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DEPARTMENT OF PARKS AND WILDLIFE



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STAFF NOTES.

The Director, Mr. A. J. Fraser, and the Fauna Protection Officer, Mr. H. B. Shugg, will represent Western Australia at the Interstate Fauna Authorities Conference to be held in Brisbane from September 12 to 15.

The following week, Mr. Fraser and the Research Officer, Mr. B. K. Bowen, will attend the Commonwealth/State Fisheries Conference to be held in Canberra from September 20 to 22.

Mr. Bowen will also attend a meeting of the Australian Waterfowl Committee.

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The Supervising Inspector, Mr. J. E. Bramley, suffered a severe head injury when returning from Carnarvon and Shark Bay on July 22. The spare-wheel-laden bonnet of the Land Rover collapsed on him while he was investigating a mechanical fault. On his return to Perth, which he completed in the vehicle, the wound became infected and Mr. Bramley was admitted to St. John of God Hospital, Subiaco, on July 25.

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Our congratulations are extended to Mr. L. C. Stock, Engineer of the r.v. "Peron", and our best wishes to his bride-to-be, Miss

Valerie Lorraine Adams, of Mosman Park. The young couple will be married at Wesley Church, Claremont, on August 6.

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Inspector H. D. Kavanagh of Shark Bay, commenced annual leave on July 25. Other officers to enjoy leave this month include Inspector T. B. Baines, of Bunbury, from August 1; Assistant Inspector N. K. Henry, of Geraldton, from August 8 and Mr. W. K. Cherrington, of Head Office, from August 15. Mr. Baines will spend his leave on a caravan tour of the Eastern States.

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Officers who will commence annual leave in September include Inspector G. D. Houston, skipper of the p.v. "Dampier", on September 5; Assistant Inspector E. Barker, of Mandurah, also on September 5; Mr. G. C. Ferguson, of Head Office, on September 12, and Assistant Inspector D. P. Gordon, of the p.v. "Misty Isle", on September 26.

OBITUARIES.

Our deepest sympathy is extended to Captain H. C. W. Piesse, master of the r.v. "Peron", whose mother passed away on July 31.

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Mr. H. E. Mofflin, a wellknown skin merchant, died on July 24 at his residence at Hilton Park. Mr. Mofflin was closely associated with the Department during the 'twenties when the skin trade was at its height.

Ex-Inspector W. Davidson tells us that Mr. H. E. Mofflin took over the firm about 1920 upon his father's retirement. He was the Western Australian agent for Booth & Co., who handled over 80% of the kangaroo skins from this State (over 1,000,000 kangaroo skins a year) and very large numbers of possum skins.

To his wife and three sons who survive him, we extend our sincere sympathy.

PERSONAL PARS.

Dr. G. F. Humphrey, Chief of the Division of Fisheries and

Oceanography, C.S.I.R.O., attended the UNESCO-convened Inter-Governmental Conference on Oceanographic Research held at Copenhagen from July 11 to 18.

The conference was called to co-ordinate the activities of international organisations concerned with oceanography. It also considered the establishment of an international oceanographic commission to advise international agencies and governments on the future research which should be conducted in the oceans of the world. Interested agencies which could use such advice include UNESCO, F.A.O., The World Meteorological Organisation and the International Atomic Energy Agency.

Dr. Humphrey, who is also Chairman of the Australian National Committee on Oceanic Research and a member of the Special Committee on Oceanic Research of the International Council of Scientific Unions, attended meetings of the Special Committee held about the same time as the Inter-Governmental Conference.

STAFF CONFERENCE.

All officers are hereby advised that the Conference, which was to have been held in September, has been postponed. It will commence on Monday, October 24, and will continue for two additional days.

ROSS GROUP EFFECTS TAKEOVER.

It will be remembered that in February of this year, Mr. Jack Vincent, joint managing director of the Ross Group Ltd., of Grimsby, England, came to this State to examine its fishing potential. The Department placed facilities at his disposal, and arranged that he see actual crayfishing operations by visiting local grounds in p.v. "Dampier". He was escorted to all crayfish processing plants in the metropolitan area, and introduced to V.I.P's in the industry. He was also received by the Minister for Fisheries (Mr. Ross Hutchinson). Mr. Vincent subsequently visited all the eastern States and New Zealand before returning to Britain.

As a direct result of that visit, and being desirous of capitalising on, and assisting in the development of, the Western Australian fishing industry, the Ross Group has now decided to establish itself here.

The local fisheries have made spectacular strides in recent years.

In 1944/5 they produced only slightly more than 5% of Australia's total production of seafoods, whereas in the year 1958/59 production had increased to more than 22% of the Commonwealth total.

The following press release was issued to the Press and A.B.C. on July 5 by Mr. W. Len Johnson, Managing Director of W. Len Johnson Pty. Ltd., of Sydney, a subsidiary of the Ross Group -

One of the largest fishing organisations in the world, the Ross Group Ltd., of Grimsby, England, has purchased the West Australian firm of International Fisheries, of West Perth.

The purchase price has not been disclosed, but the Australian Director of the Ross Group, Mr. W. Len Johnson, of Sydney, said in Perth that the deal involved "some hundreds of thousands of pounds".

International Fisheries is the largest private fishing and processing organisation in Western Australia, and is particularly prominent in the crayfishing field. Last year, the firm exported almost £250,000 worth of W.A. crayfish tails to the United States. In addition, it is a major importer and distributor of fish from the United Kingdom and Denmark.

The firm owns a processing and freezing plant in Cleaver Street, West Perth, and will erect processing plants on suitable sites along the W.A. coast. International Fisheries also owns a number of fishing vessels and operates others under lease and in partnership with private owners.

International Fisheries operates its own aircraft to fly catches from its bases to the processing plants and has private airstrips at Jurien Bay, Snag Island and Green Head.

The purchase follows the recent visit to Western Australia of Mr. Jack Vincent, Joint Managing Director of the Ross Group. Mr. Vincent spent some time in the State in February investigating the crayfishing industry.

Mr. W. Len Johnson, who arrived in Perth from Sydney, announced the Ross Group takeover. Mr. Johnson said the company in future would be known as Ross International Fisheries Pty. Ltd.

Mr. Theo Kailis, a member of the family syndicate which

formerly owned the business, would continue as Managing Director.

Mr. Johnson announced that the company would embark on an extensive expansion programme, and would immediately spend £75,000 on extending and modernising plant and equipment.

The West Perth factory would be extended and equipped with the most modern fish-processing equipment. Top technicians would be brought from the United Kingdom to supervise installation of the equipment, some of which would be purchased in Western Australia and some in Britain.

Mr. Johnson said the company would step up the export of crayfish to the United States.

He added, "We expect to increase our last year's export figure of £250,000 by at least 100 per cent. this coming season. We will put more fishing boats on to the job - financing private owners if necessary - and increase our plant capacity by installing additional processing equipment. We will also raise the standard and grading of the pack in order to be able to command higher prices on the American and World markets."

Mr. Johnson said the Ross Group had chosen Western Australia as the site of its first Australian venture because the State's fishing grounds offered the best prospects for successful long-term operation. At present 80 per cent. of Australia's exportable crayfish were shipped from Western Australia. This was due to the very fine job which the West Australian Fisheries Department was doing in conservation.

"Our policy is definitely against over-fishing and we will co-operate with the W.A. Fisheries Department in its conservation programme", Mr. Johnson said.

He added, "The technical knowledge and wide experience which the Ross Group will bring to this venture will undoubtedly assist the further development of the West Australian fishing industry. In addition, much of the additional capital which we will put into the company will be spent within the State on new plant, equipment and boats. The extra dollars earned will also benefit the nation as a whole."

Mr. Johnson said he would remain in Western Australia for a

week and would investigate other prospects on behalf of the Ross Group. The Group had an employed capital of £5½ million sterling and an annual turnover of £20 million sterling, and operated a fleet of more than 60 trawlers in United Kingdom waters. It had its own shipbuilding yards. Apart from its domestic fishing operations, the company was the largest importer of crustaceans into the United Kingdom.

The Company's diversified interests included growing and snap-freezing of vegetables. It was also in the hire purchase field, and was a distributor of motor cars.

The Minister for Fisheries, asked to comment on Mr. Johnson's announcement, released the following statement -

The Minister for Fisheries (Mr. Hutchinson) expressed his keen interest and pleasure in this move on the part of the Ross Group. It was most significant and gratifying to the Government that the Ross Group chose Western Australia for this new venture of theirs in Australia, because the choice was made only after a thorough survey of the fisheries potential of the eastern States of Australia and New Zealand.

While there was probably still scope for further expansion of the crayfish industry, said the Minister, the greatest opportunity for development undoubtedly lay in the North-West. Here there were proved trawling grounds of many thousands of square miles in extent, as well as resources of tuna, the surface of which was as yet unscratched. Prawns and scallops, and the "painted" crayfish, were in abundance there, but lack of capital had hitherto been the bar to progress in our more northern waters.

One had to take a long-range view in matters like this, said Mr. Hutchinson. The developmental plans which had been outlined would, it was hoped, involve the early exploitation of these hitherto neglected fisheries. The Ross Group owned many vessels suited to trawling, and the transfer of even a few to the north of this State would result in a very material stepping-up of Western Australia's fish production. This was now of the order of 30 million lb. annually - ten times what it was towards the end of the war, said the Minister. This was almost as great as that of New South Wales, which had always led the other States in the production of sea-foods.

The Government's appreciation of the needs of the fishing industry, and its decision to proceed with the construction of new fishing harbours at Fremantle and Geraldton, and improved facilities at Dongara, together with Western Australia's tremendous potential, had no doubt exercised an influence on the Ross Group's coming to this important decision.

WILD LIFE SHOWS.

The 1960 Wild Life Show, conducted under the joint auspices of the Gould League of W.A. and the W.A. Naturalists Club, will be held at the Perth Town Hall from September 12 to 17, inclusive. This Department will again enter an exhibit which will be under the control of Senior Inspector J. E. Munro. Mr. Munro will be assisted by Mr. A. J. Buchanan, of Head Office, and Fauna Wardens S. W. Bowler and N. E. McLaughlan.

* * *

On September 18, Mr. Munro, accompanied by Mr. Bowler, will take exhibition material to Kalgoorlie to participate in the Australian Inland Mission's Annual Wildflower and General Exhibition. This will be held, as usual, in the Kalgoorlie Town Hall in the week following the Perth Wild Life Show - from September 20 to 23 inclusive.

"DIAMANTINA" SAILS.

With six C.S.I.R.O. scientists, including Experimental Officer H. R. Jitts, the frigate H.M.A.S. "Diamantina" sailed from Fremantle on July 11. She will continue her oceanographic survey work in the Indian Ocean.

In her previous survey last February, the area now known as Diamantina Deep, 620 miles west of Cape Leewin, was discovered. Having a depth of more than 5 miles at one point, it is the deepest known part of the Indian Ocean.

CRAY BAIT DUTY LIFTED.

Fisheries Minister Ross Hutchinson, in a press release on July 8, conveyed the glad news to the crayfishing industry that the Commonwealth Government had agreed to lift the 1d. a lb. duty on

crayfish bait brought into Australia. This was a successful conclusion to the representations towards this end which the Minister, the Department and the crayfishing industry had been making for some time.

Mr. A. Ciccerello, whose Fremantle firm handles a large percentage of the State's crayfish bait, said that the industry would benefit considerably from the lifting of the duty. He said that it should help to eliminate shortages of bait which had caused so much trouble to crayfishermen in recent years and would allow supplies at competitive prices to be imported from overseas. Last year several hundred tons of salmon heads were brought in from the United States and Canada, while cod heads were obtained from the United Kingdom. Fish heads had also been imported from Hong Kong. Orders for supplies for the new season, which will commence in November, have already been placed.

WHALING.

The precarious position of the humpback whaling industry in Western Australia was referred to at the meeting of the International Whaling Commission last June.

Australia was represented at the Commission's meeting by Mr. J. V. Moroney of the Department of Primary Industry, Canberra. He was accompanied by Dr. G. L. Kesteven, Assistant Chief of the Division of Fisheries and Oceanography, C.S.I.R.O., as scientific adviser; Mr. R. Crichton-Brown, Chairman, Australian Association of Whaling Companies; and Mr. F. F. Anderson, representing the Australasian Whaling Association. The Australian delegation persuaded the Committee that a reduction of whaling should be effected in the Antarctic before quotas of the Western Australian stations were reduced.

The Commission, satisfied that the Zone 4 stocks could not sustain the whaling which had taken place in both Antarctic and Western Australian waters, decided to set up a working party in Rome to review all the available data. A more realistic survey of the condition of the stocks should be obtained from further studies of the information available. Additionally, three specialists in population dynamics were appointed as a Committee to report to the Commission on the magnitude of the stocks and the management measures which would maintain the highest level of sustainable yield. It is hoped that the Antarctic catch limit will be brought into line with scientific findings not later than July, 1964.

The Commission was told that the condition of the stocks off the east coast of Australia was less precarious, but the information available required careful analysis to avoid the disaster which had occurred in the exploitation of the west coast. The condition of the stocks of fin and blue whales exploited in the Antarctic appeared to correspond in many ways with that of the humpback stocks.

Progressive Local Catches.

At the Nor'-West Whaling Company's station at Carnarvon, a total of 162 humpbacks had been caught by July 23. This was very close to last year's figure of 156 humpbacks to July 23.

In 1957, the last year in which 1,000 whales were taken, over 376 had been secured by July 23.

Writing from Carnarvon on July 6, Whaling Inspector D. H. Smith reported that the company was then working only one team of flensers. No flensing was being carried out during the night shift.

At Albany, the Cheynes Beach Whaling Company had captured 100 humpbacks and two blue whales by the end of July. This was less than the previous year when, to the same date, 134 humpbacks and 6 blue whales had been captured. However, it exceeded the 1958 catch-rate for, in that year, only 76 humpbacks were taken in the same period.

Inspector B. A. Carmichael, in forwarding this information, said that it appeared that the quota would be filled only if good weather prevailed.

Blue Whales for Scientific Research.

The Director of the Fisheries Division, Department of Primary Industry (Mr. C. G. Setter), recently advised that permission has been granted for the taking of a number of blue whales for scientific research. An application by Dr. G. L. Kesteven, of C.S.I.R.O., for permission to take blue whales had been granted by the Minister for Primary Industry, Mr. Adermann.

Three will be taken by the company at Carnarvon and three by the Albany firm. Arrangements concerning the taking of the whales and the collection of the required biological material will be made by C.S.I.R.O. The whales will not be counted in the quotas of the Companies concerned.

BASIC WAGE RISE.

As a result of the recent quarterly declaration of the Court of Arbitration of Western Australia, basic rates applying to officers' salaries will be increased from July 25. There will be an annual increase of £15 for adult males in the metropolitan area; £16 for those in the South-West Land Division and £19 for the officers at Shark Bay and Broome. Pro rata increases will be granted to juniors and females.

The increased rates and arrears will be paid this month.

CONDITIONS IMPOSED ON LICENSES.

The Minister for Fisheries, Mr. Hutchinson, acting pursuant to the powers conveyed on him by section 17 of the Fisheries Act, has imposed the following conditions in respect of fishing licenses:-

- (1) Fishermen and boats engaged in the taking of crayfish between the 30th and 33rd parallels of South Latitude may not during the same calendar year be so engaged anywhere between the 28th and 30th parallels.
- (2) Fishermen and boats so engaged between the 28th and 30th parallels may not during the same calendar year be so engaged anywhere between the 30th and 33rd parallels.
- (3) Save as mentioned in clauses (4), (5) and (6) hereunder, no restrictions in regard to the operations of fishermen or boats engaged in taking crayfish anywhere between the 28th and 33rd parallels shall be applied in relation to waters north of the 28th parallel or south of the 33rd parallel.
- (4) Fishermen and boats engaged in the taking of crayfish in the Abrolhos Islands area, as defined in clause (5) hereunder, shall not be permitted during the whole of the Abrolhos Islands season to engage in the taking of crayfish elsewhere.
- (5) No freezer-boat shall engage in the taking of crayfish in the Abrolhos Islands area, or in the Abrolhos Islands area process, store, cut up, handle, preserve or treat crayfish or portions of crayfish. The Abrolhos Islands area comprises the whole of the Western Australian waters bounded

by lines starting from the intersection of 28 degrees South Latitude and 113 degrees 50 minutes East Longitude and extending south-easterly to the intersection of 30 degrees South Latitude and 114 degrees 40 minutes East Longitude, thence west to 113 degrees East Longitude, thence north to 28 degrees South Latitude and thence east to the starting point.

(6) Freezer-boats shall be permitted to catch crayfish north of the 28th or south of the 33rd parallel and to process their own catch, but shall not be permitted to process crayfish caught by any other boat or person.

(7) North of the 27th parallel of South Latitude, freezer-boats shall be permitted to process crayfish caught by other boats or persons.

This information was published in the Government Gazette of July 22. The notice which appeared in Gazette No. 40 of May 20, 1960, has been cancelled.

The new conditions are very similar to the earlier ones, the principal amendment being the substitution of the word "process" for "possess" in paragraph 5.

ORGANISED DESTRUCTION OF KANGAROOS.

The Fauna Protection Officer, Mr. H. B. Shugg, and Inspector T. B. Baines, of Bunbury, have separately attended, in recent months, kangaroo hunting drives organised in the West Arthur and Kojonup Road Districts. They have reported that the drives, besides being an efficient method of reducing the kangaroo population in trouble areas, have become a part of the social life of the district. They consider that, in areas where the country is divided into comparatively small paddocks, this method of hunting is extremely efficient. A number of horsemen, varying from 9 to 20, depending on the size of the area, drive the kangaroos before them to a line of between 20 and 40 shooters armed with 12 gauge shotguns. The shooters are positioned about a chain apart and very few kangaroos escape unless they slip through the line of horsemen. Experienced shooters maintain that kangaroos which have survived a previous shoot are harder to drive and learn by experience to break through the line of approaching riders.

After the kangaroos have been butchered, the hind quarters only are sold to pet-food processors. The proceeds are invariably paid

to local charitable, welfare or sporting funds.

In view of the efficiency of this method of hunting, its disregard of costs and efforts, and the tendency for a competitive spirit to develop among the shooters, it appears a careful watch must be kept to ensure that needless destruction does not reduce the population beyond the point of "no return".

In scientific circles, support has been forthcoming for the old belief that marsupials are prone to outbreaks of virus diseases. Whereas a year or two ago, scientists had considered that epidemics only occurred when the condition factor of the animals had been lowered by unfavourable conditions, epidemics have recently been observed in well-fed populations. It is evident, therefore, that there is a danger that if any marsupial population is reduced severely during the disease-free time, it might be decimated to near extinction by a wide-spread epidemic.

ALLOWANCES.

Advice has been received from the Public Service Commissioner that, following the review of hotel tariffs, it has been agreed with the Civil Service Association that the daily rates of reimbursement of travelling, transfer and relieving expenses shall be increased by 1/- a day from July 1, 1960.

The new rates at which officers should claim is now 46/- a day.

AMENDMENT OF FISHERIES REGULATION 8.

By notice in the Government Gazette of August 1, 1960, Regulation 8 (1) was amended. Existing paragraph (ii) has been deleted and a new paragraph substituted as follows -

- (ii) In respect of fish -
- (a) he may deliver them to any hospital or charitable institution for the use of the inmates, or if such delivery cannot be conveniently and economically effected, to any indigent or needy persons; or
 - (b) he may sell them at public auction, or by tender, or by private treaty; or
 - (c) he may destroy them forthwith if unfit for human consumption.

ABROLHOS CRAYFISHERY.

AREA.	JUNE 1959.			JUNE 1960.		
	No. of Men	Total Catch	Catch per Man	No. of Men	Total Catch	Catch per Man
North Island	41	41,614	1,015	50	57,481	1,149
Wallabi Group	58	95,526	1,647	60	82,008	1,366
Easter Group	55	78,748	1,432	66	88,736	1,344
Pelsart Group	34	35,518	986	46	57,092	1,241
TOTALS:	188	249,406	1,326	222	285,317	1,285

Total for four months (March - June)

1956	2,119,288	season commenced	March 15.
1957	2,521,536	"	"
1958	2,886,110	"	"
1959	3,181,049	"	"
1960	3,265,374	"	March 1.

ABROLHOS CRAYFISHERY.

A table showing details of crayfish production in the Abrolhos area during June, 1960, appears on page 101.

It will be seen that the heavier fishing pressure has caused a slight increase in production. However, when allowance is made for the earlier commencing date this year, the increase is seen to be insubstantial. Indications are that the total catch will be about 3,600,000 lb., or slightly more than last year's record.

FREEZER BOATS IN THE ABROLHOS.

The Minister for Fisheries, it will be remembered, has advised all concerned that he will not alter the present position restricting the operation of crayfish freezer boats in the Abrolhos Islands area. His decision followed representations from the Westralian Freezer Boats Association requesting a relaxation of regulations prohibiting the operation of their vessels in the vicinity of the Abrolhos. The Association pointed out that fishing by freezer vessel was the most modern method because of its efficiency and economic operation. The Association's view was that it was a misuse of the powers contained in the Fisheries Act for the Minister to direct the industry in the location of its investment and the employment of its fleet, if it were detrimental to efficiency.

The Minister reached his decision after presiding at a round-table conference which was held on July 11 and attended by representatives of the Freezer Boats Association, the Geraldton Professional Fishermen's Association, and the Geraldton Fishermen's Co-operative. The two last named were strongly opposed to any relaxation of the restrictions against freezer-boats. The Director, Mr. Fraser, was present at the conference.

CLEARING HOUSE.

Oysters Thrive in Ultra-Violet Light.

Scientific use of ultra violet light is playing a vital part in extensive plans to restore to Poole Harbour, Dorset, part of its lost importance in British fisheries.

Two groups of local people are trying to re-establish the harbour as one of the country's leading sources of oysters - a position it enjoyed in past centuries.

One of the keys on which success may possibly rest is an installation using germicidal lamps, a system which has been the subject of experiments by the Ministry of Agriculture and Fisheries. It is also in use in Cornwall and Wales and is being considered by a firm in Colchester, a town renowned for its oysters.

The group to which the Poole installation is an off-shoot is the Poole Technical Group - an organisation of professional and technical men employed in industries and nationalised services in the Poole area.

Purification Plant.

To enable these part-time oyster men to meet Ministry of Health requirements concerning bacteriological levels in oysters, leaders of the group worked out details of an ultra violet lighting purification system and the result has been the installation in a purification plant built by the group, of three 30 watt germicidal tubes.

All the oysters gathered by the group and also by the second group, formed by local professional fishermen are now being passed through the plant, the fishermen using it under an agreement.

The group of "amateurs" started their oyster project in 1953. In September 1958, they formed themselves into a company, with 42 shareholders, named the Poole Oyster Company Ltd., and now have more than 500,000 oysters laid in three beds, each of 30 acres in the harbour.

The use of germicidal tubes at Poole depends on the fact that in one day, an oyster pulls through itself about seven gallons of sea water.

Oysters gathered from the beds in the harbour are placed in

one of two purification tanks - 40 ft. x 10 ft. and two feet deep - built by the group members at a small headquarters on the harbour foreshore. Then, over a period of 12 hours, the water in the tanks is passed time after time under the germicidal tubes.

The three-foot lamps are housed just above the water level in a 60-gallon tank, through which the sea water from the main purification tank is passed at the rate of 50 gallons per minute.

To ensure that the ultra violet light plays directly on all the water, this is passed at wafer-thin depth, over a weir, which divides the 60-gallon tank into two sections. Then as the sea water is being returned in the main tank, it is passed through an aeration system.

An official of the amateur group says: "Our calculations show that we need leave the oysters in the main tank for only 12 hours. In that time, with the constant purification of the water, they pass out sufficient impurities to bring them well within the limits allowed by the Ministry.

(Shipping News

Cape Town

June, 1960)

Lake Victoria Fish Yield is "Declining Rapidly".

The fish yield from Lake Victoria is declining rapidly. This is stated in the East African Fishery Research Organisation's section of the East African High Commission annual report for 1959, just published.

The report says that in order to appreciate the present state of the fisheries, it is necessary to look back 50 years to when Lake Victoria contained vastly greater numbers of fish than it does at the present time.

In those days the populations of fish, crocodiles and hippos were not significantly exploited by man and the lake supported stocks of the animals which were an expression of its potential productivity. In the light of knowledge gained and the available evidence, it seems that the abundance of fish was due to the mortality rate among the older fish being low, rather than to a particularly high reproductive rate. This accumulation of older, and larger fish was reflected in the great numbers caught in the 5-in. gill nets, whereas even as late

as 1928 the smaller meshed nets often caught fewer fish.

Increased Effort.

If no demands had been made on the fisheries, the report goes on, the stocks might have remained at a high level over an indefinite period, but the progress of most fishing industries is determined by the demand for fish and the availability of markets. With the increase in the human populations around the lake, improved transport and the opening up of more distant markets, the increase in the demand for fish led to a steadily increasing fishing effort, assisted by improved fishing gear.

This intense fishing effort has depleted the accumulated stocks of older fish and the industry is now dependent on the annual recruitment rate. But the abundance of fish in the early years has no doubt left an erroneous impression of the high productivity of Lake Victoria, and is responsible for undue optimism regarding the yield that may still be derived from the lake.

The report explains that the time-honoured method for determining the maximum permissible level of exploitation and the only one to give a conclusive answer, is to increase the fishing effort until a significant decline in yield is brought about. This method, of course, requires the accurate recording of all fish caught commercially. "In this respect, the Lake Victoria Fisheries Service has rendered a very great service to the community," says the report.

Maximum Level.

The report goes on: "In 1956 this Organisation held the view that the fishing effort had reached the maximum permissible level. However, those responsible for the administration of the fisheries felt that legislation based on mesh restrictions was undesirable and unenforceable and that for a trial period in the Uganda and Tanganyika waters of the lake nets of any mesh size might be used. The idea behind this proposal was that a wider range of species of fish would in this way be utilised. This concession resulted in a general change-over from 5-in. nets to nets with a mesh of $4\frac{1}{2}$ in.

"Very careful observations have been maintained since the net restrictions were lifted and as was to be expected an immediate increase in yield was achieved over a period of two years, but now the yield is declining rapidly. This final test of the empirical method

for determining the maximum permissible effort has now reached a critical stage and the present trends indicate that the yield of the fisheries will continue to decline."

(Shipping News

Cape Town

June, 1960)

Training Trawlersmen - Where do We Stand?.

The Future of the Industry Depends on Key Personnel.

At a recent enquiry into the loss of a trawler, it was revealed that the skipper was guilty of negligence in leaving the wheel in the sole charge of a helmsman who was not qualified to hold the vessel on its true course.

At a meeting in London, it was recommended that the correct cleaning, handling and stowage of fish should be taught in nautical schools. Here are three aspects of the same subject - a qualified ship's officer who failed to comply with the rule he had been taught: a seaman who was not capable of steering a course: and a suggestion that an extra subject should be added to the curriculum at nautical schools training fishermen. What, in fact, is the position with regard to the training of fishermen and trawler officers?

Trawler Officers.

The certification of trawler skippers and second hands (mates) is the responsibility of the Ministry of Transport, who set and conduct examinations, for which the men may sit after fulfilling certain conditions of service at sea. In the case of mates, this service may include a proportion of time spent as an indentured apprentice fisherman, or time spent in a suitable nautical school. For officers of fishing vessels of limited tonnage operating within certain restricted areas, a Special Certificate can be granted subject to proficiency. The age limits for skipper and second hand are 19 and 21 respectively. The qualifications necessary include proficiency in subjects such as navigation, signalling, emergency procedures, general seamanship and first aid, and from June 1, will call for a higher standard of navigational knowledge, and the elements of ship stability.

Prior to sitting for these examinations, candidates usually attend a short "refresher" course which may be run periodically at fishing ports, or may be a regular feature of the curriculum of certain nautical schools.

Deckhands and Third Hands.

The qualifications of men as full deckhand from deckhand-learner or from deckhand to third hand, or bosun, is not the responsibility of the Ministry of Transport, but of the owners and the relevant insurance companies on the recommendation of the skipper. Deckhand learners should enter the industry either through an approved nautical school, or through a training or apprentice scheme run by the owner. A certain number do, however, enter through the "back door", preferring to take home a wage packet immediately rather than go back to school in order to get a job. Often this practice is accepted by the owners in view of the boy's fishing background and the sponsorship of a fisherman father, or because the indications are that otherwise a good man would be lost to the industry.

In considering the training of trawler officers and crews, it can be seen that two separate problems are concerned, each having little relation to the other. That of trawler officers is clearly circumscribed and regulated by the M.o.T., who make certain demands in the way of knowledge and experience, and these have to be met. Any subsequent deviation from this standard devolves solely with the man, and not with the system. Primarily, the trawler officer is a fisherman, however, and qualifications which, in the merchant service, are an end in themselves, to a trawler skipper amount to little more than a license to go to sea and catch fish. Good seamanship always goes hand-in-hand with a good fisherman.

Where the lower deck is concerned, the situation is not so clear-cut. The demands made on a deckhand's knowledge of seamanship are fairly well defined, and lay emphasis on the handling and repair of fishing gear, rather than ability to box the compass, the assumption being that he is never left alone on the bridge. For this reason the standards of qualification and the facilities for training are far from consistent, and the deckhand who aspires to command must largely pull himself up by his own shoestrings. The recruitment to the trawling industry serves also to restrict the quality of deckhand material, being localised by reason of the restricted appeal of fishing as a trade, and being drawn mainly from the "C" stream boys of the modern secondary schools.

Two Main Disadvantages.

From the trawler owners' point of view, a steady flow of youths who have received a basic training in seamanship and fishing procedure is desirable, for there is little time to instruct the deckie-learner

while fishing is in progress. This is, in fact, the system adopted by the four main nautical schools which cater for the fishing industry, at Hull, Grimsby, Lowestoft and Fleetwood. It has two main disadvantages, however: first, that many interested boys resent going back to school while their less sea-minded friends are earning a good wage, though at a dead-end job. Second, the fact that a boy has "signed on" to the course after one trial trip does not mean that he will, in every case, stick to the job when he has to do it for a living. Some wastage is inevitable, and uneconomical. The alternative is to begin training after a period of probation at sea, but in this way the wastage would be thrown on to the trawler owner and the responsibility on to the skipper, and how many boys would go back to school having once tasted freedom? In theory, at least, a solution lies in the operation of training ships, where boys can learn while having the best of both worlds. Britain is one of the few major fishing nations not operating such a vessel or vessels, and in any event, no funds are at present made available for such a scheme.

Uncertain future.

Whatever the solution, or the future development of trawler crew training, it must be to the satisfaction of the Ministry of Education, the trawlermen and their Guilds and Exchange, the Unions and the owners. Perhaps, one day, the M.o.T. also will be involved. There is little reason to think that the position will not still be bedevilled as it is now, by lack of funds and lack of interest at Governmental level. Above all, the industry has to face a difficult decision - whether, in fact, the future pattern of trawling will require the same skills and aptitudes which it requires at present. Whether the dockhand of the future will be little more than a winch and gutting machine operator or a fish packer. Perhaps deck officers will, like engineers, be selected and trained from the outset as are Merchant Navy apprentices. Already certain larger trawlers have abandoned net mending on the grounds, while in factory ships the age of the maritime factory hand is already with us.

Whatever the outcome, the future of the trawling industry must depend on the efficiency of key personnel as much as on the machines and vessels they control, and an adequate and up-to-date training programme is of national importance, if this country is to maintain its position as a fishing nation.

Catching Schooling Fish That Hover.

How to catch schooling fish that hover between the bottom and the surface is a problem that has continued to baffle deep-sea fishermen over the years, but one which is now claimed to have been solved in Canada by a new planing device or mid-water trawl which has been invented by Orville B. Pulsifer, of Halifax, N.S.

It is claimed that, following the location of a hovering school by modern electronic equipment, the net can be submerged to the required depth by means of the new device and held there until the fish are caught.

Efficiency over previous methods is said to be improved by 30 per cent. and trawler skippers and fishing industry executives are watching the development with interest.

Costing rather over £1,000 for a 100 ft. vessel and less for a smaller boat, the new device resembles a model plane or glider with wings carried near the front of the machine, and a tail or elevators at the rear.

On being towed from the vessel by a line connected to its nose the new plywood and aluminium "plane" is kept on an even keel by its wings or hydrofoils and the rear elevators control its rise or dive in the water. When fish are detected on the electronic fish finder, an air valve is filled on the ship's deck to the required pressure to match the depth of fish. In this way the same aero-dynamic theory that is used in aeroplane flight is used to control the water pressure, the "plane" staying on an even keel when the air pressure and water pressure are equalised. By a system of hydraulic controls connected to the tank the air pressure regulates the rear elevators so that they operate in the same way as those on an aeroplane. Deep sea water pressure increases about 0.4 lb. per foot of depth and it is claimed, for instance, that 65 lb. of air pressure is needed to sink the device to 144 ft. Air pressure in excess of this would produce a deeper level of operation and vice-versa.

Several years ago, the inventor of the new device was associated with the fishing industry along with the aviation industry and, in fact, his aviation company still carries out seal spotting off the Newfoundland and Labrador coasts for Canadian and Norwegian sealing ships.

The first electronic fish finder ever used in North American

(lxviii)

waters was claimed to be purchased by him from the German company that originated this "fish loupe" technique. By using this system he found the need for additional mid-water fishing equipment that did not exist. He investigated the mid-water trawls using otter board equipment, but found them too complicated and inadequate, requiring mechanical linkages to control the setting of the plane which interfered with the operation of setting or reeling in the trawling nets.

It is claimed that the present device overcomes these deficiencies by providing automatic control of the depth to which the net is lowered, the depth of trawl being independent of the forward velocity of the vessel or variations in the buoyancy of the net resulting from the catch of fish. It is also convenient to handle and may be readily launched or returned to the trawling vessel. Astern, the net is towed by four warps, one cable being attached to each of the four corners of the net which is of a new design, because the normal type net would not stay open when towed. Thus a square-shaped net was developed with small otter boards at each corner. Light lines are run from the end of each board to the net opening to keep the angle at each corner constant. The towing warp from the trawling vessel has to be about twice as long as the depth. It is estimated that a 100 ft. trawler requires a "plane" with a 12 ft. wing spread, and the device will not operate at speeds under three knots.

It has recently been found that several applications for the new device exist outside the fishing industry. These include use by the navy and oceanographers, some of which are said to border on the secret lists. The mechanism has been, or is in the process of being patented in most of the countries in the world which have fishing activities.

Patents have been granted or are pending in Canada and the United States, England, Norway, Holland and Germany. Presentation has also been made to the U.S.S.R. - so far with no response. It is claimed that the new device can replace the purseine, of which many thousands are in use, and that it will increase fishing efficiency by virtue of the fact that its top or towing speed is unlimited, having been found to function well at any specific speed above three knots.

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