

[MONTHLY SERVICE BULLETIN  
(WESTERN AUSTRALIA. FISHERIES

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DEPARTMENT OF PARKS AND WILDLIFE

DEPARTMENT  
AUSTRALIA

## MONTHLY SERVICE BULLETIN

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February, 1961.

STAFF NOTES

On February 6 the Director (Mr. A.J. Fraser) will accompany the Minister for Fisheries (Mr. Hutchinson) on an inspection of the new landing and processing facilities at Jurien Bay. They will be flown there by Mr. Rodney Hunt, of Hunt's Cannery Pty. Ltd., in his Cessna aircraft, and at Jurien Bay will be the guests of Mr. Theo Kailis, Managing Director of Ross International Fisheries Pty. Ltd. They will return to Perth on the same afternoon.

\* \* \*

The Chief Clerk (Mr. B.R. Saville) will be absent from the State for six weeks commencing February 20, when he will begin accrued and annual leave. Mr. Saville will spend his leave in Adelaide, after which he will call on the Director of Fisheries and Game, Mr. A.C. Bogg, and spend some days with officers of the South Australian Department. He will later travel to Melbourne for discussions with executives of the Victorian Department of Fisheries and Wildlife and to see what he can of the local fisheries. He will return to Perth about the second week in April.

\* \* \*

During Mr. Saville's absence in the eastern States, the Fauna Protection Officer, Mr. H.B. Shugg, will act as Chief Clerk and Mr. A.J. Buchanan as Fauna Protection Officer. Mr. Buchanan's duties will be carried out by Mr. W.K. Cherrington.

\* \* \*

Cadet Inspector I.L. Cardon, who was recently posted to the research vessel "Lancelin" as crew member, suffered an attack

of appendicitis during the month. He was admitted to hospital on January 13 and operated on the following day. It is pleasing to report that his recovery was so rapid that he was able to return to duty on January 23.

\* \* \*

Miss W.M. Rowland, of Head Office, commenced annual leave on January 16. Miss M.J. McDonnell, also of Head Office, suffered a respiratory infection and commenced sick leave on the afternoon of January 26. She returned to duty on January 31.

\* \* \*

We were very pleased to see Cadet Inspector P.K. Enright, who called at Head Office on January 9 before returning to his home at Northam to convalesce after his recent illness.

\* \* \*

Technical Officer J.S. Simpson went to Pemberton for a week or two on January 25 to assist the hatchery staff during an outbreak of disease among the trout in the new ponds. It is understood that heavy losses of three-year-old fish have occurred, but two-year-olds and fingerlings have been less affected.

\* \* \*

Fauna Warden S.W. Bowler resumed duty on January 27 after annual leave. Fauna Warden N.E. McLaughlan intends to commence annual leave later this month.

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Mr. W.K. Cherrington, of Head Office, will commence annual leave on February 6 and Mr. A.J. Buchanan, also of Head Office, on March 25.

\* \* \*

Mr. L.C. Stock, Engineer, r.v. "Peron", has resigned from the service and will cease duty on February 13. Arrangements to advertise the consequent vacancy are in hand.

\* \* \*

Concurrently with the pending temporary transfer of p.v. "Dampier" to Geraldton, and as a break in routine, Inspector G.D.



Houston will take over the "Misty Isle" from Inspector F.J. Campbell, who will in turn assume command of p.v. "Kooruldhoo". "Dampier" and "Kooruldhoo" will rendezvous at Jurien Bay on February 15. Inspector Pearce will then return to Geraldton with the former, and Inspector Campbell will bring the latter to Fremantle.

PERSONAL PAR

Mr. S.J.J. Davies, Experimental Officer of the Wildlife Survey Section, C.S.I.R.O., called at Head Office on January 16 to discuss further collaboration and to renew acquaintance with the Director and staff. Mr. Davies was returning to Mileura Station, via Cue, where he is studying the movement pattern of emus with particular regard to their food, water supplies and the breeding season. Mr. Davies will come back to Perth for a few weeks in March. He will then go back to Cue for a month after which, in May, he will leave for England where he will take his Ph.D. on animal behaviour at Cambridge University. It is intended that Fauna Warden N.E. McLaughlan will go to Mileura Station for a period during Mr. Davies' presence there to gain experience in field work.

WESTERN AUSTRALIAN CRAYFISH UNIQUE

Dr. R.W. George, who is Curator of Invertebrates in the Western Australian Museum, announced recently that his studies had confirmed a previously held opinion that our crayfish is different from any other species in the world. The scientific name, Panulirus longipes, was originally conferred on a specimen taken in Zanzibar in 1868. Subsequently, in 1932, Mr. L. Glauert, who was then Director of the Western Australian Museum, forwarded to the British Museum of Natural History a crayfish taken from local waters and it was identified as Panulirus longipes. Since then our crayfish has been known by that name. Dr. George said that Dr. Sheard and himself and other workers realised that the genus Panulirus needed revision, but it was only in the last twelve months that the necessary work could be undertaken. Dr. George obtained specimens of crayfish from South Africa, Japan, Hawaii and eastern Australia. These fish were all known to be separate species and our local crayfish differed from all of them. There was no doubt, he said, that it would have to be given a specific name of its own. Dr. George concluded by saying that it was likely that all the species had once been part of a common stock in warm equatorial waters. They had moved away from each other and separated into groups and eventually evolved as separate species.



THEO ROUGHLEY PASSES ON

Suddenly, on January 14, Theodore Cleveland Roughley, B.Sc., F.R.Z.S., scientist, public servant, author and broadcaster, one of Australia's best known fisheries men, passed from our ken.

Born at Dulwich Hill, Sydney, on September 30, 1888, Mr. Roughley was employed as economic zoologist at the Sydney Technological Museum from 1911 to 1939. He was subsequently appointed research officer in the Fisheries Branch of the Chief Secretary's Department, and became Superintendent of Fisheries on December 1, 1940. This office he held until his retirement on October 13, 1952. Mr. Roughley played no small part in the development of the oyster and prawn fisheries of New South Wales. Earlier in his career he had done some quite good work on oysters, particularly on their life history. His other achievements included the discovery of a method of exterminating the borer beetle and his authorship of some very fine books, the most popular of which probably were "Fishes of Australia and their Technology", published in 1916, and "Fish and Fisheries of Australia" (1951).



The late T. C. Roughley

(Block courtesy "Fish Trades Review")

He was president of the Royal Zoological Society of N.S.W. from 1934 to 1936 and held office in a number of other organisations. Fearless and scrupulously honest it is doubtful whether there was ever any more respected fisheries administrator throughout the Commonwealth.



VALE STANLEY FOWLER

On January 23 in Melbourne, after a long illness, Stanley Fowler passed away peacefully in his sleep. Born in Tasmania on November 23, 1895, Mr. Fowler was one of the pioneers of fisheries research in Australia. Indeed, he was the first officer appointed when the fisheries research functions hitherto carried out by the Development and Migration Commission were in 1934 transferred to the Council for Scientific and Industrial Research.

A notable explorer in fisheries science and marine ornithology, Mr. Fowler will be remembered best by the outstanding work he did in surveying Australia's marine fisheries, particularly the pelagic (surface) fish resources. He accomplished this by low-level flights over the whole Australian coastline, from Cairns around to Wyndham, and by his skill as a photographer. Before 1936, when he commenced his great work, aerial reconnaissance was little used in fisheries research. It is now an accepted tool of the fisheries scientist everywhere. Mr. Fowler's collection of aerial photographs was unique and represented a remarkable record of many facets of the fishing industry in Australia. During his association with C.S.I.R., in which he held the position of Principal Research Officer, Mr. Fowler took a great interest in all natural phenomena, and his photographs of breeding colonies of sea birds on inshore islands along the western and southern coasts have been used by many Australian ornithologists.



The late S. FOWLER

(Photo courtesy Fisheries Newsletter)

During the years of the last war Mr. Fowler tried unsuccessfully to enlist in the R.A.A.F. Due, however, to the permanent disability he suffered as a result of wounds received on active service with the A.I.F. during World War I, he was forced to limit his activities to close co-operation with sections of the armed services. One of these was the Air Liaison Section of the A.I.F.

Mr. Fowler retired from C.S.I.R. in 1948 because of continued ill health.



EURO POISONING AND FAUNA PROTECTION

The spate of correspondence in the daily press concerning the euro poisoning campaign now in train has no doubt caused many to wonder how the campaign stands in relation to the Fauna Protection Act. We have prepared the following notes so that all officers may have a better appreciation of the departmental attitude.

Perhaps the first thing we should do is to get clear in our minds just what the legal position is. Most officers will of course be aware that the provisions of the Fauna Protection Act are set aside if they directly conflict with the provisions of the Vermin Act. As far as the euro campaign is concerned, however, there is no possible conflict between the two Acts, because euros and red kangaroos, under the Fauna Protection Act, have been declared to be not protected throughout the entire State. In addition, under the Vermin Act, they have been declared vermin throughout the major portion of the pastoral area, including that part of the North-West where poisoning has been taking place.

Although there is very little on record about the fauna populations in the North-West, there appears to be no doubt that there are more euros now than there ever have been during the period that the white man has been in Australia. There also seems to be no doubt that the increase has been due to the fact that man has altered the habitat in the euro's favour. It is popularly believed, by pastoralists and many other people too, that the major contributing factor in the rise in euro numbers has been the greatly increased amount of water available to these animals as a result of the pastoralists' activities in setting up mills throughout the country. We believe, however, that the greatest contributing factor has been the alterations inflicted on the vegetation as a result of grazing pressure by introduced animals.

It is well known that different species of plants vary greatly in their ability to withstand grazing. The taller grasses, for instance, which predominate in what is known as a "climax" vegetation, are not able to stand up to much grazing. Indeed, under heavy grazing they will disappear altogether. Their place is taken by more resistant species, generally called "increasers". With very heavy grazing pressure even the "increasers" are killed out and their place is taken by "invaders" which are usually woody plants of low forage value to livestock. It has been demonstrated in the United States, where these matters have been studied very closely, that whenever low successional "invaders", replace the more nutritious climax grasses, a different group of animal species moves in and usually increases in numbers to pest proportions. We think this is what has happened in the Pilbara, where the euro,



which was once confined to rocky outcrops and hills, has moved into the surrounding plains. Man with his introduced animals - sheep, cattle, horses, donkeys, goats and even camels - has changed the environment and brought about a particular plant association in some areas which the euro finds highly satisfactory. The sufficiency of water might well prevent crashes in the population which otherwise might occur during times of prolonged drought, but it is doubtful whether it has played a leading role in the initial increase.

While we are prepared to say that this is how the position has arisen, we are not willing, due to the lack of scientific evidence, to be dogmatic about how it can be corrected. We are unable to say, for instance, whether the euro is helping to hold the present plant association at this stage which is so favourable to the species. Research carried out at Rottneest Island leaves little doubt that the quokka, with the aid of the occasional fire, has been able to keep the island overgrazed and in a vegetational stage which favours the continued existence of what we can only regard as an over-abundant quokka population. If the euro is acting similarly in the Pilbara, with over-grazing taking the place of fire, its numbers would first have to be reduced before we could expect to achieve any improvement in the condition of the pastures, irrespective of what grazing pressure was permitted. We believe it might well be demonstrated, however, that better grazing practices could by themselves do much to restore the pastures. Nevertheless, there would still have to be a massive euro mortality, as the present high population could not be maintained once the environment was restored, more or less, to its natural condition. Whether it is more humane to poison euros off "in one fell swoop", as it were, or to allow them to die slowly from a shortage of food, is something we are not prepared to argue about. We agree with Professor Abbie, of Adelaide, however, that civilised man's curious attachment and preference for the food he knows has been the cause of many such headaches as this. Professor Abbie wrote recently that the euro and other marsupials have demonstrated pretty clearly that they are able to convert fodder into meat far more effectively than introduced animals which have to be acclimatised, herded and protected against diseases to which the native fauna is highly resistant.

#### DISEASES IN BIRDS AND MAN

What diseases afflicting birds are transmissible to mankind? This is one question on which information will be gained as a result of research being conducted by the Professor of Microbiology at the University of Western Australia (Professor Stanley). He is particularly interested in such diseases as botulism, ornithosis



(also known as psittacosis) and the so-called ARBOR virus diseases of which there are many hundreds and of which encephalitis (a brain disease) is one. All these occur in birds.

The Department is co-operating with Professor Stanley by taking to his laboratories at Royal Perth Hospital, or the University, any apparently diseased birds coming into our hands. Two silver gulls, with some of the signs of botulism, have already been handed in. Although the principal aim of the research is to extend our knowledge of diseases in man, it should also greatly improve our understanding of the role which disease plays in the natural mortality of bird populations.

While we cannot afford to travel too far afield, we will send a warden, if available, to the foreshores of the river and lakes in the inner metropolitan area for any sick birds sighted. If any inspector travelling towards Perth sees affected birds, he could help by collecting them and bringing them into this office or to Professor Stanley's laboratories on the 4th floor, Royal Perth Hospital. Note should be taken of the date and place of the collecting, and the name of the collector. A very brief description of the bird's appearance and condition when collected would be of assistance. It is expected that many sick birds will be found, as summer wears on, along the Como foreshore, at Pelican Point and on the flats upstream from the Causeway.

#### SPEED BOATS AND WATER SKIERS.

In the Government Gazette of January 20, 1961, restrictions relating to the speed and mooring of vessels and the prohibition of bathing in certain areas have been published. The regulations stipulate that the speed of any speedboat shall not exceed five knots in the following areas :

Bulls Creek, from its junction with the Canning River.  
Canning River, from Canning Bridge to the Coffee Point Beacon.  
Rocky Bay (Swan River), from Preston Point to the Fremantle  
Traffic Bridge  
Serpentine River.  
Murray River.

The following areas have been set aside for speedboats and water skiers to leave from and return to the shore :

Canning River: Beryl Place, between Bryan Avenue and Canning Avenue.  
Deepwater Point, south side.  
East Bank, foot of Cloister Avenue.  
East Bank, southern boundary of Santa Lucia Estate.



Swan River: Crawley Bay, W.A. Speedboat area when races are not being held.  
White Beach, Dalkeith, eastern end.  
Freshwater Bay, Claremont bamboos.  
Mosman Bay, Point Chidley.  
Roe Point, below the Colonial Sugar Refining Company.  
Preston Point, adjacent to Torpedo jetty.

Busselton: The area between the foot of Milne Street and Carey Street east of the Busselton jetty, a distance of approximately 200 yards.

The mooring of vessels, either permanently or temporarily, and/or bathing in the areas mentioned, is prohibited. It is also set down that skiers using these areas shall ski in accordance with the rules of the W.A. Ski Association.

#### LINDA'S REPLACEMENT

The 75-ft. 73-ton vessel "Tringa" owned by Messrs. F.J. Horwood and S.J. Davey, arrived in Geraldton on January 23. The "Tringa" replaces the "Linda" which was lost on October 21 when it crashed unchecked into a reef near the mouth of the Moore River. "Tringa" is an ex-Navy general purpose vessel which cost £46,000 to build. It is understood that she was refitted about five years ago at a cost of £32,000. The present purchase price has not been disclosed. She reached Geraldton after an uneventful three-week voyage from Sydney which included calls at five ports in four States. She will be used as a crayfish carrier boat between Geraldton and the Abrolhos, and later may carry passengers and operate an island tourist service.

#### "WHITING" BAN LIFTED

The Minister for Customs in the Commonwealth Government, Senator Henty, announced recently that he had lifted the ban on the use of the name "whiting" in respect of fish of European origin. Previously, the name whiting could be used only to describe fish of that species caught by Australian fishermen in Australian waters. Senator Henty said that it had to be acknowledged that the term "whiting" had been applied to certain fish in European waters for hundreds of years. He had therefore approved, he said, the labelling of imported frozen fillets as whiting provided the country of origin was included in lettering of at least equal size. This will allow the sale of packages of fish labelled as "English whiting", "Danish whiting", and so on.



CRAYFISHERMEN CONCERNED

Reporting from Fremantle, Senior Inspector A.K. Melsom says that some Fremantle fishermen are very worried by their poor catches in the season so far. One firm is said to have caught 200,000 lb. less fish during the recent "white" crayfish run, despite having had six extra boats operating. A number of experienced men also have complained to Mr. Melsom of poor fishing at the present time. One cited as an example that no crayfish were taken in the first 13 pots pulled a few days ago, while only half a bag was obtained from the full line of 120 pots. Mr. Melsom says that it is indicative of the present position that the best catches over a three-day period have been 7 to 8 bags from fishermen working 200 pots. While some good catches were taken after the recent cyclone, the period of good fishing was very limited.

Four men have advised him, Mr. Melsom continued, that they would not be renewing their licenses this year as they had quit the industry, while one or two have turned back to net-fishing. Mr. Melsom thinks that while the recent introduction of tail weight and size restrictions has played a significant part in the reduction of the catches this season, the main cause for the apparent reduction in the catch is due to natural conditions. He says that some very experienced fishermen consider that this season is much the same as in 1956 when their catches temporarily declined. A great number of fishermen, he says, have commented on the unusual quantities of fish either right on the borderline or just below the legal minimum length. Many, too, say that spawners were never so plentiful as they are now and predict that the fishery will recover.

From Geraldton, Inspector Crawford reports that while the average catch-per-man is probably lower, despite individual men using more gear and fishing over longer hours each week, the total catch to date is slightly greater than for the same period in the previous season. Mr. Crawford says that most of the Geraldton fishermen are now preparing for the forthcoming Abrolhos season which they hope, naturally enough, will be a good one.

BEAUTIFUL PEARL SOLD

The Pearling Inspector, Mr. R.J. Baird, during a call at Head Office last month after commencing biennial leave, gave us some details of the pearl which was reported to have changed hands in Broome early in January. He says it was truly described as one of the most beautiful pearls ever fished in W.A. waters. It was a tear-drop pearl weighing 110 grams. The pearl was fished from the lugger "Heather" owned by Master Pearler T. McDaniel. The



"Heather" was fishing off the 80-mile beach about two hundred miles south of Broome and offshore from Anna Plains Station. Mr. McDaniel said that it was not easy to part with such a lovely pearl which he described as a "fabulous gem." He was quoted in a press report of having received in excess of £3,000 for it.

#### WAGES AND LAY

The Pearling Inspector, Mr. R.J. Baird, said that up to the time of his proceeding on leave last December wages and lay for the 1961 season had not been fixed. However, he anticipated that there would be very little variation from the 1960 figures. The amounts payable are decided by negotiation between the master pearlors on the one hand and divers and crew on the other, while the Pearling Inspector acts as arbitrator. For those who may be interested the 1960 figures are published below. It should be kept in mind, however, that there are special conditions applying, e.g., the shell has to be properly chipped and cleaned, all local crew must work for the whole of the season before they are entitled to any lay on shell, while 1 ton 1 cwt. 1 qr. counts as one ton in certain cases to compensate for low grades of shell being fished. This applies mainly in the Bedout and Turtle Island areas. Special conditions also apply if any boat is laid up and if crew members on articles are promoted to first tender or engineer. A cook is to be paid £25 a month with an incentive payment of 15/- per ton, the same rate as for crews.

In 1960, no lay or incentive wage payments were paid in respect of the very low grade EEE shell or for rubbish. In 1961 it is expected that this proviso will apply also to AAA or O shell and to any other grade which is unsaleable. There will be a further proviso, however, that should any of the low-grade shell be sold subsequently, lay and increased incentive payments will be made in respect of it.

Subject to the foregoing, rates of wages are as follows:-

#### Divers.

Wages £13 a month for 11 months.

<u>Lay:</u>	Start	£51 per ton	For each ton over
	11 tons	54 " "	20 tons and up to
	12 "	57 " "	25 tons at the
	13 "	60 " "	rate of £100 per
	14 "	63 " "	ton. For each
	15 "	66 " "	ton over 25 tons
	16 "	72 " "	at the rate of
	17 "	77 " "	£125 per ton.
	18 "	82 " "	
	19 "	88 " "	
	20 "	95 " "	

If any diver fishes shell to the westward of Bedout or Turtle Islands, 1 ton 5 cwt. shall count as 1 ton.



1st tender

Wages £32 a month rising £1. 5. 0 a ton for each ton of shell fished in excess of 10 tons.

2nd tender

Wages £30 a month rising £1. 5. 0 a ton for each ton of shell fished in excess of 10 tons.

Engineer

Wages £31 a month rising £1. 5. 0 a ton for each ton of shell fished in excess of 10 ton.

Crews

Wages £17 a month rising 15/- a ton for each ton of shell fished in excess of 10 tons.

It should be noted that the incentive payments to divers' tenders, engineers and seamen are not known as lay but are part of the actual wages paid.

CRAYFISH RESTRICTIONS - OVERSEAS ENQUIRY

Since the publication in the October-November, 1960, issue of this Bulletin of the introduction of a new uniform crayfish gauge and the amended method of measuring crayfish, we have had some correspondence with Mr. H.A. Cole, Director of Fisheries Research, Fisheries Laboratory, Lowestoft, England. In response to his request, we forwarded a brief history of legislative action in relation to minimum sizes of crayfish and the methods of measuring them. We described why overall measurements of crayfish and crayfish tails were abandoned and why it was decided to introduce the standard gauge, a sample of which was sent him. In a later acknowledgment, Mr. Cole said that as the method of measuring lobsters and crawfish for statutory purposes was then under review in the United Kingdom, our experiences and the gauge we had found to be practicable would be of interest and assistance to them.

FISHERMEN'S RETURNS

District Inspectors are notified that they are not now required to complete a monthly summary of fishermen's returns. They will collect returns from fishermen immediately following the close of each month. After checking as to block number, species, etc., the returns for the month will be forwarded to Head Office as early as possible.



TELEVISION AS AN AID TO CRAYFISHING

An investor from New South Wales has seen the Minister and the Director in relation to his proposal to bring an underwater television camera and screen to Australia for the discovery of new crayfish resources. He is also considering, in collaboration with certain Fremantle interests, the assembling of a fleet of catcher-boats to exploit those resources and to export direct to buyers in the U.S.A.

The gentleman concerned says that the camera, which will be operated from a mother-ship with the screen aboard, will allow accurate exploration of the deeper waters off our shores, 40 fathoms and more, which fishermen claim cannot be fished economically with existing methods.

Whether a television camera would efficiently locate crayfish we do not know and although it is difficult to believe that the deep offshore reefs could be efficiently surveyed in this manner we must admit that, if used in conjunction with other aids, such as echosounders, techniques could possibly be developed which would make the fishing fleet much more efficient than it is today. It is indeed unfortunate that we are not in a position to know what effect the removal of crayfish stocks from the deeper waters would have on our crayfishery. Production trends in relation to fishing effort indicate that the known grounds have virtually reached their maximum yield. If this is so, the removal of any great number of crayfish from deeper waters, which could be a reservoir of breeding fish, might seriously affect the rate of replenishment of the shallower grounds. For all we know, the latter may be entirely dependent on the deepwater stocks. On the other hand, despite that no more efficient method has yet been evolved, fishing by pots appears to be relatively inefficient (although probably the salvation of the crayfisheries), and the escapement of crayfish in the shallower waters might be quite sufficient to guarantee the continuation of the stocks at their present level.

Undoubtedly, for the proper management of our fishery, we require precise knowledge of the size of the existing stocks, the age structure of the population and the level of annual recruitment. From this sort of information the maximum annual yield could be calculated and conservation measures taken to ensure that that amount was not exceeded. To obtain this sort of information a great deal of costly research would be needed over a considerable period. There is no doubt, however, that the expenditure would be warranted because the loss to the State if the fishery were to collapse would be incalculable. We would certainly like to have a television camera to use in our own programme of investigation - it could prove to be a most valuable research tool. As a catching tool it might be too efficient altogether.

WILD DUCK LONGEVITY

In the last issue of this Bulletin we recorded that a grey teal carrying band 1380 had been shot at Moora. This bird was banded on February 14, 1953, and was taken on December 18, 1960, 94 months and 4 days after it was banded. Thinking that it might be an Australian record we got in touch with the only other banding authorities in Australia who have been working long enough to have had a comparable recovery. It now transpires that the Victorian Department of Fisheries and Wildlife holds the record. A grey teal banded by officers of that Department on May 8, 1952, was recovered on March 14, 1960. The Victorian bird therefore lived for 2,868 days after banding while our teal lived a mere 2,865!

On January 16, Mr. Orton, who recovered band 1380, shot another banded duck. This also was a grey teal which had been banded on July 5, 1957, at Beatrice Lagoon, Humpty-Doo Station, Northern Territory. This was the 37th grey teal banded in the Northern Territory to be recovered in this State.

INVESTIGATION FORM "A"

This form has been discontinued and will not be required in future.

BREACHES - SECTION 24, FISHERIES ACT

A new report form for breaches under Section 24 of the Fisheries Act has been prepared and will be available within a week or so. This form must be completed in triplicate. The original and duplicate will then be forwarded to Head Office and the triplicate retained by the Inspector.

EXCLUSIVE PEARLING LICENSES

The Minister for Fisheries, Mr. Hutchinson, announced recently that he had signed two new licenses granting the holders exclusive rights under the Pearling Act to cultivate pearlshell and pearls. The first was issued to Mr. W.A. Rossiter, of Broome. It was issued for a period of three years from January 1, 1961, and covers about four square miles in Malumbo Anchorage, King Sound. It was issued for a rental of £25 p.a. The second license is in favour of Mr. A.C. Morgan, also of Broome. The rental for his area, which is near Giralia in Exmouth Gulf, is £50 p.a. It is also for a period of three years from January 1. Applications have also been received from R.M. Rowell & Co., of Derby, for an area near Malumbo Anchorage and from Mr. D.M. Brown, of Broome, for an area in Cygnet Bay, near Luggor Cove, also in King sound.



## CLEARING HOUSE

### The Use of Seaweed as a Fertiliser

By T. Wachtel, B.A. B.Sc. (Agric.), Horticultural Adviser.

Many enquiries and reports have been received concerning the use of seaweed as a garden fertiliser. Some home gardeners, who use seaweed regularly, report very spectacular results, and some even go as far as to attribute some magic properties to this material.

It is quite natural that with the increasing difficulty and cost of obtaining sufficient quantities of stable manure, gardeners look around in search of suitable substitutes, and those who have a ready access to seaweed are anxious to know what success could be expected from its use.

A review of the literature shows that seaweed is used successfully in many parts of the world in the immediate vicinity of the coast. It is used extensively in the Channel Islands, the coastal soils of England, Ireland and France, and many parts of America.

In assessing the value of seaweed in gardening we must make distinction between its value as a source of plant nutrients and as a source of organic matter or "humus".

The material available for collection from the ocean beaches in this State is very poor in plant nutrients. Unfortunately, most of the so-called "seaweeds" of the Western Australian coast are not true seaweeds, which belong to a rather primitive group of plants called algae, but are more highly developed plants, and may more properly be called sea grasses. These local sea grasses are very high in ash, over 50 per cent. of the total dry weight being generally of ash material, the chief constituent of which is calcium carbonate. They are low in nitrogen, phosphate and potash. By way of comparison, cow manure contains four times as much nitrogen and up to ten times as much phosphorus and potassium.

River algae, on the other hand, have quite appreciable manurial value. They contain about 85 per cent. moisture when first collected, and 12 per cent. when dried in the open air. A local sample analysed showed 3 per cent nitrogen, 1.6 per cent. phosphoric acid and 2.3 per cent. potash present in the air dried material. While this analysis is still not very high, it compares favourably with most animal manures. The high total salt content - about 9 per cent. in the sample analysed - usually presents no problem in sand where normal watering would wash it out quickly. The high iodine content of

(x)

seaweeds has no advantage for plant life as iodine is not an essential plant food. On the other hand, the high amount of calcium which is invariably present in seaweeds would make them a very effective liming material for acid soils.

However, the main value of seaweed lies in its large bulk of organic matter, with which it can build up light sandy soils. It increases the moisture holding capacity of these soils, as well as their capacity of retaining artificial fertilisers applied later. It also has the advantage of being free from weed seeds which are often abundant in animal manures.

The water content of seaweeds or sea grasses collected on the beach is approximately 75 per cent., which means that handling and carting will be expensive. Air drying would reduce manyfold the weight to be transported. Pulverising would greatly improve the ease of distribution and incorporation into the soil, but it is normally not carried out as extra costs usually exceed any benefit that may result.

When the material on the local ocean beaches is being used, it has to be collected within a few days of being washed up on the beach, as true seaweeds, being very soft, would decompose rapidly, especially when partially covered with sand, leaving behind the coarse and less valuable sea grasses. Decomposition appears to be more rapid in summer time, hence the best time to collect the material would be late winter or early spring.

The best way to prepare seaweeds and sea grasses for the garden is to put them in a compost heap for about six months. As the fertiliser value is very low, it is recommended to add 20-50 lb. of superphosphate and about the same amount of ammonium sulphate to each ton of fresh material in the compost heap or compost pit. For composting, seaweeds can be mixed with animal manures and any vegetable matter commonly used for composting. It is essential to keep the compost heap moist until late autumn or early winter, when it should be applied to the soil and then dug or ploughed in. Relatively heavy dressings should be given. To be of any benefit, at least 10, and anything up to 50 tons to the acre should be used and completely buried in the soil.

As an alternative, the ground could be trenched and the fresh seaweed be placed in the bottom of the trenches, where, in the course of time, if it has been kept sufficiently moist, it will decompose and become incorporated with the soil.

Another alternative is to use the seaweed as a surface mulch, and dig it in later when the crop is finished. It is usual



to apply a surface layer about three inches deep. Like any other organic surface mulch, this too would attract insects and provide a breeding ground for flies. However, if these insects become a serious problem, they could be controlled by the appropriate insecticides.

It appears that in the absence of organic manures, seaweeds can provide a suitable substitute when properly treated. The moisture holding capacity of these materials is sufficient to warrant their use as a substitute for stable manure where transport does not render the cost prohibitive. They can be used to build up sandy soils along our coast where transport is short and heavy applications can be used. However, it is well to remember that the main function of these materials is to increase the water holding capacity of light sandy soils and not primarily to supply fertiliser ingredients, or even to replace artificial fertilisers. It will still be necessary to apply the usual dressings of chemical fertilisers in the garden for best results.

(Journal of the Department of Agriculture, Perth, January, 1961).

West Europe Fish Community Proposed by  
U.K. Trawlers

A West European Fishery Community was proposed by the British Trawler Association at a recent meeting in Hamburg, West Germany of the West European Fisheries Organisation.

The convention was attended by delegates from Sweden, Norway, Denmark, England, Holland, Belgium, France, Portugal, and West Germany.

The Fishery Community would create a link between the European Economic Community and the European Free Trade Association. Its goals would include the establishment of a common fish market, common access to all fishing grounds, the appointment of authorities to ensure adherence to existing fishing conventions, and the preservation of fish stocks. Finally, the West European Fishery Community would be designed to promote sound development of the fishing trades of the contracting parties and, if possible, agreement upon a common external tariff.

West German newspapers quoted representatives of the German fishing trade as saying that they support the British proposal, which allegedly is similar to a German suggestion made several years ago.

Vacuum Used in Shucking Scallops

A simple method for shucking scallops has been developed by U.S. Technological Laboratory, Pascagoula, Miss., that is fast and economical. The shellfish are placed in warm water, which relaxes the scallop, and then the shell is split. The viscera is extracted by a vacuum pump, leaving only the eye muscle, which is cut out by the Plant workers. This method will help considerably in opening up for commercial operations the vast newly discovered scallop beds along the Florida Coast.

(Fishing Gazette                      New York                      October, 1960).

Long Predicts Protection for Shrimp Industry

U.S. Senator Russell Long, of Louisiana, a member of the Senate Committee on Finance and Small Business, during a trip to Morgan City and Berwick areas in September predicted that the shrimp industry would get some protective legislation from Congress early in the next session. In August, the Senate Committee on Finance passed a resolution instructing the U.S. Tariff Commission to submit a complete report relative to U.S. and world shrimp production and trade. To be included in the report is an analysis of the possible results of a tariff quota under which all imports not in excess of 1960 totals would be allowed to enter the country duty-free, and all imports in excess taxed at 50% ad valorem.

(Fishing Gazette                      New York                      October, 1960)

Jet-propelled Fishing Boats.

A jet-propelled fishing boat that handles like a car, needs less expensive equipment, slashes maintenance costs and is as efficient as a propeller-driven craft, is promised to U.S. fishermen soon, according to The Fish Boat, U.S. trade journal.

The propulsion unit, an operational drive, is already being used on many kinds of boats, and the builders claim it will be important to the fishing industry.

"Two or three years hence fishermen may manoeuvre boats into docks with the same ease they now park cars," the paper declares. "Propeller damage to nets and propeller and rudder fouling may be completely eliminated. In fact there will be no propellers or rudders. At least that is the aim of a new firm, Hydrojet Marine Corporation, of Cleveland, Ohio, formed to manufacture and market waterjet propulsion systems for commercial and pleasure craft."

These Hydrojet units, which consist of powerful pumps powered by petrol or diesel engines, are now being used on various types of craft from 14 to 65 ft. long. The pumps expel powerful streams of water which propel and steer the boats.



Advantages

A Hydrojet-equipped boat can stop or turn in its own length, and back in a straight line or any desired direction under perfect control.

Another advantage is complete manoeuvrability at extremely low speeds where conventional methods are ineffective, they claim.

It requires no clutch or reverse gear, again where repair and maintenance can be costly. It is also claimed that thrust produced by the Hydrojet at a given engine r.p.m. is immediate and constant, and does not vary according to speed and sea conditions as it does from a propeller.

(The Fishing News

London

December 2, 1960)

Norway's Tuna Industry has Bright Future

The uncertainty of the Norwegian tuna fishery, together with the excess of optimism which was caused by its initial success, are probably the main reasons why catching interest in these seasonal visitors to Norway's coast has waned recently. In this article, our Norwegian correspondent outlines the industry's history, and discusses the prospects for next summer.

Considerable shoals of bluefin tuna visit Northern European waters for about 3 months every summer. Details of recaptured specimens originally tagged in Norwegian waters indicate that the shoals come from the Mediterranean, and that their visit to northern waters is merely a wild hunt for food: they prey on shoal fish like herring, sprat and mackerel, and are also a dangerous enemy of the salmon.

Biggest Take.

Norway takes most of the tuna landed by North Sea countries, and according to F.A.O.'s Fisheries Statistics, her landings were 3,004 tons in 1958, while Denmark had 200 and Germany 400 tons.

The following details from Norway's rather short tuna history suggest that it would be quite a simple matter to maintain a stable tuna fishery.

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Table shows landings of tuna in Norway over past 11 years.

(1 krone = 1s. approx.)

Year	Landings (Metric tons)	Value 1,000 kroner	Outfits making landings
1949	2,563	3,707	
1952	11,480	16,126	
1953	7,951	9,707	
1954	9,451	14,725	
1955	10,423	16,971	433
1956	4,135	6,899	244
1957	5,009	8,188	218
1958	3,004	4,307	157
1959	2,491	4,136	97
1960	3,240	6,000	86

Before 1947, Norwegians caught about 200 tons of bluefin a year by harpoon handguns. In 1948, successful experiments with tuna purse seines persuaded several fishermen to take up this method, which resulted in landings of 2,563 tons in 1949. The bright reports of good earnings encouraged many skippers, and a record gross take of 11,480 tons was landed in 1952, while record value was obtained in 1955, when 352 purse seine outfits divided 10,423 tons and almost £850,000 between them.

The peak period, which ended in 1955 (see table) has, however, been succeeded by a decline which may be due to the peculiarities of tuna behaviour rather than scarce stocks.

#### Violent fluctuations

Differing results between vessels are common to all fisheries, but in Norway at least, tuna fishing has been subject to violent fluctuations. The table shows a decrease in participation from 433 outfits in 1954, to 86 in 1960. (An "outfit" consists of the three boats necessary for tuna purse seining.) Persevering owners have, however, bought several of the big seines for repair, with the result that no new tuna purse seines have been made in recent years. Since 1955, the weather has been a limiting factor, as the shoals have stuck to the open sea instead of driving into sheltered waters as they did during the peak period. The main difficulty is, however, the behaviour of the tuna itself.



The fast swimming visitors arrive in Norwegian waters in July. They appear anywhere within the 800 nautical miles between Haugesund and Tromsø, where the shoals may stay in an area for a day, moving on again the next - faster than any vessel can steam.

### Central bases

Considering the impossibility of hunting the fish over such a vast field, and also because of the idle days due to bad weather or no fish, the fishermen have found it best to operate from central bases. The experience gained during these years shows that certain areas offer better possibilities than others, and it may be mentioned that the takings of tuna off Sogn og Fjordane and Hordaland amounted to 65 per cent of the total landings in 1958, and 90 per cent this year. The fishing north of this area has, with a few exceptions, been generally poorer, and in the south, along the Skagerrak coast and in Oslofjord, it has been only accidental. Several shoals have, however, been seen every year.

According to the table, 86 purse seine outfits landed 3,240 tons of tuna in 1960 - nine were without any catch at all. Of the mentioned outfits, 34 were based south of Stad, or in the vicinity of the season's main fishing field. Their average catch was 56 tons worth £5,200, which indicates reasonable average earnings, but varied, in fact, between boats - one had less than 5 tons. The most successful outfit caught 240 tons valued at £22,000. After deduction of operational costs, the crew are entitled to 50 per cent of the proceeds which means that each member would receive £1,000 - a good income for less than 3 months' work. (The 1960 season began on July 16 and ended on October 8.)

To get within shooting distance of the shoals is a difficult part of tuna purse seining. The fish are always moving at a speed governed by the type of food for which they are hunting. They are said to swim comparatively slow when after herring, faster for mackerel, and the fastest when their prey are few or none. The end of the season is usually characterised by the virtual impossibility of getting within shooting range. This is a natural phenomenon: in the autumn, the bait shoals are few and take to deep water because their food source - the plankton of the surface layers - is exhausted.

The Norwegians use a tuna purse seine net of about 350 fathoms in length, 40 fathoms depth on the shooting arm and 50 fathoms in the centre of the bag. Mesh size is 7.9 in. An outfit consists of a deck purse seine vessel of 60 to 70 ft., and an auxiliary vessel of about 50 ft., with a powerful engine. The purse seiner has also an open motor boat ("arm" or "ear" boat) for making the purse, and the auxiliary's task is to hold the purse seiner against the wind or clear of the net. The complement for

both the vessels is 10 to 12 men.

Speed and precision are highly essential in shooting and hauling the net. The difficulties end when the net has been retrieved, since the shoals can only swim in the bag.

As all tuna scouting is by eyesight, the purse seiners are fitted with a foremast lookout nest. A plane is also chartered for scouting and costs the fishermen less than a farthing per landed kg.

The Norwegian Government has announced that it is prepared, as a result of West German representations, to enter into a bi-lateral negotiation with the Federal Government about fishery limits. No date has yet been fixed for the meetings.

(World Fishing

London

December, 1960)

#### Bight Trawling Meeting Snags?

This report (the first from our newly appointed Australian correspondent) tells the story of a venture which Skipper Sid Duffield of Hull went out to take part in last year. There is definitely a promising future for Bight fishing but the snags will have to be ironed out first.

Talk around the South-east Australian coast has certainly broadened over the past few years, as many fishermen are striving, shall we say, to readjust their operations to fit a new pattern created by the flood of imported products on bad markets. "International Trade Balances", they say, or "more of minor relative importance", but for Skipper Joe Blow on the "Lulubelle" it means a tightening up all round and perhaps a look at different methods, either of catching or selling.

#### Subtle change

An important time, perhaps, for the Government-sponsored Southern Trawling Company of Adelaide to kick off the Bight trawling project. Already, a subtle change has been noticed in official reference to the activities of the former Hull trawler "Princess Elizabeth", now renamed the "Southern Endeavour". What was to be "a commercial fishing venture" has now become "the research project", which rather indicates the presence of a snag or two.

The vessel has been working trawl grounds on the outer reaches of the Continental shelf in the Bight for some 4 or 5 months under the commend of Skipper Sid Duffield, from Hull, who has



shouldered a fair share of the snags. After all, it's one thing to knock up a scratch crew and put to sea, but quite another handling a heavy trawl in the "Roaring Forty" conditions of the Bight .

But despite this drawback, the skipper has produced some of the "goods" - up to 10 tons per day, we hear - principally Bight redfish and jackass fish (similar to Norwang or deep-sea bream) with a few school shark and mixed. Trips have been shorter than we are led to believe are necessary to make vessels of this size pay, but better results could be forthcoming when the problem ashore can be overcome - the market problem this venture shares with competitors in every port.

The Bight fish have failed to meet early estimates of 1s. 3d. per lb. clear, even though they are gutted on board and well handled in transit to the market. The fish is boxed in Adelaide, and the major proportion forwarded to Sydney by refrigerated truck, some being sold in Adelaide and Melbourne. During the early stages, the Government market authority saw fit to remove 7 tons of Bight fish from the market floor, due to its depressing effect on prices for other fish.

Reports say that the "Southern Endeavour" has been laid up for overhaul, which, in a commercial vessel, is a bit surprising at this stage, but it could be that the whole set-up is under review, or the directors may be considering the installation of snap freeze and processing plants in the large and not fully utilised fish hold, as an answer to the distribution problem.

(World Fishing

London

December 1960)

From the Cook Pot

A wandering bird, a hungry native with a bow and arrow, and an observant missionary combined to cause a stir of excitement a few weeks ago in the Wildlife Survey Section.

The bird, a white ibis, was shot by a hungry native with his bow and arrow in the swamps of the New Guinea delta, north of the Fly River. The observant missionary was Mrs. Eva Standen, from Bamu River mission, which calls itself the Mission in the Mud.

An aluminium band was fixed to the bird's leg and the native, fearing evil spirits at work, brought the banded leg to the Mission in the Mud to reassure himself about what he had eaten.

Mrs. Standen saw that the band had printed on it a number and a request to write to Wildlife, C.S.I.R.O., Canberra.

She did this, thereby giving ornithologists their first proof that the white Australian ibis travels outside Australia.

The ibis which ended in a New Guinea cooking pot had been banded in December, 1958, in Kerang, Victoria, by Mr. David Dent, a local farmer and amateur ornithologist.

(Coresearch

Melbourne

February, 1961)

#### Plastic Lobster Pot Designed

As a result of a competition organised by the Shell Chemical Co., Ltd., this company now hold the design copyright of a new type of lobster pot made in "Carlona" polypropylene, or high density polythene. The competition was for an original design in this material and was won, together with a prize of £500, by a Mr. Frank Watkins, of London.

The new pot has been designed with a view to quantity production by injection moulding, and is intended to overcome certain disadvantages of conventional pots. The new pot will not rot or corrode, will resist storm damage and can be taken apart for easy stowage on board. Each pot is in two main parts, a plastic base with a built-in concrete sinker, and a beehive top attached by a quick release hinge. For emptying and baiting, the top need only be opened on its hinge, but when removed completely, the tops will "nest" into one another.

#### Large number of entries.

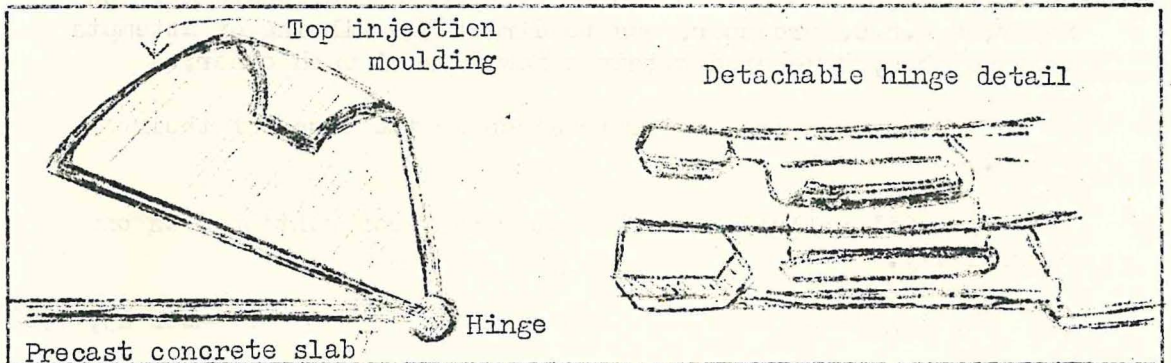
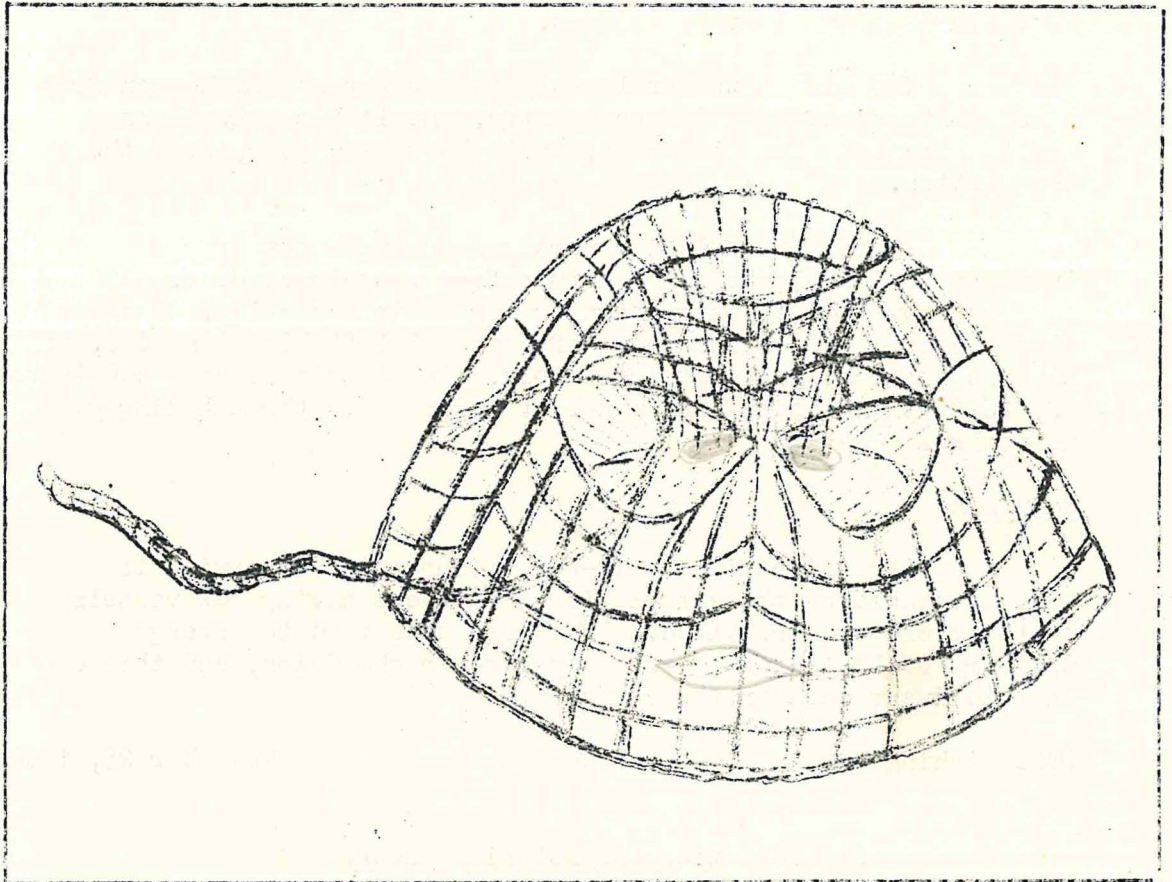
One of the improvements claimed for the new pot is the larger number of entries, there being eight around the "beehive" and the usual "eye" at the top. The side entries all have a plastic escape preventer, hinged to the framework.

Polypropylene is a new development in plastics, and is light and extremely strong. It is expected to have a great many applications, and may be suitable for buoyant netting and other marine uses.



So far no decision has been reached as to the testing and sale of the plastic pot, nor has any price been suggested.

The new plastic pot design, and details of the structure



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S.A. Fishermen's Union increases  
seven-fold

The newly-formed Fishermen's Protection Association of South Africa Ltd., has increased its membership by more than seven-fold in the last few months.

Its aim is to enrol every boat owner and fisherman from every port and harbour in the country, and it has many plans for the insurance of fishermen, their boats and gear, says the association.

Factory and fleet owners can now take out group insurance on the lives of fishermen from vessels owned or chartered by themselves or fishing for their factories. Another timely scheme is the insurance of commercial fishing dinghies, offering members insurance against total loss. In the six weeks ended August 12, 12 South African fishermen lost their lives through dinghy disasters.

Servicing

A construction-refit-repair supervision service is made available by the association to members having new vessels built or old ones repaired. They also undertake to arrange delivery of boats to and from anywhere in the Union, and this can include insurance for the voyage.

(The Fishing News

London

November 25, 1960)

Oil Pollution and Dolphins Theory

The two dolphins which were flown from the Adriatic coast to the Mount Wise Swimming Pool, Plymouth, where Mr. Tony Soper, a B.B.C. producer, was to direct the filming of attempts to tame them, have died within a few days of each other.

Experts are trying to discover the cause of their death.

Oil pollution of the water has been mentioned as one possibility.

(The Fishing News

London

November 25, 1960)