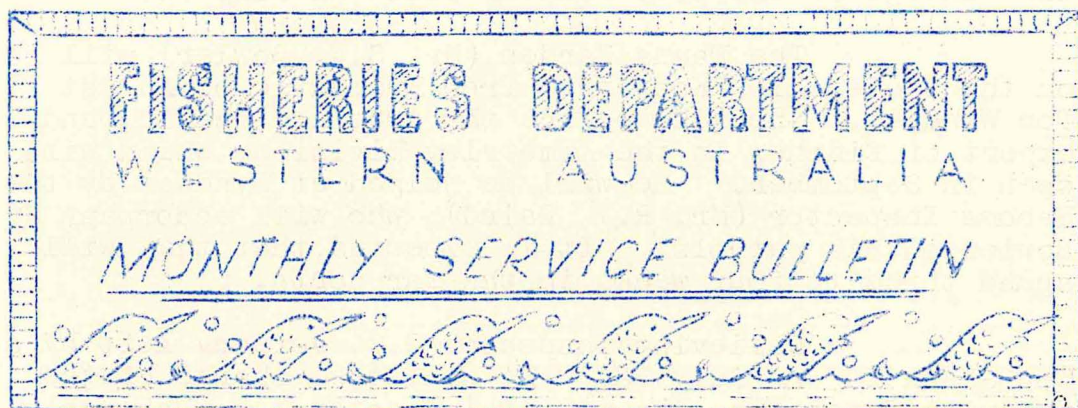


[MONTHLY SERVICE BULLETIN
(WESTERN AUSTRALIA FISHERIES

7(8) Aug 1958

DEPARTMENT OF PARKS AND WILDLIFE

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August, 1958

STAFF NOTES

The Superintendent (Mr. A.J. Fraser) returned to Perth on July 18, after attending a 2-day conference of Commonwealth and State fisheries officers held in Canberra, a report of which appears elsewhere in this issue.

Inspector H.J. Murray, who will cease duty on August 28 to clear all leave prior to his retirement, will be tendered a farewell function that day.

The Supervising Inspector (Mr. J.E. Bramley) made a routine inspection of the Albany district towards the end of last month.

The Research Officer (Mr. B.K. Bowen) will fly to Shark Bay on August 1 to join the research vessel "Lancelin" and investigate work being done on scallops and prawns. He will be away for about ten days.

Assistant Inspector H.D. Kavanagh left Perth for Geraldton on July 21, on temporary transfer to

the p.v. "Kooruldhoo" under command of Inspector G.H. Lyon. Assistant Inspector E.I. Forster returned to Fremantle to take charge of the p.v. "Silver Gull" on July 16.

The Fauna Warden (Mr. S.W. Bowler) will sail on the State ship "Koojarra" from Fremantle on August 13 for Wyndham. He will police the trapping, caging and export of finches in the Kimberley Division, which will open in September. He will be joined at Wyndham by the Broome Inspector (Mr. R.J. Baird), who will accompany Mr. Bowler on his patrols. It is expected that they will spend three to four weeks in the far north.

Relieving Inspector G.C. Jeffery left by air for Shark Bay on July 28. He will take charge of the district during the absence of Inspector N.E. McLaughlan on long service leave, which will commence on August 1.

Inspector A.K. Melsom will resume duty on August 1 in charge of the Fremantle district. He will be assisted by Assistant Inspector C.J. Seabrook.

Inspector S.C. Stokoe on July 21 commenced three weeks' special leave to attend a naval diving school in Sydney.

The Boats Maintenance Officer (Mr. A.J. Bateman) will visit Mandurah and Bunbury towards the end of August to carry out work on the "A.V.G." and the "Leschenault".

Officers proceeding on annual leave include Technical Officer J. Traynor, August 11; Inspector A.V. Green, of Mandurah, August 25; Assistant Inspector D. Wright, September 1; Boats Maintenance Officer A.J. Bateman, September 22.

PERSONAL PARS

A visitor at Head Office during July was Dr. Geoffrey L. Kesteven, Chief Biologist of the Fisheries Division of the Food and Agriculture Organisation (FAO),

Rome. Dr. Kesteven, who was accompanied by his wife and family, was en route to Sydney on holiday leave. He hopes to spend a day or two in Perth about mid-August on his way back to Italy.

* * * * *

Another overseas visitor was Mr. J.M. Gardner, an executive of Mac Fisheries Ltd. of London. Mr. Gardner, who had been in the eastern States for a short time, spent two or three days in Perth investigating the possibility of his firm's marketing its products in this State. He also discussed with the Superintendent the question whether local production would warrant the establishment of a fish filleting and packaging works in Western Australia. Mac Fisheries, which is a unit of the Unilever group and holds the British rights to the Birdseye process, not only processes and packages for the wholesale trade, but also controls upwards of 500 retail fish shops throughout Britain.

TERRITORIAL WATERS

Numerous requests have recently come to hand, not only from inspectors but also from fishermen, asking the Department to give an interpretation of the expression "territorial waters". It seems too that some inspectors are being pressed by fishermen to define the term.

It is not the function or duty of the Department, or of its staff, to offer legal interpretations to outsiders, and any such enquirers should in future be referred to their legal advisers.

There is, of course, no objection to members of the public being made aware of the definition of "Western Australian waters" in the Fisheries Act itself. The definition reads -

"Western Australian Waters" include the sea to three miles from high-water mark, and every tidal river, and every estuary or arm of the sea, and the waters of every river, stream, brook, creek, lake, or lagoon, the water whereof, at any time of the year, has access to the sea, and notwithstanding that the land covered by the water is private land alienated by the Crown.

COMMONWEALTH-STATE FISHERIES CONFERENCE

A conference between Commonwealth and State fisheries officers was held at Canberra, A.C.T. on July 15 and 16.

I. Constitution and opening :

The conference was officially opened at 2 p.m. on July 15 by Mr. J.V. Moroney, Secretary, Department of Primary Industry. During the course of his remarks Mr. Moroney briefly reviewed the activities of the Fisheries Division of his Department and stressed the need for the closest co-operation between the Federal and State instrumentalities. He suggested that the conference consider the desirability of creating an Australian Fisheries Council, to be organised on similar lines to the Australian Agricultural Council.

Mr. R.W. Wilson, First Assistant Secretary (Agriculture and Fisheries), Department of Primary Industry, presided. The Commonwealth was represented by Messrs F.F. Anderson, Director of Fisheries; R.P. Deane, Executive Assistant, Department of Trade; (Dr.) G.F. Humphrey, Chief, Division of Fisheries and Oceanography, C.S.I.R.O.; H.K. Grubb, Chief Finance Officer, Department of the Treasury; and G. Pettit, Officer-in-Charge, Forests and Fisheries Section, Department of Territories.

The State representation was as follows -

- New South Wales - Mr. N.V. Harris, Superintendent of Fisheries;
- Victoria - Mr. A. Dunbavin-Butcher, Director of Fisheries and Game;
- Queensland - Mr. E.J. Coulter, Secretary, Department of Harbours and Marine;
- South Australia - Mr. F.W. Moorhouse, Chief Inspector of Fisheries;
- Western Australia - Mr. A.J. Fraser, Superintendent, Fisheries Department;
- Tasmania - Mr. F.W. Hicks, Secretary for Agriculture and Chairman, Sea Fisheries Advisory Board;
- Mr. L.A. St. Leger, Secretary for Fisheries;
- Mr. E.E. Andrews, Inspector of Fisheries.

Mr. G.R. Howells, Department of Primary Industry, acted as conference secretary.

II. Fisheries Development Trust Account :

The activities conducted with moneys standing to the credit of the Trust Account were reviewed.

1. Prawn survey : One of the investigations involved a survey of the prawn resources off the Queensland coast. This project, it was stated, had been felt to be well worthwhile. A new prawning ground was discovered at Fraser Island, and subsequent catches by professional fishermen were very gratifying. A lead to other new prawning areas had also been given. A report on the complete operation had been prepared and was made available to conference delegates.

2. Pilchard survey : Investigations off the New South Wales coast to determine the availability of sea pilchards had not met with as great success as had been expected. The project had now lapsed, and the question of continuing the survey was now being enquired into. A report on the investigation would be issued in due course.

3. Barracouta investigations : It had been agreed to grant assistance to and to co-operate with C.S.I.R.O. on a full-scale investigation of the barracouta fishery in Bass Strait. This project, in the absence of a suitable vessel, had not yet begun.

4. Bight trawling : The Minister had now approved the formation of a company for exploratory commercial trawling in the Great Australian Bight. The policy had been adopted that the hands of the company would not be tied by directions from the Commonwealth in relation to operating and marketing details. It had been estimated that an investment from the fund of £260,000 would be needed.

5. Marketing survey : A start had been made on an Australia-wide survey of wholesale and retail marketing, and a fairly complete picture of the situation in New South Wales was now available. The survey would later extend to other States.

III. Fisheries Administration and Management :

1. Conservation measures : A resume of action taken by the Commonwealth to conserve the school shark, crayfish and tiger flathead resources in waters adjacent to but outside the territorial waters of New South Wales, Victoria, South Australia and Tasmania was presented. Some difficulties had been encountered in sheeting home certain offences, and the question of seeking amendments to the Commonwealth fisheries code to strengthen the hands of both Federal and State authorities was discussed. The State officers concerned expressed general satisfaction with the assistance rendered by the Commonwealth in the matter of conservational measures.

2. Commonwealth licensing : The efforts of the States in implementing, by delegation, the requirements of the licensing provisions of the Commonwealth Fisheries Act were commended. It was reported that the Minister for Fisheries in Western Australia had now agreed to co-operate to the full in the issue of licenses and the policing of the licensing regulations.

3. Nomenclature of fish : A complaint was made that there had been a number of departures made from the names established at the 1947 conference. This, it was stated, led to frequent misunderstandings, and it was agreed that each of the States review the situation and the Commonwealth prepare a fresh schedule of names for consideration at the next Commonwealth-State conference.

4. Publicity and Public Relations : Some discussion ensued in relation to the desirability of giving greater publicity to the fishing industry. It was felt that although the Fisheries Newsletter served a most useful purpose in keeping professional fishermen and departmental staffs abreast of developments, there was need for more publicity for the general public. Means suggested were the press, radio and television, pamphlets, brochures and the like. Delegates outlined what was being done in the respective States.

5. Imported fish : The delegates from New South Wales and Western Australia, following representations by fishermen in their respective States, brought before conference for discussion the matter of the impact which was currently being made on local fish by the recent

great increase in imports. Complaints were made that many of the imported lines were not true to label and the opinion expressed that the Customs authorities should satisfy themselves that the contents of packages were not misdescribed. The New South Wales delegate reported that recently in Sydney many tons of fish, which by reason of competition from overseas were unsaleable, had been "dumped". The view was expressed that to meet this overseas competition local fishermen and processors should present the local product in as attractive a form and at as attractive a price as the imported article. At the request of the conference, an economist of the Fisheries Division, Department of Primary Industry, reviewed the policy associated with the granting of import licenses for fish. The licensing system, he said, was somewhat complex, but it was based on the new "sales replacement" policy adopted by the Department of Trade. Firstly an estimate was made as to Australia's requirements of imported fish during the 1957/8 financial year. The figure of 28,000,000 lb. was arrived at independently by two different agencies. Importers already in the business were allocated a quota (in £'s, not lbs.), covering a 4-months period. Licenses were subsequently from time to time during that period granted for the import of enough fish to replace those sold. At the end of the period a quota double that of the quota for the initial period was granted, with the same provision for sales replacement. At the end of the second period the increased quota was again doubled, and so on. At the time the scheme was introduced, a call was made for new importers, who at the outset were given a relatively small sum by way of quota allowance, but the doubling process at the end of each 4-months period applied equally in their case. There had been, as one might have expected, a very substantial increase in imports during the financial year just passed. The peak had been reached in April, 1958, but in May the value of the imports was less than in May, 1957. It looked very much as if imports were now settling down to a more or less stable level. From July 1, 1957, to May 31, 1958 imports had aggregated 21.5 million lb., as against 18 million lb. for the same period of the immediately preceding year. It was expected that the imports for the whole of the year 1957/8 would total 23 million lb., compared with 19 million lb. in 1956/7.

6. "Midget" craytails : The delegate from Western Australia raised the question of the desirability of abandoning the "midget" category of craytails exported to the U.S.A., with a view to four categories only being used, viz., "small" (less than 8 oz.), "medium" (8 - 10 oz.), "large" (10 - 12 oz.) and "jumbo" (12 oz. and over). He said that some fishermen believed the term "midget" was psychologically bad and connoted, in the public mind, fish that were runts or dwarfs, i.e., not properly developed. They considered that the term itself, and the reaction it inspired, was responsible for the falling-off in demand for midgets and the lowering of the price. Officers of the Export Division of the Department of Primary Industry were present by invitation and listened to the discussion. They agreed to examine the matter from all angles.

7. Importation of live fish : The New South Wales delegate said he was becoming more and more perturbed at the possibility of importing into the Commonwealth undesirable species of fish, and perhaps also diseased fish. Live fish were brought in primarily by aquarists, but there was no guarantee that if any aquarist tired of his hobby the fish in his aquarium would not be released in our streams. In this way our own native fishes could quite conceivably be ousted by the exotic kinds, which in many cases were far inferior in quality to our own, and perhaps diseases unknown to Australia transmitted to local stocks. His Department, he said, exercised a strict control over such importations when they came into Australia via a New South Wales port, but if they entered the Commonwealth through a port in another State, whose control was perhaps less stringent, there was nothing to stop interstate transfers taking place or fish finding their way into another State per medium of common waterways. After some discussion, during which representatives expressed views more or less in agreement, the New South Wales delegate promised to go further into the matter and to communicate in due course with the departmental head of each State.

8. Interstate marketing of fish : This matter was brought forward with a view to ascertaining the opinions of departmental heads concerning the sale of fish in a State different from that in which it originated and in respect of which a smaller minimum length operated where it was sold than where it was caught. It was generally

accepted that where fish of the identical species were involved, or where the minimum length schedules of some States omitted the scientific name, it would be virtually impossible to discriminate between fish of local and interstate origin. On the other hand, if a State did not legislate for fish of a specified species, its sale could not be prevented in that State even if the fish were of a very closely allied species and very similar to the local species. The Victorian delegate announced that although the minimum legal length for crayfish in his State was $4\frac{1}{4}$ ins. (carapace measurement), the local fish was of a genus (Jasus) different from that of Western Australia, and he had instructed his staff that Western Australian crayfish of the genus Panulirus could be sold openly at a carapace measurement less than $4\frac{1}{4}$ ins.

IV. Australian Fisheries Council :

The senior Tasmanian delegate stated that the State representatives had conferred in relation to Mr. Moroney's suggestion that some thought be given to the desirability of establishing an Australian Fisheries Council. He had been asked to say that the State officers, though of opinion that at some date in the future of Australian fisheries history such a body would serve a most useful purpose, were unanimous that the proposal was premature. At the same time, he said, all delegates were of opinion that such a conference as this should take place at annual intervals - or more frequently in the event of emergency - and rotate from State to State. It was suggested that the next meeting be held in Hobart in the late summer of 1959.

V. Close :

After the exchange of thanks and felicitations, the conference concluded at 5.30 p.m. on July 16.

CRAYFISH SEASON CLOSES

Officers are reminded that the season in the Abrolhos area will close on August 15 and in the Fremantle-Jurien Bay area on August 31.

IS ALL WELL WITH THE CRAYFISH INDUSTRY?

The crayfisheries now produce more than half of the poundage of the entire fishing industry of Western Australia. The following figures for the past ten years demonstrate their value to this State -

Year	Crayfish Production	Percentage of Total Fish Production	Value of Crayfish
	lb.	%	£
1948	2,838,012	23.48	141,900
1949	5,132,353	36.35	384,927
1950	6,549,811	45.93	491,235
1951	7,794,931	48.88	779,493
1952	8,415,425	50.39	841,542
1953	7,985,391	46.77*	798,539
1954	10,279,531	48.46+	1,027,953
1955	11,120,232	52.38	1,251,026
1956	10,685,853	51.80	1,202,158
1957	11,683,249	54.77	1,314,365

* Record salmon catch.

+ Record ruff catch.

As the major crayfish producing and exporting State, Western Australia is very jealous of its crayfish resources. To ensure that they would be properly managed, the most stringent measures were introduced in the early stages of their development. The open season was reduced to the absolute minimum; fishermen and fishing-boats were permitted to operate in one only of the two main crayfishing regions in any year; and freezer-boats were excluded from certain areas. These restrictions were initially regarded by the industry as unduly harsh, but their value is now generally appreciated. Later prohibitions have, in general, been accepted unreservedly.

Let us look at some of the conclusions which may be drawn from biological studies conducted on the crayfisheries.

The following points seem to be clear -

1. The crayfishery being still in the expansion and exploratory stage - although expansion and exploration are now slowing down - it must be regarded as a developing fishery and ipso facto the question of depletion does not arise.
2. The catch-per-man has fallen. Taking the fishery as a whole this fall is not due to overfishing in the generally accepted sense that more individuals are being caught than the fishery can stand. The fall is due rather to overcrowding by fishermen, i.e., as more and more men enter the industry so is each man's share of the available fish being progressively reduced. This is not necessarily in direct ratio to the increase in men, because the fishery is still in a state of expansion. When expansion ceases altogether, the catch-per-man will fall more steeply if the number of men continues to rise.
3. In an expanding fishery such as this changes in the catch-per-man have no biological significance or implications.
4. The lapse of time (12 years) since the fishery commenced to expand is too short in which to collect sufficient data for a final pronouncement on the state of the fishery.
5. The crayfish population is undoubtedly undergoing a process of compensation and adjustment in the fished areas and tending to stabilise in relation to the numbers of fish reaching maturity.
6. Biologically the fishery appears to be in the condition that the crayfish population is able at present to regenerate and compensate.

But, some people say, as all crays are not mature at the minimum legal length of $2\frac{3}{4}$ " (carapace measurement), steps should be taken to raise it. In other circles an endeavour has been made to show that failure to increase the length can lead only to depletion, and that there are already signs of overfishing. If, it has been said, the legal length were increased to 3"; at which size the very great majority of our crays are mature, a greater weight of fish would be taken in subsequent years, and that (as if this were our sole concern) Australia would

earn more dollars. What would be lost in the number of fish caught, it is contended, would be more than offset by the greater weight of fish caught and sold.

In regard to the first point, although at one time it was the firm belief that all would be well with the fisheries if complete protection were given to immature fish, this belief is no longer held by many modern biologists. It is certainly a moot point whether raising the minimum length would of itself increase the productivity of the crayfisheries. It is accepted that at $2\frac{3}{4}$ " a proportion of the catch is mature. It must also be accepted that there is already a sufficient escapement of the $2\frac{3}{4}$ " - 3" fish to furnish adequate brood stocks. At all events, except in one or two localities, the take is being well maintained. The overall catch is in fact increasing.

The sociological consequences of giving effect to the proposition that the minimum legal length be increased cannot be ignored. The fishermen look to the $2\frac{3}{4}$ " - 3" fish for the butter they put on their bread. If the Rat Island fishery, for example, were closed (and that is that would virtually happen if a 3" minimum were proclaimed) and the taking of "white" crayfish were prohibited (that would be the inevitable result of such a proclamation), many fishermen would be eating dry bread. A further sociological effect would be the reduction of the human population at outlying centres. Many people remain there solely because of their crayfishing activities. A State like Western Australia, with a sparsely populated coastline, cannot afford to take hasty action which could only result in a drift to the cities, where there is already a pool of unemployed. The Department believes that even if the Commonwealth does lose a few dollars annually because of the high proportion of "midgets" exported, it is better that the standard of living of the fishermen be kept at as high a level as possible to encourage them to stay in the industry and to live in the less populous parts of the State.

The immediate problem is very largely an economic one, and as such is really worrying the thinking fishermen. Hitherto, any loss which could have been expected to occur as a result of the reduced catch-per-man has been offset by increasing prices.

The feeling seems to be now fairly general that the price limit will very soon be reached, if indeed it has not been reached already. In fact the scaling down of the "midget" price has recently brought about a reduction in the overall price. If this trend continues the less experienced, less efficient men will no doubt be forced out of the industry unless they are prepared to tighten their belts and get their costs down.

PLASTIC BAG DELIVERIES

In previous issues of this Bulletin (Vol. V, No. 9, September, 1956, and Vol. VI, No. 6, June, 1957) the use of plastic bags to transport trout has been described. From the experiments carried out it was found that 1 lb. displacement of trout fry, or of fingerlings up to six months old, could safely be carried in plastic bags for a period of at least 20 hours. As a result of these experiments, the same method was used for last year's fry and fingerling deliveries. However, transport of the May advanced fingerlings, which weighed approximately 50 per pound of displaced water, presented a problem because of the size of the fish.

It was for this reason that the Research Officer, Mr. B.K. Bowen, and Technical Officer J.S. Simpson, carried out further experiments to determine the effect of increasing the volume of fish per bag. In all, nine trial bags were tested - six with 3 lb. of fish per bag and three with 4 lb. The size of the fish used during the experiments varied from 30 to 120 per pound displacement.

The experiments proved it was possible to hold 3 lb. of fish of the size used in the experiments for a period of at least sixteen hours. At the outset of the tests it was found that the trout became distressed and died after two to three hours in the bag. A check of the oxygen tension of the water at this stage showed that it had become too low to keep the trout alive. The bag was then shaken and the oxygen tension again determined. It was found then to have risen to well above the lethal limit, showing that the oxygen absorption by the water was not fast

enough to replace the oxygen used by the trout unless the water was agitated. In other experiments the bags were shaken at intervals and the lack of oxygen did not present itself as a problem. The trials with the bags each carrying 4 lb. of fish were unsuccessful, and further experiments using this quantity of fish were not attempted.

For practical purposes it was considered that the movement of the vehicle during transportation would agitate the water sufficiently. This was proved correct during the course of the May deliveries when bags, containing 3 lb. of fish per bag, were used with success. In all, 20,000 fish (measuring from 20 to 58 per lb. displacement) were transported without loss to Gingin, Jarrahdale, Dwellingup, Harvey and Bridgetown. The vehicle used was a Holden van with trailer, twenty-six bags of fish being transported each trip.

From the experience gained in these deliveries it is probable that the volume of water per bag will next season be increased to 5 gallons and the volume of fish to 4 lb. displacement.

MANDURAH BAR

Writing on July 27, Inspector A.V. Green said that unless there was a big improvement, he did not think the bar would remain open long during the summer. With Assistant Inspector S. LaRoche, Inspector Green has been keeping a close watch of the changes occurring in the channel. The second groyne, lying a little to the north of the first groyne, has been surrounded by flood waters and a gutter 8ft. deep, and over, has been formed to the west of it and along the north shore where it breaks through the bar. At this point the channel is about 30ft. wide.

Inspector Green added that a committee of rate-payers decided at a meeting held earlier in July to get the dragline down again as soon as possible. Officers of the Harbours & Rivers Branch of the Public Works Department are also watching developments.

ISSUE OF COMMONWEALTH LICENSES

Licensing officers have already been issued with delegations and authorisations to issue licenses under the Commonwealth Fisheries Act. At the time of issue they were instructed merely to notify fishermen operating in waters outside "Western Australian waters" as defined in the Fisheries Act, that Commonwealth licenses were necessary, and to issue licenses to qualified persons if requested by them to do so.

In view of changed circumstances, the Minister for Fisheries (Mr. Kelly) has agreed that licensing officers go further than this. They are now required to notify all fishermen known to be operating outside "Western Australian waters" that they must hold licenses under the Commonwealth Fisheries Act. Furthermore they will report to Head Office at the end of each month the names of all fishermen working in extra-territorial waters who have been told of their responsibilities and have failed to comply. The Commonwealth licenses should be issued simultaneously with licenses under the State Fisheries Act.

Sub-section 4 of Section 9 of the Commonwealth Fisheries Act provides that the licensing officers may grant or refuse any application for fishing licenses. Commonwealth licenses must be refused to any person who is not already the holder of a current license under the State Fisheries Act.

The following procedure must be followed in relation to all licenses issued and moneys received on behalf of the Commonwealth Government. -

1. Officers will enter the receipt of Commonwealth license fees on the cash abstracts, similar to the State license fees. Full details of the Commonwealth licenses issued must be entered on the abstract and the amount entered in the Trust Column.
2. Except in the case of the Inspector at Broome, where special conditions apply, all moneys received will be banked together and the one bank receipt will be received for both State and Commonwealth moneys.

(100)

3. Duplicates and triplicates of licenses issued elsewhere than at Broome are now to be forwarded to Head Office. Head Office will send the duplicates to Canberra.

It must be noted that only officers holding the necessary delegation shall issue Commonwealth licenses.

INCREASED TRAVELLING ALLOWANCES

Resulting from negotiations with the Civil Service Association, the Public Service Commissioner has instructed that reimbursement for travelling, transfer and relieving expenses shall be increased as from July 1, 1958. From that date officers should claim as follows --

1) Travelling Allowances :

- | | | |
|-----|---|-----------------|
| (a) | First 14 days in the one place | : 42/- per day; |
| (b) | After 14 days | : 39/- " " |
| (c) | Overnight stay in city hotel | : 54/- " " |
| (d) | Meals - when travelling does not involve being away overnight from headquarters | : 8/- per meal. |

2) Transfer Allowance - 42/- per day.

3) Relieving Allowance :

- | | | |
|-----|---------------|--|
| (a) | First 21 days | : 42/- per day; |
| (b) | After 21 days | : 20/- per day for a married man, and 12/- per day for a single man. |

Sea-going allowances have not been varied and remain at 12/- per day for married men and 8/- per day for single men.

WHALING

Although they only had one chaser operating while the "Kos VII" was undergoing repairs, the Cheynes Beach Whaling Company secured 20 whales during the week ended July 12, and by July 30 had taken 75 since the season opened. Up to the same period last year this Company had taken 78 of its quota of 120 humpbacks. On July 12, Captain Frank Hughes, who was in command of the chaser "Cheynes", had the misfortune to break an arm when he slipped on the heaving gun platform. After the "Cheynes" had taken Captain Hughes back to port, she sailed again immediately under the command of Captain Christensen. The fitting of a new propeller and tail shaft to the "Kos VII" was completed and the chaser taken to sea on July 22 under command of Captain Hughes. The actual shooting, however, will be done by the first mate (C. Stubbs) until Captain Hughes' fracture has knitted.

The Nor'-West Whaling Company, up to the week ending July 26, had taken 259 humpbacks. This is almost one hundred less than the number taken for the same period during 1957. It is expected that the southerly gales experienced during July will have started the whales on their annual northward migration to warmer waters in earnest. The Manager of the Station, Mr. H. Martin, said that a similar scarcity of whales earlier in the season had been experienced in 1952, but by September the migration had become intense. It is not expected that the Company will have any difficulty in taking its quota of 1,000 whales this season.

A note of warning regarding the Western Australian humpback stocks is struck by Dr. Graham Chittleborough, of the Division of Fisheries and Oceanography, C.S.I.R.O., in Divisional Report 17, "Australian Catches of Humpback Whales, 1957".

In suggesting that all is not well in Western Australia, he says that the catch of humpbacks made at Carnarvon in 1957 was less favourable than that of catches in the two previous years. At Albany, he says, the catching rate has declined very considerably since 1955 and the quota was not filled in 1957. Poorer weather conditions along the west coast could,

he thinks, have had some effect, but the available evidence indicates that the stock of whales hunted in the West is continuing to decline. From an examination of females over the period 1951-57, it appears to Dr. Chittleborough that in this declining population the younger whales are now growing at faster rates than the whales of similar age during the period 1951-54.

As opposed to this situation, Dr. Chittleborough concludes, after examining the catches in the eastern States, that the humpback stocks on the east coast are in relatively sound condition.

ABROLHOS CRAYFISHERY

The table at page 103 compares production in the different island groups in June 1957 and 1958. It reveals that the catch this year was substantially greater than June, 1957, but was little different from that of June, 1956.

There is no doubt that when this season has ended, a new Abrolhos production record will have been achieved.

RECOVERIES OF BANDED PETRELS

Only four banded petrels have been recovered along our coast this year so far. They were all first-year birds, banded as nestlings at Signy Island in the South Shetland Islands, south of South America. This Island is situated roughly at 61° south latitude and 45° west longitude.

Inspector Carmichael reported that another two banded petrels were sighted in Frenchman's Bay, but attempts to catch them to record the band numbers were not successful.

ABROLHOS CRAYFISHERY

AREA	JUNE, 1957			JUNE, 1958		
	No. of Men	Total Catch lb.	Catch per Man lb.	No. of men	Total Catch lb.	Catch per Man lb.
North Island	22	22,053	1,002	17	23,936	1,408
Wallabi Island	29	33,149	1,143	50	89,573	1,791
Easter Group	43	50,253	1,168	52	66,620	1,281
Southern Group	29	25,924	895	28	28,933	1,033
Totals	123	131,379	1,068	147	209,062	1,422
1956 Totals	156	202,127	1,287			

TOTAL FOR FOUR MONTHS 1956 2,119,288 lb.
 " " " " 1957 2,521,536 lb.
 " " " " 1958 2,886,110 lb.

ICELAND CLOSES WATERS TO FOREIGN TRAWLERS

Despite strong criticism from the United Kingdom, France, West Germany and Belgium, the Iceland Government intends to ban foreign trawlers from fishing within 12 miles of its shores. Regulations extending Iceland's control of fishing in adjacent waters from 4 to 12 miles were published in June and will take effect from September 1. Icelandic vessels will be permitted to trawl and seine within the 12-mile limit subject to special licensing rules, but all foreign ships will be prohibited from fishing there.

To safeguard its fisheries from over-exploitation as a result of the Iceland closure, the Parliament of the Faroe Islands considered itself forced to follow suit and has demanded an extension of its fishing limits to 12 miles also. The Danish Government, which exercises jurisdiction over the Faroes in international matters, supports the demand and insists on a review of the Anglo-Danish Fishing Treaty of 1955.

Norway and Ireland are being urged by their nationals to take similar steps to prevent the displaced fishing fleets from operating in their waters and consequently overfishing them. France and West Germany and other countries want the problems discussed by the North Atlantic Treaty Organisation's Permanent Council, while Norway has suggested that a new international conference be called. Backed by Russia, Iceland has so far as we know refused to discuss or negotiate on her move, saying that the restrictions are essential to "protect the foundation of our livelihood".

BROOKE'S INLET OPENS

Inspector B.A. Carmichael has reported that Brooke's (or Broke) Inlet opened to the sea at approximately 2 p.m. on Saturday, July 26, the same day as last year. This Inlet is open to fishing from June 1 each year until 7 days after it has opened to the sea. It will therefore be closed to fishing from August 2.

FISHING BOAT WRECKED

The licensed fishing boat "Valkyre" owned by Mr. J. De-Cares and skippered by Mr. M.H. Glazier, was caught in a freak gale, sunk and later smashed to pieces at Lucky Bay, about 40 miles north of Northampton, on July 1. The owner and the skipper had to swim more than a mile to reach the shore. The boat was capsized after being hit by a huge wave. It sank at once, taking Glazier, who was clad in a heavy seaman's apron, guernsey and duffle coat, down with it. He managed to fight his way clear, but the weight of his clothes almost caused his drowning. He was eventually swept in by the breakers close to the shore, and was pulled from the water by De-Cares, who then set off to Port Gregory for help. Glazier recovered and managed to reach Balline Station, whence the owners drove him to Northampton, picking up De-Cares on the way. The "Valkyre" was a 28 ft. crayfishing boat, valued, when last licensed, at £3,000.

PACKET FISH BANNED

Late in July, city fish traders were advised by the Minister for Police (Mr. Brady) that they would not be allowed to sell a consignment of 20,000 packets of frozen fish consigned from London to Fremantle. Mr. Brady said that the State's Weights and Measures Act allows pre-packed 4 oz., 8 oz., 12 oz., and 16 oz. packets only to be sold. The new consignment was banned because the packets were only 14 oz. net weight.

EXTENSIONS TO ALBANY CANNERY

The Supervising Inspector (Mr. J.E. Bramley) reports after visiting Albany that the premises of Hunt's Canning Co. Pty. Ltd. are being altered and enlarged. Work in hand includes altering the production line to allow a straight run from the chilling rooms to the exhausting room.

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FISHERMEN'S ADVISORY COMMITTEE

A meeting of this Committee will take place on September 16, 17 and 18 at the Fremantle Courthouse. This will be the Committee's normal annual Fremantle meeting, and evidence will be taken in respect of the conservation and management of the Fremantle-Lancelin-Cervantes-Jurien Bay crayfishery.

It is expected that the meeting will be well attended, and inspectors should advise any persons desiring to give evidence to the Committee to contact either the Fremantle Office or Head Office so that appointments may be made.

It is expected that the Committee's annual Geraldton meeting will take place during October, but arrangements have not been finalised.

It is possible that the Committee will hold an additional meeting at Shark Bay to consider matters relating to fisheries conservation, about which the local Fishermen's Association has expressed concern.

ALBANY BOAT SHED

Inspector B.A. Carmichael advises that alterations to the storeroom at the rear of the Albany office were completed in July. The door facing the road has been fitted with sliding tracks, and a frame made in the room, so that the dinghy can be loaded straight on or off a utility.

THE CLEARING HOUSE

Science is at Work

Harvest from our Fisheries can be Increased

by Gordon Melville.

There are good fish in the sea around the Victorian coast - enough to ensure a stable future for the fishing industry - but there is no abundance of the choice of varieties which appear on the menu as expensive delicacies.

Fish production last year amounted to 11,525,406 lb., nearly half a million lb. higher than in 1956, and the director of the Fisheries and Game Department (Mr. A.D. Butcher) says that the trend this year is still upward.

But even with this, or higher production, Victoria is likely to remain an importer of fish, as it has been for many years.

Victoria is a market for whiting, shark and crayfish from South Australia, crayfish and shark from Tasmania. Fish has been brought here from West Australia and Queensland.

New Zealand and Britain are old established suppliers. South Africa, Northern Europe and Asia are comparative newcomers.

Despite this apparently insatiable appetite for sea food, Victorians, and Australians generally, are not fish eaters as are European and Asian peoples.

They do not rely primarily on fish for the protein content of their diet. That comes from meat.

Fish, generally, is regarded as an addition to the staple diet - something to add variety to the family menu, or an extra course to a more elaborate meal.

The secondary place of fish in this land of high dietary standards has thrown the weight of demand towards the finer, and scarcer, varieties - the whiting, schnapper, flounder and bream which Mr. Butcher says we cannot expect to have in plenty.

These choicer fish do not exist in large numbers.

The grounds on which they can be found - in the estuaries and close to the shore - are comparatively few and are restricted in area.

Such fish are rare even in the rich fisheries of the world, and they can always command higher prices than the commoner but no less nutritious varieties.

The supply seldom outruns the demand, and when it does the margin is small. The danger of glut is negligible and there is little pressure to reduce prices.

Study of the breeding and feeding habits of these choicer fish, and of the grounds where they are caught, has led the Victorian Fisheries and Game Department to its policy of protection and conservation.

"We are concerned here with the preservation and welfare of the industry", Mr. Butcher says of this comparatively small part of the fish harvest.

But what of the far larger part - the pelagic fish, which could be the foundation of the industry?

Here Mr. Butcher believes that the fish harvest could be increased tenfold. Authoritative estimates of the potentialities of Australia's southern fisheries in recent years support his contention.

Even such a vast increase as this, sufficient though it would be to change the outlook of the industry and perhaps to influence dietary habits, would not bring Australian waters into the category of the great fishing grounds of the world.

The cold northern waters which yield the fish harvests that feed a great part of the populations of Britain, Europe and Asia produce an abundance unparalleled in the warmer south.

Food and Agriculture Organisation figures show that 95 per cent of the total world production of fish is taken in the waters of the northern hemisphere.

Of the five per cent taken in the southern hemisphere, Africa produces two per cent. South America two per cent, and all of Oceania - Australia and the surrounding islands - produces only one per cent.

"The great fisheries of the world are in these cold northern waters", said Mr. Butcher, commenting on the disparity between the production of the north and south. "That is something we cannot change."

But the scope for increased production here remains enormous.

The fish that would add most to any considerable increase in production are tuna, pilchards and anchovies (which now reach us mostly in tins from abroad labelled "sardines"), salmon and barracouta.

Probably only a small proportion of an increased catch of these and similar fish would be marketed fresh.

The demand for fresh fish of these varieties is limited but with the change in the composition of the population it could grow.

Victoria has taken more migrants than any other State, and many of them come from European countries where fish is a major component of the diet. The appearance of neglected varieties, and fish in new forms, in fishmongers' windows tells of changes already taking place.

But the greater proportion of the increased catch would be processed and canned, and some of it would have to be marketed abroad.

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There is no question of the quality of Australian canned fish. It has won praise and a small share of the overseas market. Mr. Butcher believes that it is good enough to win a bigger share.

A Melbourne factory which is canning salmon is steadily expanding its production.

There is no doubt, Mr. Butcher says, that the fish are available in vast quantities off the coast. Recent aerial surveys have confirmed the existence of rewarding fishing grounds.

Sustained research is removing the element of chance in the fishing industry. More is known of the life cycles and movements of the fish which inhabit the coastal waters, and the store of knowledge is increasing all the time.

Special attention is concentrated now on the movements of barracouta, which recently deserted their accustomed off-shore haunts.

The C.S.I.R.O. Division of Fisheries and Oceanography, at the request of the Victorian and Tasmanian Fisheries departments is extending its research into the movements of barracouta.

One of the major purposes of the research is to find out where the barracouta go when they leave their usual grounds.

Commonwealth fisheries authorities are giving some financial help to this research.

There was in the past a fatalistic acceptance of the periodical disappearance of the barracouta from the fishing grounds. It was assumed that the shoals had been depleted, that the grounds were fished out.

There is scientific evidence now that the shoals have not disappeared. They have merely moved away and can be caught if they are hunted.

This research on the habits of the barracouta is of crucial importance to the industry. The barracouta fisheries have been its mainstay in the past and on scientific estimates of their potentialities could be the basis of a prosperous future.

Mr. Butcher says that it has been estimated that the barracouta catch could be expanded to equal the present total Australian production of all types of fish - an encouraging prospect for fishermen in these southern waters.

The movement of the barracouta, Mr. Butcher says, was principally responsible for the decline in the number of fishermen and boats after 1954-55.

In 1955 there were 1018 licensed fishermen and 726 boats in Victoria. In 1956 the numbers fell to 897 men and 688 boats.

The numbers began to increase again in 1957 when there were 934 men and 702 boats. This year, to May 31, 828 men had taken out licenses.

This was the same number as for the comparable period of last year but so far eight fewer boats have been registered.

The decline has taken place mainly in the traditional barracouta ports of Lorne, Apollo Bay, Queenscliff and San Remo, but overall, Mr. Butcher says, the number of men and boats in the industry is stable.

The outlook, with further research, improvement of methods within the industry and the development of new outlets could be bright.

If these southern waters do not offer the vast fish harvests of the north they can certainly support a prosperous industry.

New Facts About Russian Fishing

Rapid growth throughout industry

Recent international developments have underlined the dangers of overfishing, and spotlighted the growth of fishing activities in certain countries. Russia has made great strides in her fishing industry, and a party of French technicians who were recently invited to visit the U.S.S.R. gathered some interesting facts, which were given in their report to the French periodical "Le Marin."

The launching recently of the last of the 20 deep-sea trawlers ordered by Russia from Brooke Marine Ltd. underlines the fact that the U.S.S.R. is making rapid strides in her fishing industry, in which she shows every desire to surpass the achievements of the Western Powers.

Another pointer to this fact is that fishery research is an important subject there: some 2,000 persons, of whom 800 are qualified scientists, are currently engaged on problems of fish catching, conservation and processing in the Russian national laboratories or in no less than 40 special research vessels operating on the grounds - some of which were recently reported off the Canadian coast.

From Cod to Shellfish

The size and importance of the Russian fishing industry can be gauged from the figures of the landings at her ports: in 1957 a total of 3,210,000 tons were landed. This includes everything, from cod to shellfish and even caviare obtained by the processing of sturgeon's eggs, the export of which is an important part of Russian overseas trade.

The centre for this industry is Astrakhan on the Black Sea, where a co-operative of five large and five smaller factories engaged in the work is to be found. Five thousand persons in all are employed

in these factories and the output is said to be worth in the region of £100,000 a day!

Special boats are used for the catching of the sturgeon which are then removed alive to tanks so that the eggs can be collected regularly. 200 of these boats, all of the same design, are to be built this year. They are 36m. in length and are constructed on mass-production lines going through the yards in three groups each of six boats at a time.

3-weeks Holiday

Wages paid to the factory workers range from about £5.15s. a week for unskilled labourers to about £10 for foremen while the engineers get up to £20 a week. All workers together with the crew of the boats get three week's paid holiday a year, the higher qualified persons, including the skippers, engineers and mates getting a month.

Pay to the ships' crews is by an unusual system: an amount is fixed based on the expected catch value. If this is not reached or if it is exceeded pay is dropped or raised in proportion and cases are on record where the men have received double their expected or basic pay.

In any case, the pay of an ordinary crew member is twice or even thrice that of an unskilled worker in the factories.

In the big rivers such as the Volga, fishing for kilka, a species of sprat, is done by means of a pump. The boats are 50m. long and are equipped with echo-sounders with which shoals are located and their approximate depth determined. A pipe of about 8 inches diameter is then lowered to the requisite depth. Near to its mouth two powerful lamps are attached which attract the fish towards the pipe and a pump is then put into motion by which the sprats are literally sucked into the boats.

Pride of the Fleet

They are then conveyed automatically into a freezing tunnel kept at a temperature of - 16

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degrees centigrade. An average annual catch per boat is 1,400 tons; this is regarded as eminently satisfactory as the boats are powered with small motors and their complement is also small.

Pride of the trawler fleet operating from Murmansk is the Charabosk, a German-built factory-vessel using stern trawl gear. Last year, it is claimed, she brought to shore 3,100 tons of fish frozen and processed on board, the equivalent of 4,300 tons of live fish. 225 deep-sea trawlers use the port, of which 50 are based at Archangel.

Pay is dependent on the catch: the skipper gets three times a hand's pay, the chief engineer gets double while the cabin boy gets half. The crew of a trawler topping the list have been known to get more than £100 each a month. Skippers are retired at 50 years of age on a pension calculated at half the previous year's earnings.

("The Fishing News" London June 27, 1958)

New Polyethylene Coating Method
Used for Packaging Frozen Fish

An unusual new method for packaging frozen fish involving the coating of the frozen product with plastic has been patented by a Danish fish packing company.

The method greatly extends the storage life of the fish, and greatly reduces the cost of packaging. It works as follows: The frozen product passes on a conveyor belt from the freezer directly to a polyethylene extruder, which has a special exhauster which covers the product with a polyethylene film produced at the instant of wrapping. The product then continues on the same belt to the storage room.

Due to the enormous difference in temperature between the polyethylene film which is produced at a temperature of 356° F and the frozen product which has

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a temperature of -22°F (a difference of 378°F) the heat of the polyethylene has the effect of destroying a good deal of surface bacteria, without damaging the product, since the difference of temperature exists only for a brief part of a second. As the fish is passed out of the extruder, the air is evacuated from the plastic tube which is heat sealed at both ends.

Because of the characteristics of polyethylene the object appears as a glazed polyethylene inclusion. It is reported that this has the same effect as perfect glazing without any risk that this seal can become diminished by the influence of air or freezing. In addition, there are the advantages inherent in having the product polyethylene-enclosed.

This method of packaging can cut down investment tied up in a variety of sizes of packaging. Instead of heavy and cumbersome stocks of packages, the polyethylene powder may be kept for indefinite periods, and is 100 percent usable regardless of changes in product size.

The Danish packer reports that the method is cheaper because the plastic used is only the precise amount needed to cover the product, whereas in prefabricated polyethylene bags; a certain amount of overhang is lost.

A patent for the new packaging process has been applied for in the United States by the chairman of the Danish Association of Producers of Flatfish, who is also president of a firm producing frozen and canned fish in Esbjerg, Denmark.

("Western Fisheries" Vancouver, B.C. May, 1958.)

How to Pack Fish that Sells

Members at the 12th Annual Convention of the National Fisheries Institute at Chicago heard the following facts from a former governor of Kentucky :

One-third of our women are employed in full-time jobs and therefore are especially interested in foods that are prepared quickly and with the minimum of labour.

The modern woman can throw together a 30-minute meal that looks like she spent two hours on it. But ease of preparation is not enough. The consumer fears inferior quality and if she gets that then she is through with your product.

Impulse buying accounts for a high percent of purchases in supermarkets. A recent survey shows, for example, that 87 percent of frozen fish bought resulted from decisions made after entering the store; 73 percent of fresh fish and 82 percent of canned fish were bought on impulse. This makes attractive packages a highly important feature to attract the attention of the buying public.

("Western Fisheries" Vancouver, B.C. May, 1958.)

The Fishy Eye ...

Here's a family budget for those fishermen who are trying to squeeze through until the start of the salmon season.

How to live on \$15.00 a week:

Whiskey and beer ...	...	...	...	\$8.80
Wife's beer ...	...	...	...	1.65
Meat, fish, groceries	...	...	on credit	
Rent ...	...	...	...pay next week	
Coal ...	...	...	borrow from neighbour	
Cigar ..	...	...	...	.20
Mid-day whiskey ...	...	...	...	1.50
Movies ...	...	...	...	.60
Pinochle ...	...	...	...	.50
Hot tip on horse ...	...	...	...	.50
Playboy magazine ...	...	...	...	.50
Sun tan oil...	...	...	...	.50
Poker game ...	...	...	...	1.40
Racing sheets ...	...	...	...	.50

Total -- \$16.65

This means going into debt, so cut out wife's beer.

("Western Fisheries" Vancouver, B.C. May, 1958.)