FISHERIES DEPARTMENT
WESTERN AUSTRALIA
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STAFF NOTES

The Superintendent (Mr. A.J. Fraser) will attend a conference of Commonwealth and State Fisheries officers to be held in Canberra on July 15 and 16.

Inspector A.K. Melsom will commence duty after long service leave on August 1, and from that date will resume charge of the Fremantle district.

Relieving Inspector G.C. Jeffery will relieve at Shark Bay during Inspector N.E. McLaughlan's absence on long service leave, which is due to commence on August 1.

Inspector A.V. Green of Mandurah plans to commence annual leave on August 25.

Inspector H.J. Murray will cease duty on August 28 to clear all accrued leave and long service leave prior to his retirement.

Miss P.J. Pegrum of Head Office returned to duty after annual leave on June 10.

Captain H.C.W. Piesse, of r.v. "Lancelin", visited Perth from Shark Bay for consultations on the refitting of the "Halimah". He returned to Shark Bay on June 24.

Technical Officers L.G. Smith and J.S. Simpson will continue routine sampling of black bream at Bunbury during the month.

OBITUARY

On June 29, Mr. C.W. Jeffery, father of Relieving Inspector G.C. Jeffery, passed away. To his bereaved family we extend our sincere sympathy.

PERSONAL PARS

The first of three distinguished overseas biologists to visit Western Australia this year arrived by air on June 25. He was Dr. Donald S. Farner, Professor of Zoophysiology at the Washington State College, Pullman, Washington, U.S.A. Professor Farner visited Australia briefly in 1954, when he was a Fulbright Scholar in New Zealand. He has obtained a Guggenheim Grant to enable him to spend a year working in this State on the breeding habits of trans-equatorial migratory birds and also on some desert species. Dr. Farner was accompanied by his wife and family.

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The second visitor will be Dr. A.J. Marshall, who is expected to arrive in Perth late this month or early in August. Dr. Marshall is Reader in Zoology and Comparative Anatomy at St. Bartholomew's Medical College in the University of London. He is an Australian, a graduate of Sydney and Oxford. He accompanied an expedition to the New Hebrides and has also worked in New Guinea and East Africa. Dr. Marshall has now an international reputation for his studies on breeding periodicity and the factors that stimulate the onset of breeding.

When Dr. D.L. Serventy was in England last year, he collaborated with Dr. Marshall to write several papers on the breeding cycle of the Tasmanian mutton birds, out of season nesting in Western Australian birds, etc. Dr. Marshall has received a Nuffield Grant to visit Australia for 6 months. He wishes to work mainly in central Australia, in the Kimberleys and in our North-West, and will collaborate with Professor Farner. The grant was awarded primarily to investigate the effects of radio-active fall-out on the Australian fauna.

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The third visitor will be Dr. Mary E. Gillham, Lecturer in Botany at the University of Exeter, England. She has specialised in the plant ecology of bird islands and has published several papers on those off the Pembrokeshire coast. At present she is in Victoria where she is temporarily attached to the Botany Department of the University of Melbourne, and has been taken to various islands in Victoria by officers of the Department of Fisheries and Game. Dr. Gillham is expected to arrive in Western Australia about November, and will work on as many local islands as possible, including the Archipelago of the Recherche, the islands off Albany, and the Abrolhos.

DEPARTMENTAL VESSELS

The r.v. "Lancelin" is continuing prawn and scallop investigations in Shark Bay.

The p.v. "Misty Isle", under command of Inspector S.C. Stokoe, with Cadet Inspector G.J. Hanley as crew, is patrolling in the Fremantle area.

Inspector H.D. Kavanagh is in charge of the p.v. "Silver Gull", which is in commission again following completion of repairs.

PROGRESS IN PEARL CULTURE

Reports received from Mr. K.F. Dureau, Managing Director, Pearls Pty. Ltd., Melbourne, and Mr. R.J. Baird, Pearling Inspector, Broome, reveal encouraging

progress made in the pearl culture industry established at "Kure Bay", Brecknock Harbour, north of Derby, two years ago.

Mr. Baird witnessed the first harvest of round pearls at the grounds last month when 781 shells were opened. The largest pearl weighed 80¼ grains and was of very good colour. In addition, nearly 4,000 half pearls have been harvested, 3,540 of which have been sent to Japan for processing and sale.

Better arrangements for the collection of shell, increases in the shell carrying capacity of the station, and improvements in the techniques of planting the nuclei, are expected to raise the value of production considerably during the coming twelve months.

An interesting note on the productivity of the shell has been supplied by Mr. Baird. After the first pearl has been harvested from a shell, a second nucleus is planted in the same shell. When the second pearl has been collected the nucleus for a half pearl is inserted so that each pair of shells may produce two pearls and a half pearl before it is finally taken from the water and cleaned for sale as mother-of-pearl.

It is expected that both the Minister (Mr. Kelly) and the Superintendent (Mr. Fraser) will pay a visit to Kure Bay about the beginning of September.

WHALING

The Cheynes Beach Whaling Co. commenced operations for the humpback season on June 10 with three kills. All were females, the longest being 45'4". The company ceased chasing sperm whales on June 9 (on which day 4 were taken) in order that it could concentrate on humpbacks. Up to that date, 91 sperm whales had been taken since January 1, 1958. By June 30, 32 of its quota of 120 humpbacks had been killed.

On June 22 the Company received a serious setback when the chaser "Kos VII" lost her propeller when searching for whales at Caffin Island, 26 miles east of Albany. Fortunately the Company's second chaser "Cheynes" was in the vicinity and took "Kos VII" in tow. An inspection of the "Kos VII" the following day revealed that the propeller shaft had broken off just aft of the stern gland, but no damage had been done to the rudder or the ship's hull. A new tail shaft will be made locally, but a new propeller will have to be obtained from Brisbane. It is not expected that "Kos VII" will be in commission much before the end of this month.

The Nor'-West Whaling Company commenced humpback whaling on June 16, when two whales were taken - one being a 46' female. Up to June 28, this Company had taken 29 whales, according to reports from Assistant Inspector D. Wright. Only three of them had been males. This predominance of females in the catch is usual during the early part of the season.

All whales taken by both Companies were said to be in good condition.

FREMANTLE FISHING BOAT HARBOUR

The Minister for Fisheries (Mr. Kelly) has received advice from the Minister for Works that £70,000 has been placed on this year's Loan Estimates for the commencement of improvements to the fishing boat harbour at Fremantle.

Plans are in preparation for the construction of a new breakwater to the south of the existing fishing boat wharf. Within the area to be enclosed additional moorings, ramps and wharves will be progressively provided to relieve the serious overcrowding caused by the rapid increase in the number of fishing craft in recent years.

The total cost of the work, which is to be carried out over a period, has been estimated, tentatively, to be not less than £400,000.

IMPORTS WORRY FISHERMEN

Following discussions at its half-yearly meeting held in Perth on June 10 and 11, the W.A. League of Professional Fishermen's Associations will approach the Tariff Board in an endeavour to obtain protection against the importation of frozen snapper fillets from Hong Kong. The League maintains that the importation of cheap fillets from overseas endangers the future of professional fishermen in this State.

Interviewed by the press after the meeting, Mr. E.C. Harris, of Quindalup (who is President of the League and of the South West Fishermens' Association), said that payment could not be obtained for large consignments of tommy ruff sent to Perth as there had been no market for them. As an illustration of the difficulties faced by the fishermen, Mr. Harris said that from a return of 8d a lb. for fish, 4d had to be paid out in ice, transport, commission and return freight on empty boxes. The small sum that remained from the balance of 4d after allowing for net, boat and vehicle depreciation, running expenses and wages, represented the fishermen's profit, if any.

Mr. Harris said that an approach would be made to Federal and State members of Parliament to obtain an early Tariff Board hearing, which the Minister for Trade (Mr. McEwen) had promised to arrange.

ABROLHOS CRAYFISHERY

The catch at the Abrolhos Islands area during May continued its upward trend. The table on page 75 compares the intensity and results of the fishing in May of last year with those of this year. Generally the overall catch per man has increased, and if the trend continues production for the season should exceed $3\frac{1}{4}$ million pounds.

ABROLHOS CRAYFISHERY

AREA	MAY, 1957			MAY, 1958		
	No. of Men	Total Catch	Catch per Man	No. of Men	Total Catch	Catch per Man
		lb.	lb.		lb.	lb.
North Island	30	111,560	3,718	32	113,362	3,542
Wallabi Island	47	176,756	3,760	63	217,387	3,451
Southern Group	62	171,954	2,773	41	136,439	3,328
Rat Island	53	151,404	2,856	68	226,958	3,337
Totals	192	611,674	3,185	204	694,146	3,403
1956 Totals	158	568,228	3,596			

TOTAL FOR THREE MONTHS 1956 .. 1,917,161 lb.
" " " " 1957 .. 2,390,157 lb.
" " " " 1958 .. 2,677,048 lb.

VERDICT FOR CO-OPERATIVE

Mr. Justice Wolff in a reserved judgment delivered in the Supreme Court on June 13, dismissed with costs an action brought by Dr. J.S. Marian, formerly secretary and general manager of the Fishermen's Co-operative Society, Ltd., against the Co-op. for moneys said to be owing to him when he relinquished his office about three years ago.

His Honour said that Dr. Marian had agreed to serve the Co-op. in the capacity mentioned until June 30, 1959, at a salary of £1,838 p.a. plus ½% of the Society's total turnover.

One of the issues, said His Honour, was whether Dr. Marian had bought a fishing-boat on his own account or whether - notwithstanding he had bought it in his own name, as he admitted - he intended to hold it in trust. The judge said he was satisfied that the Co-op. had authorised Marian to tender up to £7,000 for the vessel. His tender of £3,500 was accepted, but he did not communicate that fact to the chairman or to any member of the management committee. Mr. Justice Wolff said that by his conduct at a meeting in June, 1955, Marian had indicated he was buying the boat for himself. In those circumstances the committee was justified in demanding Marian's resignation, as he had been guilty of serious misconduct. His Honour said he could not accept Marian's evidence in relation to his claim and the action was dismissed.

DUCK BANDING

Technical Officer J. Traynor visited the property of Mr. A.H. Robinson, Coolup, during June, but after a few days had to give up ideas of continuing the duck banding programme. All birds caught were sexed and it was found that they were paired, and continuance of trapping might have interfered seriously with the birds' breeding.

Recoveries : Since the previous issue of the Bulletin, the following bands have been returned -

Band No.	BANDING		RECOVERY		Distance Flown
	Date	Place	Date	Place	
			Black Duck		
7812	15/2/58	Cape Riche	30/5/58	2 mls N. of Leschenault Inlet	200 miles
7248	9/3/58	Yathroo Station, Dandaragan District	about middle May'58	On property at Gingin	55 "
			Grey Teal		
4783	14/4/58	Near Murapin Lake, Woodanilling	9/5/58	"Duck Pool", 20 mls S. of Mandurah	105 "

W.A. FISH PRODUCTION - 1957

The table on page 78 sets out the production by species in excess of 10,000 lb. for the twelve months ended December 31, 1957. For comparison the 1956 figures are also shown. The 1957 catch was a record, due mainly to an increase in the crayfish take. The catch of salmon, snapper, cobbler and prawns dropped, but increases of mullet, both sea and yellow-eye, ruff, shark, trevally and several minor species were recorded. The prawns from Exmouth Gulf were negligible, but production was boosted by the excellent season in the Swan and Mandurah estuaries. One interesting increase was in Perth herring. Good catches of this species appear likely this year.

All figures are given in round weight. The figures for snapper and other big fish landed gutted have been converted to whole weight.

Species	1957 lb.	1956 lb.
Crayfish	11,683,249	10,638,938
Salmon	4,027,133	4,821,941
Ruff	956,341	767,407
Mullet, River or Sea	898,823	548,071
Snapper	852,782	1,413,224
Whiting, Sand	460,479	416,011
Mullet, Yellow-eye	457,083	256,903
Shark	435,007	263,990
Cobbler	309,293	434,229
Jewfish	223,839	221,016
Tailor	153,567	118,750
Prawns	126,757	131,104
Trevally	121,532	95,039
Samson Fish	79,794	64,887
Whiting, King George	78,721	25,558
Perth herring	61,671	20,171
Garfish	58,137	50,717
Spanish Mackerel	52,979	50,216
Bream, Yellow Fin	44,066	38,765
Pike	24,855	17,539
Crabs	24,261	22,502
Flathead	22,537	41,050
Silver Flounder (Leather Jacket)	21,708	22,008
Cod	18,408	13,594
Bream, Black	16,938	11,049
Mulloway	15,071	(a)
Tuna	14,244	14,965
Groper	13,342	11,969
Bream, Buffalo	12,739	(a)
Squid	11,840	(a)
Others	54,981	48,643
	21,332,177	20,580,256

(a) Less than 10,000 lb.

BAIT FOR CRAYPOTS

One of the chief problems encountered by crayfishermen in this State is the securing of adequate supplies of bait for their pots. Fish or fish heads are preferred by many, but the demand far exceeds the supply. Some fishermen use traps for the capture of fish as bait, and it does not matter what the quality of the fish they catch may be, e.g., snapper, jewfish and the like, they are all cut up for baiting pots. All the heads from the salmon fisheries of the south-west and south coast beaches are purchased by craymen, and there is a strong demand for "rubbish" fish such as buffalo bream for use as bait.

In an endeavour to increase the supply, salmon heads were some time ago imported from the eastern States, but they were found to be unsuitable and the supply irregular. Heads of red snapper have been imported from Hong Kong, and found most satisfactory. However there is an impost of 1d a lb. import duty on these, which the fishermen say makes their cost prohibitive.

The Minister (Mr. Kelly) has taken the matter up with the Commonwealth Minister for Customs and Excise (Senator Henty) requesting that the heads be allowed to come in under by-law. The following extracts from Senator Henty's reply will no doubt be of interest to inspectors generally -

> "In view of the fact that investigations conducted by my department disclosed that suitably equivalent goods were reasonably available from Australian sources at the time, I could not see my way clear to grant the concession which was sought on Customs duty.
>
> "This refusal did not in any way prevent Messrs Cicerello and Backhouse from importing the goods if at the time they were in possession of a valid license to cover the importation of those goods. In the absence of By-law approval the goods would, of course, be subject to normal rates of duty on importation.

"I must say, however, there seems to be a great number of conflicting statements on this subject. You now advise me there has been a decided shortage of crayfish bait during this season in Western Australia, but in seeking remission of duty on fish heads imported from Hong Kong, one firm in Western Australia, on the 8th May, 1958, used as an argument to me that they have 291 bags in cold storage in Fremantle which they are unable to sell.

"As regards your present approach for permission to allow red schnapper heads to be imported from Hong Kong, this request should be directed to the Minister for Trade. The approval for issue of an import license must originate with the Department of Trade.

"After an import license has been received and at the time of placing the order overseas, an application for By-law admission of the goods could be submitted to my department. The supply position then obtaining of suitably equivalent bait in Australia would determine whether By-law could be granted for these shipments."

SARDINE SCHOOL

A report from Albany says that on June 16 an amazing sight was witnessed in King George Sound when huge schools of "sardines" (in all probability sea pilchard) rippled the water from a few yards offshore of Soldiers' Rock to the vicinity of Breaksea and Michaelmas Islands. It was estimated that there were 50 schools, some of them covering several acres of water.

Gulls were observed feeding on the small fish which, judging by their behaviour, were also being attacked by piscine predators - probably salmon or barracouta.

DEPARTMENTAL PROSECUTIONS

April 1 to June 30, 1958

Date	Defendant	Court	Charge	Result
15.5.58	Norris, W.A.	Albany	Using net in closed waters	Case dismissed
do.	Asplin, C.	do.	do.	Fined £5
do.	Williams, R.	do.	do.	" £5
do.	Warham, P.	do.	do.	" £5
6.5.58	Hennerberry, J.	Ger'ton	U/size c/fish	" £5
do.	Cornell, E.	do.	do.	" £2
do.	King, A.N.	do.	do.	" £2
do.	Glass, W.A.	do.	do.	" £5
6.5.58	Bursill, W.	do.	do.	Case dismissed
do.	White, W.E.	do.	do.	Fined £5
30.6.58	Miragliotta, F.	do.	do.	" £5
24.6.58	Morley, R.G.	Midland Junction	do.	" £5
1.4.58	McGuckin, A.G.	Perth	do.	" £3
do.	O'Connor, P.	do.	do.	" £3
do.	Joynes, F.	do.	do.	" £3
do.	Wright, B.	do.	do.	" £3
9.4.58	Pearce, L.	do.	Fishing in closed waters	" £7

Date	Defendant	Court	Charge	Result
9.4.58	Hugill, D.	Perth	Non-submission of returns	Fined £3
25.4.58	Campeotto, G.	do.	U/size c/fish	" £6
do.	do.	do.	do.	" £3
21.5.58	Bolitho, L.J.	do.	do.	" £4
do.	Rodgers, F.M.	do.	Undersize fish	" £5
do.	Madalini, A.	do.	do.	" £3
do.	Carruthers, J.	do.	U/size c/fish	" £3
11.6.58	Martinovich, M.	do.	do.	" £2
do.	Sofilas, M.	do.	do.	" £5
18.6.58	Pozzi, D.	do.	do.	" £3
do.	Bowra, J.W.	do.	Netting in closed waters	" £10
do.	McCormick, H.W.	do.	U/size c/fish	" £5
do.	Feko, H.	do.	Undersize fish	" £5
4.6.58	Andrews, E.H.	Pin-jarra	Netting in closed waters	" £5
do.	Morfitt, J.M.	do.	do.	"£2/10/-
do.	Ward, J.R.	do.	do.	"£2/10/-
		Fauna Protection Act		
9.4.58	Hunter, J.A.	Perth	Illegally taking & selling fauna	Fined £5

Date	Defendant	Court	Charge	Result
14.4.58	Moro, G.	Toodyay	Shooting ducks out of season	Fined £10
9.6.58	Gardner, W.	Fremantle	Taking protected fauna	" £5
do.	Gardner, F.	do.	do.	" £5

FREEZER-BOATS IN GERALDTON WATERS

Inspector G.H. Lyon has submitted a comprehensive report on the activities of the four freezer-boats "Sonoma", "Jupiter", "Saturn" and "South Seas", whose operations, supposedly in the Abrolhos area, have excited much comment in the last week or two. The following points are now clear -

(1) The boats are fishing outside the defined Abrolhos area and in the zone where freezer-boats are permitted to operate (outside territorial waters, in fact);

(2) Processing is carried out at sea. This is reasonably simple up to wind force 3, or in the absence of a heavy swell. A wind force of much above 3 or a heavy swell would render processing at sea impossible;

(3) After completing fishing and processing for the day, the boats anchor in Whales Bay, Abrolhos. This is within the defined area, and the only process carried out in the anchorage is freezing. In other words, the freezers are not shut down when the boats come in to anchor.

(4) The area being fished is accessible only to larger units of the fishing fleet.

(5) According to the evidence available to the Department, none of the four boats has operated south of 30° in 1958, hence there is no bar to their fishing north of 30° now.

FILLETING MACHINERY

A recent caller at the Office was Mr. T. Drews, representative of a German firm prominent in the supply of fish filleting machinery. A wide range of pamphlets relative to the machinery supplied by his firm were left at this Office and are available on loan to any inspector interested.

NEW OFFICE AND BOATSHED, VICTORIA PARK

The Public Works Department has intimated that the keys of the new structure on the Victoria Park foreshore a few hundred yards downstream of the Causeway will be handed over to this Department during the first week in July. The building, which is of brick construction, will supersede the old timber and fibro boatshed erected on the Perth side of the river some years ago, on the site which the Perth City Council is building one of its new car parks.

The Senior Inspector and his metropolitan inspectors will leave head office and be accommodated with office space in the new building. There is an office for the Senior Inspector and another for the remaining staff. Lecture and luncheon rooms have been included, as well as a retiring room containing wash-basin, shower and toilet facilities. There is adequate room for the housing and maintenance of small boats, and a workshop and storage for nets, etc. have been provided.

A concrete ramp is in position and the jetty at the old boatshed is being removed to the site of the new building.

THE CLEARING HOUSE

The Best and Quickest Way to Bait a Lobster Pot

By Tony Stern.

Fishermen are usually interested in others' practices. Hence these observations about pots for lobsters.

In recent travels, I saw many types of pots but, on their fishing capacity I will not comment for I do not know enough about the local conditions. All types of pots seem to catch as many lobsters as the grounds provide!

On that point of local appeal, my impression is that generations of lobsters have handed down to their offspring strict instructions as to the type of pot to be entered because the usual comment by fishermen accosted is: "We have tried other types of pots but there's none to fish alongside ours."

The pots I saw included several variations of the East Coast type and numbers of bows. Some pots had differently placed funnels. Net materials varied and the bases were weighted with anything from old fire bars to neatly cast concrete.

The parlour has been added to some pots, others have been made nearly twice normal size. I have seen the famous beehive pots made from cane, withy and wire. I have seen combinations of Canadian, French and British styles made from wooden lathes and wire netting. In one area, every pot had galvanised steel wire as basic frame-work.

The shape was usually beehive, but some were rectangular and others cylindrical. Some had wire netting for their covering, some nylon net, some ordinary twine.

In another area, cane is the most popular material and the pots are made almost spherical. These are kept stable on the seabed by three large stones lashed outside as equidistant legs.

I was surprised to see that some of the pots in this area were slightly pointed at the bottom. I was told that on some grounds, the bottom was thickly covered with a weed of some considerable length.

Flat bottomed pots tended to tip over while settling through this weed whereas the pointed bottoms wriggled comfortably down through the weed to sit upright on their triple stone legs.

I was also shown a method of bait fixing which was new to me. On opposite sides of the pots were two bait strings. Each had one end spliced around one of the canes just inside the pot, clear of the open mouth and the other end hanging loose.

The bait is tied to the pot with these strings and this ingenious fisherman had green cord one side and brown the other. By renewing the bait on different sides on successive days he knew which was the oldest.

A Query

It seemed to me that this tying of bait must take longer than sliding the bait between two cords as is done on the East Coast type of pot. To my query on this, however, came the question asking: "Is it really true that many East Coast fishermen waste time untying and retying a little door on the sides of their pots to get their hands in and the lobsters out?"

In spite of that reminder of local loyalties and fashions, I will stick my neck out and say that in most places all the fishermen put a bag or two of bait into their boats and bait their pots as they are hauled.

There are, of course, other places where the men spend hours ashore threading their bait on twigs or small, flat skewer shaped pieces of wood, or sewing it into bundles with twine.

Free Meal

If all this additional time and work ashore saved much time at sea it would obviously be well worth the trouble to men who work small boats and need to work with one eye on the weather. But most users of the double-strand bait string or bar are proud of their speed at baiting up.

This bar, suitably placed so it does not form an escape ladder, would seem to give less chance to an enterprising lobster to get a free meal than those baits fixed close to the side of the pot. If at the same time it saves a lot of work ashore, it might be worth considering.

I do not know the Cornish and Devon methods but, in pots of west country design, I have seen bait holders made from a loop of twine which hangs inside the mouth of the single part leading up to the top of the pot.

A Slight Change?

After the bait has been put into the loop, the single part is pulled and made fast to the outside, leaving the bait snugly held against the side of the funnel.

Might not a slight change from time honoured methods be to the advantage of those fishermen who are taking much longer to do this work than their friends elsewhere?

I am not suggesting that anybody should change the type of pot they are using. There is no doubt that when great-grandfather decided what to use he picked on a rope for which the materials were easily found locally, and found by trial and error the best and quickest way to make the sort of pot which suited his particular piece of seabed.

But, if he picked on a method of bait fixing which involved hours of preparation why not try a change?

("The Fishing News" London May 16, 1958.)

Britain Exports Fish and Chips to Canada

A modern version of the old trade paradox about carrying coals to Newcastle has been written recently in the Canadian fish business.

The British are exporting fish and chips to Canada.

Double portions of three ounces of filleted fish and three ounces of chips are quick-frozen by two factories in Grimsby and Hull, wrapped in aluminium containers, and placed in waxes cartons. Other countries besides Canada have been buying this national dish of England, including Cyprus, Gibraltar, Africa and Singapore.

British exporters say they soon hope to extend the fish and chip trade to the United States.

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

Russia Now Far Ahead in Ocean Research

Russia has seized the lead in half a dozen marine science fields, and is now winning what may prove to be a critical battle - the contest to unlock the ocean's secrets.

Soviet research vessels are bigger, better and newer than any the western world has built. They spend more time at sea, accommodate more scientists, and are gathering more vital data faster than those of the U.S.

These facts came to light early this month in an address by Dr. Henry G. Houghton, director of the Massachusetts Instutute of Technology's laboratory of earth sciences. He said that 10 years ago, Soviet oceanography was provincial. Today it has world-wide scope and is progressing rapidly.

In the modern concept of nuclear war, the oceans provide the best hiding place for either defence or offence. The atom-powered missile submarine prowling the ocean depths may play a key role if world war should come.

Mankind appears on the threshold of weather control, in which the oceans are expected to play a prominent part. Russia may be the first to develop an effective technique in this field.

Dr. Houghton said that "an unfavourable modification of our climate in the guise of a peaceful effort to improve Russia's climate might seriously impair our desire and ability to resist."

Man needs to know soon whether he can dispose of at least part of the poisonous radioactive wastes produced by industrial use of atomic power in the deep sea, and how it would affect marine life and food supplies from the sea.

To feed the world's increasing population, practical methods are needed for large scale fish farming.

The scientists said that a sudden advance in any of these fields could mean incalculable advantage for the nation which scores it.

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

Krylon "Wonder Juice" Loosens Corroded Parts

A new quick-acting penetrating oil which is unusually effective in loosening parts which have rusted together has been introduced by Krylon, Inc. It is being used by Ratheon Manufacturing Co. for maintenance work on radar antennae.

Called Krylon Rust Release, the new product has been dubbed "wonder juice" by many industrial firms in the U.S. It comes in an aerosol spray dispenser.

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

Foam Plastic New Wonder Material for Marine Use

Rigid, semi-rigid and flexible Stafoam polyurethanes are now being made available to the marine industry by American Latex Products Corp., pioneers in the development and manufacture of foamed plastics.

The material is now being adapted by many in the field for such diversified uses as floatation, fiberglass sandwich hull construction, structural strength, waterproof void-filling and insulation, and related applications.

Polyurethane is formed by the mixture of two liquids which then foam and bond with the cavity walls, its adhesion to non-metallic surfaces or primed metal being as great as its cohesion.

It can be applied by spray-gun, poured-in-place, fabricated with wood-working tools, cemented, or injected with available production machinery with the foam ranging in density from 1.5 to 70 pounds per cubic foot.

Complete information on the new wonder material can be obtained from American Latex Products Corp., 3341 W. El Segundo Blvd., Hawthorn, California. Their latest brochure includes description of the usage, processes, formulations, physical properties, and the most complete engineering data on polyurethanes available.

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

Sardine Outlook Brighter

"Things look brighter for the California sardine resource than they have in years."

That isn't a crashing statement if it comes from a layman, but when a top-flight, carefully conservative scientist makes it right out in meeting, and backs it up with facts which average fish people can understand then it develops a lot of weight.

Who said it? Dr. Albert L. Tester, chief of the branch of fishery biology, U.S. Fish and Wildlife Service. Where? At the meeting of the American Fishery Advisory Committee held during the National Fisheries Institute convention in San Francisco.

Amplifying his statement on sardines, Dr. Tester said that the 1957 sardine spawning had been the first good one in many years so far as the northerly limits of spawning were concerned. This successful spawning may be attributed in part to the fact that in 1957 Pacific surface temperatures were at a 26-year high.

Again, the percentage of young sardines in the current catch of bait fish is many times higher than it has been in any of the past 10 years.

Among the influences which science is studying in its efforts to understand the history of the sardine resource is that of the wind and the currents it creates. The period of sardine scarcity has been found to coincide remarkably with a 10-year cycle of unusually high wind averages off the coast in the sardine's normal range.

To the advisory committee Dr. Tester summed-up the primary aims of biological research in these simple words :

> "We seek (1) means of maintaining the fishery resource at maximum levels, to (2) be able to predict abundance, and (3) to understand population trends."

("Pacific Fisherman" Portland, Ore. May, 1958.)

The American Fishing Scene

This column is being written in the port of Batabano, on the south coast of Cuba, where your correspondent is awaiting the arrival of one of the first good catches of tuna of the 1958 season. It is April and while there are political tensions in the Capitol, they do not reach the fishing grounds. It is warm and bright, good comfortable weather with little wind.

Batabano is a small and typically Latin port city, distinguished by two features an old cannon of substantial size aimed toward the sea, a

relic of the days when these waters abounded in ill-mannered Englishmen flying the Jolly Roger, and a small first-class tuna packing operation in the plant of Mariscos del Caribe, S.A.

Before World War II, the market in Cuba was dominated by imported tuna, generally of Spanish origin, packed in oil and tomato sauce. War-time conditions stopped the flow of tuna to Cuba and a marketing opportunity opened. Coincident with this situation, Japanese snapper fishermen, resident in Cuba, advised Cuban crawfish packers that an abundant source of tuna existed along the coast and suggested that they could be caught by the usual Japanese methods.

In 1944 a vessel was fitted out and the first year's pack, done principally with crawfish canning equipment, amounted to between 4,000 and 5,000 cases of 24 cans each. Today the same company owns 23 vessels, three canneries, and Cuban tuna now supplies 85 percent of the domestic market.

Based on the Atlantic bonito, the blackfin tuna, and the albacore, fishing is done along the south coast from Cienfuegos to Cape San Antonio at an average distance of 35 miles from the coast. Vessels are Cuban-built combination Diesel and sail vessels, some of which resemble a small version of a U.S. tuna clipper. Averaging 70 ft. long, the vessels use ice to preserve their catch with some mechanical refrigeration equipment presently being installed. A 10-man crew fishes from outboard racks on the stern, attracting the tuna by throwing out a small bait fish known locally as "manuja" and supplementing the bait with the usual Japanese water sprays. In the cannery itself, the fish arrive gutted and are washed in iced sea water and quickly pre-cooked. They then pass to the stainless steel and tile packing room which is air-conditioned. Here some 40 girls dress them and hand pack the cans. A mixture of peanut and olive oils added to the cans readies them for closing and exhausting.

While the entire cannery would fit in the warehouse of a large U.S. factory, the product is of excellent quality and the following data indicate its importance to the local market: In 1957 Cuba consumed 1,600 metric tons of canned tuna, of which almost 60 percent were produced by this firm's three plants.

While we are on the subject of Cuban tuna, it is reported that Japanese vessels have developed a clever method of getting around the U.S. import quotas. Fishing in the Caribbean, they land their fish near Havana where they are dressed and frozen. They are then shipped to U.S. canneries in nearby Puerto Rico where they enter as Cuban tuna, not Japanese. The system seems to work well and it is reported also that Japanese interests are seeking a similar trans-shipment port in Mexico, so as to accommodate their catches of Gulf of Mexico yellow-fin tuna.

("World Fishing" London May, 1958.)

No Fish for the Table

The absence of fish from the average household menu has always been one of the great mysteries of Australian life. Everyone knows that it is not there because it is too costly and everyone knows that cost is a question of supply.

It is claimed that excessive imports of frozen fish have depressed fresh fish prices and that fishermen have had to tie up their boats. In some quarters there has even been talk of dumping large quantities of frozen mullet. Canneries say they will be closing down because of the volume of imports. One way and another, all the discussion, as it always does in the fish industry, leaves the impression that we have more fish than we know what to do with and that it cannot be given away.

What, then, is the cause of the fishing industry's problems? The public, assured by expert evidence that there is an ample supply in the nearby sea, would like to know. Despite decades of probing, no satisfactory answer has yet been found and it seems that none will be found until the Government conducts a thorough and impartial inquiry into supplies, harvesting and marketing.

Such an inquiry would be justified now in the light of fishermen's claims that imports are destroying the local industry. But its prime purpose should be to find out why the people cannot have cheap and plentiful supplies of local fish.

("The Age" Melbourne June, 1958.)

Will it be Worthwhile to Build Future Fishing Craft in Plastic?

Developments in plastic construction in small pleasure and commercial craft have been rapid in recent years: 56 ft. hulls have been successfully made and larger hulls will undoubtedly be produced in the future. But plastic boats have yet to prove themselves in the fishing trade. This article, which comes from the Fishing Boat Section of F.A.O., gives the general background to the subject - which we will return to in the future as further developments take place.

The argument as to whether fishing boats should be built of wood or steel seems to be endless. There are a number of advantages and disadvantages connected with both materials. Both are subject to deterioration by rot or rust, the magnitude of which varies in different waters and is dependent on the type of material used in hull construction. When it comes to the final analysis, the choice of wood or steel is often simplified by the cost factor, because in certain localities one material is cheaper than the other, so that an 80 ft. boat of wood might be cheaper to build in one place while in another place it would be cheaper to use steel. Size also plays an important role, and experience suggests that there can be no advantage in using wood for boats longer than 90-100 ft.

During the last 25 years a number of new materials have been developed and much experimentation has taken place to use such materials in the construction of complete boat hulls. Aluminium provides an example but its price has prevented it from being used in the fishing boat hull itself, even though it has proved useful in certain details, such as fish holds and deckhouses.

Ease of Manufacture

Recently plastic has proved more and more useful for the construction of small craft, and the 1958 National Boat Show in London provided a pointer to the great possibilities of this material. Many of the

advantages of plastic are well known to the general public. Among these one may mention: the ease with which plastic hulls can be made as soon as a mould has been manufactured, the surface finish making unnecessary the usual repainting; the fact that the material is rot, rust and worm-proof and its great strength in relation to wood, etc. In fishing boats, plastic has an additional great advantage: lightness. Thus, the use of plastic makes it possible to design a sea-kindlier ship. Fishing has often to be carried out during adverse weather conditions, and while we can do nothing to change the weather, we can improve the sea-kindliness of the ships so as to extend fishing operations, resulting in higher profits.

More Sea-kindly

The statement that a lighter hull produces a sea-kindlier ship needs perhaps some clarification, because the general view is that a fishing boat should be heavy to withstand the force of the sea. A comparison of patrol vessels of the Fairmile type with fishing vessels, shows that the patrol vessels can withstand a higher sea force than fishing boats of the same length but which are considerably heavier. This point has seldom been realised but, in the United States, Professor E.V. Lewis published a paper in 1955 on this subject, in which he illustrates that boats with a lighter displacement on a given length will show less movement in a seaway and correspondingly will be able to maintain a higher consistent sea speed. Professor Lewis is of the opinion that ships slow down their speed, not so much due to lack of engine power, but in order to improve conditions for the crew and prevent unnecessary stress upon the hull.

Contrary to general belief, therefore, the lighter fishing vessel will be more sea-kindly. This will be especially the case if plastic can be used to build a longer and sharper fishing vessel with a given cargo capacity, given engine power and given crew quarters. Today, when one has to try to reduce the length overall to receive economical scantlings, plastic construction might make it possible to obtain a cheaper fishing vessel which will be able to operate under worse sea conditions.

Prototypes Should be Built

Present plastic construction makes it difficult to build boats of 70-80 ft. There is also the problem of developing standard types which would be acceptable to a number of fishermen. When such boats can be built, and if financial regulations are not too difficult, plastic boats might well supersede boats built of wood or steel. Naturally, fishermen who spend their own money on a boat which has to last them for several years, will be very reluctant to invest in a plastic fishing boat before they know whether it is really safe and are sure it will have a long life-time. So it seems that the best way to introduce such boats is through government development corporations or plastic boat manufacturers. They should build a few prototypes and test them in fishing conditions at sea. This is the practical demonstration necessary to convince fishermen that there is a sound future for boats of plastic construction.

Few plastic fishing boats are in use today, apart from small dinghy-type boats which have been developed mostly for the pleasure trade. There are also, perhaps, a few lifeboats. While such lifeboats and pleasure craft have been exported to underdeveloped countries and have, in a few instances, been built there, one cannot say that plastic boats have been introduced yet. However, I am informed that at least one firm in south-east Asia is ready to start production as soon as they obtain the necessary orders. Incidentally, one difficulty with plastic boat production in tropical countries is that the resin has a tendency to get spoilt if not kept under refrigerated conditions.

High Price

The Fishing Boat Section of F.A.O. tries as far as possible to follow the development of new materials, and, as the Section receives from all parts of the world technical information on fishing boats, it gets many unofficial reports on the behaviour of various materials used in fishing boats. Two years ago F.A.O. naval architects made a rather extensive survey of the possibilities of using plastic. They

found that, while the weight and strength of small plastic fishing boats provided considerable advantages over wooden construction, the price was somewhat high. It was also evident that a design in plastic construction must be suitable for quantity production to justify the expense of starting production. Unfortunately, in the under-developed countries, the requirements of boats vary a great deal. Further, the cost factor limits the fishermen to having boats built and financed locally in a rather primitive way. These fishermen would not be able to purchase boats as people in the Western World purchase, say, cars.

Plastic Surf Fishing Boat

The Fishing Boat Section has not made any specific designs of plastic fishing boats, but is involved in the improvement and mechanisation of many small types of fishing boats. One important activity is the development of small motorised surf fishing boats of 20-24 ft. At present, prototypes made of wood are being tested but as soon as shape, engine power, fishing installations, etc., are satisfactorily established, an effort will be made to have this design converted into a plastic boat. It should be possible to develop a surf fishing boat capable of being used during long periods of the year. This boat would replace the present primitive beach landing craft, operated by hand or sail. If such a powered surf fishing boat is developed there might be a market for tens of thousands of such boats, built of plastic. They must be strong, light and cheap, and the glossy surface finish, so often admired on plastic pleasure craft, is not necessary.

Plastic might also have great possibilities in the mechanisation of fishing boats in under-developed countries. There are local types of boats which could take an engine if strengthened. If a re-inforced plastic hull could be fitted to the outside of the present wooden hull, it might be possible to mechanise such a boat.

("World Fishing" London May, 1958.)

Fish Imports Will Not be Reduced

Federal Government will not reduce fish imports despite claims by local fishermen that they are being forced to tie up boats because of a glut at the market. This was stated by "The Sydney Morning Herald" on June 6.

In the past 10 months to April, fish imports had risen by about 40 per cent to £5,309,000, the "Herald" said. The official view is that importers will themselves regulate imports as supplies become depleted, it added.

The glut of fish which struck the Sydney and Melbourne markets in May-June this year was one of the most sustained for years.

Three Factors

The reason the large quantities of fresh fish could not be shifted was due to three factors; insufficient cold storage space, insufficient fish cleaners and the public's reluctance to buy uncleaned fish. The public has become unaccustomed to buying fish in the round because local varieties have been scarce for so long. Fish-cleaners are a dying race and there were too few of them to handle the heavy fish supplies in the past six weeks. The cold storage scarcity is due to the big supplies of imported fish awaiting clearance, and the high charges which discourage fish merchants from hiring cold rooms permanently.

Claims by South Coast fishermen that they faced bankruptcy because it was unprofitable to send fish to Sydney for three or four days can be discounted.

The claim by Reg Adams, manager of the Ulladulla Fishermen's Co-op that half the fishermen there were "bankrupt", must have been misreported by the Sydney "Sun" and "Telegraph".

If Ulladulla fishermen are so close to "the rocks" how come they take annual holidays of two to four weeks each year? And how can they afford new cars every second year?

("Fish Trades Review" Sydney June, 1958.)