...MENT, WESTERN AUSTRALIA

...SERVICE BULLETIN

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STAFF NOTES

The Administrative Officer, Mr. B.R. Saville, in the absence of the Director, Mr. A.J. Fraser in the Eastern States, will chair the meeting of the Fauna Protection Advisory Committee to be held at Head Office on January 3.

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The Fauna Officer, Mr. H.B. Shugg, and Mr. G.E. Dixon, of Head Office, returned from annual leave on December 16 and December 30 respectively.

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We welcome to the staff Miss J.M. Reid, who commenced duty on December 19 as senior typiste, vice Miss M.D. Riddett who resigned from the service on December 13.

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Officers who commenced annual leave during the month included Mr. C.J. Seabrook, master of the r.v. "Lancelin", and Messrs. E.A. MacKenzie, engineer, D. Wright, mate, and J.P. O'Sullivan, cook, of the r.v. "Peron". Mr. MacKenzie commenced leave on December 9; the others commenced on December 16.

Fauna Warden S.W. Bowler will commence three weeks' annual leave on January 6.

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Inspector B.A. Carmichael, of Albany, will be accompanied by Assistant Inspector I.L. Cardon on a joint patrol of the Hopetoun and Esperance areas between January 19 and 28. Inspector Carmichael anticipates making a further patrol of these areas in late March.

The p.v. "Dampier", skippered by Inspector A.T. Pearce, returned to Geraldton from Houtman Abrolhos on December 12. On board were a scientific party and photographer who had been carrying out research and photographic work on the fauna of the Abrolhos. After spending four days at the bird rookeries on Pelsart Island, patrols were made to Rat Island, on December 6, to the Easter Group, on December 7, and to the Wallabi Group from December 9 to December 11. Assistant Inspector D.B.M. Heather was also aboard the "Dampier".

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The r.v. "Lancelin", under command of her master Mr. C.J. Seabrook, will leave Fremantle on January 16 for Geraldton and later for Houtman Abrolhos where she will assist in a crayfish tagging programme. In addition to "Lancelin", two Geraldton fishing boats have been chartered for a period of three weeks commencing January 22. One vessel, skippered by Mr. V. Basile, will operate in the Southern Group, and the other, skippered by Mr. R. Rylands, in the Easter Group. The tagging in the Southern Group will be carried out by Technical Officer J.S. Simpson, assisted by Mr. B. Goldman, a temporary assistant. Senior Technical Officer, R.J. McKay, assisted by Cadet Research Officer R.C.J. Lenanton, will tag in the Easter Group.

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The r.v. "Dampier" skippered by Inspector A.T. Pearce, will leave Geraldton on February 4 to take a six-man scientific party to East Wallabi Island. Its members will be engaged for four or five days on a biological survey of the fauna of the Wallabi Group. The party, which will be under the direction of Dr. A.R. Main of the Department of Zoology, University of Western Australia, and a deputy member of the Fauna Protection Advisory Committee, will include the following University personnel, Messrs. J. Kinnear, S.D. Bradshaw, Dr. E.P. Hodgkin, and two other persons.

PERSONAL PARS

A visitor to the Department during the month was Mr. David Hancock, a graduate student of the University of British Columbia. Mr. Hancock is visiting the State on a month's leave primarily to marry his Western Australian fiancee, but is taking the opportunity to obtain study material and to contact various conservation and scientific authorities in the State. We understand that he is doing a Ph.D.

thesis on the population and the ecology of the Bald Eagle and is working on other raptores. Mr. Hancock told the Fauna Officer, Mr. H.B. Shugg, that he was greatly impressed by the unique opportunities in this State for the study of nesting and breeding habits of birds of prey, particularly of the White-breasted Sea Eagle on the Abrolhos.

AMATEUR LICENSES

As a result of the new regulations concerning amateur fishing licenses, which became effective from January 1, and the publicity attached thereto, a record number of licenses have already been issued and applications are still being received at a steady rate.

NEW BUNBURY FISHERIES OFFICE

The newly constructed Bunbury office has now been occupied and all correspondence should be addressed to the Fisheries Department, 96 Stirling Street, Bunbury.

FIRES FOR CAMPING AND COOKING

The attention of the staff, particularly the field staff, is drawn to a recent amendment of the Bush Fires Act which prohibits, in any district, the lighting of fires for camping or cooking purposes on any day on which a "dangerous" fire hazard has been forecast for that district. On such days it is an offence to light such fires unless the approval in writing of the Local Authority for the district has been obtained.

VISIT OF RESEARCH VESSEL "ORLIK"

The Russian oceanographic research ship "Orlik" made a scheduled call at Fremantle on December 28. She will sail on January 15. The team of scientists and crew of "Orlik" are said to be welcoming their stay in port after having spent forty days at sea.

Under the command of Captain Chernavatonsky, the "Orlik" is one of seventeen research vessels belonging to the U.S.S.R.'s Pacific Institute of Fisheries and Oceanography at Vladivostok. She is in Fremantle for re-victualling and for general maintenance and repairs, after having been working in the East Indian Ocean, collecting oceanographic data. On January 6, four of her scientists,

Miss N. Tabakova, a marine chemist, Mr. V. Osipov, an ichthyologist, and Messrs. V. Paskin and V. Pavlichev, Hydrologists, made a courtesy call on the Senior Research officer, Mr. B.K Bowen. Mr. Bowen returned the visit on January 7.

TAGGED CRAYFISH CAUGHT

The first recovery from the 800, or so, crayfish recently tagged by departmental officers in water off Fremantle, has come to hand. Carrying tag number G.986, it was caught by a professional fisherman close to where it had been released.

Last year large numbers of crayfish were tagged and released in waters adjacent to Fremantle in an effort to trace movements of the species during and after the moutling stage, and to check growth rates.

The tag has a barbed plastic shank to which is attached a spaghetti-like orange-coloured plastic tube bearing the letters F.D. and the serial number. The total length of the tag is approximately $3\frac{1}{2}$ inches and the diameter of the tube one-twelfth of an inch. They are inserted into the crayfish between the second and third tail segments. When the crayfish sheds its shell (moults) the barbed shank will theoretically hold the tag in the flesh and the new shell will grow around it. It is realized that many tags will be lost during the moulting process.

Mr. B.K. Bowen emphasizes that it is important that both crayfish and tag be handed over to the Department when caught. The return of the tag only would be of limited use to the research programme.

PRIME SNAPPER CAUGHT

Senior Inspector J.E. Munro reported that he saw a prime consignment of 900 lb. of Snapper in the Perth fish market last month. They had been caught in two days off the south coast early in December, he said, and described them as the best quality snapper he had seen for some time. They ranged up to 15 lb. each in weight.

DUCK SHOOTING

Use of Power Boats:

A press release issued last month by the Minister for Fisheries, Mr. Ross Hutchinson, referred to the contentious question of the use of power boats in association with duck shooting. Quoting reports received by the Department, Mr. Hutchinson said feeling was running pretty high in some districts where a few irresponsible boat-owners had threatened to use power boats to flush ducks from the larger expanses of water where they were expected to congregate to shelter from shooters.

It was beyond question, the Minister said, that the deliberate use of boats to disturb such flocks would constitute an offence against the Fauna Protection Act and Regulations. He pointed out that offenders would be liable to prosecution and, upon conviction, to a fine of up to £50 and the boats used could be confiscated to the Crown. He added, that for the information of all concerned, the following restrictions were pertinent:-

(1) No person shall drive any bird over shooters by means of motor vehicles, aircraft, power boat or other means.

(2) No person shall take any wild duck by any means other than with a shotgun. Among other things, the meaning of "take" includes to disturb, to injure, to pursue and to hunt.

The Minister appealed to all shooters to respect the tradition of their sport and to abide by the official opening.

Reports on Opening:

The opening of the 1963-64 season for wild ducks, according to all reports, brought its usual varying degrees of success for the thousands of participant sportsmen. Generally, ducks were found to be plentiful but the shooters' lament was that last winter's heavy rains had produced exceptionally high water levels throughout favoured shooting areas. Consequently the ducks were able to remain outside the range of shooters' guns.

Prior to the opening, patrols and surveys of the principal duck lakes in the South-West Land Division were

carried out by Fauna Wardens S.W. Bowler and N.E. McLaughlan, and Cadet Research Officer J. Jacoby. The levels of almost all these were found to be higher than in recent years and, indeed, some were exceptionally high. The wild duck populations, on the other hand, were found to be most disappointing. Mr. Bowler said that it was the least number of ducks he had seen on many of the lakes for five years. Contrariwise, duck populations on some lakes in the Midlands and South-West were quite good. Calls were made on all honorary wardens and duck season notices were posted at most vantage points.

Fauna Protection Officer H.B. Shugg, accompanied by Fauna Warden N.E. McLaughlan, attended the opening shoot at Walyormouring (Oak Park) Lake in the Goomalling district. They reported that the shoot was not really a good one as the water level was very high and the ducks were able to remain out of reach of the guns on the wide expanse of water. A number of power boats were kept under observation but were well-handled and no breach was committed. Approximately thirty shooters took part in this shoot and the highest tally counted was twelve ducks to one gun.

Fauna Warden S.W. Bowler, Inspector D.P. Gordon and Cadet Research Officer J. Jacoby, attended the opening shoot at the swamp on the Stirling Estates, near Capel. There the shooters had more success, but so, too, did the wardens. They apprehended eleven persons engaged in the alleged unlawful use of spotlights. The spotlights were seized and the Crown Law Department has been requested to prosecute those involved. Although many reports had been received in the past of the sporadic use of spotlights in this area, and many patrols had been made, this was the first occasion on which the alleged users have been apprehended. The Department's success will be noted with considerable satisfaction by the majority of shooters who respect and observe the law.

A Benger game warden, Mr. Reg. Taylor, reported that in his area the opening of the duck season was the best ever. Ducks were plentiful, he said, and provided a lot of good shooting although they were flying high. He added that about two hundred shooters took part in the best organized shoot in years and that not a single shot was fired before opening time.

In the Beverley district, although a large number of shooters assembled, they did not cover all the lakes and after the first few barrages many of the ducks took refuge in the quieter areas and remained out of reach. Neverthe-

less, wrote Mr. H.G. Hall, who sent us this report, some good bags were taken in the Dangin area and quite a lot of shooters obtained their bag limit. Even the less experienced shooters, he said, bagged three or four.

SALARY INCREASES

A circular from the Public Service Commissioner advises that a new agreement covering the salaries of certain officers within the limit of the justiciable salary range has been entered into with the Civil Service Association of W.A. The new rates apply retrospectively from May 3, 1963, and are payable to all Clerical and General Division officers. Typical increases to be enjoyed by our staff are set out on the table hereunder:-

Category	Age or Year of Service	Margin over the Basic Rate		
		Old Margin	New Margin	Increase
Cadet and Assistant Inspector	24 years or 4th year service	345	355	10
Inspectors Class G-11-1	Minimum	527	565	38
	Maximum	577	622	45
Inspectors Class G-11-2	Minimum	627	679	52
	Maximum	677	736	59
Senior Inspectors etc, Class G-11-3	Minimum	737	798	61
	Maximum	797	860	63
Class G-11-4	Minimum	857	922	65
	Maximum	917	984	67
Class G-11-5	Minimum	977	1047	70
	Maximum	1037	1110	73

It will be noticed that there is no increase for Cadet and Assistant Inspectors prior to the age of 24 or earlier than their 4th year of service. The margin over or percentage of the basic wage in those categories have not been altered.

TROUT DELIVERIES

The annual trout deliveries to trout acclimatisation societies from the Pemberton hatcheries were carried out between October 28 and November 2. A new type of plastic container was used for fry transportation and proved very successful.

In all, approximately 22,500 brown and 42,000 rainbow trout fry were distributed.

The following deliveries were made:-

	Brown Trout Fry	Rainbow Trout Fry
Balingup	5,000	4,000
Bridgetown	5,000	3,000
Harvey	-	14,000
Waroona	-	3,000
Dwellingup	12,500	6,000
Jarrahdale	-	12,000

CONVICTIONS

OCTOBER - DECEMBER, 1963

Date	Defendant	Court	Charge	Result
	FISHERIES ACT			Fined
8.10.63	SHARP, Alfred Newton Snr.	Albany	Netting closed waters	£7. 0.0.
14.10.63	CARBONARO, Rosario	Fremantle	U/S Crayfish	14.10.0.
14.10.63	CARBONARO, Rosario	"	"	12.15.0.
14.10.63	FRENIS, Antonio	"	"	26. 7.6.
14.10.63	FRENIS, Antonio	"	"	36.15.0.
14.10.63	MONASTRO, Salvatore	"	"	13.10.0.
14.10.63	MONASTRO, Salvatore	"	"	15. 7.6.
14.10.63	MONASTRO, Natale	"	"	17. 5.0.
14.10.63	COOK, Brian Edward	"	U/S Mullet	15. 5.0.
14.10.63	ZAZA, Mario	"	" Crayfish	10. 0.0.
14.10.63	ZAZA, Mario	"	Brushed Spawners	25. 0.0.
14.10.63	ZAZA, Mario	"	U/S Crayfish	21.17.6.
14.10.63	CARBONARO, Vinci	"	"	10. 0.0.

CONVICTIONS (Cont'd)

Date	Defendant	Court	Charge	Result
		FISHERIES ACT		
18.11.63	COOK, Brian Edward	Fremantle	Netting closed waters	Fined £5. 0.0.
18.11.63	KENWORTHY, Raymond H)	"	U/S Sea	
	HOLDEN, Stanley J.)	"	Mullet	28. 3.0.
15.10.63	SWADDLING, Douglas	Geraldton	U/S Cray-fish	31. 6.0.
15.10.63	TIPPING, Patrick F.)	"	"	12. 5.0.
	KELLY, James)			
15.10.63	FRANCISCO, Moses	"	Obstruction	20. 0.0.
15.10.63	FRANCISCO, Manuel	"	U/S Cray-fish	11.17.0.
15.10.63	FRANCISCO, Manuel	"	"	11. 2.0.
15.10.63	FRANCISCO, Manuel	"	"	11. 5.0.
15.10.63	OAKES, Cecil William	"	"	15. 0.0.
15.10.63	DAGLISH, Harold	"	"	15. 0.0.
15.10.63	KING, Alex N.	"	"	15. 0.0.
15.10.63	WILSON, William John	"	"	18. 6.0.
8.11.63	HORN, David	"	"	25.15.0.
12.12.63	BROWN, Michael John	Mandurah	U/S Mullet	29. 0.0.
15.10.63	MORLEY, William A.	Perth	Netting closed waters	5. 0.0.
17.10.63	SMITH, James Lamont	"	U/S Cray-fish	16. 2.0.
11.12.63	MAGI, Gino Bruno	"	"	10.10.0.
		FAUNA PROTECTION ACT		
15.10.63	SIMS, Alfred T.	Perth	Unlicensed Birds	3. 0.0.
18.10.63	BOWDEN, Walter James	"	Unlicensed Birds	2. 0.0.
18.10.63	TURNBULL, Kevin G.)	"	Taking Protected Fauna	10. 0.0. and rifle forfeited to Crown.
	LOWEN, Fredrick E.)			
4.10.63	SMITH, Kenneth D.	Bunbury Childrens Court	Taking Protected Fauna	Warned 2/- Court costs only
29.11.63	RINALDI, Silvio	Geraldton	Taking Protected Fauna	5. 0.0.

DIVING FOR CRAYFISH FOR COMMERCIAL PURPOSES

A further report recently received from the Director of Sea Fisheries, of the Department of Commerce and Industries, Cape Town, South Africa, gives additional information of considerable interest relating to the efficiency and socio-economics of diving for crayfish on one hand and the netting or potting on the other, in South African waters.

After the correspondence referred to in the August 1963 issue of this Bulletin, we wrote to the Director of Sea Fisheries, Cape Town, seeking information on the following points:-

(1) Reasons for the success of divers in South African waters.

(2) The catch figures of netting and potting compared with diving.

(3) The part played by natives in the industry.

In a letter received last month our South African counterpart replied along the following lines:-

(1) "It is difficult to determine whether the earnings of a diver would be higher than those of a net or pot fisherman as this entirely depends upon where the fishing operation takes place. According to my experience and observation in South African waters the time of the year does not affect the relative efficiency of the two methods as bad weather hampers both, and soft-shelled specimens (which might be caught by divers but not by nets) are not tolerated on the South African market. The following points are pertinent:-

"(a) Diving is restricted for all practical purposes to water with a depth of less than 70 feet.

"(b) Diving is ineffective in areas where crevices deep enough to make it impossible to reach the lobsters by hand, are present on the seabed.

"(c) Diving may also be restricted by the presence of large numbers of sharks, e.g. along the South African East Coast

"(d) It has been found that in areas where intensive diving does take place the productivity of netting drops, probably due to a behaviouristic reaction of the species concerned (Jasus lalandii) as well as to reduced availability.

"The question of the effect the introduction of commercial diving for rock lobsters can have on an established industry therefore has to be seen against the background of the relative availability of rock lobster grounds suitable for diving. It so happens that along the South African West Coast a large percentage of the rock lobster grounds are partly or wholly suitable for diving.

(2) "It is not possible to give comparative figures in relation to the catches made by netting and by diving for reasons outlined above. The seasonal "taking" of a rock lobster dinghy manned by two men is in the vicinity of 13,000 to 14,000 lb. live weight per year. This is equivalent to approximately 8 months active fishing. During the same period the estimated takings of a diver and one helper are 5 times this amount in areas suitable for diving. That this unprecedented earning power of the diver on the one hand, and depletion of fishing grounds formerly available to net fishermen on the other, led to considerable resentment before diving was stopped by law, is understandable.

(3) "As regards the part natives play in the industry I wish to explain that Cape Coloureds, in most instances for generations, have been the traditional rock lobster net fishermen along the South African West Coast where they have operated as owners, skippers and crews of fishing craft. Divers again are mostly Whites. In the last few years the influx of Bantu from the Northern and North-Eastern parts of the Republic and from outside our borders into the rock lobster industry has become noticeable. Being largely unskilled their role so far has been almost exclusively confined to that of hired fisherman or crew member.

"It is widely felt that the traditional predominance of the Cape Coloureds in the rock lobster fishing industry should be protected and maintained. They formed the mainstay of the industry during the lean pre-war years and they should not be allowed to be usurped now that the industry has become much more lucrative. There are, on the other hand, those interests which advocate a "Laissez faire" policy in this matter but it is to be feared that such a policy which implies either or both (a) sanction of the

more efficient method of diving or (b) the uncontrolled influx of Bantu in unlimited numbers, would inevitably lead to overfishing and depletion of the rock lobster population. The socio-economic repercussions of such a condition are obvious."

It is particularly interesting to note the similarity between the South African and West Australian average catch per man. Although they differ between districts and seasons the catch in our waters averages about 14,000 lb. a year. As indicated the South African catch is in the vicinity of 13,000 to 14,000 lb. a year. Another point of interest is the South African comment that soft shell specimens are not tolerated on the South African market. The importance too, of the socio-economic factors in both fisheries is not surprising when one considers the universal nature of these problems which must be considered when planning conservation of any natural resource.

NOTES FROM THE NEWS

Export of Lampreys

Recently, Mr. F. Shoobridge, curator of the Pemberton Hatchery, despatched to Melbourne a parcel of some 400 lampreys which had been caught at the wall of the Pemberton weir over a period of a few weeks.

The lampreys were killed in a mild formalin bath after they had been caught and were stored until the desired quantity was available. They were then packed in formalin-saturated gauze and sealed in a plastic container.

The consignment, which weighed 250 lb., was airfreighted to Professor D.F. Burr, of the University of Melbourne where the lampreys were to be used in pathological studies and laboratory demonstrations. It is expected that further consignments will be required.

The lamprey has a curious life cycle. It spawns near the source of small streams in the mud and after hatching takes place, the larvae, as they grow, move down stream until eventually they reach the sea. They are semi-parasitic creatures which fasten on to a host fish and live so attached by sucking the unfortunate fish's blood as they travel through the ocean. As the lamprey's life cycle draws to a close it returns to spawn in the stream in which itself was spawned some years before.

CLEARING HOUSE

FISHERMEN "SOWING" SPAWN IS THE LATEST METHOD

Fish conservancy is receiving increasing attention in the U.S.S.R., though many earlier projects connected with hydro-electric undertakings, fish-ladders and fish-lifts, have proved ineffective or too costly.

One method which is now being employed is to get the fishermen themselves not only to catch fish but to "sow" spawn. In the Kahovka "Sea" for example, one of the large lakes now formed by a hydro-electric dam on the Dnieper, Professor Bely's method of using "spawning nests" is being used.

These "spawning nests" consist of roots or other pieces of material on which fish are likely to deposit their spawn. They are lowered into the lake, marked by buoys, and when the eggs have been laid can be transferred to the best waters for breeding purposes.

Regular Service

On the lower reaches of the Ob and Irtysh rivers in Siberia, which flow into the Arctic, a regular "reclamation service" is now in operation for keeping the rivers clear for fish.

In winter fish crowd upstream in search of more oxygen, and congregate in the neighbourhood of springs. Then, in spring, there is the great movement upstream for spawning, but for both operations to go smoothly it is necessary that channels shall not become silted up, that obstacles are removed, and that natural log-jams shall be shifted so that there is a passage free for the fish.

The "reclamation service" combines the dredging of silt, removal of single obstructions, and the smashing up of log-jams by shot firing.

The northern rivers of the Soviet Union are breeding grounds for sturgeon, sterlet, white salmon, Sosva herring and Ob vendace.

(Fishing News London October 11, 1963)

NEW TRAWL WARP

There was a length of trawl wire on the Industrial and Maritime Riggers' stand at the recent Fishing Exhibition which didn't attract much attention but was, nevertheless, of great potential interest to trawl fishermen.

The warp from which it had been cut had been in use for months and the exposed core was, as might be expected, dirty and rotten-looking. On closer inspection, it was not rotten at all and not made of hemp but of polythene and, according to an IMR representative, had done its job remarkably well. It still retained its spring and he reckoned that synthetic cores of similar type are likely to prove superior to hemp ones when a little more experimental work has been carried out.

In co-operation Industrial & Maritime Riggers, Tyne Wire Ropes and Synthetic Ropes & Cordage have completed the first of a series of experiments in the use of synthetic rope as main core for trawl warps. In this the warps were supplied to Boston Whirlwind at Lowestoft on October 30, 1962. The lengths were put on the working ends and the trawler resumed its normal trawling. Subsequently samples were removed on May 10, 1963, from the working end for examination.

On examination the warp originally $2\frac{7}{8}$in. circumference had pulled down to $2\frac{5}{8}$in. In normal circumstances and equivalent life it could be expected to pull down to approximately $2\frac{1}{4}$in. with a hemp main core. Condition of the wire strands was excellent. There had been very little mutual abrasion, no malformation.

The synthetic rope's main core was examined and found in excellent condition. In normal circumstances a hemp main core would have by then collapsed. Conclusion to be reached is that the use of a synthetic rope main core can give longer warp life in any given set of circumstances.

(Fishing News, London, October 11, 1963)

GHANAIANS TO STUDY RUSSIAN TECHNIQUES

Ghana's annual fish production of 62,000 tons will be increased to 160,000 according to the Minister of Agriculture in Accra, addressing 92 Ghanaians shortly before they left for the U.S.S.R. to study fishing techniques.

He said the increase could not be achieved if new techniques were not used to modernise the fishing industry. He said that the Government, in an effort to make fish the cheapest source of protein in Ghana, had ordered from the U.S.S.R., 18 fishing vessels consisting of 10 seiners and eight trawlers. More vessels were on order from other countries, and in the near future there would be a total of 38 vessels in operation in the country.

The Minister stated that arrangements were being made for the training of 300 Ghanaians in Japanese and Norwegian fisheries.

(Fishing News London October 11, 1963)

SALMON FACTORY BUT NO SALMON

I notice an Australian firm announcing recently that it plans making a £25,000 "salmon canning factory" at Busselton, Western Australia, where there are no salmon to can. Nor are there any salmon available for canning anywhere in the southern hemisphere.

The so-called "salmon" it intends to pack are a form of seaperch masquerading under this name in Australia to the endlesss confusion of importers in many lands, who have so often protested that it is about time the Australian Government banned the use of the term "Australian Salmon" for a poor quality fish not remotely connected with true salmon of any kind.

Alternatively some enterprising British firm should pack quantities of our unwanted dogfish, congers, dabs, flounders, etc., under the name of "British tuna," and dump them on the Australian market, to the detriment of Australia's thriving new tuna fishery.

After all, our Board of Trade would never permit a British fishery to can the surplus unwanted schools of bass around our coasts and market them labelled "Salmon - Bass" or "Salmon", which is just the same, for "Australian salmon" is only a bass-like fish.

However, the Busselton factory hopes to be in operation before the end of the year. It just isn't cricket!

(Fishing News London October 11, 1963)

FISH LOCATING AND CATCHING RESEARCH

U.S. FLOATING LABORATORY STARTS SECRETS PROBE

A specially designed research vessel, crammed with modern instruments for probing the secrets of the seas, has recently gone into service in American waters.

She is Albatross IV, a floating laboratory built by the United States Bureau of Commercial Fisheries to help find new stocks of fish and to improve methods of catching them.

Albatross IV cost over $2 million to build. Her modern equipment includes a fathometer to locate schools of fish and draw profiles of the ocean floor, a salinometer to measure the amount of salt in the sea and a wide-angle underwater television camera.

She is also equipped with Nansen bottles to collect water at different levels, corers to take sediment samples from the bottom of the ocean, an oxygen analyser to determine the amount of oxygen in the water.

Not All New

Not everything aboard is new, however, for one important piece of equipment is a fishing-net - an old 80-foot-deep sock of nylon cord. This is hoisted out and over a yawing ramp by a 20-foot-high gantry and permits fishing in extremely rough waters. To ensure that the fish caught in the net are a fair cross sample, the television camera is used every twenty seconds to take pictures of fish on the ocean bed. These can be viewed on receiving sets at various points on the ship.

The camera can also study fish in their natural conditions of their reactions within nets.

Many Questions

Fish brought aboard are first separated by species. Each fish is measured, its blood analysed and the contents of its digestive tract examined. The scientists are concerned with many questions that have not yet been adequately answered: What organisms live at the sea bottom? What time of day do different species of fish feed? Answers to questions like these may provide the key to a great expansion of food supplies derived from the sea.

Albatross IV is 187 feet and has quarters for 22 crew members and a scientific team of 16. The scientific staff have air-conditioned laboratories to enable them to carry out research in the tropics.

She has a special steering mechanism which uses a circular nozzle to change direction of the propeller's thrust, to alter course. A diesel engine provides a speed of 12 knots over a range of 9,000 miles.

Albatross IV, operating from the Woods Hole Oceanographic Research Station in Massachusetts, will spend about eight months of each year off the coast of Maine, visiting about 100 different stations six or seven times each, to build up an annual "picture" of the area and its fish population.

Much is still to be learned about the oceans, and the United States Government is undertaking several other projects.

A National Fisheries Centre is being located in Washington; ecological studies of fish and shorelines are in progress; a co-operative programme to study geology and hydrology of the Atlantic Continental Shelf has been initiated with a similar Pacific study planned; and research has been extended on Fish Protein Concentrates.

(Fishing News London October 18, 1963)

A LIVING FROM THE SEA

ECHOMETER THE BEST TOOL YET

Not only fishermen make a living from the sea. The fish do so too; and the countless other marine creatures. The ways of fish in the sea generally decide the ways of the men who catch them, and behaviour changes can be most important.

For instance, most white fish usually tend the bottom, but you'll still hear the trawlermen say: "Not so much in the dark," though they don't always know why.

Of all food fishes the herring are probably the most complicated, yet fishermen, trying to think like herring, and probing about with echometers, come to sense a rhythm in their seemingly unpredictable ways.

Hauling full nets after shooting on a mark of herring and waiting for the swim, one might well raise an eyebrow at the recent pronouncement of a certain professor that "herring in love are too excited to avoid the nets." Might as well say that bees are excited when swarming. The truth is that spawning is only one of the compulsions that drive the little people in their quicksilver behaviour.

Schooling

I remember once, inside Fair Isle, they called me up from the cabin: "Skipper, the sea is alive with herring." It was a fine summer afternoon, the first time I'd seen herring schooling, and wherever one looked the smooth water was rippled and brushed by fish breaking surface. We were leaving Lerwick for want, and looked at this sea of plenty like a hungry cat at the birds.

Although the herring went down at the approach of the ship we shot some nets, and while we lay quiet a shoal came up, pattering and fizzing like heavy rain on the water. Each fish was striking swiftly upwards, diagonally, until breaking surface, some jumping clean out.

Phenomenon

Some say that this phenomenon is a prelude to migration for these fish can seldom be caught (we got about a cran out of one net, but none at all later when we shot for the close and drove clean round the island before we could haul).

It is really a wild daylight version of the normal nightly swim. A much milder form of schooling occurs more frequently at the close or break of day, when an occasional looping fish shows that the herring are "playing"; and this can mean good catches.

Vertical Migration

Being almost the bread and butter of the sea the herring seem to depend on a tightly herding, safety in numbers kind of behaviour. Having this shoal magnetism they are also constantly driven up and down within the limits of the sea bed and the surface. Up by night, down by day.

Through all their journeys about the sea, and even when spawning - which is the only time they stay in one place - the slow 24-hour see-saw rhythm goes on.

It is the daylight that drives them down. What brings them up we don't know. It may be something to do with the well-known vertical migration of the plankton which the herring eat. But even when not feeding they still come up.

Midwater Dangers

In northern waters the herring will stay at about 80 or 90 fathom all day, comfortably out of the light, but in the shallower North Sea they are pressed to the bottom, pressed out of the round shoal into a flatter formation. When at dusk they begin to rise again, instinct gathers them into the tight shoaling which is their only defence against the midwater predators.

These slow moving shoals will turn from danger with the same concerted movements as the flighting birds that seem to act as one.

They are herded by the whales. You may see the herring driven against the ships' side by marauding dolphins, the broken shoal melting away, and reforming with whiplash rapidity.

The approach to the surface, however, causes somehow, a general release from the attraction of the shoal. The herrings' character, like that of so many animals - and some humans - changes abruptly in the dark. The inexplicable scattering, which we call the swim, is what makes the drift nets so effective.

This three stage pattern, i.e. spread at bottom by day, rising in tight shoals, and spreading at the surface at night, is the basis of summertime behaviour in the North Sea. Slight variations from it may be caused by less important factors like the age and condition of the fish, the weather, or depth of water.

There is a picture here, however shadowy, of a species finely adjusted to the varying pressures of its surroundings. One thing it shows is that the comparatively dense spherical shoal is the natural formation of herring in midwater. They crowd together for safety.

New Predators

But we should say that they used to crowd together for safety, for this is the very thing that makes them show on the echometers. In the first and third stages the herring are not easy to mark. But the herding instinct, built in by a million years of avoiding dogfish and other foes, is now betraying them to the sounding beams which are alike in efficiency though so different in nationality. The easily echoed herring masses are easy meat for the trawls, the new wide-mouthed predators of the nursery and spawning grounds.

"How long can the herring stand up to this pressure?" ask the fishermen, especially the driftermen, worried about the stocks, but the scientists remain undecided.

It may be unlikely that any herring stock could be exterminated by fishing alone. One good year class can do wonders, but there must be a minimun level of spawners needed for survival.

Is it coincidence that the first ten or so years of intensive echo fishing have seen the worst scarcity of herring within North Sea memory?

The echometer is by far the best tool yet for our use in making a living from the sea. It is also making life more difficult for the fish and unless the fishing is controlled, or the herring can modify their behaviour and obtain a bit more privacy, it is hard to see how the stocks can ever fully recover.

(Fishing News London October 4, 1963)

LIVE CRAYS FOR FRANCE

Anaesthetised West Australian crayfish may be delivered in France three days after they are caught.

The crayfish will be anaesthetised with a chemical and flown to Europe to compete on the market with highly successful South African crayfish exports.

An agent for the manufacturers of the chemical, Mr. R. Wilson, of Perth, said it was very cheap and widely used throughout the world to transport live fish, although it had never been used on crustaceans.

He said the manufacturers were confident there was no effect on the quality or the taste of the crayfish.

The crays were dipped in a solution and anaesthetised and then exported packed in seaweed or paper, he said.

(Fish Trades Review Sydney November, 1963)

RUSSIANS ARE CATCHING FISH BY THEIR SOUND

Experiments have been completed successfully in the U.S.S.R. in catching fish with the aid of recordings of fish sounds in water.

During tests in the Sea of Azov, the fish heard the sounds at a distance of 10 yards and went straight to the source The instrument was adjusted to attract male or female species selectively. The portable apparatus can be carried by one man works on batteries, and can be installed in any boat.

The inventors think that the use of this sonic equipment will make it possible to dispense with nets.

(Fishing News London November 29,1963)