ENT, WESTERN AUSTRALIA

ERVICE BULLETIN

Vol. XII, No. 9 September, 1963

STAFF NOTES

The Director, Mr. Fraser, will attend the annual conference of country tourist bureaux to be held at Rockingham from September 13 to 15. The conference will be opened by Fisheries Minister Ross Hutchinson.

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Research Officer R.J. Slack-Smith and Technical Officer E.H. Barker returned to Perth from Shark Bay on August 16. Later Mr. Slack-Smith joined the H.M.A.S. "Diamantina" which sailed from Fremantle on August 20 to continue various research projects, including the crayfish phyllosoma work. However, due to extremely bad weather the "Diamantina" had to put back to Fremantle on August 23. Apart from a few drags with a dredge outside the mouth of the Murchison River, no work was possible. Mr. Slack-Smith and Mr. Barker will fly to Onslow on October 6 to meet the "Diamantina" when she will be returning from Singapore and Darwin. Dr. R.G. Chittleborough of the Fisheries Division, C.S.I.R.O. and Dr. R.W. George, Curator of Invertebrates at the Western Australian Museum, will also be on board.

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We regret to announce that Miss H.M. Sivwright, Librarian of Head Office, has resigned from the public service. She will cease work on September 27 and will fly the next day to Port Moresby to undertake a six-month course in teaching, after which she will be attached to the Sacred Heart Mission in Papua for a three-year term.

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We regret to advise that Mrs Baird, wife of the Pearling Superintendent, Broome, recently suffered a severe fall and was confined to bed. As a result, Mr. Baird will not be able to be present at the 1963 school for fisheries

field officers which he had been selected to attend. His place will be taken by Inspector T.B. Baines, of Shark Bay.

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Officers to commence annual leave this month include Technical Officer J.S. Simpson, on September 10; Assistant Inspector R.G. Emery, on September 23; Inspector T.B. Baines, of Shark Bay, and Assistant Inspector J.T. Kelly, of Geraldton, on September 30.

Officers to begin annual leave next month include Inspector G.C. Jeffery, of Mandurah, on October 7; Inspectors F.J. Campbell, of the p.v. "Vlaming", and E.I. Forster, on October 14 and Inspector D.P. Gordon, of Bunbury, on October 21. Inspector Jeffery will enter upon three months' long service leave immediately after completion of his annual leave.

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The Administrative Officer, Mr. Saville, will visit Geraldton on September 18 in connection with the installation of new statistical records. He will be accompanied by Fleet Maintenance Officer A.J. Bateman, who will make a routine inspection of p.v. "Dampier".

AMENDMENTS TO REGULATIONS

New and amending regulations made under the Fisheries Act will be published in the Government Gazette on September 3. The regulations will come into force on January 1, 1964.

Some of the amendments apply only to professional fishermen, others to amateur fishermen, while some apply to both. Their main features will be:

A. FOR PROFESSIONAL FISHERMEN:

1. Special licenses will be required for craypots used by commercial fishermen. An annual fee of 2/- for each pot will be payable, with a minimum fee of £2.

2. Licensed fishing boats, except those propelled solely by oars, will be required to have their distinguishing letters and numbers not less than six inches in height. Rowing boats will need to have letters and numbers not less than four inches in height.

3. Monthly returns of operations relating to the catching, selling and processing of all classes of seafoods will be required.

B. FOR AMATEUR AND PROFESSIONAL FISHERMEN ALIKE:

1. All craypots, whether used by commercial or amateur fishermen, will have to be legibly marked, and kept marked, either by branding or stamping on every float, whether on or below the surface of the water -

   (a) in the case of a professional fisherman, each pot shall bear the letter of the port at which the license was issued, followed by the distinguishing number of the boat used in the setting of the pot, or

   (b) in the case of an amateur fisherman, his license number.

2. A person catching or attempting to catch crabs, marron or prawns shall not use -

   (a) in the taking of crabs or marron more than six drop nets or traps or more than one landing net, and

   (b) in the taking of prawns, more than one scoop net, dredge net or dip net.

C. FOR AMATEUR FISHERMEN ONLY:

1. An amateur fisherman's license must be held by each person catching fish for his personal use by nets (including scoop nets, drop nets, and the like more than 2ft. in diameter), craypots and marron traps. The fee will remain unchanged at 10/- a year.

2. Every amateur fisherman's license shall be subject to the following conditions:

(a) That no net having a length greater than 100 yards and with any mesh smaller than 2¼ inches shall be used in any estuary, river or inlet or in the entrance waters thereof.

(b) That no net having a length greater than 132 yards and with any mesh smaller than 2 inches shall be used in any other waters.

(c) That not more than two crayfish pots or six drop nets or traps for taking crabs or marron or one scoop net or dredge net for taking prawns shall be used or carried in any boat at any one time.

(d) That not more than two gallons of prawns shall be taken on any one day.

(e) That no fish caught while any fishing net or other article mentioned in this sub-regulation is being used shall be sold or consigned, offered or exposed for sale.

(f) No set net having meshes less than 2½ inches may lawfully be used in the open waters of the Swan or Canning Rivers or Peel or Leschenault Inlets.

(g) Every float attached to a crayfish pot shall be legibly marked or branded with the number of the license.

Leaflets to explain the new regulations are not yet prepared but it is hoped that they will be available for issue to amateur fishermen well in advance of the New Year.

RANGE OF RARE TORTOISE EXTENDED

On Sunday, August 4, Mr. R.J. Richardson, of Pechey Road, Swan View, noticed a tortoise crawling across a paddock at the rear of his property. He kept the animal, and the next day his daughter Jenny, aged 10, took it to school. The Headmaster, Mr. T.C. Young, noticed that it was not one of the common long-necked tortoises and immediately contacted the Western Australian Museum. In view of the prohibition against the collection of short-necked tortoises, Mr. Young brought the animal to the Department for identification

and it was confirmed that this was indeed a specimen of the Short-necked Tortoise (Pseudemydura umbrina).

Subsequently, Fauna Officer H.B. Shugg and Fauna Warden S.W. Bowler visited the school and were taken by Miss Richardson to her home and shown the spot where the tortoise had been found. They reported that it had been picked up in fairly dense capeweed (Cryptostemma calendula) growing under passion vines about fifty yards north of Jane Brook. Fortunately, Mr. Richardson had sighted the animal when it was crossing a bare patch of ground.

Mr. Richardson's property is approximately nine miles south of the southernmost limit of the previously known range of the species. In addition to its being far distant, the environment appeared to be quite different. Perhaps the outstanding variation was that this section of Jane Brook is in the foothills of the Darling scarp, whereas all the previous specimens had been taken on the coastal plain. We have not failed to note that no specimen has yet been taken more than half-a-mile from a brook and it seems possible proximity to water may be an essential part of the animal's ecology.

It is understood that further searches along Jane Brook have been made by school children from the Swan View School, but without avail.

FISHERMEN'S ADVISORY COMMITTEE TO MEET

Tentative arrangements have been made to hold meetings of the Fishermen's Advisory Committee next month in Geraldton and Fremantle.

It is proposed that the Committee should fly to Geraldton on October 7 and hold meetings in Geraldton and possibly in Dongara. They will fly back to the city on the evening of Wednesday, October 9, and hold meetings in Fremantle on October 10 and 11. Any person who wishes to give evidence to the Committee on any matters affecting the State's fisheries may do so by making an appointment either with Inspector A.V. Green at Geraldton or at Fremantle with Senior Inspector A.K. Melsom.

VICTORIAN COLLECTORS IN THE KIMBERLEY

Licenses were issued last month to authorise two collectors from the National Museum of Victoria to collect fauna in the Kimberley Division. The recipients of the licenses were Mr. Charles Tanner, Honorary Associate in Herpetology, and Mr. A.J. Coventry, Professional Assistant. The Director of the National Museum, Mr. J. McNally, advised that Messrs Tanner and Coventry would be collecting in the Kimberleys for the primary purpose of obtaining specimens of reptiles. They would also collect birds and mammals if the opportunity occurred. The licenses were issued subject to the usual conditions, one of which protects all rare fauna, while others ensure that the material is made available to science, that full details of the collections are supplied to this Department, and so on.

NETTING RESTRICTIONS COME TO THE KIMBERLEYS

Under the provisions of a Proclamation issued last month, a five-year ban on the use of nets in the Fitzroy River within three miles of Langi Crossing was introduced.

This is the first restriction of its kind to apply in northern waters. It was imposed at the request of Derby anglers to prevent undue depletion of the most highly prized fish in the north, the barramundi, which migrates up rivers during seasonal flooding. The closure will be enforced by the Pearling Superintendent at Broome, Mr. R.J. Baird, who will rely to a large extent on local assistance in policing the measure.

FLORA PROTECTION

Under the terms of a Proclamation published in the Government Gazette of August 16, 1963, the protection afforded to native flora under the Native Flora Protection Act, 1935-1938 has been amended.

Henceforth, all wildflowers and native plants are protected:

(a) in all Crown lands and State forests; in all lands reserved for a public purpose under the provisions of the Land Act, 1933, or any other Act; and in every roadway within the South-West and Eucla Divisions.

(b) In all flora and fauna reserves throughout the State.

The picking of wildflowers and native plants on private property may legally take place only with the authority of the landowner or occupier.

BUNBURY PROTESTS AT SOUTHERN CRAYFISH CLOSURE

The Minister for Fisheries, Mr. Ross Hutchinson, has continued to receive protests from and on behalf of Bunbury fishermen against the inclusion of crayfish grounds between the 33rd and 34th parallels in the close season from August 15 to November 14 inclusive.

There has been much argument between correspondents in daily newspapers as to who should receive the credit for developing these southern grounds. The departmental view is that this and other points raised in the protests are of little significance when compared to the well-being of the industry as a whole. When close seasons have to be applied over a wide area, they are bound to be less suited to some parts than others.

Much the same situation arises in the open season for wild ducks, which falls a little late for shooters in the Geraldton district and somewhat early for shooters in other areas. It would be absurdly costly economically and administratively to attempt to suit the season to local conditions. Local variations in fish behaviour, such as the stated later spawning run of crayfish in the Bunbury area, are best covered by the type of measure which protects the spawning females irrespective of the time of the year in which spawning takes place.

The main purpose of the close season is to limit fishing pressure so as to conserve stocks. The effectiveness of the closure does not depend on its being related to the main spawning run, for spawning females may be protected, as indeed they are, by other measures. While there may be other arguments to support the Bunbury crayfishermen's claims that the close season does not suit their grounds, we consider that uniformity is essential to protect the industry as a whole.

USE OF EXPLOSIVES PROHIBITED

Last month, the Minister for Fisheries, Mr. Hutchinson, issued a warning to underwater explorers against using explosives without a permit. He drew attention to the provisions of Section 26 of the Fisheries Act, which prohibits the use of dynamite or any explosive substance in Western Australian waters. He said that he had been disturbed to learn that explosives had been used in connection with the recovery of historical material from wrecks in crayfishing areas. Mr. Hutchinson has directed that all inspectors patrolling the Abrolhos and other crayfishing grounds report any further cases for prosecution.

Inspectors should also point out to spear-fishermen that the underwater use of explosives to propel spears or other missiles is illegal.

TURTLE IDENTIFIED

On June 3, Mr. R. Kidman of White Lodge, Darlington, found a small turtle on the beach near Quinn's Rocks, a few miles north of Fremantle.

Dr. G.M. Storr, Curator of Reptiles at the Western Australian Museum, advised last month that the animal had been identified as a juvenile loggerhead (Caretta caretta). Dr. Storr added that young green turtles and loggerheads were liable to be carried south by the northerly drift in winter and to be cast ashore during storms. He added that no marine turtles were known to breed south of the Abrolhos.

BETTER OPENING AT WILSON INLET

Fishermen, Shire officials and other interested persons consider that the opening of the bar at Wilson Inlet this year was more efficacious than in previous years. This advice was conveyed to us last month in a report from Inspector B.A. Carmichael, of Albany. Mr. Carmichael said that the opening had been undertaken by the Public Works Department on July 4 and that the cut was made seven chains closer to the western cliffs than normally. Mr. Carmichael added that there was an impression in Denmark that the channel would be opened in successive years closer to the cliffs, so that eventually the old channel would be brought back into use. He could not obtain confirmation of this suggestion from any authority, but apparently it remains the impression of local townsfolk.

Mr. Carmichael said that various fishermen reported considerable success following the opening. One man meshed 2,000 lb. of mullet in one set, while others reported that whiting and flounder appeared to be plentiful and that salmon trout (juvenile Australian salmon) were said to be moving into the inlet in considerable numbers at that time.

PLAUDITS

Public servants everywhere tend to grow a little case-hardened against criticism. We realise that we are to some extent "Aunt Sallies", and as such are subject to obloquy from those whose activities we have to control or restrict. Nevertheless, we are pleased to receive the odd encomium when it comes along. Just lately we seem to have had more than a few words of praise. The latest has come from the Katoomba Wildlife Conservation Society, New South Wales. The Society had read of our work in connection with the conservation of the Noisy Scrub Bird, and on behalf of the Society and its committee, the secretary wrote to congratulate the State on the stand that had been taken.

Other kindly comments have come from the Wildlife Preservation Society of Australia, and from F.J. Schwartz, Curator of Fishes in the University of Maryland, U.S.A., who have been impressed by our efforts to conserve the Short-necked Tortoise.

NOTES FROM THE NEWS

Many questions relating to the fishing industry were asked in the first few days of the current session of Parliament. On August 7 and 8, for instance, 27 questions were asked by four different members. 14 of these related to crayfishing, five of them to the recently introduced closure of the area near Bunbury, four questions related to the snapper fishery, and two to the prawn fisheries. Other questions concerned imports, prosecutions and general matters.

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In the Fremantle Police Court on August 5, the regulations relating to the legal minimum crayfish size and weight of craytails were subjected to criticism by counsel for James, Bowes Pty., Ltd., of Geraldton. They were nevertheless upheld by Stipendiary Magistrate T. Ansell, who convicted the company on two offences relating to the possession of underweight tails, imposing a fine of £10. in each case, with additional penalties of £24. and £67.15.0d respectively.

The 25-foot fishing boat "Telaviv" was wrecked in Geraldton last month. Owned by Mr. C. Wyder, the boat sank when seas rose and swamped her while she was moored near the slip. A newspaper report of the loss said that due to a misunderstanding, the "Telaviv" had been left unattended.

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The 27-foot crayfishing boat "Marion" drifted helplessly in rough seas for two and a half days last month when her motors failed shortly after she had sailed from Lancelin for Fremantle. After being beset by gale-force winds and blinding spray, the "Marion" was eventually located by aircraft of the Department of Civil Aviation, and taken in tow by the State Ship "Koojarra".

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Inspector T.B. Baines, of Denham, was an eye-witness of a tragedy which occurred in South Passage (Shark Bay) on August 29. The 20-foot speedboat "Mooka" with two men aboard crashed into a ledge of rock shortly after they had set off from the p.v. "Garbo" at 8 p.m. to return to Denham. The passenger in the craft, Mr. R. Smith, of Koorda, was killed while the owner-driver, Mr. J. Ludemann, received head and chest injuries. He was picked up by Mr. Baines and taken on the "Garbo" back to Denham. Unfortunately, the "Garbo" was stranded in a low tide on a bank eleven miles from Denham and her arrival at that Port was delayed until 11 a.m. the following day. Mr. Ludemann received earlier treatment, however, as a speedboat which had been hailed brought Sister Rowley, of the Silver Chain District and Bush Nursing Association, to the "Garbo" while she was still some miles offshore. After landing, he was taken to Carnarvon district hospital by the Flying Doctor Service.

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The 26-foot fishing boat "Vagabond", owned by E. Campbell, was sunk at its moorings in Jurien Bay on August 24. The vessel foundered in a storm which isolated the small community at Jurien Bay for some days.

Honorary Fauna Warden H. Hastings, who was helping to batten down crayboats at the time, suffered a stroke but refused offers to be flown to Perth for treatment.

SMALL PETROL ENGINE HAS POSSIBILITIES

It was reported in the "Land" newspaper of Sydney in its issue of August 1 that a small American petrol engine had already made a big impact on the Australian market. Known as the "compact power unit", it had only recently been given its first Australian demonstrations. The engine develops $\frac{3}{4}$ h.p. at 6,300 r.p.m., and uses only one pint of two-stroke fuel per hour. It weighs $3\frac{3}{4}$lb. and among other things is said to be capable of -

- pumping water at the rate of 1,800 gallons an hour;
- heaving a direct load in excess of half a ton;
- drilling $2\frac{1}{4}$-inch holes in hardwood;
- digging 6-inch post holes, 30 inches into the ground;
- delivering an electric current of 350 watts.

The manufacturers are a Los Angeles firm, said to be the world's largest makers of model aero engines. According to the report in the "Land", the range of the unit includes an electrical generator, centrifugal and impeller pumps, chain saw, timber and steel drills and winch and earth worm. The Company is also said to be developing a portable shearing head.

At present the motor is being sold with each appliance, as slight modifications are necessary for each unit, and prices range from £50. for the small pump to £130. for the winch. The report added that one hundred thousand of the units were sold in California alone since it came on the market late last year.

NOR'-WEST CEASES WHALING

Humpback whaling operations ceased at the Nor'-West Whaling Station at Babbage Island (Carnarvon) on August 8. This was announced last month by the Managing Director of the Company, Mr. R.B. Moore, who said that the whaling future of his company depended on the economic possibilities of catching sperm whales.

Mr. Moore said that only 64 humpbacks had been taken in the six weeks of the season, a drop of more than 200 on the figures for the corresponding period of last year. He said it had been brought home heavily to the company that humpback whales in the Antarctic had been depleted so much that they were just not available. He added that the company had taken 57 sperm whales for the season, most of them in June this year. As they travelled up to 200 miles off the coast compared with an average of 30 miles for humpbacks, greater costs were associated with the utilisation of this species.

Advice has also been received from the company that its prawn trawlers will cease operating for the season in Shark Bay on September 1. The company has been advised that all its prawn vessels may engage in crayfishing during 1963, subject to the usual 30th parallel restriction. Nor'-West has also been advised that if their vessels fail to engage in crayfishing, their licenses next year will be endorsed with the condition that the boats will not be permitted to take crayfish south of the 24th parallel.

Towards the end of the month, after his return from a meeting in London of the International Whaling Commission, Mr. Moore said that his Company would work closely with this Department and the C.S.I.R.O. in investigating the commercial possibilities of tuna fishing off the North-West coast. The most economical fishing methods would be investigated, he said, while markets would also need to be found. New boats and men with the necessary know-how would be required and for the venture to be profitable, big quantities of fish must be caught. Large concentrations of tuna occurred from 50 to 300 miles to sea, where they were being taken by Japanese longline tuna boats. He said that if an industry were established, it would be based at the Company's processing works at Babbage Island.

Overseas reports indicate that the tuna market in the United States is passing through a difficult time. Japanese interests who export large quantities of tuna to the U.S.A. noted with alarm the export of a large shipment of tuna to India. Apparently, it could not be absorbed at the time on the United States home markets.

PELICANS' NEST AT MANDURAH

On August 12, Inspector G.C. Jeffery, of Mandurah, reported that a fisherman had found a large number of pelican nests and eggs on the south-west end of Creery Island in Peel Inlet. Mr. Jeffery added that he had made an inspection of the rookery on August 9 and, as the birds were approached, 47 were seen to fly away. He found 102 eggs. A few days later, the number of eggs had been greatly reduced, and on a still later visit he noticed that all the birds had disappeared from the area and the eggs were broken. The cause of the destruction is unknown, but possibly foxes were in part responsible.

Nevertheless, on August 27 the Fauna Officer, Mr. H.B. Shugg, accompanied by Fauna Warden N.E. McLaughlan, and Dr. D.L. Serventy, of the Division of Wildlife Research, C.S.I.R.O. with his Technical Assistant, Mr. A.G. Matthews, went to Mandurah to inspect the rookery and to take photographs. The previously known southernmost nesting ground of the species is at Pelican Island, Shark Bay, which Warden McLaughlan states is similar to Creery Island in many respects. A second nesting site about 50 yards away was also seen, but this too had been deserted.

Unusually large numbers of pelicans were at the time still frequenting the Peel Inlet, and Dr. Serventy considers it possible that the birds might make a further attempt at nesting, either on Creery Island or elsewhere. To date, however, no further reports have come to hand.

As the birds were not previously recorded as having nested in this State south of Shark Bay, it was of particular interest to note an item published in the July, 1963, issue of the "Newsletter" published by the Nature Conservation Society of South Australia. The "Newsletter" said it was believed that pelicans had successfully reared young in that State last summer, the first time for an unknown number of years. This had followed the establishment of the breeding area as a sanctuary, to which all entry was prohibited except by permit.

FAUNA NOTES

The following notes were compiled from information given by Mr. W.G. Pearce, a pioneer settler of Woogenellup, about twelve miles east of Mount Barker. We think they are a valuable record of fauna occurrences in the earlier days of the State.

1. POSSUMS: Brush-tailed (*Trichosurus vulpecula*) and Ring-tailed (*Pseudocheirus occidentalis*)

1902 Ringtails plentiful in the area 12 miles east of Mount Barker.

1903 Caught many possums for their skins, but only one ringtail. The ringtail was the last seen in the district. There was scarcely any agricultural development at that stage, and habitat destruction could not have been the cause of the disappearance of the possums.

1910 First close season for possums. Numbers low, but not trapped out. They later disappeared from the district for a few years, but were known to be thick north of the Stirling Ranges in 1914, although they were scarce on the Kalgan plains.

1928 Fair numbers back once more (no ringtails), but population lowered again following the incursion of foxes. No disease was seen. Mr. Pearce poisoned extensively for rabbits, using apples treated with "Grim", which was also responsible for killing a great number of possums. He said that he was most upset at the time to find possums poisoned, but it was the only effective method of controlling rabbits then known.

2. WOILIES: Kangaroo-Rats (Bettongia penicillata)

1902 These animals plentiful; their stick nests common in the bush.

1903/4 Disappeared. Cause unknown.

(About) 1929 Just before the arrival of foxes in numbers in the district, kangaroo-rats were again seen in small numbers, but disappeared again once the fox became well established.

3. DALGITES (Macrotis lagotis)

1902-1903 Old burrows in the district, but no dalgites seen.

1909 A few sighted and remained until foxes came. Actually saw one dead dalgite which had been killed by foxes on his property and presumed that foxes were mainly responsible for their disappearance.

4. TAMMAR (Protemnodon eugenii)

Never many; now seem to have disappeared entirely from the district.

5. QUOKKA (Setonix brachyurus)

They might have occurred, but not sure of it.

6. NUMBAT (Myrmecobius fasciatus)

Definitely were some in the earlier years, but none seen for a long time.

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In his diary for the week ending August 3, Assistant Inspector D.H. Smith, of Albany, reported having observed 3 Black Swans in Princess Royal Harbour. This was the first sighting, he said, of swans in the harbour since the winter migration.

YELLOW-NOSED ALBATROSS

In his diary for the week ending August 3, Inspector A.T. Pearce of the p.v. "Dampier" reported having observed 4 flocks of between 25 and 30 Yellow-nosed Albatrosses en route to Wallabi Islands.

CORAL CRAY STANDS ALOOF

In the July, 1963, issue of this Bulletin we published a gloomy forecast by Dr. R.W. George, Curator of Invertebrates at the Western Australian Museum, concerning the prospects of a crayfishery in our northern waters. Dr. George had recently returned from Aden where he had inspected a similar fishery and considered that there was very little prospect of developing a worthwhile fishery here.

His forecast has been supported by the results of experimental fishing tests carried out in the Onslow-Cossack region by a research unit headed by the Senior Research Officer, Mr. Bowen. Mr. Bowen reported that very few painted crayfishes were found. This was due to some extent to the murkiness and churned-up nature of the water, and to the failure of the crayfish to be attracted into any of the pots which were being used. In addition to the conventional beehive pot, Aden-type pots and Canadian lobster traps were set.

The Aden pot is heart shaped with a side entrance. It is used with success in the East Aden Protectorate to catch the coral crayfish (Panulirus homarus). This species exists in small numbers in the area tested and is known locally as the Onslow crayfish. The Canadian lobster trap, or as it is often called "the bedroom and parlour trap", is rectangular in shape and divided into two compartments. It has two side entrances both leading into the one compartment.

The Canadian trap is used on the west coast of Ceylon where Panulirus homarus is the dominant species. In our northern waters, the green crayfish Panulirus versicolor is the most abundant but as far as we know this species has never been caught in any type of baited trap.

CRAYFISH AND SNAPPER PRODUCTION

Figures just completed for the 12 months ended June 30, 1963, show that there was a substantial increase in production of crayfish and snapper as compared with the immediately preceding 12-month period. Many fishermen and processors have complained of reduced crayfish catches last season. Fears have been expressed, too, that continued trap-fishing at Shark Bay could result in the ultimate elimination of snapper by destroying the habitat.

The following figures speak for themselves -

Year	Production	
	Crayfish	Snapper
	lb.	lb.
1962-3	20,512,181	1,385,711
1961-2	19,237,604	1,072,141
Weight increase	1,274,587	313,570
Increase %	6.6	29.2

THE U.S. MARKET FOR CRAYTAILS

The table opposite has been drawn up from information gleaned from the Market News Service of the Bureau of Commercial Fisheries in New York, U.S.A. It summarises the prices paid during July, 1963, when the market was described as "stocks liberal, market steady".

A similar summary of the prices holding in January, was published in the March issue of this Bulletin. Reference to it indicates that prices were from 5 to 9 cents a lb. lower in July than they were in January when the market was said to be "dull".

SPINY LOBSTER TAILS

U.S. Market Prices, New York Area - July, 1963

Country of Origin	Tail Prices per lb. (in U.S. Dollars) * of Grades						
	2-4 oz.	4-6 oz.	6-8 oz.	8-10 oz.	10-12 oz.	12-16 oz.	16-20 oz.
	$	$	$	$	$	$	$
Australia	-	1.42 to 1.45	1.42 to 1.45	1.42 to 1.46	1.60 to 1.64	1.62 to 1.65	1.33 to 1.35
Brazil	1.15 to 1.21	1.25 to 1.30	1.28 to 1.33	1.33 to 1.37 few higher	1.42 to 1.50	-	-
Nicaragua and Costa Rica	-	1.23 to 1.24	some to 1.27	some to 1.30	-	-	-
New Zealand	1.30	1.33 to 1.36	1.35 to 1.38	1.39 to 1.43	1.60 to 1.62	1.60 to 1.65	1.30 to 1.35
	Largest pack over 20 oz. @ up to $1.30 per lb.						
West Indies Federation	-	some to 1.25	some to 1.25 to 1.30	some to 1.32 to 1.37	some to 1.42 to 1.47	some to 1.42 to 1.47	some to 1.30 to 1.35
South Africa	-	some to 1.40, 1.45, 1.50	1.57+ to 1.60	1.65+	-	-	-
Thailand	some to 1.00 (1-2 oz. pack)	-	-	-	-	-	-

\- No price quoted or not marketed.

* U.S. Dollar approximates 8/10d Australian

\+ Packs are assembled in different weight ranges, viz.

4-$4\frac{1}{2}$ oz. = some to $1.40 ; $4\frac{1}{2}$-$5\frac{1}{4}$ oz. = $1.45;

$5\frac{1}{4}$-$6\frac{1}{4}$ oz. = $1.50; $6\frac{1}{4}$-8 oz. = $1.57 to 1.60;

8-9 oz. = $1.65;

Source: Market News Service, New York.

DUTIES, OBLIGATIONS AND LOYALTIES AS PUBLIC SERVANTS

1. The first duty of a public servant is to be loyal. He must give undivided allegiance to the State, to his Department, to his permanent head and to his fellow officers at all times, and carry out promptly all lawful instructions.

2. A public servant is re uired to develop and maintain

   - knowledge and understanding of his job;
   - efficient working habits and methods;
   - the ability to accept responsibility;
   - good public relations;
   - care of Government property.

3. A public servant's private activities and associations must not conflict with the interests of the Service, or be inconsistent with his position, or impair his usefulness as a public servant.

4. Public servants are not at liberty to engage in private activities during hours of duty.

5. No public servant may engage in private employment or receive and retain payment for services rendered without prior approval.

6. No official information is to be disclosed except with the express permission of the permanent head or in the course of duty.

7. Public servants are not permitted to publicly comment upon the administration of any Department.

8. The use of Government stationery, stamps and equipment for purposes other than official business is prohibited.

9. Interviews and conversations with salesmen, agents or friends during hours of duty are to be avoided.

CLEARING HOUSE

EXTRACTS FROM -

"SILENT THREAT"

Wildlife is facing its most serious threat - not from hunters, poachers, or even the advance of the urban sprawl, but from science.

This comes as a major warning from the President of the International Union for the Conservation of Nature. He refers particularly to the massacre of the animals and birds by poison and sprays.

Now, at last, the ever-increasing broadcasting of toxic killers is creating an uproar, not only in the United States but in Britain and Australia.

In Britain, after last year's toll of bird life, legislation was passed prohibiting the use of three of the most dangerous unselective and popular chemicals during spring. America has taken similar measures.

In New Zealand, freshwater fish, more susceptible to D.D.T. suffered most. The poison was applied lavishly to combat the advancing army of grass bugs and in the interests of the nation's economy. Only a few cared what the result of this spraying would do to the fish and fish food in the streams that meandered through the farmlands.

It was not until the Americans refused to take D.D.T. tainted meat that man moved and the fish have been granted a temporary reprieve.

Now, fortunately, because of Rachel Carson's fine book, "The Silent Spring", and the uproar it has created, the average man in the street has realised that pesticides affect him, too.

Dr. George Wallace, Professor of Zoology, Michigan State University, calls the threat worse than "deforestation, worse than market hunting and illegal shooting, worse than drainage, drought, oil pollution and possibly worse than all of these decimating factors combined."

He said: "We shall have been witnesses within a single decade to a greater extermination of animal life than has occurred in all the previous years of man's history on earth."

(Ammohouse Bulletin, Wellington, March, 1963)

THE BURROWING HABITS OF SHRIMP

American research has shown that penaeus shrimp burrow in the sea bed during daylight and become active at night. This behaviour is described in the following article, based on a paper presented to the Second World Fishing Gear Congress in London in May 1963 by Charles M. Fuss, Jr. of the Gear Research Station of the U.S. Bureau of Commercial Fisheries, Florida.

The data given in this paper are part of the current investigation and they deal with the burrowing behaviour and responses to mechanical stimuli of pink shrimp. Other objectives of the study will include observations on the mechanics of trawl escapement and diurnal vertical migrations.

Pink shrimp (Penaeus duorarum) used in this study were obtained by night trawling in St. Andrew Bay, Florida. The shrimp were removed to an observation area located in 3 to 4 m. (10-13 ft.) of water approximately 1 mile from the capture area. While under observation, shrimp were placed in 3ft. square bottomless metal frame cages covered with small mesh net. The cages were secured to the sea bottom in the observation area by pushing their legs into the sediment.

Observations were made at half-hour intervals during 24-hour periods by divers using self-contained underwater breathing apparatus. Underwater flashlights were used at night, with the illumination interval kept at a minimum. Diver observation proved more efficient than closed circuit television, as a diver can position his face mask within a few inches of the animal and can easily view the area from various angles. Five measured shrimp were placed in the cage at approximately 1300 hours on the first day of the observation period. At the end of the period the cage was removed and the depth of burrowing was measured with a millimeter ruler.

To determine responses to mechanical stimulation burrowed shrimp were probed with a diving knife or disturbed by lengths of chain that were dragged over them. These responses were also recorded with an underwater cine camera.

Methods of burrowing

Shrimp released on the bottom during daylight hours usually burrow immediately using one of two general methods. In one approach the animal grasps the seabed with the walking legs, thereby holding itself in position while setting up a water current with the swimming legs. The induced current, flowing beneath the body, scours an initial furrow into which the animal settles. The shrimp then ploughs ahead into the front end of the depression, using the walking legs to force itself further into the sediment. At the end of the ploughing phase of the burrowing process, the shrimp settles vertically into the sediment using its walking legs to force the bottom material laterally and upward around its body. Immediately after the shrimp burrows, there is a slight furrow between two small mounds marking the anterior-posterior plane of the shrimp body. Within a short time all external signs of the burrowed shrimp have usually disappeared and visual detection is very difficult.

The second observed method of burrowing differs from the first by the elimination of the scouring phase, with the animal ploughing immediately into the bottom and then settling.

Depth of burrowing

All shrimp were observed to burrow to just below the surface of the seabed. In most cases even the antennae and eyestalks were completely concealed. Depth of burrow ranged from 38 to 45 mm. ($1\frac{1}{2}$-$1\frac{3}{4}$in.). No significant changes in burrow depth were observed with differences in bottom material, except that a number of various-sized shrimp, released on hard sand, experienced difficulty in penetrating the bottom.

Day and night behaviour

Pink shrimp observed in this study remained burrowed during daylight hours and showed varying degrees of night activity. To the nearest half hour, the mean time of emergence for all animals studied was 1900 hours, and the mean time of burrowing was 0430 hours. Activity periods ranged in length from 3.5 hours to 10.5 hours with a mean of 9.3 hours. Times of maximum activity ranged from 1900 to 2315 hours. The size of the animal, within the ranges studied, seems to have little effect on the extent of burrowing or activity.

From data obtained, a correlation between moon phase or light level and activity can be derived, activity being generally more restricted during full moon than during new moon.

Mechanical stimulation

Initial stimulation to the dorsal body surface of burrowed pink shrimp caused the animal to withdraw immediately into the bottom sediment. If the stimulation was continued for a few seconds, or applied to the side of the burrowed shrimp, an escape reaction in the form of a vertical hop would usually take place.

A water circulation mechanism was observed in burrowed pink shrimp. Two small holes in the substrate were usually visible above burrowed shrimp (one near the tip of the rostrum, the other usually to the side of the rostrum) but occasionally at other positions around the animal. Dye injected into the water above the burrowed animal, in an attempt to determine which opening served as the inhalant syphon, showed that the hole near the tip of the rostrum is generally the inhalant opening, but the flow is reversible, apparently for clearing the channel of debris.

It was observed that shrimp will occasionally use one of the first walking legs to help form the lateral opening of the circulation system. There also seems to be a cavity below burrowed animals which serves some function in the system. Dye injected into the sediment just below the abdominal segments would be ejected from one of the system openings.

Deepest in sand-shell

All of the burrow measurements made in this study show that pink shrimp penetrate the bottom so that their dorsal surfaces are just below the surface of the bottom. Williams (1958) found that pink shrimp tend to burrow deepest in sand-shell type bottoms. His laboratory experiments showed that some animals often buried as deep as the bottom of the container (2 in.) and he suggests that bottom type may influence burrowing depth. Observations on sand-shell bottoms were not made during this study.

There are a number of records of pink shrimp being taken in trawls during daylight hours, under muddy water conditions and on cloudy overcast days. On one occasion daytime fishing produced more pink shrimp than either the preceding or following nights. Various reasons have been proposed for the phenomenon, including ground swell and low light intensity.

Ticklers ineffective

Burrowing as an effective means of trawl escapement by P. duorarum has been mentioned, and may explain spotty catches on the shrimping grounds if burrowing periodicity is intermittent. The use of tickler chains on conventional shrimping gear apparently has little effect on burrowed individuals.

The objectives of the Shrimp Behaviour Project are to improve the efficiency of shrimp trawling gear and methods and to develop more effective gear on the basis of a better understanding of the habits and responses of the species sought. Documentation of the degree of bottom penetration, duration of burrowing, and response to mechanical stimuli of the pink shrimp will provide valuable information in the modification and development of tickler devices used with standard and experimental shrimp trawls.

(World Fishing Grimsby August, 1963)

APPARATUS RECORDS FISH SOUNDS

Sounds produced by fish and sea animals in natural conditions have been recorded by Soviet scientists by means of a portable apparatus the size of a small tape recorder.

It has advantages over the bulky apparatus used up to now which was installed on wooden vessels excluding mechanical noises. It can be used from aboard any boat on the sea or from a gangway on a lake.

Scientists studied the largest reservoirs in the European part of the Soviet Union, northern and southern seas. They succeeded in recording sounds of submarine dwellers which formerly they could hear only in laboratories. These included sounds produced by haddock, coalfish and cod. It was established that beluga, for instance, produces four kinds of sound, including that of a locative type.

Experts believe that the portable apparatus can be used for commercial purposes, for working out a system of attracting or scaring away fish and sea animals. They also believe the study of the signals from water depths opens up prospects for creating means of submarine communications.

(The Fishing News London, July 26, 1963)

THE "PROPERTY RIGHT" PRINCIPLE

When Commissioners of the International Pacific Salmon Fisheries Commission presented their case for the Commission's $750,000 five-year rehabilitation program to the Canadian and American governments, they included a statement expounding the "property right principle" in the case of salmon on the high seas:

Being an international commission, we are deeply concerned about the lack of adequate international laws required for the control of high seas fisheries. Because of the intricate biological, economic, and political nature of the salmon fishery we cannot visualize a proper salmon management program operating under a circumstance which permits high seas exploitation by several nations even if those nations were by chance limited to Canada and the United States.

It is for that reason we recommended action several years ago to prevent the development of a high seas net fishery by Canadian and American fishermen, also why we are currently recommending the completion of the necessary regulation in the United States to prevent a similar development of the salmon longline fishery. Canada has already prohibited longlining for salmon by its citizens on the high seas.

We have a treaty at present with Japan which protects North American salmon stocks from high seas exploitation by the fishermen of that country. We do not have protection from the fishermen of other countries. It would appear in the development of a needed international legal code regarding fisheries of the high seas that in the case of salmon a property right should be established by the country of origin. We are restricting our own fishermen from harvesting salmon on the high seas except with hook and line on the realistic grounds that such operations will not permit proper management of the many stocks or races of salmon.

Furthermore we believe that every effort should be made to prove by action that many if not all the salmon stocks in a highly developed region can only be maintained by careful protection and development of the areas of reproduction. We think that our program will do just that - and soon - with the inevitable result that the property right principle in the case of salmon will gain increasing recognition in future international legal consideration.

(Western Fisheries, Vancouver, June, 1963)

COLD WATER KILLS FISH OFF JAPAN

A sharp drop in water temperatures off Japan is playing havoc with fish, and has caused a drastic decline in catches by Japanese fishermen.

Fishermen last month sailed up to 100 miles off the coast in search of a warm current, known as the Black Stream, which always brings fish with it. They found that the current had fallen back more than 60 miles from its usual northern extremity. As a result, water temperatures all around the Japanese coasts fell sharply.

Dead fish, victims of the cold water, were found floating on usually prosperous fishing grounds.

The abnormal fall in water temperatures began in January and still continues. The Japanese meteorological agency is making a survey of sea currents off Japan in the hope of discovering the reason for the change.

(Western Fisheries, Vancouver, June, 1963)

FISH PRODUCTION COMPARES FAVORABLY WITH MEAT

Since World War II and especially after 1950, world fishery production has more than doubled to reach a total of 41.2 million metric tons (90.8 billion pounds) in 1961. With the great emphasis on fishery expansion by developed and developing countries, experts are of the opinion that this production will continue to increase and may further double within the next several decades. The fisheries have a significant role in feeding the expanding populations of many regions of the world, and contributing to the battle against protein deficiency, a malady that affects an estimated two-thirds of the world's peoples.

Estimated World Production of Aquatic and Land Animals, 1956 and 1960

COMMODITY	1960	1956
	1,000 Metric Tons	
Aquatic animals 1/:		
Fish	34,210	26,640
Shellfish	3,190	2,760
Aquatic mammals (except whales)	100	80
Total aquatic animals	37,500	29,480
Land animals:		
Beef and veal 2/	31,125	29,450
Pork 2/	30,900	24,475
Mutton and lamb 2/	6,775	5,725
Poultry 3/	5,900	5,100
Offal, edible 4/	2,650	2,460
Meat, other 5/	550	765
Total land animals	77,900	67,975
GRAND TOTAL	115,400	97,455

1/ Data are in live weight. Fish for fish meal and other industrial uses included.
2/ As far as could be ascertained, refers to production in terms of carcass weight, excluding lard, tallow & waste.
3/ Generally given in terms of dressed weight.
4/ Includes hearts, livers, etc.
5/ Includes horse, rabbit, game, reindeer, camel, etc.
NOTE: Data for some countries estimated from other years. Data on fishery products include estimated production of Mainland China; data on other commodities do not.
SOURCES: FAO Yearbook of Fishery Statistics, Vol.XIV, 1961; and FAO Production Yearbook, Vol.14, 1960; and Vol.15, 1961.

The role of aquatic and land animals in the world's production of meat protein is available for 1956 and 1960. During that period, production of aquatic animals (fish, shellfish, and aquatic mammals, excluding whales) increased 27.2 percent, whereas production of land animals increased 14.6 percent. In relation to the various categories of land animals, production of aquatic animals leads the category of beef and veal by over 6 million metric tons and pork by about 6.6 million tons.

(Commercial Fisheries Review, Washington, July, 1963)

BILL TO PROTECT YOUNG SHRIMP

One of the hardest fought Bills ever to come before the Senate Game and Fish Committee was up for floor debate at press time, in the Texas Legislature. If passed, the Bill will close shrimping in Texas Gulf bays during an eight-months' period in an effort to protect young shrimp.

Sponsored by Sen. Jim Bates of Edinburg, the Bill also raises the minimum count size from 50 to 65 headless shrimp a pound to accommodate new findings that growth rate exceeds mortality rate until shrimp attain the 65-count size.

The closed season would extend from December 15 to August 15 to protect small brown shrimp which fill the bays from March through June, and to protect small white shrimp which are abundant during June through August.

The Bill would prohibit night shrimping to seven fathoms all year, and in the daytime during December and January. During the closed Bay season, the bay landings would be limited to live shrimp, and bait boats would be required to maintain their catches in a live condition.

(Fishing Gazette, New York, June 15, 1963)

WASHINGTON BULLETIN

Protection of estuaries essential as spawning grounds and nursery areas for valuable fisheries and recognition of the joint interest of sport and commercial fishermen in pesticides and pesticide research were stressed by the American Fisheries Advisory Committee at its recent meetings here, the Fish and Wildlife Service, U.S. Department of the Interior, has reported.

The American Fisheries Advisory Committee is a group of 20 fisheries experts selected by the Secretary of the Interior. It was established under the Saltonstall-Kennedy Act of 1954. The law provides for research and educational programs which will improve the economic status of the domestic fishing industry and make valuable protein from the sea more readily available to the consumer.

In discussing estuaries, committee members pointed out that many important fisheries depend upon inshore brackish water environment. To destroy this environment by fills or by dikes or modify the chemical composition by altering the enriched, mineral-laden fresh water or the ocean water or to ruin it with pollution and pesticides eliminates an essential link in the life chain it was pointed out.

(Fishing Gazette, New York, (Ext.) July, 1963)

"BLUEFIN" CAME TOO LATE

The tuna weren't there.

The Lakes Entrance tuna boat "Southern Bluefin" which went recently to Queensland to prove the potential of tuna, has been on a wild goose chase.

"Southern Bluefin", skippered by Jeff Newman, went north at the request of Peninsula Food Products Pty. Ltd., Redcliffe.

Apart from catching tuna, the purpose of the "Bluefin's" trip was to act as a "floating schoolroom" for Queensland fishermen and teach them how to catch tuna.

The 67ft. vessel cost £60,000. and has a purse seine net (1,440 ft. long and 138 ft. deep) worth £7,000.

The net is capable of trapping 300 tons of tuna in one haul, which meant that if "Bluefin" "got amongst them", one cast would have paid for her trip north.

However, such is the uncertainty of fishing, the Lakes Entrance vessel didn't catch a tuna.

Jack in doubt

Jack Parry, manager of Peninsula Foods, was optimistic about the prospects of Queensland tuna fishing when "Southern Bluefin" first arrived.

More recently, however, he was not so enthusiastic after some Jap tuna fishing boats called at Brisbane on their way home from fishing off the south-east Australian coast. Mr. Parry had interviewed the Japs and learned that each boat averaged only 24 tons of tuna a day during their fishing voyage.

The Jap boats cost £250,000. each and are manned by a crew of 28.

On these figures, Mr. Parry said, a tuna industry could not be established in Queensland. "We'd go broke," he said.

As for the "Bluefin's" experimental trip, Mr. Parry said, "I'm afraid it's getting a bit late in the year. Tuna are not caught in waters with a temperature of less than 52 degrees." He added, the "Bluefin" would have to catch 320 tons of tuna a year to make it pay. If we could prove that Queensland was the place to fish for tuna we'd have 30 to 40 boats here in no time."

(Fish Trades Review, Sydney, July, 1963)

JOHNSON "OUTFIT" IN HUNT FOR PRAWNS

W. Len Johnson Pty. Ltd. (The Ross Group's Australian off-shoot) is in the vanguard of the move by fishing interests to exploit the new prawning ground recently opened in Exmouth Gulf, Western Australia.

As previously announced by the firm's principal Len Johnson, a freezing plant from Pinkebar (Queensland) has been shipped to the west and made mobile.

The plant was transported by road from Fremantle and has now been established (temporarily) at Learmonth near the proposed U.S. Tracking Station.

Michael Kailis is in charge of the plant which has already begun processing prawns and crays.

May be moved

Len Johnson brought news of his latest venture on his return to Sydney this month. He said he does not know how long the freezer will be stationed at Learmonth or whether it will be moved to a new location. "It all depends on how the prawns run, old boy!," he said.

As we see it, the only trouble in a processing plant near the big American tracking station, is that Len might sell all his prawns to the Yanks instead of supplying the Sydney market.

Len did not tell us whether the men at his new plant were "screened", as is everybody who will be on the new tracking station's construction.

Contractors who were given the job of building stage 1 of the station had to submit the history of every man right down to bulldozer drivers, cooks and mess hands to the U.S. Navy before the contract was finally signed.

(Fish Trades Review, Sydney, August, 1963)

CRAZY WORLD

News last month that Japan is outbidding America for our prawns has astounded Arthur Irvin of Wollongong.

"I have always been led to believe that Japan was a poor nation. It is hard to believe they are offering 11/- a lb. for prawns. It just doesn't add up," he said.

Like Arthur, we, too, were surprised that Japan could out-match the wealthy Yanks.

Last month we were more surprised when Indian businessman Alex Cherain visited Sydney to SELL prawns. We always thought India needed all the food it produced to feed the Indians.

Mr. Cherain put us right on this when he said that, proportionately, poverty in India was no worse than in Australia. And to think we gave a quid to the Freedom from Hunger Campaign!

(Fish Trades Review, Sydney, August, 1963)

GETTING THEM WITHOUT NETS?

Soviet scientists are developing a new method of directing shoals of fish, which could make it possible to catch them without the use of nets, according to the Soviet news agency Tass.

They have found that fish, especially small fry and surface varieties react to black and white stripes. Some will follow a black and white striped sheet of metal for many hours, stopping only when completely exhausted.

(Fishing News, London, August 2, 1963)