—

Taluk.	Number of water.
Mangalore	3
Nileshwar (Kasaragod)	2
Karkal	2
Puthur	2
Kodi (Coondapur)	— 1
Total ..	9

These were stocked with 191,927 fish as detailed below :—

Kinds of fish.	Number.
Etroplus	42,820
Mullet	58,620
Chanos	56,262
Catla	957
Labeo	33,263
Total ..	191,922

Establishment of Fish Farms at Cheruvathur and at Moolky is under examination.

(ii) *Malabar district*.—There were 11 departmental tanks in this district—

Place.	Number of waters.
Palghat	2
Cannanore	3
Kozhikode	6
Total ..	11

Following two tanks were taken over during the year, thus bringing the total to 13—

(1) Alankulam (Palghat)—G.O. Ms. No. 4952, Development, dated 13th October 1953.

(2) Chakkorathukulam, (Kozhikode)—G.O. Ms. No. 1008, Agriculture, dated 1st April 1954.

A total number of 107,600 fingerlings were stocked in these waters which extend over 30 acres and a total quantity of 1,495 lb. of fish valued at Rupees 547-9-6 was caught during the year.

West Coast.

Vellore.—There are eight units having 39 departmental waters extending over 121 acres in this region. Of these, four units were leased out for Rupees 1,278-14-0 and four units were used for departmental fishing. A total quantity of 38,020 lb. of fish were caught and sold for Rs. 11,342-8-6—

Name of unit.	Weight of fish removed.	Value.
	LB. OZ.	RS. A. P.
1 Vellore	27,037 6	7,094 3 0
2 Poondi	6,585 0	2,354 8 0
3 Trivellore	2,644 0	1,092 10 0
4 Chingleput	1,754 0	800 3 6
5 Tiruvannamalai	Leased.	450 0 0
6 Kancheepuram	Do.	262 9 0
7 Arni	Do.	118 8 0
8 Madras	Do.	447 13 0
Total ..	38,020 6	12,620 6 6

A total number of 630,734 seeds were stocked in these waters.

(iii) *Vellore Fort Moat*.—The two sections of the Moat retained fairly good quantity of water during the year. 'A' section was stocked intensively with 109,945 seeds of the following varieties :—

Kinds of fish.	Number.
Catla	4,028
Chanos	83,000
Labeo	22,133
Murrel	779
Total ..	109,940

A total quantity of 27,037 lb. 6 oz. (15,525 lb.) of fish were landed and Rs. 7,095-3-0 was realized. Besides this, there was another receipt of Rupees 1,250 by way of leasing the right of cutting grass, lotus, etc., to the Chembambakkam Harijan Co-operative Society. Thus the receipt from the Moat was much encouraging this year.

Poondi Fish Farm.—The reservoir contained water throughout the year and the fish population increased considerably due to the successful breeding and establishment of the introduced fish. Mrigal (*Cirrhina Mrigala*) from Cuttack, Gourami (*Osphronemus Gourami*) and Catla (*Catla-Catla*) have all bred well and increased the fish wealth of the reservoir. Fry of Rohu (*Labeo rohita*) were obtained from Cuttack and cultured in the farm. They have grown well and will be released into the reservoir to increase the fish population further.

A total quantity of 6,585 lb. of fish were caught and sold for Rupees 2,317-12-9.

Buderi tank.—Gourami bred freely and some giant-sized Gourami were among those caught.

Thanthipandal Fish Farm.—This served mostly as the collection ground for estuarine fishes. A total quantity of 1,181½ lb. of fish were caught and sold for Rs. 447-13-0.

Arni (Tiruvellore) Pond.—Within a period of nine months, the fish stocked in the pond had remarkable growth. A total quantity of 2,600 lb. of fish worth Rs. 1,092 were caught and sold.

Nedungulam tank.—This was newly taken over by the department from the district board during the year as sanctioned in G.O. Ms. No. 4276, Development, dated 21st September 1953, on payment of a compensation of Rs. 6-14-0. This was stocked intensively and is expected to give a good yield.

Pennalurpet tank.—This tank was also stocked with fish seeds during the year pending departmental acquisition.

On the whole, 630,734 fish seeds were stocked in departmental waters as detailed below :—

Kind of fish.	Number stocked.
Catla	9,862
Labeo	77,606
Murrel	145,614
Mullets	149,100
Etroplus	7,622
Chanos	86,898

Kind of fish.	Number stocked.
Gourami	3,467
Tilapia	
Rohu	1,715
Mrigal	
Bhavani fry	48,850
Total ..	630,734

(iv) *Tanjavoor*.—Thirteen lakhs, twenty-two thousand, four hundred and eighty-eight fish seeds were stocked in all the departmental waters during the year. It is expected to yield a good yield during the coming year.

There are 15 departmental waters in this region. Sixteen thousand, eight hundred and ten pounds of fish were caught and sold for Rs. 5,682-8-0 during the year.

(v) *Madurai*.—There are seven departmental waters in this region. Besides the lakes at Ootacamund, Kodaikanal and the fish farms at Ootacamund and Bhavanisagar were also stocked and exploited departmentally.

These were stocked with 2,273,526 seeds as detailed below :—

Kind of fish.	Number stocked.
Chanos	1,941,235
Mirror carp	6,054
Golden carp	11,535
Tench	24
English carp	4,372
Barbus spp.	274,600
Etroplus	31,458
Labeo	399
Gourami	65
Catla	909
Murrel	2,947
Total ..	2,273,526

(vi) *Tuticorin*.—One lakh, two thousand and sixty-one fish seeds were stocked in departmental waters during the year.

(vii) *Mettur Dam*.—Five lakhs, thirty-eight thousand and three hundred and twenty-six fish seeds were stocked in the departmental waters in this district.

E. Fish Seed Supply to Private Parties.

There was a very great demand for supply of fish seeds from the public consequent on the special efforts taken by the departmental officers to make them interested in pisciculture. On the whole, 290,794 fish seeds of catla, labeo, gourami, etroplus, chanos, mirror carp, tench, barbus, mullet, murrel, etc. were supplied by the various offices during the year

West Coast.

1. *South Kanara*.—Sixty-one parties including ten panchayat boards were supplied with 4,085 fish seeds for stocking their waters against 15 parties during the previous year.

Name of fish.	Number of fish seeds.
Etroplus	2,505
Gourami	40
Labeo	540
Public health fish	1,000
Total ..	4,085

The total receipts obtained was Rs. 144-8-6 by sale of fish seeds during 1953-54.

2. *Malabar*.—Seventy-two parties mostly in Palghat taluk were supplied with 12,662 fingerlings—

Kind of fish.	Number supplied.
Catla	1,380
Labeo	2,650
Etroplus	1,408
Chanos	3,400
Mirror carp	1,230
Barbus	2,594
Total ..	12,662

Palghat is in the Community Project area. There is every scope for developing inland fisheries in this taluk. The interest shown by the public augurs well for the future extension of pisciculture. Government have sanctioned a sum of Rs. 500 for selling fish seeds at 50 per cent of the cost price to interested pisciculturists as an incentive. The seed supply will be intensified during the coming year.

It is noteworthy to mention that the mirror carp stocked in a private tank at Polupully, have bred for the first time in plains.

East Coast.

Vellore.—Thirty-six thousand nine hundred and seven of the following fish seeds were supplied to private parties in Vellore, Tiruvallur, Chingleput, Poondi, Tiravannamalai, Arni and Madras :—

Name of fish.	Number supplied.
Gourami	51
Etroplus	602
Murrels	4,116
Labeo	25,601
Catla	48
Mullet	3,800
Gambusia	1,408
Others	1,281
Total ..	36,907

Tanjavoor.—Two lakhs seventeen thousand four hundred and sixty-two fish seeds were supplied to private parties in this region and a sum of Rs. 11,686-1-10 was obtained.

Madurai.—Eleven thousand six hundred and fifteen fish seeds were sold to private parties during the year as detailed below :—

Name of fish.	Number supplied.
Catla	102
Chanos	1,805
Mirror carp	1,339
Golden carp	263
Tench	30
English carp	72
Etroplus	6,213
Labeo	1,321
Gourami	10
Murrel	380
Barbus mahacola	100
Total	11,615

Tuticorin.—Seven thousand two hundred and thirteen seeds of food fishes were supplied to 23 private parties during the year—

Kind.	Number of seeds.
Chanos	1,239
Etroplus	976
Labeo	4,998
Total	7,213

An amount of Rs. 427-7-9 was realized as sale-proceeds.

Mettur Dam.—Eight hundred and fifty fish seeds were supplied to private parties during the year.

Public health fish supply.—

West Coast.

South Kanara.—One thousand public health fish were supplied to the Health Officer, Mangalore Municipality, for anti-mosquitocidal purpose, besides 500 Rasbora (public health fish) were supplied to the Madras Aquarium.

Malabar.—Three parties were supplied with 2,594 public health fishes.

East Coast.

Vellore.—One thousand four hundred and eight *Gambusia affinis* were supplied to private parties in Tiruvannamalai and Vellore towns.

Tuticorin.—Six thousand seven hundred and ten fish seeds were supplied to the Assistant Director (Fresh Water Biology), Madras.

Fresh Water Biological Station, Madras.—Fourteen thousand three hundred and twenty-five public health fishes were supplied to 354 parties realising an amount of Rs. 671-15-0 during the year.

Mettur Dam.—Thirteen parties were supplied with 2,756 fish seeds during the year.

Survey of Waters—West Coast.

1. *South Kanara.*—During the year thirteen tanks and three wells extending over 41 acres were surveyed in Coondapur taluk. Besides extensive survey of rivers Netravathi and Kumaradhari in Puttur taluk, was also conducted resulting in location of collection centres for some new species like *Barbus pulchellus* and *Barbus thomassii*. During the year, fourteen tanks were brought under culture.

2. *Malabar.*—During the year, 382 waters with an extension of 143.57 acres were surveyed. Of these, 54 waters were brought under culture.

East Coast.

3. *Tanjavoor.*—Three hundred and fifty-eight waters extending over an area of 11,124 acres were surveyed during the year against 321 waters and 9,548 acres during last year.

4. *Madurai.*—Two hundred and sixty-two waters extending over an area of 1,036 acres were surveyed. Twenty-eight waters were brought under culture and 8,771 fish seeds were supplied valued at Rs. 902-15-8.

A scheme for the survey of the rivers Cauvery and Bhavani was sanctioned in G.O. Ms. No. 465, Development, dated 30th January 1953, for a period of two years. As a result of the survey conducted, it was possible to undertake large scale collection of fry and fingerlings of food fishes and 808,275 seeds were collected.

Coimbatore district.—A tank in the Bhavani taluk and two tanks in Erode taluk situated in the Community Project area, were surveyed and selected for development. Besides a number of wells in Bhavani and Gobichettipalayam taluks were stocked with Etroplus and Murrel seeds—Odathurai tank was also stocked with 31,600 seeds.

Madurai district.—Four tanks in Vadugapatti, Melur and Navinipatti under (Community Projects) area and three tanks in Kallupatti under National Extension Service Scheme were surveyed and selected for development.

5. *Tuticorin.*—Twenty tanks, two ponds and eight wells extending over 3,112 acres were surveyed during the year. Twenty-three parties were supplied with 7,213 fish seeds valued at Rs. 427-7-9.

6. *Fresh Water Biological Station, Madras.*—The staff of this station surveyed two lakes (Pulicat and Collair lakes), three wells and two ponds extending to about 180 square miles during the year.

7. *Mettur Dam.*—Six tanks extending over 20 acres were surveyed during the year and three tanks were brought under culture and 2,756 fish seeds were supplied.

F: Inter regional Fish Seed Supply.

Eight lakhs ninety-one thousand four hundred and fifty seeds of various kinds of fishes were received and 3,855,986 seeds supplied by the departmental officers during the year.

West Coast.

1. *South Kanara*—(i) *Receipt.*—During the year, 70,754 fish seeds were received from other regions against 22,969 seeds last as detailed below :—

From where received.	Kind.	Number of seeds.
Tanjavoor	Labeo	51,645
	Catla	1,109
Pamban	Chanos	18,000
Total		70,754

(ii) *Supply*.—One lakh sixty-nine thousand and seven hundred fish seeds against 75,000 last year were supplied to other departmental officers from the collections of the region—

To whom supplied.	Kind.	Number of seeds.
Assistant Director of Fisheries, Madurai.	Etroplus	144,200
Assistant Director, Mettur Dam.	Do.	16,000
Assistant Director, Malabar.	Do.	9,500
Total ..		169,700

2. *Malabar*—(i) *Receipt*.—One lakh forty-nine thousand nine hundred and forty-eight seeds against 377,900 seeds last year were collected from the departmental officers as detailed below:—

Centre.	Kind.	Number of seeds collected.
Nileshwar	Etroplus	8,200
Pamban	Chanos	19,758
Samalkot	Catla	4,280
Tanjavoor	Carp	116,710
Madras	Gambusia	1,000
Total ..		149,948

(ii) *Supply*.—Nil.

East Coast.

3. *Vellore*—(i) *Receipt*.—Two lakhs eighty-two thousand and seventy seeds were received from the following places during the year:—

From whom received.	Kind.	Number of seeds.
Kumbakonam	Labeo fimbriatus	131,658
Tirukoilur	Cirrhina cirrhosa	
Cuttack	Labeo rohita	1,715
	Cirrhina mrigala	
Dwarapudi	Catla	9,278
Pamban	Chanos	90,569
Bhavani	Miscellaneous	48,850
Total ..		2,82,070

(ii) *Supply*.—Nil.

4. *Tanjavoor*—(i) *Receipt*.—Nil.

(ii) *Supply*.—Thirty-five lakhs seventy-four thousand and ninety-two fish seeds (411,252) were supplied to departmental officers during the year.

5. *Madurai*—(i) *Receipt*.—Two lakhs twenty-three thousand two hundred and fifty-one seeds were received from Tanjore, Chingleput, Nileshwar and elsewhere—

Kind.	Number of seeds.
Murrel	847
Catla	1,516
Labeo	137,393
Barbus spp.	72,000
Barbus mahecola	100
Golden carp	3,788
Mirror carp	7,414
Gourami	193
Total ..	223,251

(ii) *Supply*.—Seventy-seven thousand five hundred and fifty-four fish seeds were supplied to the various departmental officers during the year—

Kind of fish.	Number of seeds.
Mirror carp	7,735
Golden carp	2,257
Tench	12
Barbus spp.	67,550
Total ..	77,554

6. *Tuticorin*—(i) *Receipt*.—One lakh forty-six thousand eight hundred and sixty-two fish seeds were received as detailed below:—

Centre.	Name of fish.	Number received.
Tanjavoor	Catla	4,600
	Labeo	71,131
	Cirrhina	71,131
Total ..		146,862

(ii) *Supply*.—Thirty-two thousand four hundred and ninety fish seeds were supplied to the following officers:—

		Kind of fish.	Number supplied.
Assistant Director,	Chanos	.. ..	30,000
Mettur Dam.	Etroplus	.. ..	1,490
Sub-Inspector, Virudunagar.	Chanos	.. ..	1,000
		Total	32,490

7. *Mettur Dam*—(i) *Receipt*.—Eighteen thousand five hundred and sixty-five fish seeds were received as detailed below :—

From where received.	Kind of fish.	Number received.
Nileshtar	Etroplus	10,143
Vijayavada and Tanjore.	Catla	1,200
Pamban	Chanos	4,277
Kodaikanal	Golden carp	1,000
Poondi	Trichogaster	1,945
Total		18,565

(ii) *Supply*.—Nil.

G. Rural Fishery Demonstration Units.

West Coast.

1. *South Kanara*.—There are nine demonstration tanks in this district. These were stocked with 154,851 fish seeds during the year. All the tanks were fished departmentally and a total quantity of 3,965 lb. valued at Rs. 1,489-6-1 were obtained.

2. *Malabar*.—There were 102 demonstration tanks, 4 in Palghat, 4 in Kozhikode, 2 in Kurumbranad, 1 in Kottayam and 1 in Chirakkal taluks. During the year, one more tank in Wynaad taluk, i.e., Thario lake, was taken over by the department as sanctioned in G.O. Ms. No. 3228, Development, dated 11th July 1953. Four lakhs seventy thousand six hundred and fifty fish seeds were stocked in these 13 tanks. Eight tanks were fished departmentally and 1,330 lb. of fish valued at Rs. 486 was obtained.

East Coast.

3. *Vellore*.—There are 39 tanks extending to about 121 acres in this region. One hundred thousand eight hundred and forty-four lb. of fish were caught from these tanks which fetched a total amount of Rs. 3,407-6-10 during the year.

4. *Tanjavoor region*.—The following demonstration units worked during the year. The sanction under which the units worked are furnished against each :—

South Arcot district—

- 1 Tindivanam unit—G.O. Ms. No. 3772, Development, dated 17th August 1953.
- 2 Cuddalore unit—G.O. Ms. No. 3772, Development, dated 17th August 1953.

Tiruchirappalli district—

- 3 Tiruchirappalli Unit—G.O. Ms. No. 3772, Development, dated 17th August 1953.
- 4 Lalpet unit—G.O. Ms. No. 3772, Development, dated 17th August 1953.
- 5 Pudukottai unit—G.O. Ms. No. 279, Agriculture, dated 7th December 1953.

Tanjavoor district—

6 Tanjavoor unit—G.O. Ms. No. 635, Agriculture, dated 6th March 1954.

7. Kulithalai unit.

8 Muthupet unit (Adirampatnam)—G.O. Ms. No. 4296, Development, dated 22nd September 1953.

9 Nagapattinam unit.

10 Kumbakonam unit.

5. *Madurai region—Madurai unit*.—There are seven demonstration tanks under this unit as detailed below :—

- (1) Race Course Pond.
- (2) Thirumukulam.
- (3) Kaluvangulam.
- (4) Mariamman Teppakulam.
- (5) Chettineeravi tank, Palayampatty.
- (6) Raja's reservoir, Chettinad.
- (7) Valaivesai Teppakulam.

Besides four tanks in Vadugapatti, Melur and Navinipatti under the Community Project area and three tanks in Kallumpatti under National Extension Service Scheme have been selected for demonstration purposes.

A total of 2,273,526 fish seeds were stocked in these tanks.

Kodaikanal unit.—Development and exploitation of the Kodaikanal lake is the main activity of the unit. The lake was stocked with 43,483 fingerlings of Mirror carp, Golden carp and Tench. The Golden carp had bred prolifically in the lake.

Virudunagar unit.—There are three quarry pools at Virudunagar under this unit. These were stocked with 34,389 fingerlings of Etroplus, Chanos, Gourami, Labeo Cirrhina and Golden carps. A total quantity of 752½ lb. of fish was caught and sold for Rs. 536-7-0.

Bhavanisagar unit.—A fish farm consisting of five ponds was constructed at Bhavanisagar at a cost of Rs. 34,000. It was completed and taken charge by the department in July 1953. The stocking of the farm was inaugurated by Sri M. Bakthavatsalan, Hon'ble Minister for Agriculture and Fisheries, on 1st January 1954. This was stocked with 156,365 fingerlings during the year.

The control over the fishery of the Bhavanisagar Reservoir and the main canal from chain 0 to 7,100 were taken over by the department on 3rd October 1953. The reservoir was stocked with 35,624 fingerlings of quick growing carps during the year. The exploitation of the reservoir was commenced from 1st January 1954 and a total quantity of 1,779 lb. of fish was caught and sold for Rs. 469-10-9 till 31st March 1954.

Bhavani unit.—This unit was sanctioned for the survey of river Cauvery and Bhavani for intensive collection of fish seeds.

Ootacamund unit.—The Ooty fish farm and lake were under this unit. A total quantity of 4,006½ lb. of fish was caught and sold for Rs. 2,003-4-0 besides collection of fees for angling by visitors and interested anglers.

6. *Tuticorin region*.—There were four demonstration tanks in Ambasamudram taluk in this region. Four more tanks (one in Ambasamudram and three in Nanguneri taluks) were taken over by the department from 20th

August 1953, as sanctioned in G.O. Ms. No. 3779, Development, dated 17th August 1953, 102,061 fish seeds were stocked in these waters. Of these, three tanks were fished, 650 lb. were obtained and sold for Rs. 240-1-3.

7. *Mettur Dam*.—There are three demonstration waters in this region. Out of these, two are used as nurseries and stock ponds and one was exploited departmentally. A total quantity of 590 lb. was caught and sold for Rs. 295-6-6.

The Hosur Fish Farm consists of three tanks, one pond and six wells and these were stocked with 6,651 fingerlings.

H. Exploitation of Mettur Reservoir Fisheries.

The scheme for the development, exploitation and marketing of Mettur Reservoir Fisheries [sanctioned in G.O. Ms. No. 140, Food and Agriculture (F.P.), dated 16th April 1951, and continued in G.O. Ms. No. 3987, Development, dated 15th September 1952] was further continued during the year as sanctioned in G.O. Ms. No. 1976, Development, dated 20th April 1953.

Water level.—The reservoir received full supply of water due to timely monsoon during the year. The water-level which was 15.75 feet (39.1) on 1st April 1953, reached the maximum of 123 feet on 21st August 1953 and then gradually decreased to 78.30 feet (15.9) on 31st March 1954.

Offtake.—Eighteen departmental units functioned during the year. A total quantity of 77,200 lb. of fish (84,893) were landed. This comprises of 57,471 lb. from departmental units and 19,729 lb. from the units attached to motor luggers.

Besides, 373,046 lb. of fish (856,060) were purchased from the local fishermen licensees at the rate of 3 annas per lb. for cat fish and 2½ annas per lb. for other varieties. Due to the heavy demand for cured fishes, the purchases were restricted to the actual requirements.

On the whole, 50,246 lb. of fish (940,893), i.e., nearly 200 tons of fish, were procured which along with the catches of the licensees sold to the merchants direct, totalled to 400 tons of fish.

Disposals.—The total quantity disposed off was as detailed below :—

	1953-54.	1952-53.
	LB.	LB.
Fresh fish	17,000	24,842
Iced fish	366,074	554,908
Cured fish	6,192	133,371
Total ..	389,268	703,121

Production of cured fish was curtailed and hence the purchases were also restricted. The iced fish sales were stabilized and regular supplies were made to mufassal stations all over the State including Bangalore City. The Government Hospitals at Tiruchirappalli, Tanjore, Madurai, Coimbatore, Salem, Chingleput and Kurnool, the Reformatory Schools at Chingleput, Ranipet and Tanjore and the Sanatorium at Perundurai, were regularly supplied with Mettur iced fish.

Rates.—The following is the schedule of rates followed during the year :—

	Price per lb. (within 50 miles).	F.O.R. (between 50-250 miles).	Desti- nation (over 200 miles).
	RS. A. P.	RS. A. P.	RS. A. P.
1 Fish ungutted consisting of varieties.	0 5 3	0 5 9	..
2 Fish gutted consisting of varieties.	0 5 6	0 6 0	0 7 0
3 Fish gutted consisting of only carps.	..	0 5 0	0 6 0

NOTE.—An increased rate of anna one per lb. over the above rates for fish with head and fins removed.

With the launching of the scheme, the income of the local fishermen and the supply of fish to the interior markets were greatly increased.

J. Gourami Popularization Scheme.

The continuance of this scheme was sanctioned in G.O. Ms. No. 279, Agriculture, dated 7th December 1953. The following tanks were specially allotted for Gourami culture :—

Name of tank.	Place.
1 West moat	Tanjore.
2 Ayyankulam	Tanjore.
3 Ayeekulam	Kumbakonam.
4 Thattankulam	Tiruturaipundi.
5 Sekkadikulam	Adirampatnam.
6 Sengulam	Mannargudi.
7 Padikulam	Kovilvenni.
8 Perumalkulam	Kovilvenni.
9 Eachankulam	Nagore.
10 Sevamandir tank	Porto Novo.
11 A.I.R. tank	Tiruchirappalli.
12 Circular and rectangular cisterns.	Tiruchirappalli.

The above tanks were also stocked with other fishes since Gourami culture alone will be uneconomical. Gourami bred in the circular and rectangular cement cisterns at Tiruchirappalli, Sevamandir tank, Porto Novo, in the Thattankulam, Tiruturaipundi and in Pidari tank. Eighty-one Gourami fingerlings were supplied to private parties, 36 Gourami to Madurai division, 12 to Tuticorin division and 60 fingerlings were stocked or distributed for stocking in Tiruchirappalli and Tanjavoor district tanks. There are no signs of Gourami having bred in the Veeranam lake. It is hoped the fish will breed and propagate the entire Cauvery system. Evidence of breeding in other tanks can only be gathered during the ensuing fishing season of the tanks. It is proposed to extend the stocking of Gourami to other demonstration tanks also during the year 1954-55.

K. Paddy-cum-Fish Culture.

A pilot scheme for culture of fish in paddy fields was submitted to the Government. There are about 10 lakhs of acres of paddy fields in Tanjavoor

IV. SOCIO-ECONOMIC WORK

A. FISHERMEN CO-OPERATIVE SOCIETIES.

There was remarkable progress in the growth of fishermen co-operative societies during the year. The number of societies in the residuary State has increased from 176 to 231 during the year. (A list of fishermen co-operative societies in the State is also given in the Appendix VII.)

(i) *South Kanara—Supervision.*—All the fishermen co-operative societies are under the charge of the Fisheries department. There is a special staff of two Junior Inspectors and one Co-operative Sub-Registrar sanctioned for the organization and supervision of the societies in this district. As this staff was found inadequate, proposals for sanction of one more Junior Inspector was submitted.

Number of societies.—There were 49 societies at the beginning of the year. One new society was organized and started during the year thus bringing the total to 50 at the end of the year.

New society.—The new society, the South Kanara district Co-operative Fisheries Marketing Society, Mangalore, was organized on 31st August 1952, registered on 20th February 1954 and started work on 11th April 1954.

Membership.—There were 7,546 members on rolls belonging to various fishing communities, i.e., Karwis, Mogaveeras, Bhovis, Mukuvass and Thiyas. This was increased to 7,946 due to vigorous efforts taken up by the staff.

Paid-up share capital.—The total paid-up share capital at the beginning was Rs. 2,26,009 and Rs. 2,53,711 at the end of the year. Out of 50 societies, 5 societies had share capital exceeding Rs. 10,000 and 14 societies Rs. 5,000 each.

Loan transactions.—Members have taken up more loans during the year—

Year.	Issued. RS.	Loans collected. RS.	Overdue. RS.
1953-54	4,24,500	3,29,825	94,675
1952-53	4,10,785	2,35,309	2,75,439

The overdue works out to 37 per cent of the total outstandings of Rs. 17,40,694.

Borrowing from bank.—Out of 50, 36 societies borrowed money from the South Kanara District Central Co-operative Bank, which has been very liberal towards the needs of fishermen co-operative societies—

Year.	Amount borrowed. RS.	Amount repaid. RS.
1953-54	2,97,772	1,90,723
1952-53	4,42,039	2,60,418

Nineteen societies were defaulters at the end of the year, to the extent of Rs. 1,69,902 under principal and Rs. 4,224 under interest.

district. They obtain a copious supply of water from the Cauvery irrigation system and double crops are raised in them with a view to step up the production of fish, it is intended to culture fish in the paddy fields. Besides the paddy fields, the net work of canals and extensive water logged areas are also intended to be used. To begin with, 300 acres of paddy fields situated in three taluks, Tanjavoor, Kumbakonam and Mayuram, have been selected for culture. This area will be stocked with fingerlings of Catla and Labeo, quick growing carps, at the rate of 1,500 fingerlings per acre. It is expected to yield about 775 lb. per acre in the seven months, i.e., 112,500 lb. or 50 tons of fish valued at Rs. 22,500 on the whole.

Besides, the culture of fish is also expected to have beneficial effects on crops. The fish will feed on the microscopic organisms which are likely to cause crop pests. The fish will also feed on the mosquitoes, cyclops, etc., in the water thus preventing the spread of diseases like Malaria, Guinea worm, etc. The fish refuse will also add to the manurial value of the crops. It is estimated that the net result of fish culture will be an increase of 5 to 10 per cent in the yield of paddy.

This method is in vogue in some countries in Europe and Far East. It is now proposed to introduce the same in the Madras State.

L. Fish Culture in Backyard Wells.

Wells offer a comparatively unexploited source for rearing certain varieties of fishes especially Murrels (*Ophicephalus*) and Pearl spot (*Etroplus suratensis*). Several large irrigation wells have been dug all over the State and it is now proposed to launch an intensive drive in selected areas for stocking these two fishes, which are quite edible and tasty, fairly quick growing and capable of breeding in confined waters.

Scheme.—One thousand wells in each of the district of Chingleput, North Arcot, Coimbatore and Salem, are being selected and stocked with 50,000 Murrels and 100,000 Pearl spot at the rate of 12 Murrels and 24 Etroplus per well. The cost of fingerlings will come to Re. 1. Each well is expected to yield Rs. 6 to Rs. 10 worth of fish at the end of the year. Besides the well water will also be kept clean.

The scheme was inaugurated at Pakkam village, near Thinnanur Railway station, in Chingleput district, by the Hon'ble Sri M. Bakthavatsalam, Minister for Agriculture and Fisheries, on 13th March 1954.

M. Community Project and National Extension Service Schemes.

Madurai district.—Four tanks in Vadugapatti, Melur, Navinupatti under Community Project and three tanks in Kallupatti under National Extension Service Schemes were selected for demonstration purposes and 32,370 fish seeds of Chanos, Catla and Labeo were stocked.

Coimbatore district.—One tank and some wells in Bhavani taluk and two tanks in Erode taluk were surveyed and selected for development. Thirty-one thousand and six hundred fish were stocked. Besides, a number of wells in Gobichettipalayam taluk were stocked with Etroplus and Murrel.

Chingleput district.—A scheme for giving loans to fishermen of Mahabali-puram for the purchase of catamarans at subsidized rates was submitted. The loans will be repayable by adjustment of the portion of the daily catches, within a period of five years. The sanction of Government is awaited.

Investments.—The following are the investments made by the societies on 31st March 1954 :—

	1953-54.	1952-53.
	RS.	RS.
1 Reserve fund	38,535	..
2 Central Bank shares	6,190	5,800
3 Shares in the societies	3,530	1,581
4 Post office savings bank account ..	3,284	6,034
5 Other investments	25,430	28,353
Total ..	77,019	41,768

The Reserve Fund of the societies amounted to Rs. 43,902 of which Rs. 5,367 was pending investment on 31st March 1954.

Thrift scheme.—Thrift was encouraged among the fishermen by inducing them to deposit in the societies what little they save during the fishing season. As a result, the total deposit increased from Rs. 32,136 to Rs. 37,244 during the year.

Non-credit activities.—A few societies in Kasargod taluk undertook the pooling together of the catches of their members and selling them jointly to the highest bidder. This enabled them to get better prices and to easily collect their dues. Besides this, the societies got a small commission. The sales thus effected came to Rs. 17,210 against Rs. 21,311 during last year.

Joint purchase and sale of members' requirements.—Eight societies maintained fair price shops and supplied foodgrains to the fishermen. The sale amounted to Rs. 3,02,679.

Two societies (Uchila Bovis Fishermen Co-operative Society and Kasargod Fishermen Co-operative Society) sold mill cloth amounting to Rs. 958.

One society sold fishing implements worth Rs. 82.

Four societies (Ajanur, Kanhangad, Kasargod and Moolky) purchased coir yarn worth Rs. 736-11-6 and sold to their members. Forty-seven societies obtained licences to deal in yarn for sale to members for manufacture of nets. The sales effected amounted to Rs. 19,484.

Lease of fish markets.—Two fish markets from the Kasargod Panchayat Board were taken on lease without sanction for a period of three years up to 31st March 1954, on an annual rental of Rs. 1,340 by the Kasargod Fishermen Co-operative Society.

Fish storage godowns and fish-curing stores.—Two fish godowns are owned by two societies (Ajanur and Kasargod) one each and they collect rent for providing storage facilities from their members.

Four societies (Ajanur, Nileshwar, Hejmadi and Kodi) own curing sheds in the local Government fish-curing yards. These sheds are made available for curing purposes to their members.

Fishing leases.—Nil.

Profit and loss.—Forty societies (42) earned a net profit of Rs. 14,193 (Rs. 12,439) while 10 societies incurred a loss of Rs. 16,752. Of this 10, loss in one society (Mangalore Mogaveera Co-operative Society) amounted to Rs. 13,760 due to forgery by the President and clerk concerned and they were charge-sheeted.

Clerical assistance.—Subsidy for clerical work was granted to 32 societies amounting to Rs. 837 by the Registrar of Co-operative Societies, Madras.

Ex officio.—In 23 societies, the departmental staff worked as ex-officio presidents or secretaries without detriment to their regular duties and guided the societies.

Aid under Community Project Scheme.—Loans were offered to the societies for purchase of motor boats and fish transport vans on condition that the amount should be repaid within five years with interest. But none of the societies was agreeable to the conditions and so the offer was declined.

(ii) *Malabar district—Supervision.*—All the fishermen societies are under the charge of the Fisheries department. A special staff of one Co-operative Sub-Registrar and three Junior Co-operative Inspectors supervised the working of these societies.

Number of societies.—There were 65 societies in the Malabar district as in last year. Of the above, 61 are ordinary credit societies on limited liability basis and four are fishing net makers' societies, one is an Inland Fisheries Society.

Registration of the following three societies are pending :—

- (1) Calicut South Beach Fishermen Co-operative Society.
- (2) Palghat Inland Fishermen Co-operative Society.
- (3) The Malabar District Co-operative Fish Marketing Society,

Kozhikode.

One more society, i.e., the Mattika Firka Net Makers' Co-operative Society, is under organization.

There was an increase in the number of members on roll from 9,426 during the year.

Paid-up share capital.—During the year, an amount of Rs. 14,900 was collected towards the share capital which totalled to Rs. 1,93,638 at the end of the year.

Loan transactions.—The members were advanced loans to the extent shown below :—

Year.	Loans issued.	Loans collected.	Loans overdue.
	RS.	RS.	RS.
1953-54	1,95,020	1,41,146	2,71,233
1952-53	2,23,965	..	1,80,992

Borrowing from banks.—The Malabar District Co-operative Central Bank finances the societies. The bank allows ordinary loans repayable within a year. The societies in turn advance loans to their members during the slack season of May, June and July restricting the period invariably to ten months.

The societies borrowed an amount of Rs. 1,03,000 against Rs. 44,747 last year. At the end of the year, an amount of Rs. 96,495 was overdue against Rs. 56,719 last year.

Four societies were defaulters under principal. No interest is, however, overdue.

Extension of loan period from one to two years and provision of cash credit facilities to the societies will greatly benefit the members as failure of fishing season, often, hampers the repayment of loans by the fishermen.

Investments.—The following are the investments made by the societies as on 31st March 1954 :—

	1953-54. RS.
1 Reserve fund	29,100
2 Central Bank shares	19,200
3 Shares in other societies	
4 Post office savings bank accounts	
5 Other investments	
Total ..	48,300

Thrift scheme.—This is popularized through hundi boxes provided for each member. Sixty-two societies are keenly following the scheme and a total amount of Rs. 13,074 was saved during the year.

In many of the societies, cess collections are in vogue. This is a method of compulsory saving by collection of a nominal amount at the rate of 1 to 3 pies on every maund of salt purchased by the member curers in the fish-curing yards. This amount so saved is used to liquidate the loans taken by members. The amount so collected came to Rs. 14,254 (Rs. 22,228). It is proposed to introduce this method in all the societies.

Non-credit activities—(i) *Joint purchase and sale of members' requirements.*—Seventeen societies maintained fair price shops and supplied foodgrains. The total purchase and sale amounted to Rs. 9,29,672 (Rs. 73,408) and Rs. 10,03,153 (Rs. 10,07,110), respectively. But with the decontrol of foodgrains, the continuance of this activity has to be watched further.

Fifty-eight societies dealt in the supply of cotton yarn under the scheme of yarn subsidy. The Fisheries department supplied them yarn at subsidized rates through the societies. With the easy availability of yarn at reasonable prices, the scheme was abolished and hence the continuance of this scheme will also have to be watched.

(ii) *Manufacture and sale of fishing nets.*—The following four societies are engaged in the manufacture of fishing nets and joint sale :—

- (1) Kozhikode Women Fishing Net Makers' Society.
- (2) Thayyil (Cannanore) Fishing Net Makers' Society.
- (3) Tellicherry Women Fishing Net Makers' Society.
- (4) Edakkad Muslim Fishing Net Makers' Society.

The societies issue yarn to the members who make nets and on payment of wages supply them to the societies. Different kinds of nets needed for the local fishermen are thus made and sold. Decontrol of yarn has affected this business. Up to 31st December 1953, the societies manufactured nets valued at Rs. 5,914-6-0 and the net wages paid amounted to Rupees 2,978-12-0.

(iii) *Fishing lease.*—The societies took over licence or lease of inland fisheries to the value of Rs. 950 in the year 1953.

Profit and loss.—Of the 65, only 11 worked at a loss.

Clerical assistance.—The Kozhikode Women Fish Net Makers' Co-operative Society has on its rolls 91 members. The society had done a very good work and manufactured quite a large number of nets. The Registrar of Co-operative Societies, Madras, granted a subsidy of Rs. 300 for a period six months for the employment of a clerk-cum-salesman to keep accounts and to find out market for the accumulated stock.

Ex officio.—In 37 societies, the fish-curing yard officers or the teachers of local fisheries schools are actively assisting the fishermen co-operative societies serving as ex-officio presidents and secretaries.

East Coast.—In the East Coast, an attempt has been made recently to organize societies and promote welfare work through them. The socioeconomic condition of the fishermen is so backward that first of all the organization of fishermen into convenient groups and promotion of co-operation and 'self-help' has been the concern of the departmental officers, especially after the regional set up.

The Government sanctioned a staff of a few Co-operative Inspectors to work under Regional Assistant Directors for the organizations of societies and a Co-operative Sub-Registrar for the head office to co-ordinate their work.

After the separation of Andhra, three such Inspectors are working in the East Coast. The distribution of yarn during the period of control at subsidized rates gave the necessary impetus to the formation and working of these societies. The central banks are not willing to finance these new societies, as they are not credit worthy. The fishermen are heavily indebted to the middlemen and their income is very meagre. So they cannot be relied to repay the loans. It is proposed to give improved craft and tackle on long-term basis as loan to these societies to improve their income and to relieve their serfdom to the middlemen. The inland societies are benefited by the facilities provided under G.O. Ms. No. 200, dated 16th February 1951, in obtaining lease of fisheries. All the departmental staff are asked to assist in this work.

(iii) *Vellore region.*—A Junior Inspector of Co-operative Societies is looking after the societies in the three districts of Madras, Chingleput and North Arcot.

Number of societies.—There are 34 societies in this region on 31st March 1954 as detailed below :—

District.	Number of Societies.
Madras	9
Chingleput	23
North Arcot	2
Total ..	34

Four new societies (Pudupatnam, Kancheepuram and Wallajahbad) in Chingleput district and Kaveripauk in North Arcot) were formed during the year. The societies at Ayyangarkulam and Poonamallee were revived during the year.

Members.—There were 4,269 members.

Paid-up share capital.—This worked out to Rs. 85,538-12-0.

Loans transactions.—A sum of Rs. 356 was advanced to members, Rs. 700 was collected and a sum of Rs. 4,943 was outstanding from the members.

Thrift scheme.—An amount of Rs. 319-13-3 was collected during the year.

Non-credit activities—Joint purchase and sale.—Rs. 1,148 worth of rice, Rs. 4,666 worth of cloth, Rs. 1,898 worth of yarn were purchased and sold by Rayapuram Fisherman Co-operative Society at profit.

Sale of fish.—The South Madras Fishermen Co-operative Society have pooled 5,000 lb. of catches of their members and sold to the public and hostels in the City of Madras for Rs. 3,599.

Quick transport facilities.—Two societies at Ennore and Tiruvottiyur hired fish vans from the Fisheries Department and transported the catches of fishermen from the landing centres to the city markets without loss of much time and spoilage of fish. They paid a total hire charge of Rs. 12,378 to the department.

Fishing leases.—Two societies took up fishing lease of two provincialized waters and exploited them profitably in addition to the other public waters obtained from the Revenue Department—

Name of tank.	Name of Society.	Amount of rental RS.
Uthiramerur tank	Uthiramerur Fishermen Co-operative Society.	660
Maduranthakam tank	Maduranthakam Fishermen Co-operative Society.	2,000
Total ..		2,660

(iv) *Tanjavoor region—Supervision.*—One Senior Inspector of Co-operative Societies sanctioned originally in G.O. Ms. No. 2909, Development, dated 26th June 1951 and continued in G.O. Ms. No. 2981, Development, dated 26th June 1953, supervised the societies in Tanjavoor and a Junior Inspector of Co-operative Societies under the welfare scheme referred to, looked after the organization of the societies in South Arcot district. The societies in Tanjavoor district was under the administrative control of the Assistant Director, Tanjavoor, who exercised certain powers under the Madras Co-operative Societies Act as registration necessary for the supervision of the societies.

Number of societies.—There are 47 societies in this region as detailed below :—

	1953-54.	1952-53.
South Arcot district	26	20
Tanjavoor district	21	15
Total ..	47	35

Twelve new societies, six marine societies at Pettai Jambuvan Odai, Kodampalayam, Somabandam Pettai, Turaikadu, Nambiarnagar and Karayar street in Tanjavoor district and six societies at Thandavaroya Sholagarpettai, Hanumanthakuppam, Koonimedu, Mudaliar Chavadi, Chellankuppam and Sonankuppam in South Arcot District were formed during the year. Of the 4,721 societies (14 in South Arcot and 7 in Tanjavoor district) are inland societies. Organization of two more marine societies at Naludevapatty and Sethubava Chatram and one inland society in Tiruthuraippundi taluk are under consideration.

The management of the Kumbakonam Fishermen Co-operative Society was restored to the elected Panchayatdars from the Special Officer, appointed on supersession of the management.

Number of members.—There are 7,812 members in all these societies (2,263 in South Arcot and 5,549 in Tanjavoor district).

Paid-up share capital.—The total paid-up share capital was Rs. 36,358-4-0.

Thrift scheme.—Three societies (Killai, Thandavaroya [Sholagarpettai and Sonankuppam) adopted the scheme.

Non-credit activities.—Two societies (Marine Chandrapadi and Thirumalaivasal) managed fair price shops.

One society (Eripurakarai) applied for sanction of a plot for manufacture of salt. The matter is pending with the Revenue authorities.

Porto Novo Fishermen Co-operative Society introduced fish business to enable the members to get a reasonable price for their stock.

Two societies (Thiruppapuliur and Uppalavadi) took on lease the local fish markets during the year.

Nine societies (four in Tanjavoor and five in South Arcot district) enjoy the lease of over 2,000 tanks in their favour and helped their members to exploit the fisheries of these waters.

(v) *Madurai region.*—A Fisheries Welfare Officer under the control of Assistant Director, Madurai, looks after the societies in this region. Besides, other departmental officers help in this work.

Number of societies.—There are 23 Fishermen Co-operative Societies in this region—

District.	Number of societies.
Ramanathapuram	19
Madurai	2
Coimbatore	2
Total ..	23

(vi) *Tuticorin region.*—The Fisheries Welfare Officer, Madurai, attends to the organization in this region also.

Number of societies.—There are 11 societies in this region. One society (Senthamangalam) is pending registration. Of these, three are inland societies and eight marine societies.

Thrift scheme.—One society (Tuticorin) adopted this scheme.

Non-credit activities.—All the societies have dealt in yarn obtaining licences issued free of charges.

Fishing lease.—One society (Tenkasi) has taken over the lease of fishing rights in tanks in Tenkasi taluk.

(vii) *Mettur Dam region.*—*Salem district.*—The only Fishermen Co-operative Society at Mettur Dam functioned in this district. A society at Edappadi has been organized.

B. FISHERIES SCHOOLS.

During the year under report, the department has been running 64 fisheries schools including two high schools, one middle school, 17 higher elementary schools and 44 lower elementary schools (vide Appendix VIII). These schools had a total strength of 12,022 pupils, 7,100 boys and 4,922 girls. The teaching staff consisted of 422 teachers. In addition to these, the department was running two night schools for adult education (vide also Appendix VIII). The particulars relating to the schools are given below :—

West Coast.

1. *South Kanara district*—(i) *Number of schools*.—There were 29 fisheries schools at the beginning of the year and 30 schools at the end of the year as detailed below :—

	At the beginning of the year.	At the end of the year.
High school	1	1
Middle School	..	1
Higher Elementary school	9	6
Lower Elementary school	19	32
Total	29	40

(ii) *Schools in compulsory education zone*.—Following nine schools are situated in the zone where compulsory scheme of primary education is in vogue :—

- | | |
|-------------------|-----------------------|
| (1) Kesarikodi. | (6) Padubidri. |
| (2) Nadavinakone. | (7) Hejmadikodi. |
| (3) Manoor. | (8) Kanhangad. |
| (4) Uppoor. | (9) Hosdrugkadapuram. |
| (5) Malpe. | |

(iii) (a) *Opening of new schools*.—*Bekal school*.—The Higher Elementary school at Bekal was converted into a Middle school from 8th June 1953 as sanctioned in G.O. Ms. No. 2591, Development, dated 2nd June 1953. This was separated into two schools, Middle school and Lower Elementary school, as ordered in G.O. Ms. No. 264, Agriculture, dated 27th November 1953. Proposals for opening of new schools at Padne and Yermal South have been submitted.

(b) *Opening of new classes*.—*Kizhur school*.—This was raised into Higher Elementary school and VI standard was opened in August 1953 as ordered in G.O. Ms. No. 3550, Development, dated 1st July 1952.

Adakathbail school.—This was reduced to a Lower Elementary school due to the poor strength of pupils from 1st June 1953 as ordered in G.O. Ms. No. 1625, Development, dated 6th April 1953.

Cheruvathur school.—Standard VII was opened from 16th May 1953 as ordered in G.O. Ms. No. 5223, Development, dated 5th December 1952.

Navunda school.—Standard VIII was opened on 1st June 1953 as ordered in G.O. Ms. No. 1272, Development, dated 20th March 1953, thus making it a full-fledged Higher Elementary school.

Malpe High school.—Form V was opened on 1st June 1953 as ordered in G.O. Ms. No. 1287, Development, dated 20th April 1953.

Proposals for the following have been submitted :—

- (1) Opening of VI form at Malpe High school.
- (2) Opening of IV form at Bekal Middle school.
- (3) Opening of VII standard at Cheruvathur school.
- (4) Opening VII standard at Kizhur school.

(iv) *Strength of children*.—The year opened with a strength of 4,800 pupils (i.e., 2,907 boys and 1,803 girls and 3,570 fisher or 1,230 non-fisher children). After new admission and withdrawal, there were 4,903 pupils

(2,987 boys and 1,916 girls or 3,612 fisher and 1,291 non-fisher children) at the end of the year.

(v) *Results of Public (E.S.L.C.) Examination*.—The results are summarised below :—

Name of school.	Number appeared.	Number passed.	Percentage of pass. PER CENT.
Hejmadikodi	21	21	100
Kanhangad	8	8	100
Bekal	20	11	56
Polippu	10	4	40
Adakathbail	3	..	..

(vi) *Teachers*.—There were 190 teachers in all the 30 schools. Of these, 40 are fisheries trained, 145 ordinary trained, 2 basic trained and 3 untrained.

(vii) *Craft training*.—Five Higher grade teachers were deputed to the Government Coir School, Beypore, for undergoing training in coir handicrafts for a year from June 1953.

(viii) (a) *Location of schools*.—Of the 30 schools, the following are located in Government buildings :—

- (1) Tarapathy school.
- (2) Kaup school.
- (3) Sandspit school.
- (4) Sri Gnanodaya school.
- (5) Kumbala school.
- (6) Kizhur school.
- (7) Bekal Elementary school.
- (8) Bekal Middle school.

Sri Gnanodaya school.—The building is being extended to provide 50 more school places at a cost of Rs. 4,180.

Bekal school.—A pakka urinal at Rs. 864 was put up.

Tarapathi school.—An amount of Rs. 16,000 was sanctioned for constructing a pakka building for the school in G.O. Ms. No. 4089, Development, dated 8th September 1953 as the kutcha shed collapsed in July 1953 due to cyclone.

Proposal for construction of an additional building for Kizhur Higher Elementary school and for Malpe High school and to replace the kutcha shed into a pakka building for Kaup school are under consideration.

(b) *Donated buildings*.—Forms IV to VI (six classes, of Malpe High school are located in a pakka building donated by the Local High School Committee.

This building also developed a slight crack due to cyclone and was repaired at a cost of Rs. 170.

(c) *Rented buildings*.—The rest of the schools are situated in private buildings and a total rent of Rs. 10,595-12-0 per annum is being paid to them.

(ix) *Conductress*.—Only at Kumbala, conductress is employed for bringing the children to school daily and regularly.

ADMINISTRATION REPORT OF THE

(x) *Free supply of mid-day meals.*—This was discontinued. However, efforts were taken by the staff of certain schools to induce the local public to feed the poor and deserving children.

2. *Malabar district*—(i) *Number of schools.*—There are 31 schools in this district as detailed below :—

	Number of schools.
High school	1
Higher Elementary school ..	8
Lower Elementary school ..	22
Total ..	31

(ii) *Opening of new schools.*—The primary classes in the Madapalli High school will be separated and formed into a new Lower Elementary school from next year onwards, as the accommodation for the High school section is found insufficient. Proposals for conversion of Nattika Higher Elementary school into a Middle school were submitted.

No new schools or classes were opened during the year.

(iii) *Strength of schools.*—The number of pupils on roll in all the elementary schools and Madapalli High School are given below :—

	Boys.	Girls.	Fisher children.	Non-fisher children.	Total.
Elementary schools ..	3,403	2,756	5,180	979	6,159
Madapalli High school ..	554	192	243	503	746
Total ..	3,957	2,948	5,423	1,482	6,905

(iv) *The Madapalli High School* is in its eighth year of existence having been opened in the year 1946. The high school is very popular judging by the steady increase in strength as detailed below :—

Year.	Number of pupils.	Year.	Number of pupils.
1947	392	1951	640
1948	494	1952	688
1949	492	1953	746
1950	597	1954	746

The static strength of the current and previous years is due to the non-admission of pupils on account of inadequacy of accommodation. With the separation of primary classes, the accommodation problem will improve to admit more pupils.

The high school has been made permanent.

(v) *Results of Public Examination—S.S.L.C./E.S.L.C.—*

Name of school.	Number appeared.	Number passed.	Percentage of pass.
Madapalli High school (S.S.L.C.)	38	25	66
Quilandy school (E.S.L.C.)	8	1	12½
Pudiappa (E.S.L.C.)	13	..	..
Vellayil (E.S.L.C.)	8	..	..
Kadavanad (E.S.L.C.)	8	..	..
Palapatty (E.S.L.C.)	6	1	16½
Kottakadapuram (E.S.L.C.)	4	2	50
South Nattika (E.S.L.C.)	15	6	40
Kaipamangalam (E.S.L.C.)	19	8	42
Total ..	119	43	36-1/7

(vi) *Teachers*—(a) *High school.*—There are 36 teachers including the headmaster in the Madapalli High School—

L.T. Assistants	7
School Assistants (untrained)	2
Secondary Assistants	14
Pandits—Malayalam	2
Pandits—Hindi	2
Drawing Instructor	2
Physical Training Instructor	1
Physical Training Instructress	1
Music Instructress	1
Handicraft Instructress	1
Fisheries Instructor	1
Manual Training Instructor	1
Wood Work Instructor	1
Total ..	36

(b) *Elementary schools.*—There were 275 teachers in the 30 schools. Of these 91 are fisheries trained and 134 ordinary trained—

	Fisheries trained.	Ordinary trained.	Total.
Secondary grade	11	23	34
Higher grade	75	110	185
Lower grade	5	1	6
Total ..	91	134	225

(vii) *Craft training.*—The Headmaster of Madapalli High school, Sri K. S. Gopala Pillai, B.A., L.T., was deputed to undergo Fisheries departmental training this year.

One secondary grade teacher was deputed to undergo Scout training at Mannarghat for ten days conducted by Bharat Scouts and Guides.

Three higher grade teachers were deputed to undergo training at the Government Coir School, Beypore.

(viii) *Deputation of teachers*.—Four fisheries trained teachers were deputed for teaching Fisheries Science and Technology in the following private schools at Government cost :—

- (1) St. Anthony's Higher Elementary school, Theyyil, Cannanore.
- (2) Gopalapetta Municipal school, Tellicherry.
- (3) St. Peter's Higher Elementary school, Tellicherry.
- (4) St. John Pattam Municipal school, Fort Cochin.

(ix) *Conductress*.—Conductress in ten schools were appointed during the year.

(x) *Free supply of midday meals*.—Children of all the schools were supplied with midday meals during the lean months of August-September 1953. Besides the Collector of Malabar has also sanctioned a sum of Rs. 100 each to the three fisheries schools, viz., Pudiappa, Vellayil and Naduvattam, for the distribution of midday meals to the fisher children.

Free milk supply was also made during the above three months, supplies of milk powder having been received from the United Nations International Childrens' Emergency Fund through the Collector of Malabar.

(xi) *Inspection*.—Annual inspection of the Madapalli High School was conducted by the District Educational Officer, North Malabar, on the 26th and 27th October 1953 and by the Assistant Director of Fisheries, Malabar, on 11th to 14th May 1954. Besides, the elementary schools were also inspected by both the Fisheries and Educational Officers.

Location of schools—Madapalli High School.—The acquisition of site for playground and school building is still pending with the Revenue Divisional Officer, Kozhikode.

East Coast.

3. *Vellore region*.—Two new schools sanctioned in G.O. No. 1661, Development, dated 12th April 1951, were opened during the year at Sathankuppam and Annamalaicherikuppam—

Annamalaicherikuppam school.—This was opened on 27th June 1953. The total admission came to 40 boys and 11 girls. The school worked for 300 days. The average attendance was 48 per cent. This was recognized by the Education department and has become a popular school. A lower grade teacher was appointed to run the school.

Sathankuppam school.—This was opened on 25th June 1953 in the local temple hall, pending provision of a new building. The total strength of the school was 76 (40 boys and 36 girls) with three classes. The school worked for 300 days and the average attendance came to 56 per cent. The school was inspected by the Deputy Inspector of Schools and was accorded recognition by the Education department. A lower grade teacher was appointed to run the school.

Proposals for opening a school at Alambabarai-kuppam were submitted. The permission of Education department for opening a new school at Kanathur Reddikuppam was obtained and proposals for opening the same will be submitted during the coming year.

Adult Night school, Ennore.—This worked for 210 days during the year. Thirty-two adults were trained in all. This was closed for want of teachers at the close of the year.

The fishermen of Sathankuppam have organized an Adult Night school of their own accord making use of the departmental teacher. This has been working satisfactorily.

4. *Tanjavoor region*.—There is only one fisheries school in this region at Kaveripatnam. The staff consisted of one headmaster and two assistants. This school was continued as sanctioned in G.O. Ms. No. 1862, Development, dated 21st April 1953. The school had a strength of 88 pupils including 76 boys and 12 girls.

Proposals for opening of two schools, one at Vanagiri in Tanjavoor district and one at Koonimedu in South Arcot district are under consideration. The local fishermen are agreeable to put up school building at their own cost.

5. *Madurai region*.—The Fisheries Technological Institute at Tuticorin was closed during the year as ordered in G.O. Ms. No. 44, Agriculture, dated 5th January 1954.

Proposals for taking over the St. Thomas High School at Veerapandianpatnam and converting it into a Fisheries High School were submitted for sanction. Starting of a boarding hostel for poor fisher children at Tuticorin and supply of midday meals to the fisher pupils in four fishing villages were other proposals submitted.

C. FISH TRANSPORT VANS.

There are 22 motor vehicles working under various schemes in the residuary State as detailed below :—

Scheme.	Number of vehicles.
1 Intensive seed collection and distribution	10
2 Quick transport facilities	7
3 Fish preservation and transport	3
4 Exploitation of Mettur Reservoir fisheries	1
5 Propaganda section	1
Total	22

(Vide Appendix IX.)

Major number of vehicles did not work due to engine repairs. However with constant attention on maintenance, these were made to serve useful purposes.

West Coast.

1. *South Kanara*.—One fish van (MSZ. 3351-Chevrolet) was working in this region till January 1954. It was transferred to Mettur Dam on 3rd February 1954. The van was hired to the Mangalore Mogaveera Co-operative Society for transport of fish to the interior markets. The total hire charges collected came to Rs. 203-4-11 (Rs. 2,762-6-0) during the year.

One Land Rover (MSZ. 2788) with a trailer (MSZ. 2793) was used for fish seed collection and transport.

2. *Malabar*.—The Land Rover (MSZ. 2762) with the trailer (MSZ. 2802) was used for the transport of consignment of fingerlings from the collection centres to the nearest railway stations and stocking centres. The major stocking operations in Malampuzha reservoir was done by means of the Land Rover. For the collection season, it was sent to Tanjavoor.

East Coast.

3. *Vellore*.—The Land Rover (MSZ. 2789) with trailer (MSZ. 2894) attached to this region, transported most of the seeds collected for stocking till February 1954.

4. *Tanjavoor*.—Two vehicles (Land Rover MSZ. 2744 and Austin Van MSZ. 2748) were working and transported fish fry and fingerlings from the collection centres.

5. *Madurai*.—Two vans [Dodge Van (MSZ. 3771) and Commer Van (MSZ. 3158) and a Land Rover (MSZ. 2713) with trailer (MSZ. 2764)] were attached to this region. Out of these, the latter was out of order. The other vehicles were used for transport of fish seeds in Ramanathapuram, Madurai, Coimbatore and Nilgiris districts.

6. *Tuticorin*.—One Land Rover (MSZ. 2789) with trailer (MSZ. 2794) and one Fish van (MSZ. 3529) were utilized for transport of fish seeds.

7. *Mettur Dam*.—The two fish vans [Forson (MSZ. 2968) and Chevrolet (MSZ. 3351)] were mainly used for the transport of landings of fish from the harbour to the fish stall and thence to the railway stations. A total quantity of 371,621 lb. of fish (165½ tons) were thus transported.

8. *Madras*.—Two fish vans [Ford van (MSZ. 1540) and G.M.C. Pickup (MSZ. 3102)] were used for transport of fish from Ennore and Tiruvottiyur respectively to Madras City markets on hire basis. The total hire charges earned came to Rs. 12,378.

One vehicle [Chevrolet Station Wagon (MSZ. 2937)] was used for propaganda purposes.

The following vans were undergoing repairs :—

Chevrolet van (MSZ. 3524), Bedford van (MSZ. 1550) and G.M.C. Pickup (MSZ. 2752).

Estimates for repairs to the following vehicles were submitted for sanction :—

For van (MSZ. 2529), Bedford van (MSZ. 2712), Chevrolet vans (MSZ. 1282 and MSZ. 1335).

D. YARN SUBSIDY SCHEME.

This scheme was discontinued with effect from 31st March 1953.

All the available stock of yarn was ordered to be sold at the prevailing market rates. On the whole, 130 bales 2 bundles and 12s of yarn valued at Rs. 73,551-13-1 were sold to the fishermen as detailed below :—

Count Number.	Bales.	Bundles.	Skeins.
40s	1	37	35
30s	5	80	..
20s	98	01	17
3/20s	7	25	13
10s	12	32	09
6s	4	05	13
Total ..	130	02	12

West Coast.

1. *South Kanara*.—During the year, the quantity of yarn sold and the value realised are given below :—

Count.	Bales.	Bundles.	Skeins.	Value.
				RS. A. P.
10s	1	..	..	} 11,898 7 9
20s	11	6	13	
30s	5	20	..	
40s	..	8	..	
Total ..	17	34	13	

Supplied to other officers.—Ten bundles (of ten count yarn) were supplied to the Inspector of Fisheries (Special), Tellicherry, and 30 bundles to Sub-Inspector, Ullal.

Balance.—The balance of yarn available was brought to Mangalore for sale—

Count.	B.	B.	S.	RS. A. P.
40s	1	19	24	} 4,828 0 3
20s	0	20	12	
10s	3	37	5	
Total ..	6	07	21	

2. *Malabar*.—Though the yarn was decontrolled and grant of subsidy was discontinued with effect from 31st March 1953, the fishermen of Malabar were, however, granted a subsidy of 25 per cent in G.O. Ms. No. 3725, Development, dated 12th August 1953 on account of failure of fishing season. Accordingly the stock of yarn 33 bales 30 bundles held at Nellore, Eluru, Bapatla, Masulipatnam and Kakinada were transferred to Malabar and the following quantities were sold out :—

Count.	B.	B.	S.
20	21	0	0

Besides, 4 bales of 20 yarn were transferred to the Assistant Director of Fisheries, Tuticorin.

East Coast.

3. *Vellore*.—There was a good demand for yarn in this division. Hence 12 bales 2 bundles of 20s yarn, 3 bales of 10s yarn and 2 bales 14 bundles 2 skeins of 6s yarn were transferred from other divisions for sale. On the whole, 26 bales 19 bundles and 18 skeins of yarn (almost all) were sold out valued at Rs. 11,202-6-9 leaving a balance of 15 bundles only as detailed below :—

Quantity of yarn sold.			
Count.	Bales.	Bundles.	Skeins.
6s	2	19	8
10s	10	9	17
20s	13	..	12
40s	..	30	21
Total ..	26	19	18

4. *Tanjavoor*.—There was a stock of 8 bales, 1 bundle and 14 skeins to which 12 bales were added on during the year. Of the total quantity, 18 bales, 22 bundles and 23 skeins valued at Rs. 10,681-3-0 were sold out as detailed below :—

Count.	Quantity of yarn sold.		
	Bales.	Bundles.	Skeins.
6s	1	26	5
10s	1	33	8
20s	14	38	14
40s	..	4	36
Total ..	18	22	23

5. *Madurai*.—There was a stock of 5 bales, 12 bundles and 13 skeins of yarn at the beginning of the year. Seven bales, 5 bundles and 26 skeins were received during the year on transfer from other divisions. Of them, 11 bales, 30 bundles and 35 skeins were sold for Rs. 6,995-2-3 as detailed below :—

Count.	Quantity of yarn sold.		
	Bales.	Bundles.	Skeins.
10s	3	11	16
20s	8	26	18
40s	..	1	1
Total ..	11	38	35

6. *Tuticorin*.—There was only a stock of 19 bundles and 4 skeins of yarn at the beginning of the year. Thirty-five bales, 0 bundles and 23 skeins were transferred from other divisions. Of these, 35 bales, 38 bundles and 0 skeins were sold for Rs. 17,162-3-1 as detailed below :—

Count.	Quantity of yarn sold.		
	Bales.	Bundles.	Skeins.
20s	27	10	4
3/20s	7	25	18
40s	..	2	18
Total ..	34	38	..

7. *Mettur Dam*.—There was a stock of 2 bales, 28 bundles and 15 skeins of yarn on the beginning of the year. All these yarn were sold out for Rs. 2,117-5-0 as detailed below :—

Count.	Quantity of yarn sold.		
	Bales.	Bundles.	Skeins.
20s	1	38	16
40s	..	30	39
Total ..	2	29	15

At the end of the year, a balance of 34 bales, 35 bundles and 32 skeins of yarn were left unsold in the various divisions. Steps are being taken to dispose them of as quickly as possible.

E. FISHERY MARKETING AND INFORMATION.

1. *Marketing*.—During the year under review the fish markets in the State were studied and inspected with a view to develop and expand the fish trade. The statistics regarding the price of fish in the markets were collected and furnished to the Economic Adviser every week.

Since consumers had an aversion for iced fish wide propaganda was done regarding the use of ice. By sale of Mettur iced fish, this prejudice has been successfully overcome and the public are now readily purchasing iced fish from the markets.

As an experimental measure, about 9,000 lb. of Mettur iced fish were transported from Mettur Dam to Calcutta via Madras. Re-icing was done at Madras and the fish reached Calcutta in prime condition after more than seventy hours.

A total quantity of 14,059 lb. were disposed of at Madras City during the year. In addition to this 484½ lb. of semi-dried prawns and 262 lb. of cured fish were disposed of. As an experimental measure, a small quantity of fish biscuits prepared at the Fisheries Technological Station were sold at the All-India Khadi Exhibition, Madras, and the public relished it.

Transport of fish from the landing centres to the consuming centres were arranged. Six vans were used for transport of fish from nearby fishing hamlets to the Madras City Markets and 370 tons of fish were thus lifted fetching a total hire charges of Rs. 12,377-10-0.

2. *Information and propaganda*—(i) *Library*.—The Fisheries Central Library continued to cater to the needs of departmental officers, trainees, polytechnic students, research workers and the public. During the year under report, 1,776 additions were made to the library and 500 books were issued for reference and return.

(ii) *Museum*.—The Fisheries Museum was very popular and was visited by many persons and served as an effective medium of propaganda for the various activities of the department. The following propaganda posters were prepared and exhibited as additions to the museum :—

- (1) Grow more fish.
- (2) Utility of fish.
- (3) Garden gives you food. Why not your pond ?
- (4) Fish facts.
- (5) Food value of fish.
- (6) Good news.
- (7) A problem swamp converted into a profitable pond.
- (8) Fertilizer.
- (9) Your attention please.
- (10) Calorific value of fish.
- (11) State aid to fisher folk.
- (12) Industrial fish oil.
- (13) Fish meal.
- (14) Vitamin from the ocean.
- (15) Semi-dried prawns.

(iii) *Aquarium*.—The old marine aquarium was revived on a modest scale after effecting some improvements to the old tanks with masonite sheets. The large aquaria tanks in the interior of the building were made rat proof and glasses fitted. These tanks are made use of in exhibiting food fishes. Besides fish pets were also displayed in smaller aquaria and the following native aquarium fishes were sold to the public and a sum of Rs. 371-5-0 was realized as sale-proceeds :—

- | | |
|-----------------------|-----------------------|
| (1) Barbus, ordinary. | (6) Glass fish. |
| (2) Striped Barbus. | (7) Giant Danio. |
| (3) Melan Barbus. | (8) Dwarf Gourami. |
| (4) Rasbora. | (9) Paradise fish. |
| (5) Zebra fish. | (10) Orange Chromide. |

(iv) *Propaganda—Exhibition in which the Department participated—*

A. Fisheries Technological Section, Kozhikode.—

- (1) Kozhikode Municipal Exhibition at Kozhikode.
- (2) Kerala Polytechnic Exhibition, Kozhikode.

B. Assistant Director, Vellore.—

- (1) The Katpadi Rural Exhibition.
- (2) The All-India Swadeshi Exhibition, Tiruvannamalai.
- (3) The All-India Khadi and Industrial Exhibition, Vellore.
- (4) The Social Welfare Exhibition at Pakkam on 13th March 1954

(Fish from backyard well) inaugurated by the Hon'ble Sri M. Bhaktavatsalam, Minister for Agriculture and Fisheries.

C. Assistant Director, Madurai.—(1) All-India Industries Exhibition, Virudunagar.

(2) Society for Prevention of Cruelty to Animals Exhibition, Madurai.

- (3) Cattle Show, Madurai.
- (4) District Teachers Guild Exhibition, Tiruppur.
- (5) Red Cross Exhibition, Coimbatore.
- (6) Society for Prevention of Cruelty to Animals Exhibition,

Coimbatore.

- (7) Government Arts College Exhibition, Coimbatore.
- (8) Toda Cattle Show, Ooty.
- (9) Prospect Estate Cattle Show (Nilgiris).
- (10) Jamabandy Exhibition, Coonoor.
- (11) Jamabandy Exhibition, Gudalur.
- (12) Society for Prevention of Cruelty to Animals Exhibition,

Kulakambam.

(13) Flower Show, Ootacamund.

D. Assistant Director, Tuticorin.—(1) Fourth National Exhibition and Health Festival, Tirunelveli.

(2) The 17th Industrial Exhibition, Tuticorin.

E. Assistant Director, Tanjavoor.—(1) The All-India Exhibition, Tiruchirappalli.

(2) The All-India Exhibition, Tanjavoor.

(3) The Annual Mahamakam Exhibition, Kumbakonam.

V. FINANCE.

The total expenditure and receipts of the department for the year under report (vide Appendix X for details) are furnished below :—

Expenditure.	Receipt.		Profit/Loss.	
	RS.	A. P.	RS.	A. P.
28,78,021 7 10	21,21,656	8 4	—	7,56,364 14 6
7,59 077 4 1	5,175	13 6	—	7,53,901 6 7
21,18,944 3 9	21,16,480	10 10	—	2,463 8 11

The charges on account of supervision, education, welfare and research schemes alone came to Rs. 7,59,077-4-1 and the receipt to Rs. 5,175-13-6, with a nett deficit of Rs. 7,53,901-6-7. As these schemes are of developmental nature, the charges have been deducted from the total charges which show a small deficit of Rs. 2,463-8-11. Hence the department may be considered to have worked on a self-supporting basis during the year.

APPENDIX I.

LIST OF FISH-CURING YARDS IN THE MADRAS STATE DURING 1953-54.

I. *East Coast.*

A. Vellore region—

- 1 Sathankuppam.
2 Kadapakkam.

C. *Madurai region*—

- 6 Attankarai.
7 Mukkur.

B. *Tanjavoor region—*

- 3 Adirampatnam.
4 Muthupet.
5 Arcot Thurai.

D. Tuticorin region—

- 8 Periathalai.
9 Ovari.
10 Idinthakarai.
11 Kuttapulli.

II. *West Coast:*

E. Malabar region—

- 1 Karimpuram.
- 2 Kodumbi (newly opened).
- 3 Nattika.
- 4 Vatanapalli.
- 5 Kadapuram.
- 6 Blangad.
- 7 Puthenkadapuram.
- 8 Edakazhiyoor (reopened).
- 9 Mannalamkunnu.
- 10 Palapatty.
- 11 Veliangode.
- 12 Puduponnana.
- 13 Koottayi.
- 14 Ponnani.
- 15 Paravanna.
- 16 Pudiakadapuram.
- 17 Tanur.
- 18 Parappanangadi.
- 19 Kadalundi.
- 20 Beypore (South).
- 21 Beypore (North) (reopened).
- 22 Naduvattam (newly opened).
- 23 Kozhikode.
- 24 Pudiappa.
- 25 Elathur (reopened).
- 26 Quilandy.
- 27 Meladi.
- 28 Badagara.
- 29 Madapalli.
- 30 Madakkara.
- 31 Thalayi.
- 32 Tellicherry.
- 33 Edakkad.
- 34 Cannanore.
- 35 Azhicode.
- 36 Mattool.
- 37 Madai.
- 38 Palacode.

F. Mangalore region—

- 39 Thaikadapuram.
- 40 Poonjavi.
- 41 Hosdrug.
- 42 Bekal.
- 43 Kizhur.
- 44 Adakathbail.
- 45 Kumbala.
- 46 Manjeshwar.
- 47 Ullal.
- 48 Mangalore.
- 49 Bockapatnam.
- 50 Thannirbhavi.
- 51 Baikampadi.
- 52 Hosabettu.
- 53 Moolky.
- 54 Kaup.
- 55 Polippu.
- 56 Udiawar.
- 57 Malpe I.
- 58 Malpe II (closed).
- 59 Paduthouse.
- 60 Kidiyur (closed).
- 61 Hungarcutta.
- 62 Gangoli.
- 63 Marawanthe.
- 64 Kirimanjeshwar (closed).
- 65 Tarapathi.

Number of the yards at the beginning of the year 71.

Newly opened 5.

Closed 3.

Number of yards at the end of the year
73.

APPENDIX II.

FISH CURING TRANSACTIONS IN THE MADRAS STATE DURING 1953-54.

Regional Office.	Number of fish-surveying parties.	Number of applications received.	Stock of salt on 1st April 1953.	Salt received during 1953-54.	Salt supplied to others.	Wastage of salt.	Salt consumed.	Balance of salt on 31st March 1954.	Issue price of salt.	Value of salt realized.	Fish let In.	Fish let out.									
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)								
			MDS.	SRS.	MDS.	SRS.	MDS.	SRS.	MDS.	SRS.	A. P.	MDS.	SRS.								
<i>West Coast.</i>																					
Mangalore	24	14,889	74,014	26	69,142	10	..	22	35	66,044	15	69,009	26								
										1 4 0	87,616	5 1	434,864	23	264,417	29					
										(from 1st April 1953).											
										1 5 0											
										(from 15th September 1953).											
										1 7 4	1,78,366	15 9	943,444	23	624,754	28					
										(from 1st January 1954).											
<i>East Coast.</i>																					
Vellore	2	1,055	83	20	826	0	..	..	..	..	909	20	..	..	..	..					
Tanjavoor	3	1,581	317	0	2,243	0	..	10	2,237	..	927	30	1 4 0	2,796	4 0	12,670	13	8,550	16		
Madurai	2	5,557	1,322	15	1,600	0	..	..	1,755	15	1,167	..	1 4 0	2,194	3 6	8,763	23	5,906	13		
Tutukudi	4	6,026	4,374	28	5,620	0	1,600	0	..	..	6,411	13	3,481	15	..	..	..	..	..		
							+203,390	..	..	..	..	..	..	..	..	..	..	..	..		
Total 1953-54..	73	69,644	199,700	05	2,20,177	04	2,05,024	6	23	05	2,12,898	16	198,241	28	..	2,30,287	8	61,434,539	35	928,456	18
Total 1952-53 ..	71	61,217	189,917	07	271,807	26	54	0	252	81	233,243	36	199,726	05	1 4 0	..	1,571,413	21	994,068	27	

APPENDIX III (a).

LIST OF POWER VESSELS BELONGING TO THE MADRAS FISHERIES DEPARTMENT DURING THE YEAR 1953-54
(UNDER DEEP-SEA FISHING SCHEME).

Serial number and name of vessel.	Description of vessel.	Where and when made.	Material in which made.	Dimensions in feet.				Tonnage.		Engine horse power.	Speed in knots.	Class of certificated personnel in charge.
				B.P.	D.A.	(Beam).	Moulded.	Gross.				
									Length.	Breadth.			Depth.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
1 M. S. "Lady Nicholson".	Motor Schooner.	Burn & Co., Calcutta.	Wooden Hull Copper sheathed.	88	107'	24'	11'	150	80	150	5-0	Master Tindal.
2 M.F.V. "Gowher Kallee II".	Motor Fishing Vessel (Admiralty No. 1085).	V. G. Forbes & Co. Saiderken Frasenbergh.	Do.	69' 2"	75' 7"	10' 8"	10'	77.42	33.55	160	8.5	Do.
3 M.F.V. "Tutdoorin".	Motor Fishing Vessel (Admiralty No. 182).	..	Do.	61' 6"	64' 6"	17' 10"	9' 3"	43.65	23.69	120 Kelvin.	9	Tindal.
4 M.F.V. "Calicut".	Motor Fishing Vessel (Admiralty No. 275).	..	Do.	61' 6"	64' 6"	17' 10"	9' 3"	43.65	23.69	88 Kelvin Diesel.	8.5	Do.
5 M.F.V. "Vidyanagar".	Motor Fishing Vessel (Admiralty No. 277).	..	Do.	61' 6"	64' 6"	17' 10"	9' 3"	43.65	23.69	88	8.5	Do.
6 M.F.V. "Adirampattanam".	Motor Fishing Vessel (Admiralty No. 660).	..	Wooden Hull Sheathed with crissled Timber.	45'	49' 10"	16' 13"	7' 10"	27.52	9.06	60 Atlantic Diesel.	7.5	Do.
7 M.F.V. "Mangalore".	Motor Fishing Vessel (Admiralty No. 871).	..	Do.	45'	49' 10"	16' 13"	7' 10"	27.52	9.06	Do.	7.5	Do.
8 M.F.V. "Madras".	Motor Fishing Vessel (Admiralty No. 641).	..	Do.	45'	49' 10"	16' 13"	7' 10"	27.52	9.06	Do.	7.5	Do.
M.F.V. "Kakinada".	Motor Fishing Vessel (Admiralty No. 899).	..	Do.	45'	49' 10"	16' 13"	7' 10"	27.52	9.06	Do.	7.5	Do.
10 M.L. "Sea Scout".	Motor Launch.	England 1928.	Teakwood Copper Sheathed.	43' 6"	..	29'	..	(Transferred to Andhra State).	20	40	8.65	Do.
11 M.L. "Laventel".	Do.	Cochin 1917.	Do.	28' 1"	..	8'	6' 7"	..	10	26.30	7	Do

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APPENDIX III (b).

STATEMENT OF WORKING OF DEPARTMENTAL VESSELS DURING 1953-54 (UNDER DEEP SEA FISHING SCHEME).

Name of vessel.	Centre where worked.	Number of days.		Tackle used.	Weight of fish caught.			Weight of shark liver obtained.	Total receipts.		Total expenditure.			
		trips worked.			Sharks.	Other fishes.			Total.					
		LB.	RS.			A. P.	RS.			A. P.				
M.F.V. "Madras"	..	Madras	75	} Shark lines	6,355	..	6,355	2,285	2,854	12	0	6,432	14	3
M.F.V. "Vijayanagar"	..	Do.	162		27,868	..	27,868	..	..	..	..	..	..	..
Chattamparam (1)	..	Nagapattinam	84	RCH	22,040	..	22,040	4,350	1,565	7	6	1,184	14	6
M.F.V. "Calicut"	..	Pamban	264	} Drift net	21,108	37,115	58,223	350	5,991	14	0	16,974	9	9
Chattamparam (2)	..	Do.												
M.L. Sea Scout	..	Do.	2	....	71	..	71	..	14	11	0	....	..	..
M.L. Leverett	..	Tutdoorin	..	Used for towing chank canoes during the season.	..	..	..	..	..	..	..	..	..	..
M.S. Lady Nicholson	..	Do.	..	....	..	..	..	..	..	..	..	..	..	..
M.F.V. Gowher Khabool	..	Do.	62	RCH and whiffing lines.	22,502	..	..	..	..	..	..	..	..	..
M.F.V. Tutdoorin	..	Do.	149	} Local nets	..	..	..	2,995	6,079	9	3	32,321	5	1
Tutdoorin Canoe (2)	..	Do.	96/15											
M.F.V. Adirampattanam	..	Do.	..	Under repairs.	..	..	..	..	..	..	..	..	..	..
M.F.V. Mangalore	..	Do.	..	..	..	..	..	..	..	..	..	..	..	..
M.F.V. Kakinada	..	Kakinada	..	Transferred to the Andhra State.	..	..	..	..	..	..	..	..	..	..
Dug Oats (9)	..	Malpe Padu Thouse and Ullal.	..	September 1953 to March 1954.	29,788	23,727	53,515	1,938	1,992	5	1	20,383	13	3
Total					129,732	67,169	196,901	11,918	18,498	10	10	77,297	8	10

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APPENDIX IV (a).

LIST OF POWER VESSELS BELONGING TO THE MADRAS FISHERIES DEPARTMENT, 1953-54 (UNDER CRAFT AND TACKLE SCHEME).

Serial number and name of vessel.	Description of vessel.	When and where built.	Material in which made.	Dimensions.			Tonnage.		Horse power.	Speed in knots.	Purpose for which used.	Their classified cost.
				Length.	Breadth.	Depth.	Gross.	Net.				
1 M.B. "Ajit"	Motor Boat.	Fisheries Department, 1948.	Wood	21'	7'	4'	5	3½	7.5 Kelvin E-2 Richa-do Engine (Kerosene Diesel) (Coventry Victor).	..	Fishing	6,000
2 M.L. 1	Motor Lug-ger.	Adiram-patnam (1950-52).	Do.	21' 3"	6' 6"	3' 4"	..	..	5.7 Single Cylinder	..	Do.	6,000
3 M.L. 2	Do.	Do.	Do.	22' 6"	6' 2½"	2' 4"	..	..	5.7 Coventry Victor Diesel (H.S.D. Oil).	..	Do.	6,000
4 M.L. 3	Do.	Do.	Do.	21'	6' 6"	3'	5	3½	7 Do.	..	Carrier	6,000
5 M.L. "Devika"	Do.	Do.	Do.	22' 4"	6' 2"	1' 9"	..	4	4 Yanmar Diesel	..	Fishing	6,000
6 M.L. "Durga"	Do.	Do.	Do.	22' 5"	6' 5½"	1' 9"	..	4	4 Do.	..	Do.	6,000
7 M.L. "Kumarswamy"	Do.	Tellicherry.	Do.	20' 10"	6' 7"	2' 6"	4½	3½	5.7 Coventry Victor Diesel (1500 R.M.).	..	Do.	6,000
8 M.L. "Madhu"	Do.	Do.	Do.	22' 2"	6' 5"	1' 9"	..	4	4 Yanmar Diesel (750 R.M.).	..	Do.	6,000
9 M.L. "Nandana"	Do.	Do.	Do.	22'	6' 3"	2' 6"	..	4	4 Do.	..	Do.	6,000
10 M.L. "Saraswathy"	Do.	Do.	Do.	22' 5"	6' 5"	4' 2"	..	3½	5.7 Coventry Victor Diesel (1500 R.M.).	..	Do.	6,000
11 M.L. "Victoria"	Do.	Do.	Do.	21' 3"	6' 8½"	4' 2½"	..	4	5.7 Do.	..	Do.	6,000
12 M.L. "Ponni"	Do.	Mettur Dam.	Do.	31' 6"	7' 1½"	2' 10"	..	..	10 Peter Diesel cylinder (Av. 2-M) Twin	..	Carrier	10,000
13 M.L. "Chitra"	Do.	Do.	Do.	21' 10"	6' 10"	1' 9"	..	4	5 Coventry Victor Diesel.	..	Fishing	6,000

(Transferred to Andhra State).

APPENDIX IV (b).

STATEMENT OF WORKING OF DEPARTMENTAL VESSELS DURING 1953-54 (UNDER CRAFT AND TACKLE SCHEME).

Name of vessel.	Centre where worked.	Number of days trips made.	Tackle used.	Weight of fish caught.		Total receipts.	Total expenditure.
				Sharks.	Other fishes.		
1 M.L. 3	Madras	April to July 1953.	RCH lines	LB.	LB.	RS. A. P.	RS. A. P.
2 M.L. Nandana	Pulicat	July 1953.	Transported fish.	2,016	..	427 14 0	4,176 13 9
3 M.L. Madhu	Malpe	90 March 1954.	Lines and nets	..	..	684 0 0	..
4 M.L. Devika	Tellicherry	18 ..	Do.	1,711	3,054	50	4,772 3 9
5 M.L. Durga	Kozhikode	17 ..	Do.	535	2,697	..	..
6 M.L. Chitra	Tellicherry	From October 1954.	..	13,545	9,998	217 12 0	..
7 M.L. Saraswathy	Do.	Up to March 1954.	..	5,761	27,898	2,961 10 0	4,643 14 3
8 M.L. Victoria	Do.	43 ..	..	50	4,832	2,650 5 0	..
9 M.L. Kumarswamy	Pamban	135 ..	..	5,127	21,193	2,97 11 0	19,379 8 6
10 M.L. 1	Kozhikode	200 ..	..	10,195	4,527	1,466 5 6	3,695 11 6
11 M.L. 2	..	..	Undergoing repairs and is under transfer to Porto Novo.	14,722	..	..	..
12 M.L. Ponni	Mettur Dam	..	Used for patrolling and transport of fish in the Mettur Dam Reservoir.	..	..	..	..
13 M.B. Ajit	..	..	Badly damaged during cyclone off Tanjavoor district.	..	..	..	..
Total for 1953-54				38,940	76,137	115,077 + 62,025	26,608 3 9

APPENDIX V.

STATEMENT OF SHARK LIVER OIL PRODUCTION IN THE MADRAS STATE DURING 1953-54.

Name of Region.	Number of centres.		Shark liver obtained.			Weight of liver sent to Government Oil Factory.	Weight of oil extracted.	Cost of liver.	Cost of extraction.	Total cost.
	Liver.	Oil.	Departmental Supply.	Purchased Locally.	Total.					
			LB.	LB.	LB.	LB.	LB.	RS. A. P.	RS. A. P.	RS. A. P.
West Coast—										
Mangalore ..	5	12	1,938	85,995	37,933	26,659	5,019	5,676 5 6	1,537 5 6	7,213 11 0
Malabar ..	16	9	239	29,239	29,478	24,131	1,490	4,454 4 0	778 7 6	5,232 11 6
Government Oilfactory.	..	..	..	..	..	..	19,849	....	....	....
East Coast—										
Vellore ..	..	3	2,697	2,091	5,788	..	3,024	1,608 4 0	977 7 3	2,585 11 3
Tanjavoor ..	..	9	4,350	14,765	19,115	..	10,032	5,637 5 6	....	....
..	..	2	975	255	1,120	..	144	74 11 0	7 12 0	82 7 0
Tuticorin ..	..	5	2,995	8,321	11,316	..	5,509	3,133 12 0	729 8 10	3,863 4 10
Grand total for 1953-54 ..	21	40	14,194	90,866	104,860	50,840	45,117	20,634 10 0		
Grand total for 1953-53 ..	61		6,763	73,678	80,441	26,790	20,231	14,542 10 6		

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APPENDIX VI.

STATEMENT OF INTENSIVE SEED COLLECTION AND DISTRIBUTION IN MADRAS STATE DURING 1953-54.

Region.	Target fixed.	Fish seed collected.			Fish seed distributed/stocked.						
		Collected.	Received.	Total.	In Depart- mental waters.	In Provin- cialized waters.	Supplied to other officers.	Supplied to private parties.	Mortality.	Kept in nurseries.	
<i>West Coast—</i>											
North Kanara ..	200,000	372,866	70,754	443,620	191,927	59,748	169,700	4,085	7,240	11,920	
Malabar ..	200,000	435,477	149,948	585,425	107,600	470,650	2,150	12,662	24,630	..	
Marine Biology Section ..	..	121,240	..	121,240	121,240	..	..	..	..	..	
<i>East Coast—</i>											
Vellore ..	306,000	1,188,020	282,070	1,470,090	680,734	638,800	..	36,907	164,149	..	
Tanjavoor ..	23,500,000	12,829,140	..	12,829,140	1,322,448	6,047,411	3,574,092	217,462	66,106	1,101,621	
Madurai ..	4,900,000	2,949,070	223,251	3,172,921	2,273,526	382,095	77,564	11,615	451,939	26,192	
Tuticorin ..	1,000,000	2,102,543	146,862	2,249,410	102,061	2,127,150	32,490	7,213	64,060	..	
Mettur Dam ..	500,000	363,995	18,566	382,560	538,826	21,446	..	850	492	..	
Fresh water section ..	..	32,000	..	32,000	32,000	..	..	..	..	..	
Grand total for 1953-54 ..	30,000,000	20,094,956	891,450	20,986,406	5,819,862	9,696,800	3,855,986	290,794	773,616	1,139,733	

APPENDIX VII.

West Coast.

LIST OF FISHERMEN CO-OPERATIVE SOCIETIES IN THE RESIDUARY MADRAS STATE.

1. South Kanara District.

Udipi Section.

- 1 Hadavinakone Fishermen Co-operative Society (Marine).
- 2 Tharapathy Fishermen Co-operative Society (Marine).
- 3 Kirimanjeshwar Fishermen Co-operative Society (Marine).
- 4 Maravanthe Fishermen Co-operative Society (Marine).
- 5 Gangoli Fishermen Co-operative Society (Marine).
- 6 Manoor Fishermen Co-operative Society (Marine).
- 7 Bijady Fishermen Co-operative Society (Marine).
- 8 Bangercutta Fishermen Co-operative Society (Marine).
- 9 Barkur Fishermen Co-operative Society (Marine).
- 10 Kodi Fishermen Co-operative Society (Marine).
- 11 Padu Thouse Fishermen Co-operative Society (Marine).
- 12 Malpe Fishermen Co-operative Society (Marine).
- 13 Udiawar Moger's Fishermen Co-operative Society (Marine).
- 14 Kaipunjai Fishermen Co-operative Society (Marine).
- 15 Mulur Fishermen Co-operative Society (Marine).
- 16 Bada Yerumal Fishermen Co-operative Society (Marine).
- 17 Tenka Yerumal Fishermen Co-operative Society (Marine).
- 18 Polippu Fishermen Co-operative Society (Marine).
- 19 Kaup Fishermen Co-operative Society (Marine).
- 20 Padubidri Fishermen Co-operative Society (Marine).
- 21 Sashithila Fishermen Co-operative Society (Marine).
- 22 Hejmady Fishermen Co-operative Society (Marine).
- 23 Moolky Fishermen Co-operative Society (Marine).

Mangalore Section.

- 24 Iddya Moger's Fishermen Co-operative Society (Marine).
- 25 Hosabettu Fishermen Co-operative Society (Marine).
- 26 Baikampadi Fishermen Co-operative Society (Marine).
- 27 Thanneerbhavi Fishermen Co-operative Society (Marine).
- 28 Mangalore Mogaveera Fishermen Co-operative Society (Marine).
- 29 Mangalore Bengre Fishermen Co-operative Society (Marine).
- 30 The South Kanara District Co-operative Fish Marketing Society, Mangalore (Marine).
- 31 Ullal Fishermen Co-operative Society, Mangalore (Marine).
- 32 Uchil Bovis Fishermen Co-operative Society (Marine).
- 33 Aila Bovis Fishermen Co-operative Society (Marine).
- 34 Manjeshwar Fishermen Co-operative Society (Marine).
- 35 Udiawar Bovis Fishermen Co-operative Society (Marine).
- 36 Kumbala Fishermen Co-operative Society (Marine).
- 37 Kavugoli Fishermen Co-operative Society (Marine).
- 38 Kasaragode Fishermen Co-operative Society (Marine).
- 39 Poonjavi Fishermen Co-operative Society (Marine).
- 40 Kizhur Fishermen Co-operative Society (Marine).
- 41 Kotikulam Fishermen Co-operative Society (Marine).
- 42 Bekal Fishermen Co-operative Society (Marine).
- 43 Manikoth Bovis Fishermen Co-operative Society (Marine).
- 44 Ajanur Fishermen Co-operative Society (Marine).
- 45 Kanhangad Fishermen Co-operative Society (Marine).
- 46 Nileshwar Fishermen Co-operative Society (Marine).
- 47 Nileshwar Bovis Fishermen Co-operative Society (Marine).
- 48 Kadangot Bovis Fishermen Co-operative Society (Marine).
- 49 Padne Kadapuram Fishermen Co-operative Society (Marine).
- 50 Udinoorkadapuram Fishermen Co-operative Society (Marine).
- 51 Trikarapur Bovis Fishermen Co-operative Society (Marine).

2. Malabar district.

- 52 Kavvayi Fishermen Co-operative Society (Marine).
- 53 Madai Fishermen Co-operative Society (Marine).
- 54 Azhicode Fishermen Co-operative Society (Marine).
- 55 Muzhappilangad Moger's Fishermen Co-operative Society (Marine).
- 56 Cannanore Women Fish Curers' Co-operative Society (Marine).
- 57 Thayyil Fishermen Co-operative Society (Marine).
- 58 'Thayyil Fishing Net-Makers Society (Marine).
- 59 Dharmadam Fishermen Co-operative Society (Marine).
- 60 Tellicherry Women Fishing Net Makers Co-operative Society (Marine).
- 61 'Tellicherry Aryajana Fishermen Co-operative Society (Marine).
- 62 'Tellicherry Fish Curers' Co-operative Society (Marine).
- 63 'Thalayi Fish Curers' Co-operative Society (Marine).
- 64 Azhiyoor Fishermen Co-operative Society (Marine).
- 65 Madakkara Mekkuva Fishermen Co-operative Society (Marine).
- 66 Madapilli Fish Curers' Co-operative Society (Marine).
- 67 Kuriyadi Fishermen Co-operative Society (Marine).
- 68 Meladi Fishermen Co-operative Society (Marine).
- 69 Kollam Fishermen Co-operative Society (Marine).
- 70 Qulilandy Fishermen Co-operative Society (Marine).
- 71 Tikkodi Fishermen Co-operative Society (Marine).
- 72 Veloor Moger's Fishermen Co-operative Society (Marine).
- 73 Kannan Kadavu Fishermen Co-operative Society (Marine).
- 74 Vengalam Fishermen Co-operative Society (Marine).
- 75 Elathur Fishermen Co-operative Society (Marine).
- 76 Pudiappa Fishermen Co-operative Society (Marine).
- 77 Kozhikode (North) Fish Curers' Co-operative Society (Marine).
- 78 Kozhikode Fishermen Co-operative Society (Marine).
- 79 Kozhikode Women Fish Net Maker's Co-operative Society.
- 80 Naduvattam Fishermen Co-operative Society (Marine).
- 81 Chaliyam Fishermen Co-operative Society.
- 82 Kadalundi Fishermen Co-operative Society.
- 83 Parappanangadi Fishermen Co-operative Society.
- 84 Aryan Kadapuram Fishermen Co-operative Society.
- 85 Pudla Kadapuram Fishermen Co-operative Society.
- 86 Paravanna Fishermen Co-operative Society.
- 87 Koottayi Fishermen Co-operative Society.
- 88 Ponnani Fishermen Co-operative Society.
- 89 Kodavanad Fishermen Co-operative Society.
- 90 Puduponnani Fishermen Co-operative Society.
- 91 Vellangode Fishermen Co-operative Society.
- 92 Palapaty Fishermen Co-operative Society.
- 93 Mannalamkunnu Fishermen Co-operative Society.
- 94 Tirunallur Fishermen Co-operative Society.
- 95 Puthenkadapuram Fishermen Co-operative Society.
- 96 Kadapuram Fishermen Co-operative Society.
- 97 Blangad Arya Jana Fishermen Co-operative Society.
- 98 Pallikadavu Kaivarthajana Fishermen Co-operative Society.
- 99 Chettuvayi Kaivarthajana Fishermen Co-operative Society.
- 100 Engandiyoor Devarajana Fishermen, Co-operative Society.
- 101 Engandiyoor South Kaivarthajana Fishermen Co-operative Society.
- 102 Talikulam Kadakodi Kaivarthajana Fishermen Co-operative Society.
- 103 Vatanapalli Kaivarthajana Fishermen Co-operative Society.
- 104 Talikulam South Mukkuva Kaivarthajana Fishermen Co-operative Society.
- 105 Talikulam Muslim Fish Trader's Co-operative Society.
- 106 Arrekara Bhagavathi Fishermen Co-operative Society.
- 107 Nattika South Arayajana Fishermen Co-operative Society.
- 108 Kodumbi Aryajana Fishermen Co-operative Society.
- 109 Pallipuram Arayajana Fishermen Co-operative Society.
- 110 Chandrappini Arayajana Fishermen Co-operative Society.

2. *Malabar district—cont.*

- 111 Vekkode Arayajana Fishermen Co-operative Society.
- 112 Perinchanam Arayajana Fishermen Co-operative Society.
- 113 Fort Cochin Arayajana Fishermen Co-operative Society.
- 114 Kozhikode South Beach Arayajana Fishermen Co-operative Society.
- 115 Palghat Inland Arayajana Fishermen Co-operative Society.
- 116 The Malabar District Co-operative Fishermen Marketing Society, Kozhikode (pending organization).
- 117 The Nattika Firka Net Makers Co-operative Society (under organization).

3. *Vellore Region.*

Madras district.

- 1 Kasimode Fishermen Co-operative Society (Marine).
- 2 Kasipuram Fishermen Co-operative Society (Marine).
- 3 Rayapuram Fishermen Co-operative Society (Marine).
- 4 Triplicane Fishermen Co-operative Society (Marine).
- 5 Mattan Kupparam Fishermen Co-operative Society (Marine).
- 6 South Madras Fishermen Co-operative Society (Marine).
- 7 Nochi Kupparam Fishermen Co-operative Society (Marine).
- 8 Uroor Kupparam Fishermen Co-operative Society (Marine).
- 9 Narayanaswami Garden Inland Fishermen Co-operative Society (Marine).

Chingleput district.

- 10 Pulicat Fishermen Co-operative Society (Marine).
- 11 Vallambedu Bharathavar Fishermen Co-operative Society (Marine).
- 12 Ennore Fishermen Co-operative Society (Marine).
- 13 Thiruvottiyur Fishermen Co-operative Society (Marine).
- 14 Tiruchira Kupparam Fishermen Co-operative Society (Marine).
- 15 Tiruvannamoor Fishermen Co-operative Society (Marine).
- 16 Neelankarai Fishermen Co-operative Society (Marine).
- 17 Kanathu Reddi Kupparam Fishermen Co-operative Society (Marine).
- 18 Padur Fishermen Co-operative Society (Marine).
- 19 Mahabalipuram Fishermen Co-operative Society (Marine).
- 20 Uyyalur Kupparam Fishermen Co-operative Society (Marine).
- 21 Sadras Fishermen Co-operative Society (Marine).
- 22 Pudupatnam Fishermen Co-operative Society (Marine).
- 23 Kadalur Periakupparam Fishermen Co-operative Society (Marine).
- 24 Kadapakkam Fishermen Co-operative Society (Marine).
- 25 Karunguzhi Fishermen Co-operative Society (Marine).
- 26 Uthiramerur Fishermen Co-operative Society (Marine).
- 27 Tenpakkam Fishermen Co-operative Society (Marine).
- 28 Iyengarkulam Fishermen Co-operative Society (Marine).
- 29 Kancheepuram Fishermen Co-operative Society (Marine).
- 30 Wallajabad Fishermen Co-operative Society (Marine).
- 31 Sriperumbudur Fishermen Co-operative Society (Marine).
- 32 Poonamallee Fishermen Co-operative Society (Marine).
- 32A Poondi Fishermen Co-operative Society (Marine).

North Arcot district.

- 33 Polur Sembadevar Fishermen Co-operative Society (Marine).
- 34 Kaveripauk Fishermen Co-operative Society (Marine).
- 34A Arni Fishermen Co-operative Society (Marine). (pending registration)

4. *Tanjavoor Region.*

South Arcot district.

- 35 Chidambaram Parvatharajakula taluk Fishermen Co-operative Society (Inland)
- 36 Vallampadugu Fishermen Co-operative Society (Inland).

4. *Tanjavoor region—cont.*

South Arcot district—cont.

- 37 Kurunjipadi Fishermen Co-operative Society (Inland).
- 38 Lalpet Fishermen Co-operative Society (Inland).
- 39 Kattumannargudi Fishermen Co-operative Society (Inland).
- 40 Udayangudi Fishermen Co-operative Society (Inland).
- 41 Killai Fishermen Co-operative Society (Marine).
- 42 Thandavaraya Sholagarpettai Fishermen Co-operative Society (Marine).
- 43 Porto Novo Fishermen Co-operative Society (Marine).
- 44 Tindivanam Fishermen Co-operative Society (Marine).
- 45 Kaipankuppam Fishermen Co-operative Society (Marine).
- 46 Hanumanthakuppam Fishermen Co-operative Society (Marine).
- 47 Koonimedu Fishermen Co-operative Society (Marine).
- 48 Mudaliar Chavadi Fishermen Co-operative Society (Inland).
- 49 Chellamkuppam Fishermen Co-operative Society (Marine).
- 50 Tirupapuliyur Fishermen Co-operative Society (Inland).
- 51 Ilinjanpettai Fishermen Co-operative Society (Inland).
- 52 Uppalavadi Fishermen Co-operative Society (Inland).
- 53 Sivanarpuram Fishermen Co-operative Society (Inland).
- 54 Sonankuppam Fishermen Co-operative Society (Marine).
- 55 Tiruvotti Fishermen Co-operative Society (Inland).
- 56 Tirukkoilur Fishermen Co-operative Society (Inland).
- 57 Kodaiampalayam Sea Fishermen Co-operative Society (Marine).

Tanjavoor district.

- 58 Tirumalaivasal Fishermen Co-operative Society (Inland).
- 59 Kaveripatnam Sea Fishermen Co-operative Society (Marine).
- 60 Koolaiyur Sea Fishermen Co-operative Society (Marine).
- 61 Tiruvenagiri Sea Fishermen Co-operative Society (Marine).
- 62 Madathukuppam Sea Fishermen Co-operative Society (Marine).
- 63 Tranquebar Sea Fishermen Co-operative Society (Marine).
- 64 Perumalpettai Sea Fishermen Co-operative Society (Marine).
- 65 Chandrapadi Sea Fishermen Co-operative Society (Marine).
- 66 Akkarapettai Sea Fishermen Co-operative Society (Marine).
- 67 Nambiarnagar Fishermen Co-operative Society (Marine).
- 68 Sambandanpettai Sea Fishermen Co-operative Society (Marine).
- 69 Thuraiyadu Sea Fishermen Co-operative Society (Marine).
- 70 Vedaranyam Arcot Street Sea Fishermen Co-operative Society (Marine).
- 71 Kodiakarai and Kodiakadu Sea Fishermen Co-operative Society (Marine).
- 72 Pettai Jambuvanodai Sea Fishermen Co-operative Society (Marine).
- 73 Eripurakkara Sea Fishermen Co-operative Society (Marine).
- 74 Karayur Fishermen Co-operative Society (Marine).
- 75 Muthukuda Sea Fishermen Co-operative Society (Marine).
- 76 Kattumavadi Jambuga Mahadevapatnam Sea Fishermen Co-operative Society (Marine).
- 77 Pudukudi Sea Fishermen Co-operative Society (Marine).
- 78 Pudupatnam Sea Fishermen Co-operative Society (Marine).
- 79 Tanjavoor Parvatharajakula Fishermen Society (Inland).
- 80 Kumbakonam Parvatharajakula Fishermen Society (Inland).
- 81 Papanasam Parvatharajakula Fishermen Society (Inland).

5. *Mathurai Region.*

Ramanathapuram district.

- 82 Rajapalayam Fishermen Co-operative Society (Inland).
- 83 Mukkaiyur (Mukkur) Fishermen Co-operative Society (Marine).
- 84 Pasipatnam Fishermen Co-operative Society (Marine).
- 85 Tiruppalakudi Fishermen Co-operative Society (Marine).

*Mathurai Region—cont.**Ramanathapuram district—cont.*

- 86 Thondi Fishermen Co-operative Society (Marine).
- 87 Nambuthalai Fishermen Co-operative Society (Marine).
- 88 Mullimunai Fishermen Co-operative Society (Marine).
- 89 Karangadu Fishermen Co-operative Society (Marine).
- 90 Devipatnam Fishermen Co-operative Society (Marine).
- 91 Panaikulam Fishermen Co-operative Society (Marine).
- 92 Muthupettai Fishermen Co-operative Society (Marine).
- 93 Pudumadam Fishermen Co-operative Society (Marine).
- 94 Attankarai Fishermen Co-operative Society (Marine).
- 95 Irumeni Fishermen Co-operative Society (Marine).
- 96 Mandapam Fishermen Co-operative Society (Marine).
- 97 Thangachimadam Fishermen Co-operative Society (Marine).
- 98 Rameswaram Fishermen Co-operative Society (Marine).
- 99 Dhanushkodi Fishermen Co-operative Society (Marine).
- 100 Keelakarai Fishermen Co-operative Society (Marine).

Mathurai district.

- 101 Palani Fishermen Co-operative Society (Marine).
- 102 Periyakulam Fishermen Co-operative Society (Marine).

Coimbatore district.

- 103 Harale Fishermen Co-operative Society (Marine).
- 104 Kuluvani Fishermen Co-operative Society (Marine).

*6. Tuticorin region.**Tirunelveli district.*

- 105 Tuticorin Fishermen Co-operative Society.
- 106 Pinnakayal Fishermen Co-operative Society.
- 107 Veerapandiapatnam Fishermen Co-operative Society.
- 108 Alanthalai Fishermen Co-operative Society.
- 109 Manapad Fishermen Co-operative Society.
- 110 Periathalai Fishermen Co-operative Society.
- 111 Ovari Fishermen Co-operative Society.
- 112 Koottapalli Fishermen Co-operative Society.
- 113 Tenkasi Fishermen Co-operative Society (Inland).
- 114 Periasamipuram Fishermen Co-operative Society (Inland).
- 115 Terku Kallikulam Fishermen Co-operative Society (Inland).

*7. Mettur Dam region.**Salem district.*

- 116 Mettur Dam Fishermen Co-operative Society (Inland).
- 117 Edapady Fishermen Co-operative Society (Inland) (pending registration).

APPENDIX VIII.

LIST OF FISHERIES SCHOOLS IN THE RESIDUARY MADRAS STATE.

1. South Kanara.

- 1 Kesarkodi Lower Elementary School.
- 2 Hadavinakone Elementary School.
- 3 Tarapathi Elementary School.
- 4 Kirimanjeshwar Elementary School.
- 5 Navunda Higher Elementary School (VIII Standard opened).
- 6 Manoor Lower Elementary School.
- 7 Kodi Elementary School.
- 8 Hungarcutta (Bengre) Lower Elementary School
- 9 Uppoor Elementary School.
- 10 Malpe Elementary School.
- 11 Malpe High School (V Form) opened.
- 12 Udiawar West Lower Elementary School.
- 13 Polippu Higher Elementary School.
- 14 Kaup Lower Elementary School.
- 15 Muloor Elementary School.
- 16 Yermal Elementary School.
- 17 Padubidi Elementary School.
- 18 Hejmadikodi Higher Elementary School.
- 19 Sandspit Lower Elementary School.
- 20 Sri Gnanodaya Elementary School.
- 21 Kumbala Elementary School.
- 22 Adakath bail Elementary School (converted into Lower).
- 23 Kizhur Higher Elementary School (converted into Higher).
- 24 Bekal Lower Elementary School.
- 25 Bekal Middle School (converted into Middle).
- 26 Ajanoor Lower Elementary School.
- 27 Kanhangad Higher Elementary School.
- 28 Hosdrug-Kadapuram Lower Elementary School.
- 29 Cheruvathur Higher Elementary School (VII Standard opened).
- 30 Udinoor-Kadapuram Lower Elementary School.

2. Malabar.

- 31 Kavvayi Lower Elementary School.
- 32 Azhicode Elementary School.
- 33 Madakkara Elementary School.
- 34 Madapalli High School.
- 35 Kuriyadi Lower Elementary School.
- 36 Meladi Elementary School.
- 37 Quilandi Higher Elementary School.
- 38 Kannankadavu Lower Elementary School.
- 39 Korapuzha, Elementary School.
- 40 Pudiappa Higher Elementary School.
- 41 Vellayil Higher Elementary School.
- 42 Naduvattam Lower Elementary School.
- 43 Chaliyam Elementary School.
- 44 Kadalundi Elementary School.
- 45 Parappannangadi Elementary School.
- 46 Ponnani Elementary School.
- 47 Puduponnani Elementary School.
- 48 Kadavanad Higher Elementary School.
- 49 Veliangode Lower Elementary School.
- 50 Palappatty Higher Elementary School.
- 51 Mannalamkunnu Lower Elementary School.
- 52 Puthendkadapuram Elementary School.

2. Malabar—cont.

- 53 Blangad Elementary School.
 54 Kottakadapuram Higher Elementary School.
 55 Kundazhiyur Elementary School.
 56 Talikulam Elementary School.
 57 South Nattika Higher Elementary School.
 58 Pallipuram Lower Elementary School.
 59 Kaipamangalam Higher Elementary School.
 60 Vekkode Lower Elementary School.
 61 Kadapuram Elementary School.

East Coast.

3. Vellore.

- 62 Ennore Adult Night School—Closed.
 63 Sathankuppam Lower Elementary School.
 64 Annamalaicheri Lower Elementary School.
 65 Alambaraikuppam Lower Elementary School—To be opened.

4. Tanjavoor.

- 66 Kaveripatnam Lower Elementary School.

5. Tuticorin.

- 67 Fisheries Technological Institute, Tuticorin—Closed.

APPENDIX IX.

LIST OF FISH TRANSPORT VANS IN THE RESIDUARY MADRAS STATE.

Serial number and number of vehicle.	Description of vans.	Scheme under which working.	Centre where working.	Condition.
1 MSZ. 1262 ..	Chevrolet van.	Fish Preservation and Transport.	Madras ..	(Under repairs.)
2 MSZ. 1335 ..	Do.	Do.	Do.	Do.
3 MSZ. 1540 ..	Ford van ..	Do.	Do.	Do.
4 MSZ. 1550 ..	Bedford van ..	Mettur Exploitation scheme.	Mettur Dam ..	(Under repairs.)
5 MSZ. 2529 ..	Ford van ..	Quick transport facilities.	Madras ..	Do.
6 MSZ. 2712 ..	Bedford van ..	Do.	Do.	Do.
7 MSZ. 2713 ..	Land Rover ..	Intensive seed collection.	Mathurai ..	Do.
8 MSZ. 2744 ..	Do. ..	Do.	Tanjavoor ..	Do.
9 MSZ. 2748 ..	Austin truck ..	Do.	Do.	Do.
10 MSZ. 2752 ..	G.M.C. Pick up.	Quick transport.	Bhavanisagar ..	(Under repairs.)
11 MSZ. 2762 ..	Land Rover ..	Intensive seed collection.	Kozhikode.	Do.
12 MSZ. 2763 ..	Do. ..	Do.	Vellore.	Do.
13 MSZ. 2788 ..	Do. ..	Do.	Mangalore.	Do.
14 MSZ. 2789 ..	Do. ..	Do.	Tuticorin.	Do.
15 MSZ. 2937 ..	Chevrolet station wagon.	Propaganda van.	Madras.	Do.
16 MSZ. 2968 ..	Fordson ..	Quick transport.	Mettur Dam.	Do.

Serial number and number of vehicle.	Description of vans.	Scheme under which working.	Centre where working.	Condition.
17 MSZ. 3102 ..	G.M.C. pick-up.	Quick transport.	Madras ..	(Under repairs.)
18 MSZ. 3158 ..	Commer van ..	Intensive seed collection.	Tuticorin.	Do.
19 MSZ. 3351 ..	Chevrolet van.	Quick transport.	Mangalore	Do.
20 MSZ. 3524 ..	Do.	Intensive seed collection.	Madras ..	(Under repairs.)
21 MSZ. 3589 ..	Do.	Quick transport.	Tuticorin.	Do.
22 MSZ. 3771 ..	Do.	Intensive seed collection.	Ootacamund.	Do.
<i>Trailors.</i>				
1 MSZ. 2940 ..	Trailor ..	Attached to Pick-up 3102.	Madras.	Do.
2 MSZ. 2821 ..	Do.	L.R. 2763 ..	Vellore.	Do.
3 MSZ. 2802 ..	Do.	L.R. 2762 ..	Malabar.	Do.
4 MSZ. 2794 ..	Do.	L.R. 2769 ..	Tuticorin.	Do.
5 MSZ. 2793 ..	Do.	L.R. 2788 ..	Mangalore	Do.
6 MSZ. 2791 ..	Do.	L.R. 2744 ..	Tanjavoor.	Do.
7 MSZ. 2764 ..	Do.	L.R. 2713 ..	Mathurai.	Do.

APPENDIX X (a).

STATEMENT OF EXPENDITURE AND RECEIPTS OF THE FISHERIES DEPARTMENT (BEFORE THE PARTITION OF THE STATE) FROM 1ST APRIL 1953 TO 30TH SEPTEMBER 1953.

Head of account.	Expenditure.		Receipts.		Profit/Loss.	
	RS.	A. P.	RS.	A. P.	RS.	A. P.
I. General—						
(a) Direction	88,813	4 0	..	..	..	..
(b) Pearl and Chank Fisheries	1,24,488	0 5	5,65,102	10 5	..	..
(c) West Coast Fisheries	13,926	0 9	..	..	..	..
(d) Technological Institute, Tuticorin.	3,570	12 3	..	..	..	..
(e) Inland Fisheries	1,47,173	0 0	1,15,951	2 6	..	..
(f) Exploitation of Mettur Fisheries ..	93,299	12 6	75,895	6 7	..	..
(g) Inland Fisheries Research	10,705	11 3	..	..	..	..
(h) Oyster Farm, Pulicat	685	5 6	701	14 0	..	..
(j) Marine Biological Section and Aquarium.	26,737	4 9	5,175	13 6	..	..
(k) Manufacture of semi-dried prawns.	4,175	1 3	4,501	1 0	..	..
(l) Control of Fisheries in Collair lake ..	9,911	14 9	926	5 0	..	..
(n) Mirror carp farm at Ooty, Nilgiris Fisheries.	5,504	12 0	1,991	8 8	..	..
(o) Fish Preservation and transport ..	13,892	9 3	7,112	8 0	..	..
(p) Fishery Marketing and Information.	19,871	7 8	..	..	..	..
(q) Rural Fishery Demonstration Units.	1,27,930	5 11	19,707	10 2	..	..
(r) Fisheries Schools	2,33,032	11 1	..	..	..	..
(s) Development of Hope Lake	1,281	2 6	..	..	..	..
(t) Madras Rural Pisciculture Scheme.	12,426	2 8	..	..	..	..
Sale-proceeds of materials to distressed fishermen in North Visakhapatnam.	..	..	252	5 0	..	..
II. Development Schemes—						
(a) Public Health Fish unit	3,453	4 0	..	..	..	..
(b) Fisheries Technological Station, Kozhikode	40,521	10 9	479	11 0	..	..

Head of account.	Expenditure.			Receipts.			Profit/Loss.
	RS.	A.	P.	RS.	A.	P.	
Fish Manure Industry	..	..	..	2,067	6	0	
(c) Investigation of Hilsa Fisheries ..	4,425	13	3	..	..	..	
(d) Fisheries Engineering staff ..	3,964	10	0	..	..	..	
(e) Fisheries Demonstration Factories.	6,920	9	9	7,913	0	9	
(f) Temporary Fishery Station at Thungabhadra.	3,627	8	0	..	..	..	
(g) Fisheries Welfare Scheme ..	21,912	3	0	..	..	..	
III. Schemes included in the Five-Year Plan (Grow More Food Schemes)—							
(a) Headquarters staff	5,339	3	9	..	..	..	
(b) Intensive seed collection and distribution.	70,395	2	7	5,437	11	4	
(c) Craft and tackle	36,368	13	1	4,396	15	6	
(d) Supply of yarn	8,281	0	3	56,718	8	3	
(e) Quick transport facilities ..	11,525	1	4	803	12	9	
IV. Scheme included in the Five-Year Plan other than Grow More Food Schemes—							
(a) Deep Sea fishing	92,241	14	3	10,266	9	8	
(b) Ice plant	5,244	5	3	..	..	..	
(c) Fish-curing yards	1,58,608	3	2	1,05,133	13	5	
V. Miscellaneous—							
Collection of Marine statistics ..	8,054	10	3	23,068	0	0	
Works	17,548	10	0	..	..	..	
Stores for India	5	15	0	..	..	..	
Rent of buildings	..	..	..	3,412	6	0	
Miscellaneous	..	..	..	60,057	12	0	
R.O.P.	..	..	..	7,896	1	0	
Collection of payments	..	..	..	1,252	11	0	
Refunds	..	..	..	(—)78,558	8	0	
Total for six months ..	14,35,868	0	0	(—)10,09,252	15	6	(—)4,26,615 15 10

APPENDIX X (b).

STATEMENT OF EXPENDITURE AND RECEIPTS FOR THE FISHERIES DEPARTMENT
(AFTER PARTITION OF THE STATE) FROM 1ST OCTOBER 1953 TO 31ST MARCH 1954.

		40 LB. FISHERIES.									
Head of account.				Expenditure.			Receipts.			Profit/Loss.	
				RS.	A.	P.	RS.	A.	P.	RS. A. P.	
I. General—											
(a)	Direction	..	..	..	33,859	14	9	..	..	..	
(b)	Pearl and Chank Fisheries	..			2,14,163	10	3	6,55,013	2	6	
(c)	West Coast Fisheries	..	..		12,530	3	3	..	..	..	
(d)	Technological Institute, Tuticorin.				497	3	0	..	..	..	
(e)	Inland Fisheries	..	..	..	82,130	6	3	75,959	7	9	
(f)	Exploitation of Mettur Fisheries	..			50,851	6	6	47,873	7	8	
(g)	Inland Fisheries Research	..	..		11,424	13	0	..	..	..	
(h)	Oyster Farm, Pulicat	..	..		741	9	6	608	6	6	
(j)	Marine Biological Section and Aquarium.				26,715	12	3	..	..	..	
(k)	Manufacture of semi dried prawns.				2,138	4	6	2,577	6	3	
(m)	Mirror carp Fish Farm at Ooty	..			7,208	11	2	3,214	5	9	

Head of account.	Expenditure.			Receipts.			Profit/Loss.
	RS.	A.	P.	RS.	A.	P.	
(n) Fish preservation and transport.	15,682	12	9	6,665	2	0	
Nilgiris fisheries {.. ..	..	..	..	3,963	2	3	
(o) Fishery Marketing and Information.	13,326	11	9	..	..	..	
(p) Rural Fishery Demonstration Units.	56,276	15	4	4,949	5	3	
(q) Fishery Schools	2,36,751	12	6	..	..	..	
(r) Development of Hope Lake ..	1,018	1	9	..	..	..	
(s) Rural Piscicultural Research Scheme.	9,139	13	3	..	..	..	
(t) Technical Assistance by F.A.O. ..	3,066	6	0	..	..	..	
Sale proceeds of materials to distressed people in North Visakhapatnam.	..	..	..	362	9	6	

O. DEVELOPMENT SCHEMES.

(i) SCHEMES INCLUDED IN THE FIVE-YEAR PLAN.

C. Fisheries—							
(i) Deep Sea fishing operations ..	59,578	11	4	13,346	2	7	
(ii) Installation of ice plant	5,956	2	8	..	..	..	
(iii) Fish curing yards	3,98,832	1	4	1,85,880	1	6	
(iv) Headquarters staff	2,434	8	0	..	..	..	
(v) Intensive seed collection	76,259	4	4	3,690	12	4	
(vi) Craft and tackle	30,368	6	3	7,737	15	10	
(vii) Yarn supply	209	14	3	31,897	2	5	
(viii) Quick transport facilities ..	17,914	0	6	976	5	0	

(ii) OTHER DEVELOPMENT SCHEMES.

D. Fisheries—							
(i) Public Health Fish Unit	2,941	13	9	..	..	..	
(ii) Fisheries Technological Station, Kozhikode.	18,260	8	10	90	1	3	
(iii) Hilsa fishery	..	..	..	..	..	..	
(iv) Fisheries Engineering staff ..	2,623	3	0	..	..	..	
(v) Fisheries Demonstration Factories.	10,387	8	6	6,255	7	3	
(vi) Temporary Fishery Station at Thungabhadra.	..	..	..	..	..	..	
(vii) Fisheries Welfare Scheme ..	14,674	15	0	..	..	..	
(viii) n. Works (Fisheries)	180	13	0	..	..	..	
Rent on buildings	..	..	..	676	15	0	
Miscellaneous	..	..	..	25,060	7	3	
Collection of Marine statistics ..	..	..	..	5,092	1	0	
R.O.P.	..	..	..	23,769	8	6	
Collection of payments	..	..	..	560	0	0	
Refunds	..	..	..	(—) 284	9	0	
Cost of publication	6	2	0	..	..	..	
Total for six months ..	14,42,152	8	6	11,12,403	8	10	(—)3,29,748 15 8

APPENDIX X (c).

STATEMENT OF EXPENDITURE AND RECEIPTS OF THE FISHERIES DEPARTMENT
FOR THE YEAR 1953-54.

Total for the year 1953-54.

	Expenditure.			Receipts.			Profit/Loss.		
	RS.	A.	P.	RS.	A.	P.	RS.	A.	P.
From 1st April to 30th September 1953 ..	14,35,868	15	4	10,09,252	15	6	(-) 4,26,615	15	10
From 1st October 1953 to 31st March 1954.	14,42,152	8	6	11,12,403	8	10	(-) 3,29,748	15	8
Total for 1953-54 ..	28,78,021	7	10	21,21,656	8	4	(-) 7,56,364	15	6
Deduct—Charges on Supervision, Education, Welfare and Research Schemes. (Which are of developmental nature but not profit earning.)	7,59,077	4	1	5,175	13	6	(-) 7,53,901	6	7
Nett ..	21,18,944	3	9	21,16,480	10	10	(-) 2,463	8	11

MISCELLANEOUS



AGRICULTURE DEPARTMENT

G.O. No. 626, 4th March 1955

Administration Report—Fisheries Department—1953-54—Recorded with remarks.

READ—the following paper:—

Letter from the Director of Industries and Commerce,
dated 29th September 1954, No. 570-M-5/54.

Order—No. 626, Agriculture, dated 4th March 1955.

The report of the working of the Fisheries Department for the year 1953-54 submitted by the Director of Industries and Commerce is recorded with the following remarks.

2. *Administration.*—During the period under review, the Fisheries Department was brought under the control of the Director of Industries and Commerce as a result of the reorganization of the Departments consequent on the Andhra Separation and the post of a separate Director of Fisheries was abolished. Sri K. N. Anantaraman, I.C.S., was the Director of the separate Fisheries Department till September 1953 and Sri E. P. Royappa, I.A.S., Director of Industries and Commerce, took charge of the Department in November 1953, and in the interim period Sri V. John, Deputy Director of Fisheries was in charge and acted for some time as the Director of Fisheries.

3. It was ordered that the Report for 1953-54 should be published in two parts, the first part dealing with the Composite State for the pre-Partition period, and the second part dealing with the present Madras State. The report under review deals only with the Residuary State, as the Director of Industries and Commerce has explained that particulars in respect of the areas now under Andhra were not available. To avoid delay, it is proposed to publish the report in the form submitted. The Government of Andhra have been informed of the position.

4. During the year the following schemes were continued :—

- (i) Intensive seed collection and distribution.
- (ii) Provision of quick transport vans.
- (iii) Improvement of indigenous crafts and tackles.
- (iv) Salt subsidy for fish-curing yards.
- (v) Exploitation and development of Mettur and other Reservoir fisheries and other departmental waters.

The following new schemes were also launched during the year :—

- (i) Paddy-cum-fish culture.
- (ii) Fish culture in backyard wells.

5. *Fisheries Research*—(a) *Marine Biological Research*.—The information given in the report regarding the work of the Biological stations at West Hill, Krusadai, Ennore and Tuticorin is meagre and does not help to draw useful conclusions. What the programme of work of the stations is, what work was actually done, and what was left undone should be given in the report in future.

(b) *Inland Fishery Research*.—The work done in this direction also appears to be in many cases not purposive, and no conclusions could be reached.

(c) *Fisheries Technological Research*.—It is gratifying that the programme for the next year is given in this section. The items of work done during the year under review however appears to be rather meagre.

(d) *Fishery Demonstration Factories*.—The Government note the increased output of fish manure and fish meal at the six Fishery Demonstration Factories at Rameswaram, Adirampatnam, Pulicat, Malpe, Tanur and Kozhikode, the output being 60,093 lb. of fish manure and 17,097 lb. of fish meal as against 59,938 lb. of fish manure and 7,374 lb. of fish meal during the previous year.

(e) *Fish Preservation and Transport*.—The construction of quick freezing Ice-cum-Cold Store plants at West Hill and Mangalore progressed well, and the plant at West Hill has since started its trial work. In order to enable the fishermen to take their catches to the distant and better markets without spoilage, 22 fish vans were running at different centres during the year under review. But complaints were heard that refrigeration transport vans were not put to proper use and that motor vans were diverted to other uses. More careful check of the working of these vehicles is necessary.

(f) *Publications*.—It is gratifying to note that a number of articles were brought out by the members of the staff during the year under review.

II. DEVELOPMENT AND EXPLOITATION WORK.

(a) *Fish-curing Yards*.—The Government note the decrease in the transactions in the fish-curing yards all over the State during the year under review, except in Vellore and Madurai regions, and hope that there would be an appreciable increase in the yard transactions. Complaints are occasionally heard that there are malpractices by the

yard staff. The Director should put down these malpractices as far as possible.

(b) *Pearl Fisheries*.—There has been no pearl fishing since 1926–28. The Government enquired into the question why there had been no pearl fishing at all since then. A major inspection of pearl beds off Tuticorin was conducted during the year under review, and good pearl fishery in 1955 is expected. In future, systematic inspections should be made every year and a report submitted to Government.

(c) *Chank Fisheries*.—The Government note that the operations in chank fishing were on the whole satisfactory during the year under review. There was an appreciable increase in the total number of full sized chanks fished during the year, the catches being 916,080 as against 658,512 during the previous year. However the importance of proper supervision, prevention of fishing of undersized shells and proper gauging and classification for purposes of payment should be insisted upon. The report does not give the statistics of chanks fished by the lessees of Ramanathapuram, Tanjore, South Arcot and Chingleput districts during 1951–52, 1952–53 and 1953–54. The omission should be rectified in the next report.

(d) *Deep-sea Fishing*.—The Government note with regret that the operations during the year under review were rather disappointing due to a variety of reasons, chief of them being that the vessels in commission are very old and inefficient. The decline in catches in the South Kanara Coast is attributed to the scarcity of sharks while the absence of any operation at all in the Malabar Coast is said to be due to the reluctance of the fishermen to work on departmental boats under the one-third share system. While some steps have been taken to modify the conditions of the contract system in South Kanara district to induce the fishermen to work under it, it is not clear why steps have not been taken on the Malabar Coast to improve matters. The Director should submit a separate detailed report on the matter. The Government note with gratification the good progress in the results achieved at any rate in the Tuticorin Deep-sea Fishing Centre due, it appears, to the special interest taken by officers and staff in charge of the work, and they would like to see the same interest exhibited by the staff in other centres also, and the deep-sea fishing operations made to yield better results in the coming year.

(e) *Craft and tackle*.—The details given in the report on this important aspect of fishery work are meagre. The department is now having the services of two Food and Agricultural Organization Experts and on their departure a competent Fisheries Engineer or Naval Architect would appear to be necessary. As the existing officers are only men trained in Zoology, their knowledge of boat building and tackle designing must necessarily be limited. Meanwhile the Assistant Director of Fisheries (Craft and Tackle) should concentrate more attention on the research work on the lines indicated by the Food and Agriculture Organization Experts. The receipts under the scheme amount to only about Rs. 12,000 as against an expenditure of about Rs. 26,600. The Government of India have declined to sanction any grant for this scheme on the ground that it is not capable of bringing profits. It should therefore be the endeavour of the department to increase the catches by improved crafts and tackles substantially, and to work the scheme on a self-supporting basis in future.

III. INLAND FISHERIES.

The Government note the fairly successful working of the licensing system of fishing in several waters, though the working of the stake-net fishing rules in Malabar were not quite satisfactory. The licensing system in the Mettur Dam Reservoir appears to have been popular. However, there seems to be several misconceptions in the minds of fishermen against the licensing system. The Fisheries Department should carry on effective propaganda to remove these misconceptions and to secure the co-operation of fishermen essential for the successful working of the licensing system in the several places.

(a) *Intensive seed collection and distribution.*—The Government note that although the target assigned for the scheme during the year under review might not have been reached, the total number of fingerlings collected was satisfactory, being 20,094,956 as against the target of 30,000,000. The scheme must be pursued with vigour and the target fixed should be achieved during the following year.

(b) *Rural Fishery Demonstration Units.*—At different centres the Rural Fishery Demonstration Units continued to do useful work giving impetus to the public to take up pisciculture. No special section has been allotted in the report for fishery development work omission in the Community Project and National Extension Scheme areas. This must be rectified in future reports.

(c) *Mettur Fishery Exploitation Scheme.*—This scheme continued to function during the third year of its inception. Though there was plentiful supply of water during the year, there was a decrease in the total quantity of fish landed during the year, the quantity being 450,246 lb. as against 940,895 lb. during the previous year. It is hoped that the scheme will show better results during 1954-55.

(d) *Paddy-cum-Fish culture.*—A pilot scheme of paddy-cum-fish culture has been launched at the end of the year with great optimism in an area of 300 acres in Tanjore district with an anticipated yield of 775 lb. of fish per acre. But recent reports indicate that it has been a failure owing to various causes. The causes should be investigated and defects rectified.

(e) *Fish culture in backyard wells.*—The scheme was started vigorously in 1,000 wells in each of the districts of Chingleput, North Arcot, Coimbatore and Salem during the year. The Government hope that the wells are inspected and fish culture is giving satisfactory results. Such follow up works in schemes like this is quite necessary.

IV. SOCIO-ECONOMIC WORK.

(a) *Fishermen Co-operative Societies.*—The Government note that there has been an increase in the number of Fishermen Co-operative Societies in the State during the year, the total number being 231 as against 176 during the previous year. However the need for co-operative societies supplying power boats to groups of fishermen does not appear to have been realized. The Government hope that this work will be taken up at least this year.

(b) *Fishery schools.*—The Government note the satisfactory working of the Fishery schools during the year.

(c) *Fishery marketing and information.*—No proper selling depots appear to have been organized for the sale of Mettur fish in Madras City. Apart from a few posters, no pamphlet were published by the department giving information about fishery work. No work of any kind appears to have been attempted in audio-visual education of fishery folks.

6. *Five-Year Plan.*—There is no separate section in the report indicating in detail the progress of work on schemes falling under the Five-Year Plan. This is an omission which must be rectified in future reports.

7. *Administration of Fisheries Acts.*—There is no section indicating the work of the Inland Fisheries Act and other Fisheries laws and the rules made thereunder. This omission must be rectified in future reports.

8. *Finance.*—The total revenue of the Department for the year under review amounted to Rs. 21,21,700 and the expenditure Rs. 28,78,000. The Government hope that the deficit will be considerably reduced during the succeeding years by suitable measures, devised to increase the revenue under the various schemes and by restricting expenditure to the utmost extent possible.

9. *Preparation of the Report.*—The report is very impersonal and free from any critical assessment of the work. Several sections in the report do not start with a preliminary summary giving the purpose or objectives aimed at and the achievements. It is found very difficult to draw inferences from bald statements and figures in the absence of corresponding facts and figures given for the previous year. Apart from such prefatory remarks as suggested above at the beginning of each section, there should be a preliminary chapter giving the salient features of the administration of the department during the year, written personally by the Director of the Department. The appendices to the report should cover more fishery statistics for the whole State under classified headings. There should also be a glossary appended to the report explaining the various Latin names and their corresponding local names. The Director of Industries and Commerce is requested to see that these improvements are carried out in the next report.

10. *General.*—At the time of the review of the last report in November 1954, the Government expected substantial improvements in the year under report, and as a result thereof, the Director also subsequently issued a circular memorandum to all officers of the Department calling for suggestions for improving the efficiency of the department and for the development of fisheries. The report is silent as to what steps were taken to implement the direction of the Government in this regard.

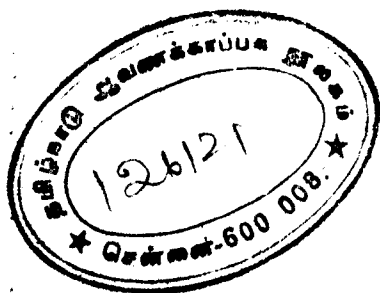
11. *Conclusion.*—The working of the department is on the whole satisfactory. But more remains to be done. The potentialities for fishery development in this State are almost unlimited. Such development will not only enhance the food resources of the State but would also provide increased employment and prosperity to a sector of the population and add to the revenues of the State. The work of the department is highly technological and also requires organizational and administrative ability. The Government trust that progress in research and technological improvements will be aimed at and all efforts will

be made to make the work of the Department more dynamic, to avoid wastages in expenditure and leakages in revenue and to put down inefficiency and malpractices wherever they exist. With the increased facilities and assistance available to some extent in the shape of Food and Agricultural Organization and Technical Co-operation Aid and fairly larger appropriations for fisheries schemes, the Government hope that all officers of the department would work in perfect co-ordination and bend their energies towards making the department a truly nation building department and establishing a well-developed fishing industry.

(By order of the Governor)

N. MURUGESA MUDALIAR,
Deputy Secretary to Government.

To the Director of Industries and Commerce.
.. Controller of Stationery and Printing, Madras.
.. Agriculture (Food Production) Department.
Copy to Stock File.



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