ENT, WESTERN AUSTRALIA

MONTHLY SERVICE BULLETIN

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## OBITUARIES

On February 7 at Bridgetown Major Hubert Massey Whittell, O.B.E., died after a long illness. He was born in London on March 24, 1883, and was educated at Edinburgh University. He served with the Royal Sussex Regiment from 1904 as a Second Lieutenant, was appointed a captain in the Indian Army in 1913 and promoted to major in 1918. Upon his retirement from the Army in 1926 he took up farming in Bridgetown. Major Whittell was for many years actively interested in ornithology and was president of the R.A.O.U. from 1941 to 1943. He was appointed a member of the Fauna Protection Advisory Committee on its establishment in 1946. In co-operation with Dr. D. L. Serventy, he wrote two important works, namely "A Systematic List of the Birds of Western Australia" and "A Handbook of the Birds of Western Australia". He had completed a further book, "The Literature of Australian Birds", and this has been in the hands of the publishers for some time. A commonwealth grant had been bestowed upon him to assist him in research on the subject. He left a widow, a daughter and two sons to whom is extended the sincere sympathy of the staff of the Department.

We were shocked to hear of the death of Mr. A. J. Davis on the 2nd February and extend our deepest sympathy to his bereaved. In 1947, after 6 years' service in the R.A.A.F., Darkie, as he was popularly known, entered into partnership with Mr. W. Taylor and commenced

transporting fish by road between Perth and Merredin and on the Nungarin loop. Stocks of fish were obtained from freezer boats and sold to shops and from the van en route. A specially refrigerated van was built to extend the service to Kalgoorlie but when the crayfish export began to boom the van was used to transport frozen tails from Geraldton to Robbs Jetty. Their refrigerated transport was the first used in this State and probably the first in Australia. Darkie was a most popular man and will be sorely missed by his friends and by the industry generally.

## STAFF NOTES

The Superintendent (Mr. A. J. Fraser) returned by train from the eastern States on the 17th February.

Mr. Ian Bartholomew of Head Office resumed duties on the 18th February and Mr. Bill Robinson, who relieved in Mr. Bartholomew's position, ceased duty on the 18th to continue his studies at the University.

Inspector F. A. L. Connell recommenced duty after annual leave on the 23rd February.

Inspector M. Goodlad has arrived in Perth, looking very fit, to enjoy his biennial leave.

Captain H. C. W. Piesse, Inspector R. M. Crawford and Cadet Inspector M. J. Simpson form the crew of the "Lancelin" for research work between Rottnest and the Leeuwin.

P. V. "Kooruldhoo" is on the slips at Fremantle being overhauled for patrol work in the Geraldton-Abrolhos area during the crayfishing season there. Her crew will comprise Inspector F. A. Connell and Cadet Inspectors B. A. Carmichael and J. Milne.

The Bunbury launch is being refitted with a Stewart Marine engine replacing the Chapman Twin and will be towed to the Abrolhos by the "Kooruldhoo"

to act as a tender. At the completion of the Abrolhos season, the launch will be available for use by the Geraldton inspectors.

Assistant Inspectors N. E. McLaughlan and J. C. Thair will use P.V. "Garbo" for patrols in the Lancelin area.

Assistant Inspector V. J. Sinclair is stationed in the metropolitan area to assist on inspections in the Perth and Fremantle districts.

nspector A. J. Bateman is patrolling in the "Silver Gull" in the Safety Bay-Rottnest-Fremantle area.

## PERSONAL PARS

Our congratulations are extended to Mr. A. D. Butcher, M.Sc., Director of Fisheries and Game in Victoria. Mr. Butcher has been awarded one of the five Commonwealth Fund Fellowships offered in 1954 to outstanding men and women holding service appointments under the Commonwealth and State Governments of Australia. The Directors of the Fund believe that international education and travel lead to a greater mutual understanding and amity between countries and to foster these purposes award fellowship for advanced study and travel to the United States. Mr. Butcher expects to leave for the U.S. later in the year.

Our congratulations are extended to Messrs. Harry Jitts and Graham Chittleborough, of the C.S.I.R.O., who have recently been presented with a son and daughter, respectively. In Graham's case we hope that his daughter will soon have something better to play with than the cat!

We regret to hear that Dr. H. Thompson, Chief of the Fisheries Division of the C.S.I.R.O., has suffered a serious illness and extend our sincere sympathy.

Recent C.S.I.R.O. visitors to W.A. included Dr. S. H. Bastow, Assistant Chief Executive Officer, Mr. D. J. Rochford, Principal Research Officer in Charge of Oceanography and Hydrology, and Mr. M. G. Grace, A.I.C.A., Secretary of Finance and Supply. During his visit in February Dr. Bastow called on the Superintendent and discussed with him present and future fisheries investigations. Mr. Rochford also conferred with the Superintendent and will return to the east on the 4th March.

## VISIT OF MINISTER AND SUPERINTENDENT TO EASTERN STATES

Leaving Perth by air on the evening of January 18, the Minister for Fisheries (Mr. Kelly) and the Superintendent (Mr. Fraser) arrived in Sydney the following morning.

The same afternoon a call was paid on the Chief Secretary of N.S.W. (Hon. C. A. Kelly, M.L.A.) who administers the fisheries laws of that State. With Mr. Kelly and his Under Secretary, Mr. C. J. Buttsworth, who takes a very keen interest in the Fisheries Branch of his Department, discussions were held in relation to the marketing setup in N.S.W.

From information afforded by Mr. Buttsworth it seems that there are now thirteen fishermen's co-operatives active in various parts of N.S.W. - a few others established when the co-operative scheme was introduced about eight years ago are now either out of existence or in process of winding up. The co-ops have the sole right to sell fish by wholesale in their respective districts, and although the fishermen are free to send their catch direct to any declared market, including the Sydney market, they (the individual fishermen) are not permitted to sell by retail or to any shop. All this must be done through the co-op. The co-ops. themselves may, and many do, sell by retail. All fish surplus to the co-ops' immediate requirements are sent to a central market, e.g., Sydney or Brisbane, to be sold either at auction (as in Sydney) or by allotment to buyers at ceiling prices (as in Brisbane). One

of the co-ops. in northern N.S.W. has departed from the normal practice, in that it has appointed a selling agent in Queensland. This agent has an established clientele whom he supplies direct, and in consequence this fish is not passed through the Brisbane market. Section 92 of the Commonwealth Constitution is evidently a bar to any action which the Fish Board of Queensland may contemplate.

In Sydney the market is controlled by the Chief Secretary, who by the Fisheries Act is created a corporation sole for this purpose. No fish - except certain exempt lines, principally oysters and imported fish - may be sold by wholesale in the Sydney area unless it has first been sold in the market. Auctions are held daily, but price fixing is still in force in N.S.W., and as soon as a bid of the maximum fixed price is received selling ceases in regard to the line in question. The Minister and the Superintendent attended an early morning (6.30a.m.) sale on January 21.

Mr. Kelly (Mr. L. F. Kelly) desired to see some co-ops. in operation, and arrangements were accordingly made by Hon. C. A. Kelly for a visit to the co-op. at Brooklyn, on the Hawkesbury River. This was made on January 20. Mr. A. J. Mockler, of the N.S.W. Registry of Co-operative Societies and Friendly Societies, who possesses a fund of information relating to the establishment and progress of the fishermen's co-ops., accompanied them. The Brooklyn co-op. is one of the smaller establishments, and is dependent to a large extent on its well-organized retail business. Brooklyn is only about 35 miles from Sydney, and it was stated that the Hawkesbury River, which in former years was one of the foremost fish producers, is considerably less productive nowadays. This co-op. has one or two small rooms for weighing and packing fish, as well as a couple of rooms for the storage of ice (brought from Hornsby, about 20 miles away) and fish. It also has a nice shop front with an electric cooker. The staff consists of two women (one the secretary of the co-op.) and a labourer. While at the Hawkesbury Fisheries Inspector R. H. Burrows took Messrs. Kelly, Fraser and Mockler in his departmental launch for a river

inspection. Here a stop was made at one of Messrs. Johnson Bros'. oyster farms in Mullet Creek where culling operations were in progress. Here opportunity was taken to sample some of the farm's excellent produce.

The President (Mr. R. Fowler) and a member of the executive (Mr. G. M. Rochester) of the Master Fish Merchants' Association of N.S.W., and the Secretary (Mr. J. H. Facey) and executive officers of the United Fishermen's League were interviewed on separate occasions on the following day, and the points of view of these bodies in relation to the fish marketing system in N.S.W. were freely expressed. While in Sydney opportunity was also taken to pay a call on Dr. H. Thompson, Chief of the Division of Fisheries, C.S.I.R.O., at Cronulla, and to inspect the Division's laboratories. A call was made on the Premier of N.S.W. (Hon. J. J. Cahill, M.L.A.) who entertained the visitors at afternoon tea in his office. Later a call was paid on Mr. N. V. Harris, Superintendent of Fisheries, who had played an important part in the visitors' transport arrangements.

On January 25, the Minister and Superintendent travelled by flying-boat from Sydney to Grafton, where they were met by Messrs. T. J. Morrissey, Inspector of Fisheries, Maclean, and Noel Gallagher, Managing Secretary of the Clarence River Fishermen's Co-op. Society Ltd. All four were later entertained at luncheon by Mr. C. G. Wingfield, M.L.A., the local member.

After inspecting the co-op's. Grafton depot, the visitors left by car for Maclean, about 25 miles lower down the Clarence River. The Clarence is one of the largest rivers in N.S.W. and is reputed to contain 99 islands, one of which (Woodford Island) is probably twice as large as Rottnest. The river contains a large broadwater and another great body of water known as Woolooweyah Estuary. The Clarence production of mullet alone (about 1,000,000 lb. annually) is about one-fifth of the total mullet production of N.S.W., and is approximately 70% of the total production of all species in the Clarence.

The headquarters of the co-op. are at Maclean, and comprise a filleting bench, packing and weighing facilities, cold storage chambers, ice-making plant and prawn cookers, as well as a warehouse well-stocked with merchandise, ship chandlery, paints and general fishermen's requirements. On the day of the Minister's visit 250 boxes of green school prawns, averaging perhaps 4" in length and 50 lb. to each box, were delivered to the depot by local fishermen. All were taken in close proximity to Maclean by otter-trawling. The water for cooking is steam heated, and after about 3 minutes' cooking time the prawns, which are suspended in the boiling water in baskets, are removed and plunged into cold water for cooling. An exceptionally tasty product is the result.

The same evening the visitors were entertained at dinner by the co-op., the Mayor of Maclean (Alderman W. M. Smith) occupying the chair. In addition to Messrs. Morrissey and Gallagher, those present included Messrs. M. Filewood (Chairman of the Co-op.) and J. E. Coombes (a former Chairman, and father of Inspector G. Coombes, of this Department). Speeches by the Mayor and others, in the course of which it was stated that the co-op's. turnover was of the order of £206,000 a year, were responded to by the Minister, who thanked the co-op. and those of its members and officers who had made the visitors' sojourn on the Clarence so pleasant and instructive. Mr. Fraser in his reply gave a brief outline of fishery developments in Western Australia since World War II.

On the following morning (January 26) the visitors left Maclean by road in company with Mr. H. W. Lane, Inspector of Fisheries, Ballina. At Evans Head premises of the local co-op. were inspected. This is a well ordered establishment, with prawn cookers in which the water is heated with live steam, a warehouse containing almost everything a fisherman might require, and storage chambers, packing facilities and the like. The premises are largely built over the water, all fish being unloaded at a jetty which runs out from the co-op. building. The Evans River is not a large body of water, and most of the fishermen operate in the sea. At the

time of the visit most men were trawling for prawns a short distance from the bar at the entrance to the river, which again is not more than ¼ mile from the town of Evans Head where the co-op. is established. The quality of the prawns cooked and packed here is extremely high.

Later during the same morning opportunity was taken to inspect the co-op. premises at Ballina, situated near the mouth of the Richmond River. The visitors were met by the Mayor (Alderman O'Brien) and the managing secretary of the co-op., by whom they were entertained at luncheon. This co-op. does an excellent retail business, but the deep-sea prawn trawl fishery was not yet properly under way, and it was consequently not possible to witness cooking and packing operations. The co-op. has a ship-shore radio station and the manager is in constant touch with all the vessels of the trawler fleet. By this means the skippers of vessels report their catches and estimated time of arrival at port so that everything will be in readiness immediately on their return.

From Ballina northwards the road lies through some of the most picturesque country of the northern rivers area of N.S.W., and despite occasional light showers en route it was a most pleasant run. Byron Bay, where there is another co-op., was by-passed, as was Murwillumbah, on the Tweed River, because of shortage of time. At Tweed Heads, the N.S.W. town on the Queensland border, the visitors were met by Messrs. J. Burge, a member of the Fish Board of Queensland, and N. J. Cahill, the General Manager. After thanking and farewelling Inspector Lane, Messrs. Kelly and Fraser left by car with Messrs. Burge and Cahill on the last lap of the journey to Brisbane. Driving through Coolangatta, Burleigh Heads and Surfer's Paradise (popularly known as the Riviera of Australia), the party arrived at Southport for the evening meal. Here the Board has established a depot on the waterfront, and an inspection was made after dinner. The depot was not well stocked with fish, as it was then 'tween-seasons. The "travelling mullet" run not having commenced. Brisbane was

reached about 10 p.m.

On the following morning the visitors were received by the Hon. E. J. Walsh, M.L.A., Treasurer of Queensland, who is the Ministerial Head of the Fisheries Department and of the Fish Board. Mr. Walsh had with him Mr. R. Murray, the Under Treasurer and permanent head. In the afternoon a call was made on the Chief Inspector of Fisheries (Mr. E. J. Coulter), followed by a visit to the Fisheries Department's museum, organised and conducted by Mr. T. C. Marshall, the Department's ichthyologist. The museum is a credit to Mr. Marshall, who has by dint of much labour gathered together specimens of almost every species of Queensland fish and displayed them in spirit. A similar museum in Perth would be most useful. Later, Mr. Marshall, who is an ardent movie photographer, took Mr. Kelly and Mr. Fraser to his home and showed several reels of superb kodachromes dealing with the Great Barrier Reef and other fishery subjects. These were greatly enjoyed by the visitors, who were most grateful for Mr. Marshall's hospitality.

The setup in Queensland is that the Fish Board established under the Fish Supply and Management Acts acquires all fish caught in that State and requires fishermen to deliver their catch to the nearest market or depot established by the Board. There is quite a number of such establishments, from Cairns in the north to Southport in the south, and it seems the majority are well equipped with packing, weighing and storage facilities. The Board has laid it down that only a specified proportion of the fish delivered at any market or depot away from Brisbane may be retained for sale locally, and that the balance must be sent to Brisbane. The proportion so retained varies from depot to depot, and is fixed in accordance with local demands.

Through the courtesy of the Board the Minister and Superintendent were enabled to visit the depots at Sandgate, near Brisbane, Caloundra, about 50 miles north of Brisbane, and Tewantin, situated on the Noosa River about 100 miles north of the capital. The Tewantin depot, where most

time was spent, is relatively new, provided with first-class facilities including a substantial jetty for the use of the fishermen. Here the visitors met and discussed with several of the local fishermen the question of fish marketing generally, and received an assurance of their entire satisfaction with the existing scheme.

On January 29 a visit was paid to the Brisbane fish market while the morning sales were in progress. Scale fish are not auctioned, but a system has been evolved whereby quotas are allotted to licensed buyers on the basis of the size of their business, at the maximum price fixed by the Prices Commissioner or, in times of over supply, at a price below the maximum agreed on by the Board and the buyers. Prawns (all cooked by the fishermen themselves) and live crabs (our mangrove crabs) are sold by auction. The latter were bringing up to 6/6d. each on the morning of Messrs. Kelly and Fraser's visit.

At the market the visitors met Mr. J. E. Lihou, the President of the Licensed Fishermen's Federation of Australia, and also a member of the Fish Board. Mr. Lihou may truly be described as the "grand old man" of the Queenaland fisheries. Now over 70 years of age he has ever since he commenced fishing more than 50 years ago been in the forefront of all movements designed to improve the lot of the fishermen, in earlier years of his own State, but latterly, since his election to the presidency of the Federation, of the whole of the Commonwealth. Mr. Lihou provided the Minister with much very useful background information in relation to the development of fish marketing procedures in Queensland. The visitors also had the pleasure of meeting Mr. F. Shepherd, the Assistant Manager of the Board, who was so helpful during their stay. The same morning a meeting was held with the executive officers of the buyers' organisation, and the Minister was left in no doubt as to the favourable opinion held by that body of the Fish Board setup.

On January 30, through the courtesy of Mr. Coulter, the Minister and Superintendent were taken down the Brisbane River and out into Moreton

Bay in the Department's launch "Derwent", a beautifully fitted vessel which is used principally for patrolling the fisheries of the Bay. This was a most interesting experience, and gave the visitors a much greater appreciation of the extent of these waters. On the return journey to Brisbane in the late afternoon a score or more of small launches, some powered with outboard motors, were observed trawling for prawns.

The Minister left Brisbane on January 31 on his return to W.A., and Mr. Fraser left for Sydney on February 2. While in Sydney he visited the Superintendent of Fisheries; the Chief Guardian of Fauna; Miss Joyce Allan and Messrs. G. P. Whitley and E le G. Troughton, of the Australian Museum; the Commonwealth Fisheries Office and the Cronulla laboratories of C.S.I.R.O. He left for Melbourne on February 7, and from February 8 to 12 attended a conference of State Fauna authorities.

Those present at the conference included the Director of Fisheries and Game for Victoria (Mr. A. D. Butcher), who presided, Messrs. H. Bell, J. McNally, M. S. Downes, R. T. M. Pescott and C. W. Brazenor (Victoria), Messrs. F. J. Griffiths and J. R. Kinghorn and Sir Edward Hallstrom (N.S.W.), Dr. J. Pearson and Mr. J. M. Davies (Tasmania), Mr. A. J. Fraser (W.A.), Mr. W. B. Hitchcock (Northern Territory) and Mr. F. N. Ratcliffe and Drs. R. Carrick and G. Dunnett (Wildlife Survey Section, C.S.I.R.O.). The conference was opened at 10.15 a.m. on February 8 by the Hon. L. W. Galvin, M.L.A., Chief Secretary of Victoria.

The conference agenda contained the following items -

1. The role of the Commonwealth in Relation to Wildlife Conservation.

2. The Fauna in Relation to Commerce and Agriculture.

3. Migratory Waterfowl Programmes.

4. Traffic in Native Fauna.

5. Conservation (General)

6. Conservation (Publicity)

7. Fauna Reserves and Refuges.

8. Regulations.

A whole-day excursion to Snob's Creek Trout Hatchery and the Eildon Weir, and a part-day excursion to the Sir Colin McKenzie Sanctuary at Healesville, formed part of the programme. A late afternoon visit was made to the Melbourne Zoo, where the delegates were later entertained at dinner by the Zoological Board of Victoria.

The debates which ensued at the business sessions of the conference were most useful and instructive, and all delegates were agreed that these biennial meetings served a most useful purpose. It was decided to hold the next conference in Perth about the beginning of September, 1955.

During his stay in Melbourne Mr. Fraser was entertained at luncheon by several of the executive officers of the Royal Australasian Ornithologists' Union. He returned to Perth on February 17.

During their visit Mr. Kelly and Mr. Fraser were greatly impressed with everything they saw. Through the courtesy of the N.S.W. and Queensland authorities they were able to make a very thorough investigation of marketing procedures, and now feel that they are in a much more solid position to make recommendations regarding the marketing of fish in this State. They cannot speak too highly of the co-operation and assistance afforded them by all people with whom they came in contact, and are deeply appreciative of the hospitality that was heaped on them. It was certainly a worth-while visit.

## TRAVELLING CLAIMS

The Public Service Commissioner has issued the following administrative instruction (No. 89) in

relation to the submission of the above:-

1. It has been brought to my notice that Departments are not adopting a uniform practice in assessing mileage payable where private vehicles are utilised for official duties.

2. Official mileage should be measured from either the officer's home or Head Office, whichever is the closer to the officer's duties.

3. To enable a proper check of claims submitted, officers concerned should be required to keep a detailed diary of their movements for submission to the departmental Checking Officer.

4. Officers are to indicate in the body of the claim form the private address of the officer.

5. Will you please arrange for these matters to be given your close attention.

The attention of officers is particularly directed to clause 4 of the instruction which sets out that you should indicate in the body of the claim form your own private address.

## GERALDTON EXHIBITION

Under the supervision of Inspector J. E. Munro a departmental exhibit was included in the Trade and Industries Exhibition held at the Geraldton Recreation Ground on the 11th, 12th and 13th February.

Mr. Munro reports that in spite of the poor conditions for the display a very satisfactory exhibit was compiled from specimens of bird life kindly made available by the Museum, photographs of whaling, salmon and other fishing activities, combined with material loaned by the canning companies controlled by Messrs. Hunt and Gardiner. In addition Mr. Bruce Malcolm, of the Fisheries Division, C.S.I.R.O., assisted with tagging and hydrological instruments, etc.

Mr. Munro paid tribute to the work of Inspector S. W. Bowler for his efforts in preparing the stall and also to Assistant Inspector G. Coombes for his assistance.

The attendance was quite good and as usual Mr. Munro enjoyed answering the multitudinous questions of the children.

## DUCK BANDING

On the 3rd February Fauna Warden J. Traynor proceeded to the Three Springs area following reports of large aggregations of duck in the vicinity of Yarra Lake. Although these reports were factual, the lake proved quite unsatisfactory for trapping purposes. Consequently Mr. Traynor investigated the possibilities of the many swamps between Yarra Lake and the coast, but he was disappointed to find trapping everywhere was impossible for one reason or another.

On the 9th Mr. Traynor proceeded to Moora where, through the kind co-operation of Mr. Cook, he was able to set up his traps on some promising swamps on the latter's property. Although there were hundreds of grey teal present, only two came into the traps and one blue-winged shoveller. Black ducks entered the traps fairly freely and 121 were banded.

Mr. Traynor returned to Perth on the 21st and will shortly proceed to Lake Wardering, in the Woodanilling district, where banding operations were quite successful last year. A start, of course, must be made in the south before the early rains commence.

## Recoveries

The following rings have been recovered since the issue of the February Bulletin.

| No. | Date Ringed | Place Where Ringed | Date Recovered | Place Where Recovered | Distance Travelled |
|---|---|---|---|---|---|
| | | BLACK DUCK | | | |
| 1833 | 22.4.53 | Queen's Gardens | 13.2.54 | Swamp 7 miles west Waroona | 65 miles |
| 1112 | 9.5.53 | do. | 31.1.54 | Chittering | 40 " |
| 1745 | 21.4.53 | do. | 14.2.54 | Hyde Park | 3 " |
| | | GREY TEAL | | | |
| 1381 | 14.2.53 | Wardering Lake | 12.2.54 | Swamp North-West Brunswick | 85 miles |
| 2065 | 19.12.53 | Watson's Lake, Dumbleyung | 25.2.54 | Gundaring Lake | 15 " |

N.B. In the February Bulletin band number 2135 was shown as having been placed on a duck on the 24th January. This should have read ringed 9.1.54, recovered 24.1.54.

## FISHERIES ACT

### Section 24 - Seizure of Fish

Some doubt recently arose as to whether fish seized under Section 24 may be disposed of before the case is heard. The Departmental view is that the Act is quite clear in that fish seized under the provisions of this Section shall be forfeited and may be disposed of in accordance with the procedure set out in Section 50. Despite this authority for disposal, however, it is always advisable to keep a sample of the seized fish to be produced in court as evidence.

## FREMANTLE FISHERMEN'S CO-OPERATIVE SOCIETY

The Minister for Fisheries (Hon. L. F. Kelly, M.L.A.) has received notification that the Society no longer requires the previously-sought guarantee for £15,000 as suitable accommodation has been secured by other arrangements.

## INDONESIAN RELATIONS

A letter of appreciation has been received from Mr. I. Hamzay, First Secretary of the Embassy of Indonesia for the co-operation he obtained from Departmental officers during his recent inspection of conditions of employment of Indonesian labourers in the pearling industry. Mr. Hamzah called at Broome, Onslow and Perth in January and he says that the assistance he received helped him to obtain a clear picture of the conditions under which Indonesians live and perform their work.

## CRAYTAILS AND THE AMERICAN MARKET

Some difficulty has been experienced in marketing "midget" and "jumbo" tails to the United States. Recently American distributors have been trying to "sell" these types and have been publicising their advantages. The following is a copy of publicity matter put out to the trade by one of the midget distributors -

### Opportunities in Lobster Tails

When South Africa introduced lobster tails (the tail portion of the crayfish) to the American market they did all of us a real favor, making available a seafood of top quality, which could be kept in a convenient form ready to prepare on short order. Unfortunately, production from any one area of food product is limited. South Africa has now reached or already passed the peak of her production on this product.

Fortunately, there are other production areas where crayfish are found in quantity. These include New Zealand, Australia and the Caribbean area. The Caribbean has a warm water variety which is inferior in eating quality. Both Australia and New Zealand have varieties and water conditions which produce a lobster tail that is equal and many people consider superior to the South African. These two countries together are now producing more lobster tails than South Africa and neither of them has as yet utilised all their production areas. This is fortunate for all those who like the fine flavor of these cold water lobster tails, as otherwise there just would not be enough to go around.

Every year more people are eating lobster tails and every year more stores and distributors are handling them. Like every living product they grow to different sizes. The size depends on water conditions and food supply, as well as the age of the crayfish. Both Australia and New Zealand now protect their crayfish and prohibit the catching of the very small size. Just the same, in certain areas and conditions they appear not to grow appreciably beyond a certain size. When this crop is harvested from the sea it must be utilized, along with those where growing conditions are extra favorable and they grow to extra large sizes.

Both these 4 to 6 ounce and these 16 to 22ounce lobster tails have wonderful uses and provide the housewife or restaurant owner a real opportunity to obtain better values than the in-between sizes which are limited in quantity and high in price.

The 4 to 6 ounce tails are especially flavorful and tender. They also cost much less than the larger sizes. Two of these may be served to a portion for less than one of the larger size. The user will appreciate the extra fine flavor and tenderness only found in this size, the "filet mignon" of lobster tails. There is the added advantage that since the production of this size is great you are always assured of a supply, which is not true of the in-between sizes.

The extra-large size also has its uses and it too is available in good quantities which always assures you of a supply. These very large tails have a greater yield of meat per pound, plus an added advantage of costing less. One of these extra large tails may be taken after boiling or broiling or both, and split in two down the centre to make two man-sized portions, just the way you would serve a sizzling steak or two. These extra large sizes are also excellent for producing lobster meat. They can be boiled, cooled and the meat removed for lobster salad, cocktail or newburg, and a hundred and one uses, where you want lobster meat with fine flavor.

The next time you buy lobster tails and want real value, try some of those small ones or extra large ones. You will be in for a pleasant surprise and will find you are getting more for your money.

## LOBSTER TOWN

(The following extracts from the "Saturday Evening Post" were forwarded by Dr. Keith Sheard and are reproduced here in view of their topical nature and our own crayfisheries problems.)

Eleven miles SSW of Port Clyde you'll find the pile of rocks called Monhegan Island. Even for Maine it's something special - a town so nuts about lobster that it figures out a way to trap more, eat more, and sell more by cutting the season in half.

The traps - pots, as the fishermen call them, using the old English word - were in their neat stacks. Shaped like toy Quonset huts, undoubtedly Indian in origin, like the eel trap and the weir, they are made today of carefully milled oak sills, bows and slats. Their ballast is a poured-cement slab bearing the owner's name in neat block letters. The trap "heads" - netting stretched taut that funnels inboard to lead the lobster on into the "kitchen" through two spruce rings and then on into the end compartment, called the "bedroom" where few lobsters have the wit to escape - are made today

of gleaming nylon cord that does not stretch or rot. Monhegan traps cost seven dollars each. To have a string of 200 out in a long gale wind with its nervous bottom currents and undertow is to know a businessman's sort of worry. The Manila warp - the line between trap and buoy - is expensive today too. Monhegan, fishing its deep water, uses it by the hundreds of coils and thousands of fathoms.

The only cheap items in lobstering today are the toggle bottles. They are floats lashed in one or two places along the warp to keep it free of the bottom in changes of tide and current. The Monhegan toggles are empty whisky bottles with rubber stoppers, by-products of stormy, shut-in days and gay celebration, and perhaps too easily come by.

The fisherman I interviewed picked up a brass gadget off a nail inside the locker door. It looked like an elongated brass key or a stretched out letter J. Between the bar at the top and the beginning of the curve on the backside on the J was a small projecting shoulder.

"This is a legal lobster gauge" he said. "We all carry them. You hook the top of this thing into the lobster's eye socket and, laying it straight back, true with the fore-and-aft line of the critter, you measure where the end of his back shell comes. If it is shorter than this projection or even loosely snug with it, you are measuring a short lobster. He is less than three and one sixteenth inches. He is not a legal lobster. You are supposed to throw him back into the sea".

"In 1941", he said, "A few of us took stock. We weren't getting anywhere. It wasn't prices. They were fair enough for those times. But we were poor, just scraping by. The catch was getting harder to take and less every year. We had to do something. We decided one thing we could do was to get tough with ourselves. I was taking short lobsters. Everybody was. A bird in the hand, a short lobster was. When he was close to legal measure and nobody was looking, we'd slip him in with the 'sellers', the legal ones. Let the buyers cull them out if they wanted. When he was so small there was

doubt, we'd eat him or give him to our friends. Everybody was guilty, not only here but in on the coast, down in Nova Scotia. Short lobsters!! They are the fisherman's temptation, his curse."

"Look!" somebody said, and it wasn't me, although I had figured it out. "We take this little short lobster. If we sell him he weighs half a pound. On a forty-cent market he is worth twenty cents. If we don't take him, if we put him back and let him grow one more year, what is he? He's a seller. He's a pound and a quarter or a pound and a half. He's worth fifty or sixty cents. Now think of that. Where could you go and get a yield like that for your money? No bank ashore will give you that kind of yield. The sea's our bank and our trust company, and it will give us that profit. I want to give it a chance." That's what this fella said".

"We had 'the Meetin', as it is called now, because it was the most important this island ever held in the schoolhouse. We wrangled up there a long time. In the end everyone agreed that every short lobster we caught would be tossed back into Monhegan water. If we wanted a mess of lobsters, we would eat sellers. If we had to take care of our friends we would give them sellers too. We would play fair with our bank and trust company out there, our good Monhegan lobster bottom. And it is gold. The best in the world. Most of us felt sure that if we did play fair with it our luck would turn. It has. That's all there is to tell. That's our story".

"But if you let a bird in hand go", I said, "you have to catch him again."

"That's right", he said, "And that's just what we like to do here on Monhegan. If they're out there, bucko, we'll catch them. That's our business. We're rigged and baited for that. In 1941, with twice the number of boats fishing, we sold 85,000 pounds, shorts and all. This year we'll sell 170,000 every one of them fat legal size or better. In the month of January this year, we kept count. We threw back 25,000 short lobsters to fatten another year. For every 100 pounds we keep now, we throw back 400 pounds. It is hard to believe unless you see it day after day. But it is true."

When I was at Lobster Town the bait had been ripening until its smell veered with every shift of the wind. The island puts up its own salt-herring bait, but it buys its "brim" - redfish carcass - from the fish packers ashore after the fillets have been sliced away. The bait bags are jammed tight with their "two brim and a herrin" and held in readiness to string into the traps.

The mysteries of the bottom have their dramas. The day before I arrived, there had been a lassoing on the lee side of the island. There were some missing traps, and it was suspected that the long spell of northwest wind had worked them out into water so deep their buoys were submerged. A long line was drawn in. Twelve entangled warps were caught. One of them was heavy with weed. It pulled up a trap that had been lost for a year. Inside it were four fat, prime lobsters.

## FARMERS AT SEA

by Keith Sheard

(Recently broadcast by the A.B.C. during the "Man on the Land" session.)

Most fishermen and sailors believe in the bottom of their hearts that they are heaven born farmers - in fact one of the oldest stories in the world has an echo of this feeling.

Do you remember how, in Homer's Odysey, after the fall of Troy, the hero, Ulysses, offended the gods, and was condemned to wander and suffer on the sea? In the end he could only rid himself of the curse by walking inland with a boat's paddle on his shoulder. He could stop and settle down only when he had gone so far inland that no one could recognise what it was he was carrying.

In actual fact there are few fishermen, and sailors, who would be fitted - or happy - as farmers. The ancient Greeks who had a word and a story for everything, recognised this by their legend of PALINURUS, the pilot, who had also offended those very touchy people - the Gods. He was condemned to wander over the sea, always within sight of land - if he went ashore he would die.

Of course, as always, the truth lies somewhere in between - many fishermen like to think they'd be good farmers - some of them would be - but most have the good sense never to try; quite a number console themselves by believing they're farming the sea.

Yet, I'm not sure that the title of this talk shouldn't be "Farmers all at sea".

Look! What would you think of a farmer who tried to harvest his wheat before it was ripe; who cut his hay from the same crop every few weeks; who sheared his sheep every couple of months; who sold his lambs before they had fattened and his breeding ewes until there were few of them left?

What would you think of farmers who would plant their wheat in between, and across, other men's crops? Or of a country that allowed that to happen?

No! There are no farmers - only fishermen who do those things - at sea.

Don't blame them though until you know what they're up against, and something of their history.

You see - from way back in the dim past they have been used to fishing on schools that seemed inexhaustible. They have travelled hundreds of miles to great fishing grounds. They have been free to roam. In some countries great schools of fishes have passed their doors for as long as history can remember; and they have had to make their hay while their sun was shining.

So, many fishermen think, take what you can while you can - the sea is inexhaustible.

Of course they're wrong, but the habit and custom of centuries is in their bones, and they mistake it for wisdom. (Just in passing there are still some farmers like that).

You can imagine the world's fisheries divided into two great classes. One consists of all those fishes that roam over tremendous distances, in tremendous numbers - numbers so great that the catch of one fisherman, or even of a nation of fishermen, seems to make no difference. They are so great that, at any one time, only a part of the tremendous schools are within reach of the fishermen.

In this case you can very well excuse the fisherman for being unthinking destroyers, but even in those fisheries - the English herring, the sardines, the cod, and a dozen others - thinking men are wondering whether the schools are quite as large as they used to be, under the impact of modern fishing methods.

They feel that with these great swarms of fishes the positinn may be the same as with the buffalo of the prairies of the United States - the North American Bison. These animals supported tribes of Indians for thousands of years, but with the coming of better methods of killing they just faded away - the great herds all destroyed.

Some people say that the great fisheries can never be worked out. They say that each fish sheds such tremendous numbers of eggs, that no matter how many fish we catch, the stock will reproduce itself. They say that, after all, we are competing with natural mortality - taking fishes that will die anyway. They say, in any case, there are great natural changes in the numbers of fish in the great fisheries, and we should take what we can while we can.

It all sounds like nonsense to me.

We are not concerned just to keep the stock going - we're concerned with keeping it going in numbers that will support great fisheries. Again, about this matter of competition with natural mortality, they forget that our fisheries represent an added strain on the fish populations after they have been thinned out by tremendous mortalities - death and destruction, in their young and growing stages.

On the biological side too, they forget another simple thing that every farmer knows. That is this, the balance between species in nature is so close - there are so many waiting to take another's place - that if the numbers of one fall below a certain level it does not come back again - something else, often unwanted, takes its place.

You yourselves know what happens when a choice grass is eaten down. Over and over again, some ranker, useless species takes its place.

However, in this first class of great fisheries, we can't very well blame the individual fishermen, or groups, or nations of fishermen for not seeing the whole picture. At any time they are fishing on only a small part of great ocean-ranging populations.

But there is another class of fisheries, and one where it is not so easy to excuse the fishermen.

This is the one where all of the fish in all their stages are within reach of the fishermen, often over quite small areas covering only a few hundred miles or so of a coastal shelf.

Our crayfishery in Western Australia is one of those.

It has had a meteoric rise from a quite small, domestic fishery five or six years ago, to an important part of our economy today - an industry in the millionaire class.

It has followed a familiar pattern - familiar on land, and on sea.

You all know of pastoralists who have found vast plains of grassland, or saltbush, and who have poured in sheep and cattle onto them. Soon what was once a wonderland supports only a fraction of what it should. You have heard too of the farmer with rich land who crops it continuously until it is eroded and exhausted. Of course there's no excuse for those people; they control and own the land, and can see - each of them - what they are doing.

But there's no private property in the reefs and ledges of the ocean bottom - the fisherman can't see at first hand, what is happening.

So the pattern of the crayfishery develops. Fishing grounds are explored, good hauls are made, the fishery spreads, markets are found - in this case very good ones - and fishermen make very good money.

The story of old Paddy at one of the fishing ports in the early stages of the growth of the crayfishery might or might not be true; but stranger things have happened in the crayfishery.

Paddy was up - drunk and disorderly - the magistrate said "Paddy you are not the kind of man to go on like this, why don't you get some work and stop being a nuisance?" And Paddy says, "Work your Worship? Work on land? Look - this season I made three thousand pounds fishing; I put a thousand in the bank, I kept a thousand to have a good time on and I've given a thousand to the old woman. Your Worship, have you ever given a thousand pounds to your wife?"

Maybe a little exaggerated - but certainly the industry has brought in enough wealth to attract many men anxious to make their fortunes. They have crowded into fishing grounds that are limited in area, and on numbers of crayfish that are large, but not inexhaustible.

At first, on many fishing grounds, the skilled fishermen farmed their ground - they really practised quite a good animal husbandry. They fished for a while on one section of reefs until the sizes fell off and then moved the pots on, so that all the time they were harvesting the crayfish that were best for the market. They left the smaller commercial sizes behind, to be taken later on, when they had grown larger.

But the system soon went by the board. The catches mounted, American prices rose, and more and more men flooded into the industry to make their fortunes. Soon a man could not leave a patch of reef to recover and fill up with good fish. There was no point in it - another man just put his pots there if the first one left - and in any case there was no more good ground, close handy, to shift to. Other fishermen had their pots on it.

So the average size of the crayfish that they caught came down, and down; the lambs were sold before they had grown; the wheat was harvested before it was ripe; the sheep were shorn every few months.

As soon as one fisherman found a good yielding ground, his pots would be ringed and surrounded by others; wheat was planted across, and between, other men's crops.

But this is more or less where I came in. I would like to go out saying that we, on the sea in Western Australia, are not quite so foolish as I have painted.

Fishermen, processors, exporters, the officers of the State Department of Fisheries - all are trying to find better ways of getting the best from the crayfish flock, and yet to leave enough for future years.

There isn't any private property in the unbranded flocks that graze and move over the bed of the sea, so that the problem isn't a simple one to solve.

The remedy in the crayfishery is that the fisherman must be a farmer of the sea, free to farm in spite of the difficulties; and the only solution is along those lines. It might be necessary to raise the minimum length of the crayfish that are sent to the factories - leaving the smaller ones to grow. It is certainly essential to find some means of reducing the fishing pressure so that each man can be free to use his best skill to catch only the best sizes.

## FISHERIES LICENSES ISSUED DURING 1953

The table below sets out the licenses issued and the value of the boats and gear for 1953 and, for comparison, the totals for 1952 and the increase or decrease for 1953. There was a marked decrease in the number of Amateur Net Fishermen's Licenses issued compared with 1952, but all other figures show a substantial increase.

| Where Issued | Prof. Fisher-man's | Amateur Net Fisher-man's | Fish-ing Boats | Value of boats £ | Value of Gear £ |
|---|---|---|---|---|---|
| Albany | 103 | 10 | 74 | 24,215 | 20,470 |
| Broome | 7 | 5 | 1 | 20 | - |
| Bunbury | 93 | 89 | 73 | 34,245 | 15,006 |
| Carnarvon | 12 | - | 7 | 4,005 | - |
| Hopetoun | 7 | - | - | - | - |
| Pt. Hedland | 8 | 6 | - | - | - |
| Esperance | 5 | 3 | 2 | 425 | 20 |
| Fremantle | 452 | 44 | 164 | 554,425 | 85,277 |
| Geraldton | 192 | 28 | 112 | 126,230 | 17,511 |
| Mandurah | 111 | 63 | 69 | 16,365 | 14,220 |
| Perth | 101 | 287 | 72 | 106,548 | 16,110 |
| Shark Bay | 34 | - | 26 | 20,140 | - |
| TOTALS: | 1,125 | 535 | 600 | £886,618 | £168,614 |
| TOTALS 1952: | 996 | 639 | 544 | £661,852 | £133,645 |
| Incr. or Decrease: | +129 | -104 | +56 | +£224,766 | +£34,969 |

| | |
|---|---|
| TOTAL VALUE BOATS AND GEAR 1953: | £1,055,232 |
| TOTAL VALUE BOATS AND GEAR 1952: | £ 795,497 |
| INCREASE: | £259,735 |

## CHEYNE BEACH WHALING COMPANY

The Hon. Minister for Fisheries, Mr. L. F. Kelly, has received advice from the Commonwealth's Acting Minister for Commerce and Agriculture that approval has been given for this Company to take 100 humpback whales during the 1954 season. The Acting Minister stated that examination of the statistics seemed to indicate that the stock on the west coast was being over-exploited, however as the evidence was not considered to be sufficiently conclusive as yet no recommendation is being made to reduce the number to be taken.

## MARLIN

A letter has been received from Mr. G. P. Whitley of the Australian Museum, Sydney, stating that in his opinion the marlin recently washed up on Cheyne Beach was probably a Black Marlin (Istiompax australis), which incidentally is often blue in colour. He has this opinion because of the erect pectoral fin which in the Black Marlin is very difficult to lie along the body, whereas in the Blue Marlin it is adpressible.

Mr. Whitley remarks that it would be very helpful if, when marlins are encountered, the measurements were taken of:-

(a) the length of the sword from the eye socket,

(b) the diameter of the eye,

(c) the height of the lobe of the first (spinous) dorsal fin,

(d) the depth of the body (between the parallels, not around the curves).

The colours should also be noted in as much detail as possible, preferably with a painting, and a strip of the skin with some of the lateral line pores on it should be preserved. These, he points out, are some of the key characteristics.

Any other details such as length, locality, sex, stomach contents, fin counts, number of vertebrae, etc., all help a positive identification. The extent of the groove along the belly may also be of importance.

Mr. Whitley went on to say there seem. to be several species of marlin off eastern Australia and it is quite possible that there are several in the west too. Our blue marlin may be a January-February visitor.

## 1954 SALMON RUN

Inspector G. C. Jeffery reported that 18 tons of salmon were caught at Cheyne Beach on the evening of the 19th February and on the following morning another 12 tons were caught. A 12-ton haul was also made at Bremer Bay.

## MULLET BITING

Inspector S. W. Bowler has submitted an official report atating that on the 21st February he observed over 25 mullet being caught at the Greenough River with lines and bare hooks. This poses the question "How hungry can they get"?

## THE CLEARING HOUSE

### Marked by Radio

The Zoological Institute of the Soviet Academy of Sciences has been experimenting with the use of radio-substances for marking fish and insects, says Tass, the Soviet news agency. This work is of importance in tracing and combating pests and for studying the migration of fish. After being impregnated with radio-active substances, track can be kept of the fish by means of special locating equipment. More than 100,000 fry and other small fish have been marked by the new method and are now under observation in the basin of the river Kuban (Southern Russia).

("The Fishing News", London, December 19, 1953.)

### Problem of Oil Pollution is Being Faced

In a written answer to Mr. L. J. Callaghan (Cardiff, south-east) Mr. Lennox-Boyd, Minister of Transport and Civil Aviation, says that invitations to other maritime countries to the conference next April to discuss the international aspects of the problem of oil pollution are in the course of despatch.

"I also accept the other recommendations of the committee in principle. Some of them involve legislation and this will be introduced as soon as possible after the international conference".

One of the committee's proposals is to prohibit ships from discharging oily waste within 100 miles of the coast, or a wider area.

### Swedish Interest

A round table conference held recently in Stockholm, comprising shipowners, port authorities, shipyards, oil companies, ships' officers and other interested bodies discussed the problem of oil pollution at sea, based largely on the report of the British committee on the subject.

It was agreed that the problem could only be solved by international co-operation. Meantime, it was suggested that provisional steps be taken, including the provision of special tanks and separators on ships, and facilities ashore for dealing with oil residues and oily water from ships.

The meeting agreed on continued co-operation with the Swedish Board of Trade in preparing for the proposed international conference.

("The Fishing News", London, December 26, 1953.)

## Big Organisation Provides the Humble but Useful Fish Box

by C. S. Ekberg

Each week thousands of stones of fish are sent from British fishing ports to all parts of the country, and one of the most important links in the distribution chain is the manufacturer of the boxes in which the fish is packed. Literally hundreds of thousands of boxes are used in the trade, and the organisation behind their production and circulation makes a fascinating story.

### Two Unique Features

There are two things which make the Grimsby Merchants' Box Company unique, (1) the patent fastening on the boxes which does away with all hammers and nails on the merchants' stands, and (2) the plastic with which each box is sprayed inside and out as a precaution against infection. Both these things were invented by Mr. Reg Woods, the factory manager, who has had more than 50 years in the fish trade, and were developed by the company in conjunction with the actual manufacturers of the specialities now used so extensively in the production of the patent plastic clip box.

In the actual manufacture of the boxes, a box can be made every 30 seconds. The modern factory is divided into several sections, each intimately connected with the other. The first department is the sawmill, and here box sets are cut to the required length and thickness.

Plastic Spray

The sets are then passed to the printing room. Supplies of boxes are produced if wanted with the names of the individual firms ordering them. They are printed in attractive colours, a wonderful free advertisement of which the merchants are not slow to take advantage.

Then on to the assembly room, where girls are almost exclusively employed working the machines. These machines which nail the various sections together are fully automatic, and the girls work together at them with remarkable speed and skill.

After the boxes have been put together they are sprayed with a special plastic coating, clear outside and white inside, which is the firm's copyright, and will resist all types of bacterial attack. It is produced from a number of chemicals, one of which is titanium oxide, and ensures the maximum cleanliness. The white plastic inside reduces heat transference.

When they leave the factory the boxes are a picture, and because of the plastic impregnation, completely weather resisting.

Simple Fastener

The patent fastening is simple, but very effective, and the final wire seal is easily broken. This toggle fastener when pressed back into position re-seals the box when it has been used.

After the boxes have performed their initial journey they eventually come back to the company's clearing centre on the North Wall, Fish Docks.

Boxes Reconditioned.

Here, under the direction of the assistant manager, Mr. A. F. Crisp, thousands of boxes are sorted as they return by rail, are examined closely and repaired ready for use again. Each merchant has his own stock of boxes to draw upon, and old ones are replaced after a reasonable life of service.

As approximately seven to nine train loads of boxes are unloaded each day in the sidings, they are sorted and packed. The boxes enter the building on a special conveyor and are passed along the line through the hands of the different tradesmen. Another conveyor takes the repaired box to be inspected, and the reconditioned box, now as good as new again, goes out once more. Nothing is wasted and the firm even runs a firewood business with the sections which have become too worn for further use.

Reasonable Condition

Generally speaking, the boxes come back to the clearing house fairly quickly in a reasonable condition and the repairing depot handles between 30,000 and 40,000 boxes a week. Output can be naturally increased according to the daily demands of the trade and these are governed by the actual fish landings at the port.

Business Conditions

At head office on Fish Dock Road, I met the general manager, Mr. R. K. Longmire, who was able to give me some idea of the close liaison between the producer and executive sides of the business.

Fish boxes are supplied on either purchase or hire terms, standard returnable on hire only, but all returnable or non-returnable boxes are available for purchase. There are always between 80,000 and 90,000 held in store and these are ready for immediate delivery.

The company has supplied many boxes for the trade, and these go as far afield as the United States, South America, Africa, Malaya and the West Indies. Some are marked "Grimsby", a good advertisement for the port. A recent service has been the supplying of boxes to the customer's own specification and no size is too large or quantity too small for the company's attention.

Few people except those intimately connected with the industry can have any conception of the size and scope of the Grimsby Merchants' Box Company.

("The Fishing News", London, December 26, 1953.)

New Methods for Finding and Catching Deep Sea Fish

Improvements in fish finding and catching are discussed in the current issue of the F.A.O. Fisheries Bulletin. The writer stresses the increased range and speed that fishing craft have gained from the use of mechanical power and from improvements in design. Fish-searching equipment such as echo sounders, Asdic and aerial observation have also added greatly to the fish-finding ability of the fishing fleets and of exploratory vessels. There are indications, also, that the noises fish make under water, and perhaps other indications of their whereabouts, may be usable.

"These improvements have the advantage not only of taking the fisherman more directly and safely to his fishing grounds, but also of reducing the weather hazard inherent in fishing operation. This ability can be further extended by the contribution which will be made by biology in describing the behaviour and distribution of fish and the relations which exist between behaviour and various elements of the environment.

"This contribution will be of two kinds: first, the longer-range prediction of the general limits within which, in each season, it will be expected that the fish will occur: secondly, the more precise description of the environmental vectors determiming the distribution of the fish. Improvements of these kinds will reduce the fish-searching time, and conversely increase the effective fishing time, and will enable the fisherman more efficiently to place his gear in position to catch the fish; an important example of the latter benefit is the effective placement of sub-surface purse seines and floating, off-the-bottom trawls by the aid of echo sounders."

"Electrical" Fishing

Regarding suggestions that electrical equipment should be used at sea to direct and control the movement of fish "and eventually to place barriers, or fences, round fish", the writer says: "This suggestion seems, of course, almost fantastic, even remembering the success with which such equip-

ment has been used in fresh water - for barriers in irrigation and water supply systems. However, the suggestion has this particular virtue that it directs attention upon the first phase of an important change in method which is undoubtedly taking place in sea fisheries, namely, the conversion from hunting to a kind of animal husbandry.

"When, however, the fisherman will be able to know with reliability (whether or not because he has fenced them with electricity) where to find fish and be able to conduct his fishing as a deliberate and planned operation to round up a specific proportion of a measured stock there will be removed from the fishery industries a principal part of the risk element which at present makes its position a weak one."

Use of Light

It is pointed out that some "illuminating results" have already been obtained by the use of underwater cameras and television in the study of the working of fishing gear, "and it may be expected that on the basis of these studies gear technology will make further contributions. The use of light and livebait to bring fish toward or into the fishing gear is opening up a number of areas, and the possibility exists that chemicals and electricity might be used for these purposes."

Referring to the establishment of a permanent commission to regulate the fisheries of the North Sea, it is stated that "in spite of some controversy over the advantages to be gained from conservational measures, there is confidence in many quarters as to the benefits to be derived from such measures."

Effective redistribution of fishing power while serving the purposes of adjustment of effort nearer to the sustained yielding power of the resources, would confer great economic advantages on the fleets and contribute to the direction of fishing effort upon under-exploited resources. "These suggestions lead into the entire question of organization of the industry, to the shore facilities which must be

provided for unloading fishing craft, fuelling, provisioning and servicing them generally; cold storage, markets; broadcast services, and so forth. Coupled with this, there is the question of trained personnel to undertake the skilled work required."

The writer concludes that "fishing operations are becoming steadily more certain and, therefore, they should be more susceptible to national planning in relation to the potential of the stocks."

("The Fishing News", London, December 26, 1953.)

## Inducing Oysters to Spawn

An American oyster firm has carried out experiments to induce oysters to spawn. Over 1,000 bushels of oysters were ground up and the pulverised material released over flats where large populations of oysters were present, says the U.S. journal "Atlantic Fisherman". A few days later four additional groups of 2,000 bushels each were handled in the same way.

A biologist has found that material sluiced away from grinding machinery contained vast numbers of eggs which had been fertilised in passing through the machinery. When water in which the oysters had been artificially spawned reached the oyster beds, these oysters also discharged their spawn until the bulk of the oysters in the vicinity were spawned out.

("The Fishing News", London, January 8, 1954.)

## Outlook Black for U.S. Fishing Industry

According to a series of articles by Everett S. Allen in the Standard-Times of New Bedford, Mass., U.S.A., the American fishing industry, at least in his state area, is facing an even more drastic post-war re-adjustment than is the industry in general in other parts of the world.

A particularly pessimistic tone is, in fact, taken and sad forecasts made as to a black outlook in the immediate future. Mr. Allen's philosophy, although he does assemble a gloomy array of

supporting evidence, would seem to need reinforcement by the outlook of the Scots fisherman whose remark was quoted recently about the fishing industry. "Och," he said, "it's been on its last legs for the past 50 years - but it still goes on".

Insurance Driven Out

Apart from the world outlook and the re-adjustments it requires, the Massachusetts position is made the worse by certain local problems. Thus in the first article Captain John G. Murley, of Fairhaven, president of the New Bedford Seafood Producers' Association and regional director of the National Fisheries Institute, predicted, "Two-thirds of the fishing vessels in the north-east will be tied up by mid-summer next year if things keep going as they are. And I see no answer to it."

Behind the prediction is a maze of interlocking troubles which beset the industry - some of its own making - including spiraling costs, foreign imports, decreasing catches, lack of organization, and discouraged investor capital. But the most imminent threat is that within a year, no insurance company in the world may be willing to insure the fleets and crews because of a mounting record of "big-money" awards for death, injury and sickness, particularly in Massachusetts.

British Interest Alerted

No American insurance company now will sell a policy insuring a Bay State boat owner against crew damage suits. One major organization in this field quit selling such policies after sustaining losses of nearly $3,000,000 above premiums paid. At the moment, a coalition of British insurance groups temporarily has agreed to sell such policies, but not necessarily for more than a probationary period of one year. The coalition also reserves the right to cancel any policy upon 10 days' notice.

Although, on the writer's own showing, the American insurance companies have thus been driven out of this field and had recourse to British insurance, a grievance is made out of the fact that

the premiums involved go to the British. Thus: The bulk of this money, which in most cases is borrowed from American banks because the boat interests do not have it, goes principally to British insurance firms.

The British coalition which now is selling "P. and I." policies to the Massachusetts fleet, had to be begged by American interests to enter this type of business even for a year. They were asked to fix premium rates high enough so that underwriters could endure the growing flood of claims, and - as stiff as the rates now are for the boat owners already hard-pressed economically - there is strong apprehension they are not high enough!

Preposterous Claims and Awards

Basic reason for this insurance position lies in the legal position which permits heavy claims to be made on vessels for crew injuries or illnesses. This has produced a crop of "legal rackets" so that employers are penalised unmercifully. For instance when one engineer of a vessel collapsed from heart failure when the craft was still tied to the wharf an award of $65,000 was made against the owner!

Other allegations involve the lack of sea-worthiness of many vessels and carelessness and inefficiency on the part of skippers and crews.

These and other matters are remediable by legislation but the possibility of securing such basic authority as is required is viewed rather hopelessly. A first step, however, is adequate publicity and recognition of the problem and that is now being undertaken.

Banker's Viewpoint

Analysing the position, one bank official declares:

1. Excessive damage claims, which have forced all American companies out of the fishing fleet "P. and I." policy business, now place in jeopardy the future of New Bedford's entire fishing business.

2. The "only ones making any money out of the fish business now are unscrupulous attorneys. Certain law firms are capitalising on the misfortunes of others."

3. Identical boat insurance in Canada costs one-third of the price which a Massachusetts boat owner must pay.

4. A crew member's suit for damages is viewed as a "preferred claim"; a court can even order the sale of a vessel to satisfy it. Thus banks are increasingly reluctant to make boat loans.

5. There should be a more rigid examination of boats and of their masters and mates.

Fundamental Problems

Other articles in the series go to more fundamental issues such as over-fishing and excessive foreign imports.

Captain Murley, for example, put some of the blame for the industry's present plight on the "quick dollar" boys, who invaded the fishing business in the early '40s, worked on a day-to-day basis and injured its reputation materially.

"They were among the leaders in ignoring conservation suggestions and they accelerated the shrinkage of credit, the lowering of quality standards and the introduction of border-line business practices."

Another comment was: "There are fewer and fewer big draggers these days. There isn't enough groundfish available to make them pay.

"Our company is at the point now where we have to keep thinking constantly of new fish products, new methods of merchandising, more emphasis on advertising, more efficient production methods."

And high labour costs and union dominance are also blamed.

The Important Problem

On the overallpicture this is said (and it has special interest because of its revelation of the backlash of our dispute with Iceland):

"Foreign fish production, aided by subsidies and loans of both the U.S. and foreign Governments, constitutes a problem, because of its cheaper fish products, imported in increasing amount into the Unites States.

"American production of fish is decreasing yearly; even at its best, it never could supply this country unaided.

"Even while it asked the U.S. Government for protection against foreign fish imports, the American fish industry has placed increasing amounts of capital in foreign fish production.

"Although producers have opposed foreign fish imports, American dealers in other parts of the country never were willing to support this protest; they want foreign fish, because it gives them a greater profit margin.

"Foreign fish imports actually are appreciably less than last year, principally because large amounts of Iceland's fish are going to the Soviet Union. Some sources think this may be an intentional decrease for propaganda purposes during current U.S. import hearings.

"In any event, a 12-month agreement signed in Moscow in August will divert more than 46,000,000 lb. of Icelandic cod and ocean perch to the U.S.S.R. in exchange for petroleum products. Much of this catch otherwise would have been exported to the United States; since mid-summer it has been going to the Soviets."

Long Term Hopes

And finally comes this sound plea for the future:

[*Extract from Government Gazette (No. 9) of 26th February, 1954.*]

FISHERIES ACT, 1905-1951.

Fisheries Department,
Perth, 8th February, 1954.

Ex. Co. No. 189.

HIS Excellency the Governor in Executive Council, acting pursuant to the provisions of the Fisheries Act, 1905-1951, has been pleased to amend in the manner mentioned in the Schedule hereunder the regulations made under the Act and published in the *Government Gazette* on the 6th day of May, 1938, and amended from time to time thereafter by notices published in the *Government Gazette.*

A. J. FRASER,
Chief Inspector of Fisheries.

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Schedule.

The abovementioned regulations are amended by substituting for regulation 14C (G.G. 13/11/53) the following regulation:—

Taking of Crayfish Within One Mile of the Shores of Rottnest Island.

14C. Any number of persons operating from one boat or any other person shall not use more than two craypots or two cribs, or two hoop nets, at any one time for the taking of crayfish in the waters lying within one mile of the shores of Rottnest Island and if more than two craypots, two cribs or two hoop nets are used from one boat each of the persons in the boat at the time of such usage shall be deemed to have committed a breach of this regulation.

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By Authority: WILLIAM H. WYATT, Government Printer, Perth.

73375/3/54.

Fish scientists would like to see establishment of a fisheries college, where young men interested in fishing could be given background training. One scientist commented wistfully, "It might produce men of greater vision within the industry, who would work together with mutual, long-range aims - who never would over-fish, who would be sensitive to the commonsense of conservation, and who would, in time, perhaps produce a healthy industry of highest standards."

Any such step forward undoubtedly would have thorny beginnings, but all aspects of the industry might do well to recall the blunt words of Benjamin Franklin at the signing of the Declaration of Independence: "We must all hang together, or assuredly we shall all hang separately."

("The Fishing News", London, January 15, 1954.)

Striking Film Shows How the Seine Net Works

How the seine-net operates under water, and how the fish behave in the path of the net, in their passage down the funnel and in the cod end, are strikingly illustrated in the short film "Fish and the Seine Net," copies of which are now obtainable on loan from the Scottish Central Film Library, 16-17 Woodside Terrace, Charing Cross, Glasgow, C.3.

The film, part of which was taken by under-water photography, should be of great interest to fishermen, and help them to appreciate the value of scientific research in maintaining a profitable fishery. The underwater pictures were taken by Lt.-Com. H. J. Hodges, the frogman, at the request of the Marine Laboratory, Aberdeen.

The experiments pictured in the film, while preliminary in character, show convincingly that during fishing the meshes of the seine-net are maintained widely open, with visual confirmation of the value of a mesh size which enables the smaller fish to escape.

Each escape took place within about a quarter of a second, and the escaping fish are seen

to swim away from the net, apparently unharmed. The film illustrates clearly one of the most important principles of conservation of fish stocks - that the meshes are open while the gear is fishing, and that if meshes of adequate size are used the smaller fish escape unharmed to grow to a larger and more profitable size.

The net used in the experiments is of standard commercial design, with bag meshes of 26 rounds to the yard, and it was operated in the manner generally used by Scottish seine-net fishermen. Because of the relatively shallow water fished, however, only four coils of warp a side were employed, each coil 120 fathoms in length.

The seine-net was worked from the fishery research vessel "Kathleen," and the frogman operated from F.R.V. "Clupea", both of the Marine Department's Marine Laboratory, Aberdeen.

400 Attend Show

Four hundred Peterhead fishermen attended the showing of "Fish and the Seine Net" and another film called "The Underwater Story".

The films are being exhibited at various north east ports under the auspices of the Marine Research Laboratory at Torry, Aberdeen, by Dr. Henry Wood, deputy director, and his colleague Dr. Ritchie.

When the films were shown at Fraserburgh, Mr. Robert Herd, chairman of the White Fish Producers' Association at the port, said seine net fishermen had a lot for which to thank Dr. Wood and Dr. Ritchie. Because of their experiments and their reports seine net men had been reprieved from the bigger net-mesh regulation which was to come into force in April.

("The Fishing News", London, January 22, 1954.)

## Definition and Explanation of Commercial Fishing Gear

Frequent requests are received by the Marine Laboratory of the University of Miami, in its capacity as research agency of the State Board of Conservation, for definitions of commercial fishing gear. These requests are usually to assist in clarifying the intent of conservation laws, the interpretation of which is difficult or impossible because exact definitions of the gear specified in the law are lacking.

It should be noted that the identity of a given fishing apparatus depends not only on how it is constructed, but also on how it is used. For example, a wall of webbing with a cork line and a lead line is a gill net when it is suspended in midwater and catches fish which swim into it and are entangled in the meshes. This same net becomes a seine when it is pulled through the water so that it crowds the fish into a limited area and scoops them out of the water, onto a beach or other shallow area, without entangling them.

### Principal Gears and Terms Most Commonly Used

Bully Net: A circular hoop attached at right angles to the end of a pole and supporting a conical bag of webbing. Used principally to catch crawfish. In fishing, the webbing is held up by means of a cord, which is released when the hoop is dropped over the crawfish.

Cast Net or throw net: A circular net thrown by hand and designed to spread out over the fish. The fish are captured as the weighted circumference sinks to the bottom and comes together. Most commonly used in the mullet fishery and in shallow water.

Dip Net: A mesh bag suspended from a circular, oval, or square-sided hoop attached to a handle. Operated by hand to scoop fish or other animals from the water.

Dredge: A rectangular frame supporting a bag of fabric or wire webbing which is dragged over the sea bottom. Used to capture oysters, clams and scallops.

Gill Net: A net suspended vertically in the water, with floats on the top line and weights on the bottom line. The net permits the head of the fish to pass through the meshes. The fish is caught when it becomes entangled by the gill covers or is wedged in the mesh. Gill nets can be "set nets" which remain in one place or "drift nets", which are allowed to drift with the tide or current.

Grain: A spear-like device with two or more prongs. Sometimes used to catch crawfish.

Hand line: A line, with one or more terminal hooks. This is held in the hand, but it is not pulled through the water; if it is pulled it becomes a troll line.

Hoop net of lift net: A frame, usually round but sometimes of other shapes, supporting a shallow netting bag and suspended by a line and bridles. This net is usually baited and lowered to the ocean bottom for variable lengths of time. It is raised rapidly to prevent the escape of fish, crabs etc. which are attracted to the bait.

Long Line (See trot line): A gear consisting of a horizontal main line supporting a large number of baited hooks, carried on short vertical lines or "gangens". Auxiliary buoys, floats, leads, and anchors complete the gear. Fished either on the bottom or floating.

Mesh: The opening or space enclosed by the twine of a net from knot to knot.

Bar: The length of twine between adjacent knots. This normally equals one-half of the stretch measure.

Stretch or Stretched Measure: The distance between two diagonal knots of a square mesh. Measurement of stretched mesh should

be made by taking at least four meshes and measuring them individually inside the knots when they are simultaneously drawn closely together. The mesh size will be an average of these measurements.

Oyster tongs: A pair of rakes with the fulcrum close to the terminal end. Used to gather oysters.

Pound Net, Trap Net, or Weir: A net which is set more or less permanently, anchored by stakes or poles. Typically it consists of a lead and one or more enclosures in which the fish are concentrated.

Push Net: A shallow mesh bag attached to a wooden or metal frame with a handle. Operated by hand, being pushed over the bottom in shallow water, usually to capture shrimp.

Sponge Hook: A two-or three-pronged metal hook. A socket is provided for the insertion of a pole.

Stop Net: Any net used in cutting off the mouth of a bay, bayou, arc of a beach or other restricted body of water for varying periods but especially during the falling tide in an effort to strand or gill trap fish or to make them more accessible for capture by cast netting or other means.

Trammel Net: A net which catches fish by gilling or entangling them. For this purpose, two or more sets of webbing are hung to the same cork and lead lines. (See Gill net).

Trap: (see also pound net): A device consisting of a wooden or metal frame covered by wire, netting or wooden slats which is anchored at or near the bottom, baited or unbaited. Fish or lobsters enter by funnel-shaped entrances through which escape is difficult. The unbaited kind acts as a shelter to lobsters which enter it during daylight hours.

Seines

Purse seine: A movable net consisting of a wall of netting with floats along the upper edge and weights along the lower edge. It is drawn into a circle around the fish. The purse seine has rings attached to the lower margin of the net below the lead line through which a purse line is drawn to close the bottom of the net.

Haul seine, beach seine, or drag net: Any gear, consisting of a wall of netting and auxiliary lines, with floats attached to the top line and weights to the bottom line which is dragged or hauled over the bottom in order to concentrate the catch. Operated by hand or with power winches. Gill nets or trammel nets which are dragged over the bottom to concentrate the catch are drag nets.

Yard Seine: A short beach seine, always operated from a fixed position along the shore.

Trawls

A net in the form of an elongated bag with the mouth kept open by various means and fished by being towed or dragged on the bottom or in midwater. In Florida trawls are used almost exclusively in the commercial shrimp industry.

Otter trawl: A drag net of conical shape, the mouth of which is held open by a pair of otter boards which act as kites or paravanes. Fished on the sea bottom. Shrimp trawls are otter trawls.

Beam trawl: A drag net of conical shape, the mouth of which is held open by a rigid beam. Fished on the sea bottom.

Floating trawl: A drag net of conical shape with a square mouth, which is held open by lines to two vessels. Fished in midwater, the depth fished being controlled by the rig of the towlines and the speed of the vessels.

Shrimp trawl: See otter trawl.

Frame trawls: A net of conical shape the mouth of which is kept open by a rigid frame of pipe or similar construction. Fished on the sea bottom.

Troll Line: A line, either baited or with artificial lure at the free end, which is towed behind a moving boat. The line may be hand-held, on a pole or attached to the boat.

Trot Line (See long line): A modified long line in which the baits are tied either directly to the main line or to short gangens, without hooks. Used principally to catch blue crabs. (Long lines are employed in Florida to catch catfish and are termed trot lines).

Less Important Gears and Auxiliary Apparatus

Brailer: A large dip net slung from a boom. Used to transfer fish from the seine to the hold of a boat.

Bunt: The middle part of a seine. This is frequently deeper than the remainder of the net; it may or may not be bag-shaped.

Buoy: A floating device for supporting, identifying and locating submerged gear.

Cod End: The terminal tapering bag. A trawl net, in which the catch is concentrated. On board the catch is emptied from the cod end by releasing a purse line or draw string. The cod end is of heavy construction and small mesh.

Cork Line: A line bearing floats or corks hung to the top of the net. The combined action of the cork and lead lines holds the net vertical in the water.

Corks: Floats, usually made of cork, strung on the top or "cork" line.

Crawfish or Crab Hook: A large fish hook on the end of a pole. This is used to hook crawfish or crabs from crevasses.

Fire Fishing: Seining, gill or cast netting at night with the aid of flambeaux or gas lanterns. The fire or light frightens the fish into the net.

Foot Rope: Line or cable to which the lower edge of the mouth of an otter trawl is attached.

Gangen: In a trot or long line, the leader or snood to which the hook is fastened. Gangens are normally spaced slightly more than twice the length of any one gangen, along the main line.

Gang Hook: Multiple hooks, usually 3-4, fashioned with a single shank and eye.

Grab: A pair of jaws fastened to the end of a pole and capable of being cocked open. Used to catch crawfish.

Head Rope: The line or cable to which the upper edge of the mouth of an otter trawl is attached.

Leader: (1) A fence-like obstruction used to guide fish into trap nets, and weirs.
(2) The terminal portion (usually of wire) of a hand-line or troll line.

Lead Line: A line bearing weights or leads, hung to the bottom of a net.

Leads: Weights strung on the bottom or lead line of a net.

Net Depth: The distance from the cork line to the lead line, usually designated by the number of meshes.

Otter board, trawl board or door: One of a pair of heavy rectangular boards attached on each side of the mouth of a trawl net to keep it open as the net is being towed.

Pocket net: Any seine or gill net provided with an extremely deep, or even conical, bunt.

Skirt: The bottom 10-15 meshes of a gill net or seine, made of heavier twine than the main body of the net. A skirt is frequently hung into the net when the gear is to be used over rough bottom.

Snatch Hook: A gang hook with weighted shank.

Stab Net: A heavily weighted gill net which is fished on the bottom in deep water.

Staff: A pole weighted at one end to which the cork and lead lines of gill nets are attached.

Try Net: A small shrimp trawl used for testing the potentiality of fishing grounds. A try net is sometimes used while the large trawl is being dragged and is raised at frequent intervals in order to gauge the catch of the main net.

Twine: The cordage of which net meshes are made or with which nets are repaired.

Wing: The side piece of a net extending from the bunt to the free end of the net.

Warp: The cable used for towing a trawl. It may be rope or steel cable.

("Fishing Gazette", New York, U S.A., November 1953.)

## New Type of Fillet Wrapper

Once upon a time, Incan Kings living in the mountains of Peru, miles from the sea, served fresh-caught ocean fish to their honoured guests. Relays of fleet runners would carry the day's catch through jungles, over mountains to their masters.

American ingenuity has far outstripped the king's servants to bring the American homemaker fish of all sorts. Even as far inland as Emporia, Kansas, families can enjoy fish, tasting as fresh as the day it was caught. The miracle of fresh freezing, sealing in the flavour , has made this possible.

But freezing is only half the story. Wrapping, the other half, guarantees protection so that the fish arrives at its destination in Emporia as flavour fresh as the day it was caught and frozen. Wrappers of the right kind have meant wider markets to the fishprocessor. They provide long-term protection as well as impulse buy attraction and durability in the freezer.

There are two types of wrappers - both widely used by the industry.

Paraffin waxed is the least expensive. It provides an opaque wrapper as background for design and excellent protection from room to sub-zero temperatures. In addition to these properties, paraffin wrappers are capable of being used on all typed of high-speed wrapping machines. Paraffin wrappers, in the past few years, have declined in importance in favour of polyethylene-additive wax wraps.

Nashua Corporation has recently developed a high-gloss wrapper which is rapidly gaining popularity - ENAMALOCK.

The addition of polyethylene and microcrystalline wax to the paraffin adds sealing strength and plasticity to the film of wax.

As compared with a conventional paraffin waxed wrapper, ENAMALOCK has a higher gloss, is harder and can take more abuse in the freezer. The increase of the polyethylene in the mixture increases these qualities. In addition, the ENAMALOCK wax film is more flexible, a quality which is particularly noticeable at low temperatures and which prevents flaking of the wax. ENAMALOCK has a higher melt viscosity and thus required 50°F more heat than paraffin for sealing.

Nashua's ENAMALOCK ~~77~~ 1, the most popular form of the ENAMALOCK line for frozen fish wrappers, when sealed at an elevated temperature, will maintain excellent seal at room temperature and in the freezer.

Cellophane is the glamour girl of the wrapping industry. Cellophane has had enormous popularity in the frozen fish wrapping industry until recently. The trend, at the present time, appears to be in the direction of high-gloss wax wrappers for one-pound consumer packages. Some consumers prefer cellophane because of its smooth surface texture. Cellophane retains its clean, sparkling appearance even after weeks of hard usage. Cellophane wrappers, as produced by Nashua, are non-cracking at the low temperatures required for storage of frozen foods.

In an age of high competition, one of the increasingly important factors of frozen fish sales (after being certain that your wrapper is technically doing the job expected of it) is the visual appearance to the homemaker. Let's return to Emporia and assume that so far inland the family shopper is unfamiliar with a popular seacoast product - swordfish. In a freezer filled with many brands of fish, how shall we catch the eye of the hurrying lady of the house? It must be by a wrapper that is tempting and alluring, that combines good design and bright colours, that must be as tasteful as the product within. A stimulus must pass from the eye to the mouth - a stimulus provoked by design. Your package is your salesman and, like all good salesmen, it should make people want things before they have tried them, as might be the case of selling swordfish in an inland area like Emporia.

Transparent cellophane with a prominent but minimum-obscuring brand name design is very popular in the fillet trade because it caters to the shopper's highly developed sense of purchasing value as she checks the fish for absence of fat and bones. The Booth wrapper has a transparent centre, brand name in red triangle branded on either side by a green motif repeating brand name in white alternating with assorted fish design. A very effective three colour design F.E. Harding Company achieves simplicity with its "Gold Stripe" in blue script and a gold stripe cutting across the centre diagonally.

The Icelandic Freezing Plants Corp., Reykjavik, Iceland, wrapper is a pioneer in the field of five-colour rotogravure printing on cellophane. Note the heavy ink coverage on this design. The Icelandic wrapper is particularly effective in its use of bright colours and its variation of red, blue and yellow on a contrasting white ink background with a full colour cut of prepared fish. The virtue of this colour use over a similar process on wax-coated wrappers is the retention of cellophane's glamorous sparkle.

High gloss waxed wrappers are becoming increasingly important because they can carry a message on an opaque surface so that the package can be seen clearly and quickly. With 3,4,5 and 6 colour possibilities the field of waxed wrapper design is unlimited. Gorton-Pew Fisheries uses their distinctive yellow colour as a base for trade name with a three-colour process print of cooked fish, peas and potato in true colour.

Seacrest brand of New England Fillet Company uses a three-colour scheme. A bright yellow centre with brand name in red script banded with a red stripe, a white stripe and blue blocks to the end of the box. On the right side of the box in the blue block is a map of the coastal area of New England with "A Product of New England" in white. The use of the white map and legend relieves the dark colour area but in no way distracts from the prominence of the brand name.

Captain Frank's brand comes in a real salty-flavoured wrapper. Brand name appears in a billboard type centre, red script lettering outlined in yellow on white. On a plain white background there is a blue cut with Captain Frank's head in a Sou'wester hat overlaying a fish net design and bright red fish swimming across the wrapper.

All of the waxed wrappers described are of Nashua's ENAMALOCK ≠≠1 with a high gloss, closely simulating glistening cellophane.

Good design coupled with a quality product is a weapon in the war on consumer resistance to new products. Good design stimulates impulse buying.

The unlimited growth of the frozen fish industry, importing new types of fish from all over the world, from whale steaks to Scandinavian shrimp, will challenge processors to seek new markets using new designs and processes.

("Fishing Gazette", New York, November 1953.)

"Compromise"

Two anglers met as anglers do,
Down at the Fishing Club,
They'd just droped in to quench the thirst,
And have a bit of grub.

How goes it mate, enquired one,
How did the big ones bite?
I never caught a fish at all,
Although I fished all night.

I did quite well said number two,
I caught the largest bream,
I weighed him on the scales last night,
There's fourteen pounds of him.

Said number one, though I have got,
No fish at all to show,
I hooked a lamp, upon my soul
From deepest depths below.

The strangest thing you ever saw,
It burned the brightest glow,
Though it lay upon the bottom there,
A hundred feet below.

What nonsense man, said number two,
How could a lamp burn bright,
No oxygen to fan the glow,
Or keep it watertight.

Well I doh't care, said number one,
That bream of which you skite,
If you take ten pounds off him
Then I'll put out the light.

- "Ironbark"

("Outdoors and Fishing," Sydney, January 1954.)

Sharing Out the Continental Shelf.

by Myrtle Hoare

When the U.N. Legal Committee opened a debate last month on the questions of the Continental Shelf and fisheries, Britain and Iceland were among those countries which were against any immediate action. The International Law Commission has recommended adoption of three articles on fisheries which would set up an international authority for regulation of fishing-grounds, and has adopted eight articles on the Continental Shelf, the sea-bed and submarine areas contiguous to a nation's coast but outside the limits of the territorial sea.

Iceland moved that any dealing with the problem should be postponed until the question had been fully studied by the Law Commission. In another resolution, Britain, Canada, France, Egypt and Syria proposed postponement of its consideration until the 1955 General Assembly, so that governments would have time to give the matter their attention.

H. H. Andersen, the Iceland delegate, felt that it was necessary for the Commission to define the extent of territorial waters and

establish jurisdiction for the contiguous zones of fisheries. "It must be realized", he said, "that, not only for Iceland, but for many more coastal states, the fishing-banks and spawning-grounds are as vital or even more so for purposes of economic survival than for the offshore oil interest or pearl-banks for other states."

Just over three months ago, Australia's Governor-General issued a proclamation declaring that the State had sovereign rights to explore and exploit the natural resources of the sea-bed and sub-soil of the Continental Shelf adjoining Australia and its territories. A similar proclamation affecting the natural resources of the shelf adjoining the Trust territory of New Guinea was also issued.

The same week the House of Representatives passed the Pearl Fisheries Bill amending the Pearl Fisheries Act, 1952-53, to provide for the definition of Australian waters extending to the limit of the Continental Shelf, the proclamation of the boundaries of the Continental Shelf, and the application of the Act within proclaimed waters to all operators, irrespective of nationality.

Negotiations had previously been in progress with a Japanese delegation to reach a special agreement to limit, control and regulate Japanese pearling operations in waters contiguous to Australia. During these negotiations, the Japanese moved their fishing-fleet into an area which they had been requested not to enter and announced their intention to take in these waters a tonnage of shell which would leave precious little for Australian pearlers without serious depletion of the area's resources. This lack of co-operation on the part of the Japanese was felt to be incompatible with the continuance of discussions and was regarded as having broken off the negotiations.

This attempt to reasonable agreement having failed, the Government are enforcing a system of licensing and control of pearl-fishing in waters over the Australian Continental Shelf, and the

Japanese will be permitted to participate in pearling in Australian waters only in accordance with the new regulations.

("Fish Industry", London, December, 1953.)

How Tuna Tagging is Done - and How it Helps Science

From a two-year tuna tagging programme, which is continuing on into 1954, considerable information about the migration of Yellowfin, Skipjack and Albacore has been obtained. The project is one undertaken by the California Department of Fish and Game, Terminal Island.

The increasing importance of tuna as a commercial fishery has made it imperative to study migrations and to secure information upon which a consistent commercial yield can be obtained, by defining population units.

The project has been under the jurisdiction of Robert C. Wilson who also serves as administrator of the N. B. Scofield, the Fish and Game boat most actively engaged in tuna tagging.

As of October this year, 5,432 fish had been tagged, using several tag types. Sixty-one tags have been returned for an overall recovery rate of 1.1%

In 1953, by August, 754 Albacore were tagged and almost the entire operation was carried on around Guadalupe Island with nine recoveries thus far. The results of this project indicate a northwest-to-west movement of Albacore from summer to fall.

The tagging of Yellowfin in 1952 indicated that fish tagged in early spring off Acapulco were recovered later off Cape San Lucas. Fish which were tagged in the vicinity of Uncle Sam Bank in the late fall indicated a southern movement of the Yellowfin.

Tag recoveries by species are as follows - Yellowfin, 3,137 tagged, 29 recovered; Skipjack, 1,319 tagged, 20 recovered; Albacore, 973 tagged, 12 recovered; Bluefin, 3 tagged, no recovery.

Along with the tagging of tuna there has been carried on the scientific measuring of the fish to give statistical information on size changes.

("Pacific Fisherman", California, January 1, 1954.)

Shark Repellant Found Aid in Tuna Fishing

Among the discoveries brought about by World War II and made available to civilian populations is a chemical substance which acts as a repellant to sharks and offered protection to fliers downed in shark-infested waters now and during the recent war.

The Shark Chaser Chemical Co. of San Pedro, recently organized through the efforts of Alvin Allyn and his associates, is now making this formula available to commercial fisheries and to commercial interests who wish to afford people protection against sharks - airlines, steamship lines, etc.

The original product, now being sold by the name of Sharko, was the combined product of the Naval Research Laboratory and the American Cyanamid's Calco Division. Commercial tuna fishing boats out of Los Angeles harbour have also tested the product, which comes in cake form, for several years and are finding it effective to ward off sharks from the nets which are frequently damaged by attacking sharks. This application is in addition to the use of the repellant as an attachment to a life jacket for personal safety purposes.

Sharko is a combination of chemical salts and a black dye, a combination which when released from a water-tight packet, forms an inky black cloud in the sea which the sharks distinctly avoid, as proven by Navy tests and commercial tests. The effectiveness of the repellant is based on the fact that a shark has a strong sense of smell and that the chemical has incorporated in it the odour of dead shark. Sharks, it is well known, avoid a dead member of their species.

Of interest to commercial fishermen is the fact that the dispersion rate of the dye-chemical is effective to 180' depth - tests have been made locally off San Pedro by the Sparling School of Diving.

For use by fishermen, Sharko is being packaged six and 12 to a carton. Each pack is approximately six ounces. It is estimated that 200 cakes per season are required for from five to six trips for tuna in southern waters. Sharko does not act as a repellant to tuna or other fish. The dispersing agent in the cake gives a round, solid cloud which moves as a body with the current in which fishing is being carried on. The customary method of use by fishermen is to attach several of the cakes to the cork floats during a set.

Officials of the Shark Chaser Chemical Co. state that the fact that the sharks do not leave the area immediately after the repellant is dispersed does not interfere with the effectiveness. It causes the sharks not to feed and, therefore, not to damage the nets.

("Pacific Fisherman", California, January 1, 1954)

Aureomycin Helps in Preservation of Fish

Experiments carried out by the Pacific Fisheries Experimental Station in Vancouver, B.C., have shown the success of using small amounts of aureomycin for retarding bacterial spoilage of fish. The workers have tested a number of methods of applying the antibiotic such as incorporating it into ice, dipping fish into water solutions containing small quantities of this drug and applying it to the flesh. The results showed that ice containing small amounts of aureomycin effected marked improvements in the keeping quality of fish. In all cases, bacterial spoilage progressed at a slower rate when using the antibiotic. The tests tried on salmon and lingcod demonstrates a new method of possibly improving the quality of fish which must be held over long periods.

("Pacific Fisherman", California, January 1, 1954.)

## American Ideas on How to Sell More Fish

The following extracts are taken from an article prepared by Leo Weil, President of the American Seafood Distributors Association, and published in the "South African Shipping News and Fish Industry Review" of January, 1954. While the text refers to America, some of the suggestions might well be considered by the Australian fishing industry.

First, let it be understood that we as distributors are fully aware that producers, boat owners, fishermen and shoreworkers are facing a very real problem. We also recognise that fish fillets are being sold too cheaply to the American consumer and that profits for distributors as well as producers are too low.

We are not in agreement, however, that these unfortunate conditions have been caused by the normal increases over the years of imported fish fillets. We believe that this situation has been caused by consumer preference for other basic foods such as meat, poultry, eggs, cheese and other food products.

We in the fish business "missed the boat" while the meat institute, poultry co-ops., milk and cheese industry all increased their sales through advertising and incentive selling. Increased per capita sales of some food products were phenomenal.

Now the honeymoonis over and we must face realities.

Let's examine this industry of ours so that we may benefit from our past mistakes. Let's chart a course for future stability and health. How about a round table discussion with a panel consisting of producers, importers, boat owners, shoreworkers and fishermen? First on the agenda is the problem of distribution, followed by that of production. In my opinion if the problem of distribution could be solved there just would not be any production

problem. Of course everyone would have to come to this round table discussion with an open mind, without any preconceived opinions or prejudices and willing to admit that the other members of the panel may have some ideas that were worthy of serious consideration. There would be no arguments at this first important meeting. Just open discussions. The entire subject of merchandising and production problems would be explored.

Worthy of consideration at this meeting I believe would be research at the consumer level to discover the actual reasons why fish consumption is only about half a pound per capita per month. Then field men might be sent out to make a consumer survey that would enable us to develop methods to attract customers from other basic foods to fish foods. It seems to me that we should make every effort to have our Government expend large sums of money received from revenues from fish imports for the publicising of our products.

I would like to suggest that we form an organisation such as the Meat Institute, a separate, unaffiliated organisation that is interested only in selling fish and fish products. This organisation's prime function should be the creation of co-operative advertising and publicity to show the public that fish is important as a food.