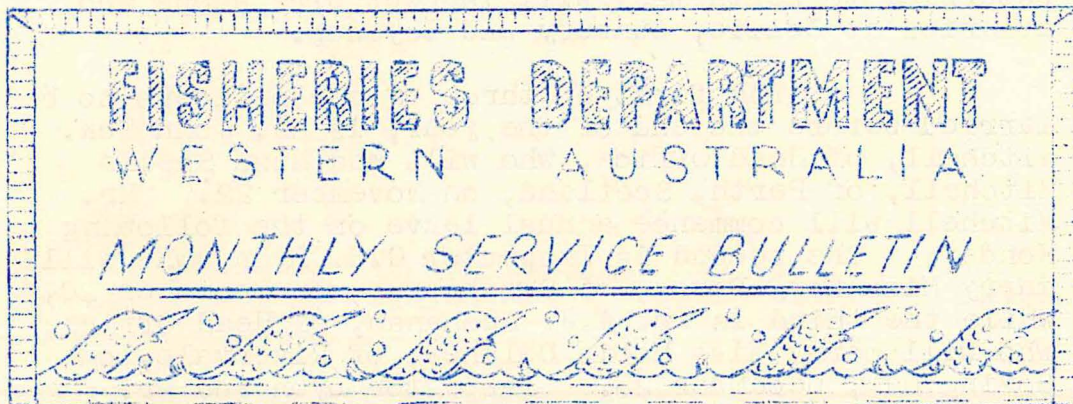


[MONTHLY SERVICE BULLETIN
(WESTERN AUSTRALIA FISHERIES

7(11) Nov 1958

DEPARTMENT OF PARKS AND WILDLIFE

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Vol. VII, NO. 11.

November, 1958

STAFF NOTES

During the month the Superintendent (Mr. A.J. Fraser), as Chairman of the Fishermen's Advisory Committee, accompanied by members and the Secretary, visited Geraldton and Shark Bay where meetings were held with the respective fishermen's associations. Towards the end of the month Mr. Fraser also visited Albany and Pemberton. On November 11 he will leave by air to attend the Interstate Fauna Authorities' Conference, which will open in Sydney on November 17. The Superintendent also intends to spend a day or two at the Commonwealth Fisheries Office, Canberra.

The Fauna Protection Officer (Mr. H.B. Shugg) accompanied by the Fauna Warden (Mr. S.W. Bowler), visited Nyabing on October 29 to officially open that town's first wild life show. After the ceremony they went to Albany and the next day carried out a survey of a reserve adjacent to the Manypeaks Townsite. On this survey they were assisted by Mr. J.B. Higham, of Albany (a member of the Fauna Protection Advisory Committee). On the following day they inspected reserves and lakes in the Rocky Gully District before visiting Manjimup to hold discussions with Mr. A.D. Jones of the "Bailleston Sanctuary", who intends shifting his sanctuary to an "A"

class reserve within the Manjimup townsite. Before returning to Perth they will inspect bird shops and aviaries at Collie, Bunbury and Boyanup.

The first of three of our officers to be married before the end of the year, is Mr. John McK. Mitchell, of Head Office, who will wed Miss Sheila Mitchell, of Perth, Scotland, on November 22. Mr. Mitchell will commence annual leave on the following Monday. The second is Inspector G.H. Lyon, who will marry Miss Mary Davey, of Swanbourne, on December 20, while the third is Mr. A.J. Buchanan, of Head Office, who will marry Miss Robin Delaney, of Rivervale, on Boxing Day, December 26. Inspector Lyon and Mr. Buchanan will also each commence annual leave after the nuptials.

Congratulations are extended to Inspector and Mrs. A.V. Green, of Mandurah, on the birth of their daughter, Jennifer Leanne, on October 23 at the Murray District Hospital.

Mr. J. Traynor has been transferred from the Research to the Inspectorial Section of the Department (vice Inspector Murray, retired) as from October 27.

Officers on leave at the moment include Research Officer B.K. Bowen, who will resume duty on November 3; Mr. G.C. Ferguson, of Head Office, who will also resume on the same date, and Assistant Inspectors S. LaRoche, of Mandurah, and E.I. Forster, acting Inspector in charge of the "Silver Gull", who commenced annual leave on October 20 and 21 respectively.

Inspector B.A. Carmichael, of Albany, will commence annual leave on December 1. Early in the New Year he will fly to Broome to act as Pearling Inspector during the absence on biennial leave of Inspector R.J. Baird.

Cadet Inspector E. Barker resumed duty after annual leave on October 13.

Assistant Inspector D. Wright, who had been acting as Whaling Inspector at the Nor'-West Whaling Company's Station at Carnarvon, returned to Perth on October 25, following the cessation of whaling activities on October 21. He will commence annual leave on November 3, but will return to duty on November 15 to assist on patrols during the "white" crayfish season, and will complete his leave when convenient to the Department.

Inspector R.M. Crawford, of Geraldton, will commence annual leave, followed by long service leave, on November 10. During his absence the Relieving Inspector (Mr. G.C. Jeffery) will be in charge of the Geraldton District, Inspector N.E. McLaughlan having returned from long service leave to take charge of the Shark Bay District as from November 1.

OBITUARY

On October 5 in the Murray District Hospital, Mr. W.G. Cherrington, father of our colleague Mr. W.K. Cherrington, of Head Office, passed away. Our sincere sympathy is extended to all the bereaved family.

FISHERMEN'S ADVISORY COMMITTEE

Members of this committee (Mr. A.J. Fraser, Chairman, Mr. Roland Smith, of Perth, Mr. N.K. Swarbrick, of Albany, and Mr. W. Matthei, of Mandurah) accompanied by the Secretary (Mr. H.B. Shugg), left Perth by road on October 15 for Geraldton, where they were joined by Mr. G. Travia, who was recently appointed to the Committee as a representative of persons engaged in crayfishing. At meetings held with fishermen during the next two days, matters discussed included - the 1959 Houtman Abrolhos crayfishing season; means by which the mortality suffered by crayfish caught in the early part of that season could be reduced; the advisability of closing the western reefs of the Abrolhos groups; and tail-size grading categories.

On Saturday, October 18, the committee left Geraldton and, after calling at Port Gregory, reached Shark Bay that evening. The next day, Sunday, the members were taken for an inspection of the waters of the

Bay by Inspector G.C. Jeffery on the p.v. "Garbo". It was a very pleasant day and some excellent fishing was enjoyed. On Monday, October 20, the Committee met representatives of the Shark Bay Fishermen's Association to hear evidence on a number of domestic matters including proposals to ban the use of wire-mesh fish traps and to close a portion of the Bay to visiting freezer boats. After visiting the Monkey Mia fishery in the afternoon, the Committee met at night to hear evidence given separately by the proprietors of two of the Shark Bay freezer works. On the following day the Committee returned to Geraldton, reaching Perth on the evening of October 22.

OPEN SEASON FOR WILD DUCKS

After hearing the evidence obtained from various duck shooters, honorary wardens and individuals on the breeding position of wild ducks this year, the Fauna Protection Advisory Committee, at its last meeting, decided to recommend that the 1958/59 open season for wild ducks should commence on the traditional weekend before Christmas, but should close on April 30, 1959, a month earlier than usual. The Committee was impressed by recommendations from shooters and non-shooters alike that an earlier closure was desirable because (a) there was very little shooting carried out during May in any normal year; and (b) that any late season shooting which did occur tended to delay nesting. An early decision on the Committee's recommendations is anticipated.

CRAYFISHERMAN CONVICTED

In the Perth Police Court, on August 12, Cornelius Daniel den Hartog, a licensed fisherman, was convicted of a breach of his contract to supply 90% of his crayfish catch to Tropical Traders and Patersons Ltd. The firm held a bill of sale on Hartog's boat, which was leased to him on that condition. Hartog was released on his own bond to come up for sentence if called upon.

WHALING

The Nor'-West Whaling Company's station at Carnarvon ceased operations on October 21, the scarcity of whales of good size rendering further operations uneconomic. By that date 885 humpbacks had been taken. Two blue whales and three bryde whales had also been secured. The value in humpback units of the latter is not known, as they are believed to be the first taken in our waters, but the two blue whales would, of course, be the equivalent of five humpbacks.

At Albany, the Cheynes Beach Whaling Company has been enjoying a very successful period in its operations on sperms. On October 20, operating in the chaser Kos VII, Captain F. Hughes took 6 of this species, thus equalling his present record for that Company. The total of sperm whales taken this year had reached 186 by October 22.

RUSSIAN WHALE-MARKS RECOVERED

Prior to his return to Perth, the Department's whaling inspector at Babbage Island (Mr. David Wright) supplied details of four whale-marks recovered at the Nor'-West Whaling Company's Station. Three were numbered 1007, 1027 and 1030 and were all inscribed "Kindly return to Moscow, U.S.S.R." The fourth was a British Museum of Natural History mark, numbered 162392. The first two were found in the digestors while the third was recovered from the back blubber of a female (No. 659) taken on September 4. The British mark was recovered from the shrapnel trap.

The Chief of the Division of Fisheries and Oceanography, C.S.I.R.O. (Dr. G.F. Humphrey), to whom details of the recoveries were sent, has advised that he is seeking marking data from the respective authorities for each of these four marks, and also for an additional Russian mark, No. 1165.

On his return to Perth, Mr. Wright reported that a second British mark had been recovered. It was No. 11903, and was believed to have been fired by the "Discovery". It was found in the grax tank on October 23.

SHEEP ON GARDEN ISLAND

A report in a recent issue of a local weekly, that sheep were being grazed on Garden Island, caused alarm in conservation circles here late last month. Owned in fee simple by the Commonwealth Government and leased to the Garden Island Service Company, Garden Island has been an effective sanctuary for its scientifically interesting population of Tammar (Thylogale eugenii). The main reason for its effectiveness as a sanctuary has been that the conditions of the lease prohibit animals being taken to the Island. Unbeknown to the Department of the Interior, which exercises jurisdiction over this Commonwealth territory, a sub-lessee of the settlement area sold a half-share of his lease to a retired pastoralist, who transported 140 sheep to the Island and commenced a pasture improvement programme there. In addition to the damage to the flora from the grazing of the sheep, there has also been an unfortunate introduction of exotic veldt grass, which was reported to be growing successfully.

Following complaints, this Department made representations to the Commonwealth and has received an assurance that the sheep will be removed and the lease condition that no other animals be allowed on the Island will be enforced. This assurance was received with great satisfaction as it is believed to be essential that the Island should be kept in its natural state as far as possible so that there will be no disturbance to the Tammar which, in the near future, will be the subject of an intensive scientific investigation.

MARRON AND QUAIL

Inspectors are reminded that the open season for marron will commence throughout the State on Monday, December 1. On the same day the season will open in that part of the State north of the 31st parallel for the shooting of stubble quail.

FISHERIES DEVELOPMENT TRUST ACCOUNT

M.C. Uren's "Canberra Diary" ("West Australian," October 6, 1958) fairly accurately sums up the views of a number of fishermen, and non-fishermen, in this State. In addition to the undertakings mentioned by Mr. Uren as benefiting only the eastern States, there is now talk of the spending of a great deal of money on a tuna-catching venture in south-eastern Australia. Mr. Uren writes -

Fish Venture Leaves W.A. on the Hook

More than two years ago the Commonwealth went fishing - and Western Australia still dangles helplessly at the end of the line.

In May, 1956, using the proceeds from the sale of the Commonwealth Whaling Commission at Carnarvon, the Federal Government launched into enterprises for the fishing industry. It set up a trust account to investigate fishing ventures off the Australian coast that private interests shirked because of big initial risks.

If for no reason other than that the money for the account came from the Carnarvon sale, W.A. expected a share of the research work to be carried out in its own waters. The State could also lay claim to having carried out in its own right much exploratory work to develop its offshore resources - a claim few other States could make with equal emphasis.

But today, 29 months after the account was established, not a Commonwealth penny has been spent off the W.A. coast.

The second annual report covering the operations of the trust account was tabled in Federal Parliament in the last yawn of the session. It told of a startlingly successful £30,000 survey of prawn resources (off the coast of Queensland and northern New South Wales), of a £260,000 plan to test the commercial potentialities of trawling in the Great Australian Bight (from Port Adelaide), of a £27,500 project to investigate barracouta fishing (off Victoria), and of a

£10,000 survey of pilchard resources (off the New South Wales coast).

It forecast further prawn surveys (off the coast of Queensland, N.S.W. and Victoria), a pilchard survey (off Victoria), and tuna surveys (off the south-east coast of N.S.W.).

Not a mention of five specific research projects W.A. has asked the trustees to consider.

Twelve months ago Prime Minister Menzies told Premier Hawke by letter: "Western Australia will continue to benefit from the money raised through the sale of the Commonwealth whaling station at Carnarvon."

Continue to benefit? That is a hard one to swallow, hook, line and sinker.

BLESSING OF THE FLEET

A colorful ceremony inaugurated in Western Australia in 1950 and repeated each year since, took place at Fremantle on Sunday, October 12. It was the blessing of the fishing fleet, which was performed by Monsignor E. Sullivan.

Several thousands of onlookers braved the gusty, showery conditions. The Esplanade was packed, while hundreds more lined the route of the procession from St. Patrick's Church. Still others took up vantage positions on the fish market jetty, the fishing harbour mole and surrounding buildings.

A team of fishermen, all dressed in their "Sunday best", carried a decorated statue of Our Lady of Martyrs in the procession, and a number of young girls carried a small, solid silver statue of Our Lady of Capo d'Orlando mounted on a pyramid of flowers.

The statue was placed aboard l.f.b. "Flavio" at the fishmarkets jetty, and after the ceremony of blessing had been performed, "Flavio" sailed

slowly round the decorated fleet moored in the anchorage. At the conclusion of the proceedings a volley of fireworks burst high in the sky as the procession reformed to return the statues to the church.

CRAYFISH TAIL CATEGORIES

At the request of the crayfishermen and processors of Western Australia, the Superintendent brought before the recent State-Commonwealth fisheries conference a suggestion that the "midget" category for the grading of craytails for export be abandoned. The Crayfish Exporters' Association, of Perth, had previously (without this Department's knowledge) made similar representations.

The existing categories under the Export (Fish) Regulations are as follows -

<u>Grade</u> <u>Designation</u>	<u>Weight</u> <u>Range</u>
Midget	Less than 6 oz.
Small	6 oz. and less than 8 oz.
Medium	8 oz. and less than 12 oz.
Large	12 oz. and less than 16 oz.
Jumbo	16 oz. and above.

The conference referred the matter to the Inspection Branch of the Department of Primary Industry for consideration. A copy of the report of the Chief Veterinary Officer of that Department (Mr. H.R. Tinney) has now been made available.

Mr. Tinney's report, which indicates that he is unable to recommend any departure from the existing setup, reads as follows -

Prior to my visit to U.S.A. on the problems associated with the admission of Australian boneless meats, the Department had been approached by the Crayfish Exporters' Association of Australia, Perth, with a proposal that the official weight grades for the smaller grades of Australian crayfish tails be varied as follows -

<u>Grade</u> <u>Designation</u>	<u>Existing</u> <u>Weight Range</u>	<u>Proposed</u> <u>Weight Range</u>
Small	Not less than 6 oz. and less than 8 oz.	5 oz. and under 8 oz.
Midget	Less than 6 oz.	Less than 5 oz.

Another proposal was to describe all tails less than 5 oz. in weight as 'small' so that the 'midget' designation would be eliminated entirely.

The purpose of the proposals was to reduce the number of tails packed under the description 'midget' on the grounds that the quantity of midget tails exported was adversely influencing the price of other grades.

I discussed the proposal with the Trade Commissioners in New York who are closely in touch with the trade. I also had the opportunity of discussing the matter with leading importers including directors of Tupman Thurlow and Wilbur Ellis Inc.

It appears that the assertion of the Crayfish Exporters' Association was correct and midgets were hard to sell and tended to depress prices until a year or so ago. However a recent development has been the entry of Australian midget tails to the retail supermarket food store trade, a trade which apparently was previously monopolised by South Africa. It was suggested to me that the South Africans are rather put out about this as they have engaged in a fairly extensive and costly advertising campaign from which the Australian product is now gaining some advantage. One factor which has assisted in establishing Australian tails is the reputation they have for quality and Australian prices usually top those of competing products.

The restaurant trade in U.S.A. has been the principal market for Australian tails but the restaurants look for smalls rather than midgets. The small grade tails are often specially graded in U.S.A. so that a buyer does not get a long run of larger or smaller tails in the existing weight range. I gathered that it is a matter of prestige in U.S.A. to order the largest tails at the highest price one can afford and this accounts for the preference for the larger tails. However the effect

which this has on the trade in 'midgets' is now mitigated by the new opening for this grade in the supermarkets where a different type of consumer is catered for.

Midgets now appear to be bringing quite satisfactory prices and I would say that any fall in prices is a symptom of the general recession, although, generally speaking, this has not affected many food prices. U.S. importers would certainly oppose any change at this stage. Accordingly I cannot recommend any change in the existing grades in the Exports (Fish) Regulations at least for the present. A close watch will, however, be kept on developments in U.S.A. and the matter will be re-examined should future trends indicate that it is necessary.

The importers to whom I spoke had nothing but praise for the standard of preparation, inspection and packing of Australian crayfish tails. The only point which they made was that they would prefer to see a larger proportion of tails packed in 10 lb. cases although they appreciated that this would increase the costs of the processor.

One class of tail which does appear to present some marketing problem is the 'jumbo' in the over 16 oz. class. Apparently these are too large for economic sale and losses are made on them. The possibility of some trimming to reduce the weight of very large tails is being investigated but there are technical difficulties in this.

One other matter associated with crayfish tails is the move in U.S.A. to confine the term 'lobster' to the clawed fish taken in North American waters. The effect of this would be to prevent imported crayfish from being described as 'rock lobster' and this could have an adverse effect on the trade. The question has been before Congress on previous occasions and the Embassy in Washington has been fully briefed to watch Australian interests. Of course, South African and New Zealand products would also be affected by any legislation on the subject.

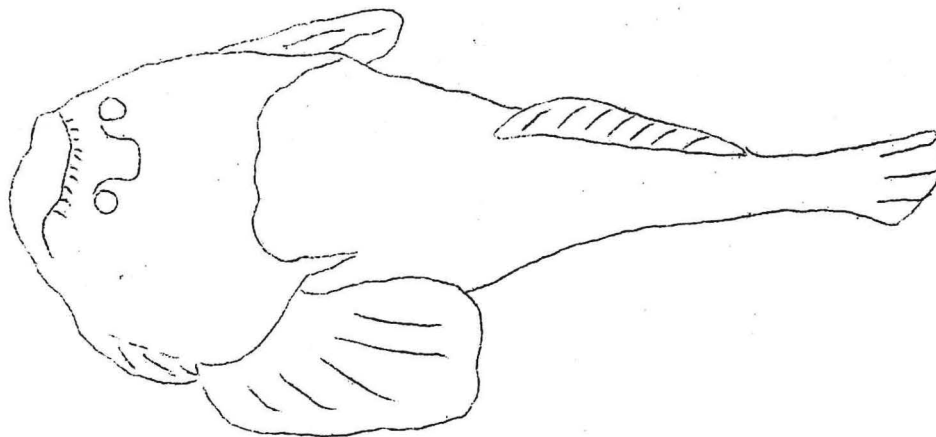
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SPECIMENS WANTED

The Western Australian Museum is anxious to obtain specimens of the family Uranoscopidae - commonly known as Stonelifters and Star-gazers. Advice to this effect has been received from Dr. G.F. Mees, Curator of Vertebrates, who says that at least two species, each represented in the Museum's collection by a single individual, seem to be undescribed, and that the whole family is badly in need of a revision.

All inspectors are therefore requested to acquaint the fishermen within their districts of the need for additional specimens and to do whatever they can to ensure that fish of this family are preserved when caught and sent to Head Office for forwarding. Details of the date and locality of the collecting, together with any other notes of interest, should be sent with any specimen obtained.

As a possible aid of identification for our less experienced inspectors, the rough sketch hereunder has been reproduced from a drawing by Dr. Mees.



CAMPAIGN TO BOOST PEARLSHELL

In a press report from Canberra late last month, the Commonwealth Minister for Trade (Mr. McEwen) announced that the Government would contribute \$40,000 (£A17,800) towards the special advertising campaign to promote the sale of Australian pearlshell products in the U.S.A., the United Kingdom and Europe. The total cost of the campaign has been estimated at \$120,000 (£A53,500) this financial year. The balance of the cost would be shared between the Australian pearling industry and importers in the U.S.A.

Outlining the proposed pearlshell sales drive, Mr. Alan Gerdau, President of the Otto Gerdau Co., which buys most of the shell produced in Western Australia, announced that the assistance of film star Marlene Dietrich and a bevy of young American beauties would be enlisted in a series of publicity stunts. Miss Dietrich has agreed to visit Australia for this purpose.

VACANCY FOR TECHNICAL OFFICER

By reason of the transfer of Mr. J. Traynor to the inspectorial staff, applications are now being called for the position of Technical Officer, Grade 2 (Classification G.II.1/2). Any officer desirous of applying for the vacancy should secure the necessary form from the Clerk-in-Charge (Mr. Saville).

FREMANTLE DISTRICT CRAYFISHERIES

The Minister for Fisheries has approved a recommendation from the Fishermen's Advisory Committee that the open season for the taking of crayfish in the area south of lat. 30°S commence on November 15. All waters within one mile of the coast (and south of lat. 30°S) will be closed to crayfishing from January 1, 1959. Last season the mile closure did not operate until January 15.

ABROLHOS CRAYFISHERY

At page 139 are published details of the crayfish production at Houtman's Abrolhos for the past six years. They reveal that, despite increases to new record levels in total production and the number of fishermen operating, the average catch-per-man actually increased in all island groups during the last season. No doubt had we been told in 1953 that the number of men fishing at the Abrolhos was going to double in five years, we would have been appalled and predicated a crash in the catch-per-man. That this has not happened gives us food for thought.

Unfortunately, the tables do not give any indication of the return per unit of fishing effort. It is known that the number of pots per man has increased, and the fishermen say they are having to work harder to get their catch: these factors together with the increased area of grounds being worked, and weather conditions, have to be taken into account before a true picture of the state of the fishery can be obtained.

BLITZ ON UNDERSIZE CRAYS

Far too many undersize crayfish were taken by snide fishermen last year at the many small and rather inaccessible beaches and bays which are found in the area between Snag Island and Fremantle. The small fish for obvious reasons never found their way into the metropolitan area, but were disposed of in country centres at rattling good prices.

This season a determined bid is being made to counteract these illegal activities. Three patrol vessels will be operating in coastal waters. Inspectors Lyon and Stokoe, Assistant Inspectors Forster and Kav-anagh and Cadet Inspectors Barker and Hanley will be responsible for the sea patrols. The land patrols will be carried out by Senior Inspector Munro, Inspector Traynor, Assistant Inspectors Wright and LaRoche and Cadet Inspectors Emery and Smith. Inspector Melsom and Assistant Inspector Seabrook will look after the Fremantle end.

ABROLHOS CRAYFISH PRODUCTION

Year	North Island	Wallabi Group	Easter Group	Southern Group	Total
<u>No. of Men</u>					
1953	7	26	40	17	90
1954	15	36	41	21	113
1955	18	39	47	45	149
1956	31	42	38	40	151
1957	26	45	60	46	177
1958	30	58	64	40	192
<u>Total Catch (lb.)</u>					
1953	123,243	573,081	647,967	294,020	1,638,311
1954	208,972	679,783	814,848	415,797	2,119,400
1955	278,681	717,699	802,879	672,885	2,472,144
1956	395,831	713,153	774,172	561,512	2,444,668
1957	433,185	774,926	1,042,910	653,685	2,904,705
1958	516,126	1,026,150	1,153,189	580,667	3,276,132
<u>Catch-per-Man (lb.)</u>					
1953	17,606	22,041	16,199	17,294	18,203
1954	13,931	18,883	19,784	19,800	18,756
1955	15,482	18,402	17,082	14,952	16,592
1956	12,769	16,979	20,373	14,038	16,189
1957	16,661	17,221	17,382	14,211	16,411
1958	17,204	17,692	18,018	14,516	17,063

DEFINITION OF "AUSTRALIAN WATERS" - A CORRECTION

Mr. C.G. Setter, Acting Director of the Fisheries Division of the Commonwealth Department of Primary Industry, has written as follows -

In the September-October 1958 issue of your Monthly Service Bulletin on page 117 the term "Australian waters" is defined as "generally speaking, are those lying above the continental shelf." This is incorrect since "Australian waters" as proclaimed by the Commonwealth extend approximately 200 miles from the coast.

It would be appreciated, therefore, if you could correct this statement in case any of your inspectors have a wrong conception of the extent of "Australian waters".

Inspectors should note that "Australian waters" actually extend well beyond the continental shelf off most of the Western Australian coast.

BASIC WAGE INCREASE

As a result of the recent quarterly declaration of the Court of Arbitration of Western Australia, the basic rate for adult male and female officers will increase by £3 p.a. in the metropolitan area as from October 27. There will be no increase for those officers stationed in the South-West Land Division. Outside the South-West Land Division the basic rate will increase by £4 p.a. for adult males.

LEGAL LENGTHS CARDS

Inspectors are advised that a fresh supply of cards setting out the legal lengths of fish (primarily intended for the amateur fisherman) has just come to hand from the printer. Officers requiring stocks for distribution should requisition them in the ordinary way.

THE CLEARING HOUSE

Awright Class, Pay Attention

How to Adjust that "Haywire" Compass

by J.S.T. Gibson.

"You can't go by my compass, it's all haywire," is a statement heard all too often when two boatowners are discussing the course to run to reach a fishing ground, or to reach harbour in thick weather. Nine times out of ten the compass is not haywire at all, it only needs to be allowed to point to magnetic north, without interference from local magnetic fields in the boat. This process consists of two stages, (1) the neutralising as far as possible of the magnetic fields which cause the deviation, (2) the making of a deviation card so that the direction and amount of any remaining deviation is known. Many regard this operation as a mystical process of great complexity, which can only be performed by a professional compass adjuster. When they are in town the job somehow gets omitted; when they are upcoast there is no compass adjuster available, so the compass just goes on unadjusted. This article is not intended to dissuade you from having your compass professionally adjusted, but rather to help those who are out of the reach of the professionals by outlining a simple method of removing most of the deviation and making a deviation card so that the rest can be properly allowed for. You are not likely to get results comparable to those of the professional, but at least you shouldn't go shooting off on a course ten or twenty degrees or even more away from the one you think you are on. For the sake of simplicity I shall not list the error coefficients or consider those which are not important in wooden hulls.

Before going any further let me risk boring or infuriating you with a couple of obvious points, both of which ought to be included in case you have not considered them. First, don't confuse variation and deviation. Variation is the difference

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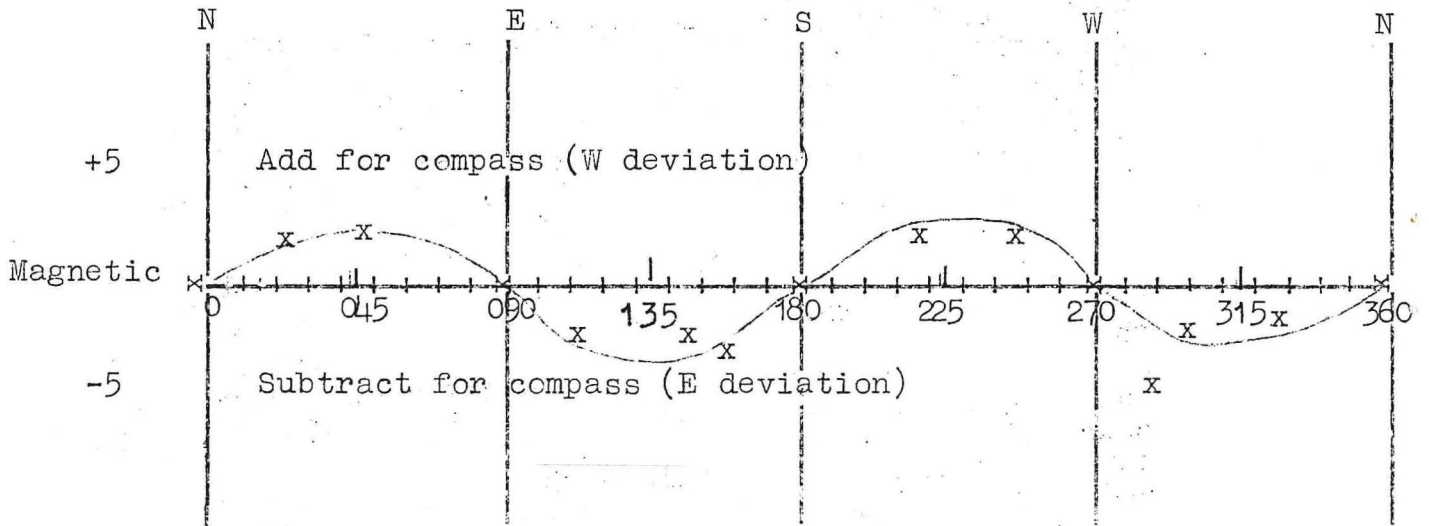
between true north and magnetic north, caused by the fact that the geographical pole and the magnetic pole are at different places. You can't eliminate variation, so you have to allow for it, and it is defined on every chart for the area concerned, together with a statement of the year in which that variation applied and the annual change. Deviation is what concerns us now, and is the difference between magnetic north, where the needle should point, and wherever it actually does point. Deviation is caused by the magnetic fields set up by the iron and steel in the boat, and it is corrected by placing one or two magnets in such position that they neutralise these fields and allow the compass to point to magnetic north again. My second obvious point is this: before attempting to correct your compass, see that no moveable articles of iron or steel are close to the compass, such as that pair of pliers which so often sits beside it. Have the compass fastened in position so that it cannot moved. Avoid having another compass (such as your iron mike one) closer than three feet, and don't have a radio with a speaker closer than that either if it can be avoided. If another chain is piled on deck near the wheelhouse, it should be in its normal position when the compass is adjusted.

Now you are ready to correct the compass. Have two corrector magnets available and choose a clear day, and a place where there are plenty of mountains, islands, rocks or other markers of known position, on which you can obtain sights. Have two people on board, one to steer and one to fiddle the compass. You need calm water to do a good job too. Having satisfied all these conditions, pick a distant point which is roughly north (magnetic) of you, and a nearer point which you can line up with it. Identify these points from the chart, rule a line through them and note the exact magnetic heading and write it down on a piece of paper in degrees (0 to 360). Line your bow up exactly with the points and keep it lined up for four minutes - this is to allow the soft iron in your boat to align its magnetic field with that of the earth on this heading. After this lapse of time, look at your compass, which unless you are remarkably lucky will not show the same course as the one you read off the chart.

(If it does, then no magnet needs to be installed on this heading). Otherwise, take one of your magnets and place it horizontally and athwartship, with its centre on the fore and aft line passing through the centre of the compass card, putting the red end to starboard if the N. point of the needle deviates to starboard, or to port if the N. point deviates to port. Move the magnet to and from the compass until the deviation is corrected - that is, until the compass shows the same course as the one you took off the chart. Make sure your helmsman still has those points lined up. Fasten your magnet temporarily in position. Now turn onto the reciprocal course; if you can find suitable markers in the exact opposite direction so much the better, otherwise line up the same points with your stern. Hold the southerly course for four minutes and read your compass again. This time it should be correct because the magnet which took out the deviation on north should also take it out on south. If it is not correct on the southerly course, move the magnet again so that half the deviation on the southerly course is removed. Fasten the magnet in place. You have now removed or minimised the deviation on north and south. If you could not find marks to line up on an exactly north or south course that doesn't matter, but get them as near as you can, preferably within 5° degrees. If your marks give you a heading say, 5° error, all it means is that you have corrected your deviation on 355° and 175° instead of on 000° and 180°. Next repeat the process on an easterly and a westerly heading, (you'll need a new set of markers of course) this time putting your bar magnet horizontally and parallel to the fore and aft line of your boat, with its centre on the athwartship line passing through the centre of the compass, red end aft if the north point of the needle deviates towards your stern, forward if it deviates towards your bow, moving the magnet to and from the compass until it points correctly. Just as you did on north and south, remove all deviation on east or west, fasten the magnet temporarily in place, turn onto the reciprocal course (by reference to the markers of course not by reference to the compass) and if you find any deviation, remove half of it by moving the magnet again, and then fasten the magnet down permanently.

(xc)

Figure 1.



Deviation may be plotted and shown in graph form. The "x" marks show the actual deviations found in practice on different magnetic headings. The curve takes the mean of these, thus correcting minor errors. The mark shown 4 degrees E deviation on 290 degrees magnetic is so far off the mean curve that it is assumed to be in error and is ignored. Any readings in this category should be rechecked.

Figure 2.

<u>Magnetic Heading</u>	<u>Deviation</u>
N	0°
NNE	2°W
NE	2°W
ENE	1°W
E	0°
ESE	2°E
SE	3°E
SSE	2°E
S	0°
SSW	2°W
SW	3°W
WSW	2°W
W	0°
WNW	2°E
NW	2°E
NNW	1°E

This is another, and more common way of expressing the same deviation shown in the graph. Professional compass adjusters use printed forms in this general style. If deviation changes more swiftly it might be necessary to include all 32 points for greater accuracy.

You have now removed all your deviation, we hope, on the four cardinal points. You may wonder if the magnet which you inserted on the E. and W. headings will upset the readings on N. and S., and vice versa. No, they do not interfere with each other because they are at right angles to each other. When you are on a N. or S. heading, the athwartship magnet which you inserted on those headings exerts maximum effect, and the other one, being parallel to the compass needle has no influence on it. As you swing onto an E. or W. course the athwartship magnet gradually loses its influence on the needle as it becomes more nearly parallel with it, and the other fore and aft magnet exerts more, reaching its maximum on E. or W. when it will be at right angles to the compass needle and the athwartship magnet will be parallel to it.

All you have to do now is to line up your boat with as many points as possible all round the compass. Note the exact heading of each line of sight or natural transit, from the chart, and note the reading on your compass, and write them down. Check the compass in this way on at least a dozen headings, preferably more. With luck you will not have more than 5° deviation on any heading, but it may go up to 7 or 8 degrees. When you have done this you should have a list of magnetic courses taken from the chart with corresponding compass courses read off your compass.

The deviation found on each of these headings should now be plotted on a piece of squared paper. Lay out your magnetic headings (as in fig. 1) from 0° to 360° , horizontally on any suitable scale, $2/10''$ to 10° is a convenient one. Plot the deviation westerly above the line (because with westerly deviation you must add deviation to your magnetic course to obtain the required compass course) and easterly below the line. Use a much larger scale for the deviation, say $1/10''$ for 1° . If you used the same scale as the horizontal one your curve would be too flat for accuracy. Just to show how it works, the first x in the graph in fig. 1 shows zero deviation on north, the second shows 2° W. deviation on magnetic heading 020. That means that on magnetic heading 020 compass reads 022, so if you wish to steer 020 (M) you add 2° and steer 022 compass. The next x shows deviation 2° W. on 045° and so on. When you join all these x's you should

get a smooth curve. In actual practice you will not, because you are almost certain to have made a few slight errors in taking your readings. These errors can be corrected by drawing a smooth curve which runs through the average of all the readings. If one reading is wildly out it must be a mistake, so you would do well to ignore it and recheck when possible (like that $4^{\circ}E$ deviation on 290° in fig. 1). If the curve is predominantly above or below the line rather than being evenly distributed about it you can correct this by rotating your whole compass enough to equalise it. If the curve is predominantly above the line rotate the whole compass anti-clockwise, clockwise if it is below the line. This correction is not usually needed, however.

The final deviation card may be easily constructed from this curve, reading off it the deviation for each point and setting it cut as in fig. 2. Remember that where the curve is above the line you have W. deviation and where it is below the line you have E. deviation. Where deviation is W. the compass course is a higher number in degrees than the corresponding magnetic course, or further round the dial in a clockwise direction. Personally I prefer to use the actual graph as my deviation card. The horizontal line in the middle represents the magnetic heading. Where the curve is above the line you add the appropriate amount to the magnetic heading to obtain corresponding compass heading, and where the curve is below the line you subtract. Simple isn't it?

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

Famous Japanese Knotless Gillnets
Will be Introduced to Canadians Soon

Knotless fishing nets will be sold to Canadian fishermen soon, according to a Japanese manufacturer visiting this country.

Masao Kobayashi, president of the giant fishnet manufacturing firm of Nippon Seimo Co., Tokyo, said in Toronto last month that 85% of the nets used by Japanese commercial fishermen are knotless.

"A knot in a fishing net is like a knot in a board - it's a defective weak point", says Mr. Kobayashi.

He is touring Canada to acquaint Canadian fishermen with the advantages of knotless nets. He is a former senator, and son of the man who invented the automatic process which produces knotless nets. "These nets will supersede all nets used by commercial fishermen within the next decade or so", he said.

"Even gillnets will be of the knotless variety when a few production problems are solved", Mr. Kobayashi says. "Japan produces practically all of the world's supply of knotless netting, and holds patents in 17 countries."

Canada is one of the largest markets for Japanese fishing nets, according to Mr. Kobayashi, being exceeded only by Southeast Asia and possibly Scandinavia, although Japanese nets started selling in Canada only about five years ago.

Higher strength and durability of the knotless nets is due to the fact that knots are weak points - natural fibres lose 20 percent of their strength and synthetics up to 40 percent, when knotted. Decreased weight and bulk is an advantage in storing nets - and other advantages include less resistance to current, easier handling, reduction of friction, less labour, smaller gear floats, etc. In addition, knotless nets do not damage struggling fish, and tend to hold less foreign matter.

"The knotless nets can be sold at substantially lower cost than the knotted variety," says Mr. Kobayashi, "because they require far less raw material in manufacture - in some cases up to 50 percent less. Exact mesh size is more easily obtained, and preserved when the net is in use, and less dyestuff and other materials are required for finishing them."

"Price comparison of knotless and knotted nets on a per pound basis is completely misleading, Mr. Kobayashi points out. "This basis of pricing creates the illusion that knotless nets are expensive - which of course they are not", he said. "Naturally they cost more on a weight basis because you get so much more of

the knotless net per pound. On a piece basis, which is the way we prefer to quote, the great initial savings of knotless nets are readily apparent."

Although new in Canada, knotless nets were first invented in Japan in 1924, and have come into wide use since the introduction of synthetic fibres, which greatly simplify production problems.

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

Preservation of Fish by Radioactivity

An American company has been experimenting with methods of preserving fish by exposing it to radioactivity.

It is an outcome of investigations into ways of utilising commercially atomic energy. It is stressed that the work done to date is still in its early stages and has been confined to those classes of fish, including shellfish, which lend themselves most easily to this method of preservation.

It has already been proved, however, that exposure to electro-magnetic radiations of high intensity totally destroys all bacteria and spores, even those which survive the heat used in the processes used usually at the present time. By this means the fish is kept in a good and edible state for much longer periods than when frozen by the ordinary methods of icing.

Nevertheless a modified process using a low intensity of radiation and which the company calls "radio pasteurisation" would appear to be the one most promising for commercial application and it is this one which is now undergoing special investigations with a view to its early exploitation.

At the same time, the scientists employed on the work agree that the preservation by this means must have its limitations, and they feel, apparently, that its future will probably be as an additional safeguard used

in conjunction with normal methods of conservation such as heat and freezing. It is felt that the chief advantage will eventually be found in the fact that fish so treated can be packed more economically because it is inherently safeguarded against contamination after processing.

("The Fishing News" London August 29, 1958.)

Congress to Consider Bill to Aid Fishing

A Bill to provide credit facilities for the use of U.S. fishermen's co-operative associations has been introduced into Congress. A bank, similar to that for the farm co-operatives, would be formed and 10 million dollars (about £3,300,000) would be made available by Congress for loans to fishery co-ops for financing fish storage, to provide operating capital and to acquire land, buildings and equipment of fishing gear and vessels. In due course the co-ops would own the bank and the Government would have its original investment returned.

("The Fishing News" London September 12, 1958.)

Some Comparisons Between Natural and Synthetic Fibres

Much interest has been aroused recently in the fishing industry about the future of artificial fibres as raw material for gear. Among the many interest exploiting this new development is the Belfast Ropework Company Ltd.

The use of artificial fibres in fishing nets was a direct result of their development during the second World War. Previously, the main man-made fibre was rayon, but it had properties that made it unsuitable for use at sea. Nylon was the first of a succession of artificial fibres that are resistant to rot and therefore practicable for maritime uses. The Belfast Ropework Company have recently carried out a series of experiments on nylon, Terylene and most recently, Courlene. The demand for them is growing, but is still limited by their cost, which is higher than that of natural fibres.

The company supplies nets and equipment made of natural fibres to fishermen all over the world, and many experiments on the treatment of natural fibres have been made. Resources are far from all being devoted to what is still essentially a pioneering project. But a comprehensive series of tests on the capabilities of the new materials, compared with sisal and Grade 1 manila, are being carried out. These comparisons have recently been completed by the addition of the Courlene X3 results. They should be of interest to all fishermen and owners who are considering changing to nets of artificial fibres.

A 3in. circular rope of sisal has a minimum breaking load of 4 tons, of Grade 1 manila $4\frac{1}{2}$ tons, of nylon 9 tons, of Terylene $7\frac{1}{2}$ tons and of Courlene X3 6 tons. Their respective weights in lb. per 100 feet and 120 fathoms are - sisal $28\frac{1}{2}$ and 206, Grade 1 manila $28\frac{1}{2}$ and 206, nylon 27 and 194, Terylene 31 and 223 and Courlene X3 24 and 170. In 100s 3-ply trawl twine, the minimum breaking load in lb. is 200 (sisal), 220 (Grade 1 manila), 450 (nylon), 350 (Terylene) and 250 (Courlene X3).

Extensive wear and abrasion tests are carried out in the factory, but in 1951 the company supplied Mr. T.C. Worth of Maidenhead nylon running gear for his yacht Beyond. Later the yacht went around the world, but despite exposure to all types of climate and six years hard use, the nylon was found in 1957 to have lost only 16.8 percent in tensile strength on the British Standard Specification figure. The cordage trade is seeing very swift developments currently; certain features, however, are common to all new materials, and certain precautions should be taken when using them. When splicing, for example, it is advisable to insert two extra tucks to prevent slipping, and extra turns should be added when a synthetic rope is secured to a cleat or similar object. In certain cases, such as an eye splice round a bollard, the wearing surface should be parcelled.