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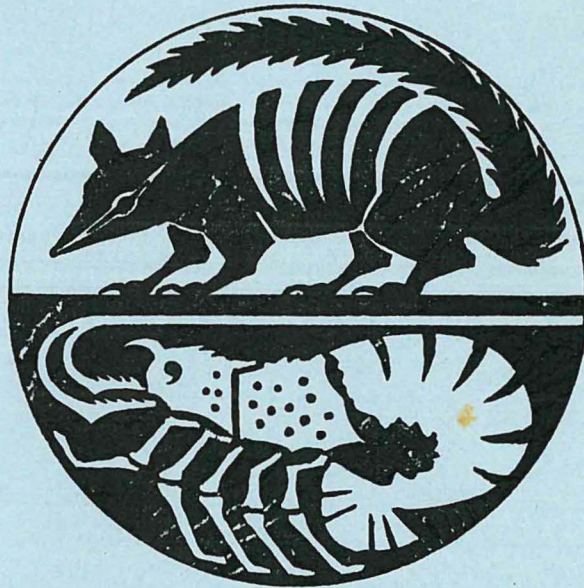
DEPARTMENT OF PARKS AND WILDLIFE

STAFF

BULLETIN

DEPARTMENT OF
FISHERIES AND FAUNA
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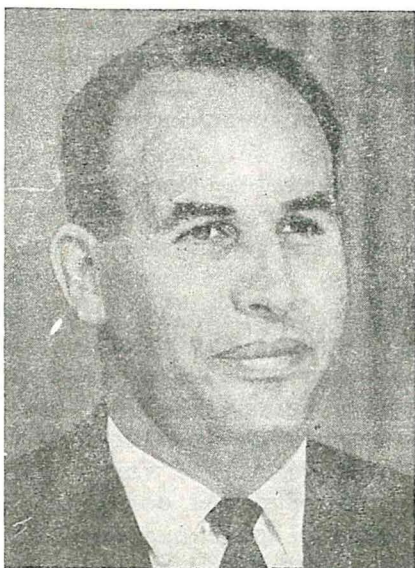


JULY, 1969

VOL. XVIII, No. 7

DEPARTMENT OF FISHERIES AND FAUNA
108 Adelaide Terrace, Perth, Western Australia

DIRECTOR TO ATTEND INDIAN OCEAN
FISHERY COMMISSION SESSION IN ROME



B. K. Bowen, B.Sc.
Director of Fisheries and Fauna

The Director, Mr. B.K. Bowen, has been invited to serve on a Working Party of experts of the Food and Agriculture Organisation of the United Nations. It is expected that the Working Party will meet for about one week in Rome during September or October, 1969.

The Food and Agriculture Organisation of the United Nations established in 1968 the Indian Ocean Fisheries Commission. There are many such Fisheries Commissions throughout the world. Their main function is to bring together those nations which are fishing a common resource so that there can be some attempt to foster co-operative conservation. Australia is a member of the Indian Ocean Fisheries Commission and had been represented at previous meetings.

At its first meeting in Rome in September, 1968, the I.O.F.C. discussed, among other things, the state of some of the stocks in the areas which appear to be heavily fished, including some tunas, and the shrimp in the Gulf between Iran and the Arabian peninsula. The Commission decided to establish two committees - a Committee on the Management of Indian Ocean Tuna, and a Committee on the Management of Indian Gulf Shrimp - to consider the steps required to introduce management measures when these are necessary. The Committees are to be advised by a small working party of experts in the field of stock assessments. The studies of the Working Party will not only include assessments of the effects on the total yield of changes in the amount of fishing, but also the effects on long term catches of shrimp of the sizes of animals landed, and of the mesh size used in the trawls. It will also take into account those fluctuations in the stocks which are not caused by fishing.

REPORT ON THE "SEA BEAUTY" INCIDENT

On June 5, 1969, the freighter "Sea Beauty", carrying thousands of tons of bagged urea, ran aground on the reef just north-west of North West Cape.

Some eight days later the Department received information that efforts to refloat the freighter had failed and that it was proposed by the salvage team to dump urea into the sea in the effort to free the stranded ship. An opinion received on that day indicated that urea in seawater causes calcium precipitation. The Department relayed the message to the salvage team that as little urea as possible be jettisoned and then only on an outgoing tide.

The Commissioner for the area, Mr. J. Murdoch, informed on June 16, that salvage experts estimated that a total of about 60 thousand bags of urea must be dumped before there was any likelihood of refloating the "Sea Beauty". He also stated that observations showed that the urea dissolved very quickly once it was dumped in the water. The urea was contained in 56 pound linen bags with the inside plastic bag not sealed at one end. The suggestion that the fertilizer be jettisoned on an ebb tide only was made to minimize the risk to the Exmouth Gulf fishery and the marine life on the reefs off North West Cape.

The Department had no precise biological data on which it could evaluate the precise water pollution that would result from this jettisoned fertilizer cargo. In its concern, a consensus of opinion revealed that:

1. Urea easily metapolized,
2. It would be well diluted before reaching prawning area
3. It was unlikely to have long term effect
4. Short term effect may be beneficial to prawn fishery
5. Effects might be drastic on reef fishes

On Tuesday, June 17, the Department's patrol vessel "Dampier", stationed at the time in the Exmouth Gulf area, was placed on duties, relating to the stranded freighter. The P.V. "Dampier" was to remain in the area until cargo dumping was completed or the freighter refloated, and observe

dumping operations and record visual effects of same. Crew members made foot patrols of beach areas from Bundegi Reef to 3 miles west of the old Vlaming Head Lighthouse. During these patrols not one fish or any other form of marine life was observed to be dead or effected in any way as a result of the urea being jettisoned. At the actual site where the "Sea Beauty" was aground, 30 to 40 green turtles were feeding in the water, with no apparent change from the normal behaviour pattern.

Reports from officials who boarded the freighter during the period it was aground, indicated the presence of fish, including sharks, among the burst urea bags. Some also reported that Chinese crew members were catching and eating fish without any apparent ill effects.

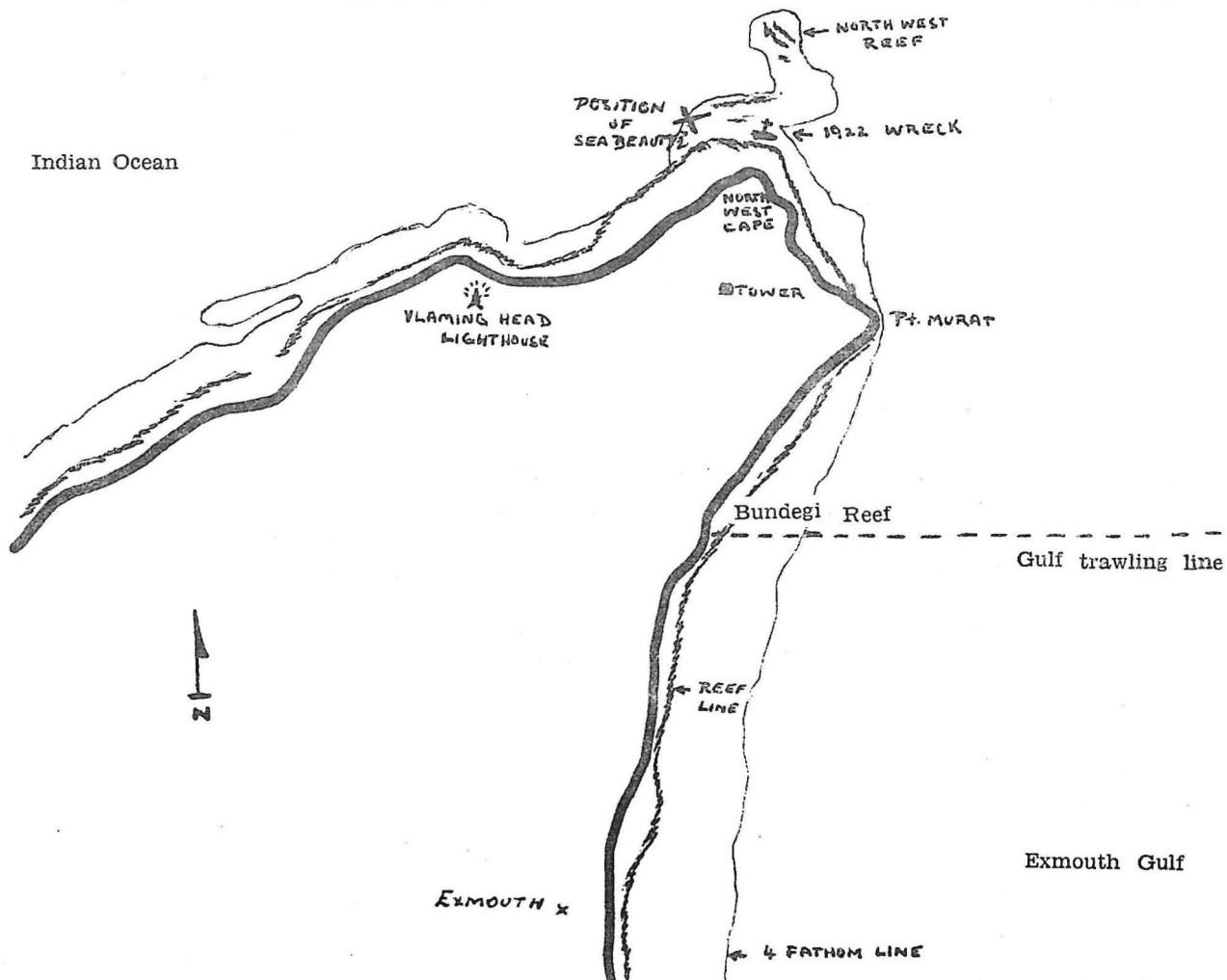
Observations of the dumping of the urea into the sea revealed the following process. As the bags would hit the water they would sink a few feet and then rise to the surface. Shortly thereafter the bags would burst with the urea dissolving almost immediately. The strong tidal rips present in this particular area, dispersed any traces of urea very quickly. Mr. E.J. Forster, the skipper of the P.V. "Dampier", stated that bags picked up alongside the freighter, which had been in the sea for approximately one minute, had lost about one quarter of the urea content.

On Sunday, June 22, the P.V. "Dampier" conducted tests to ascertain the possibility of ocean pollution by the jettisoned urea. These tests were made possible with the supply of a chemical kit by the Director, Government Chemical Laboratories.

During the journey from Learmonth anchorage, urea bags were observed floating inside the Gulf along the beach from Point Murat to North West Cape. En route to the "Sea Beauty" pollution tests were made. On arriving alongside the freighter further tests were conducted. In a control test urea was placed in a test tube with water and a positive colour result was noted. When using the control solution a similar positive result was obtained. However, all the sea tests made produced a negative result as shown below. The tests on board the P.V. "Dampier" were conducted by a University Zoology Ph.D. student, aided by members of the crew.

RESULTS OF THE TESTS NEAR "SEA BEAUTY"

Date	Sample	Time (p.m.)	Tide	Position of Sample	Res-ult	Water Temp. °C	Wind Direction
22.6.69	1	3.15	Almost slack	$\frac{3}{4}$ mile S.E. Pt. Murat (14 miles S.E. of ship)	-ve	Bottom 23.8	Light Southerly
"	2	3.25	"	Midway between Pt Murat & N.W. Cape (9 miles S.E. of ship)	"	"	"
"	3	3.35	"	$\frac{1}{2}$ mile S.E. of ship	"	"	"
"	4	3.43	"	$\frac{1}{4}$ mile S.E. of ship	"	"	"
"	5	3.50	"	100 yds. north of ship	"	"	"
"	6	3.55	Slack	50 ft. north of ship	"	"	"
"	7	4.15	"	50 ft. south of ship	"	"	"
"	8	4.30	"	$\frac{1}{2}$ mile N.W. of ship	"	24.2	"



METHOD USED FOR TESTING

* Put approximately 1" of sea water in test-tube, add $\frac{1}{2}$ dropper (marked) of urea and place in hot water (not boiling) for 4 minutes. Pink colour indicates at least 50 pp m urea.

* Also supplied to personnel testing was a control solution containing 100 pp m of urea. This was for trial test purposes, i.e. use 1" depth in the test tube of this solution instead of sea water to show the pink.

The vessel moved in a straight line directly towards and away from the "Sea Beauty", testing the sea water at intervals, recording the results obtained.

On Thursday, June 26, exactly three weeks after going aground, the "Sea Beauty" was refloated. Apparently a total of 1,800 tons of bagged urea had to be jettisoned by the salvage team.

The Department in its efforts to obtain information on the effect of the jettisoned urea cargo expended considerable time and manpower. Apparently no immediate ill effects on the marine life could be detected by the investigation team. Long-term effects either on the Exmouth Gulf fishery or on the marine life of the area are very unlikely. However, only time will tell.



WHAT IS THE DIFFERENCE BETWEEN A SEA AND AN OCEAN?

The terms "sea" and "ocean" are often used interchangeably in referring to salt water. However, from a geographic point of view, a sea is a body of water that is substantially smaller than an ocean or is part of an ocean.

The term "seven seas" dates back to ancient times, referring to the seas known to the Mohammedans before the 15th century. These were the Mediterranean Sea, the Red Sea, the East African Sea, the West African Sea, the China Sea, the Persian Gulf, and the Indian Ocean.

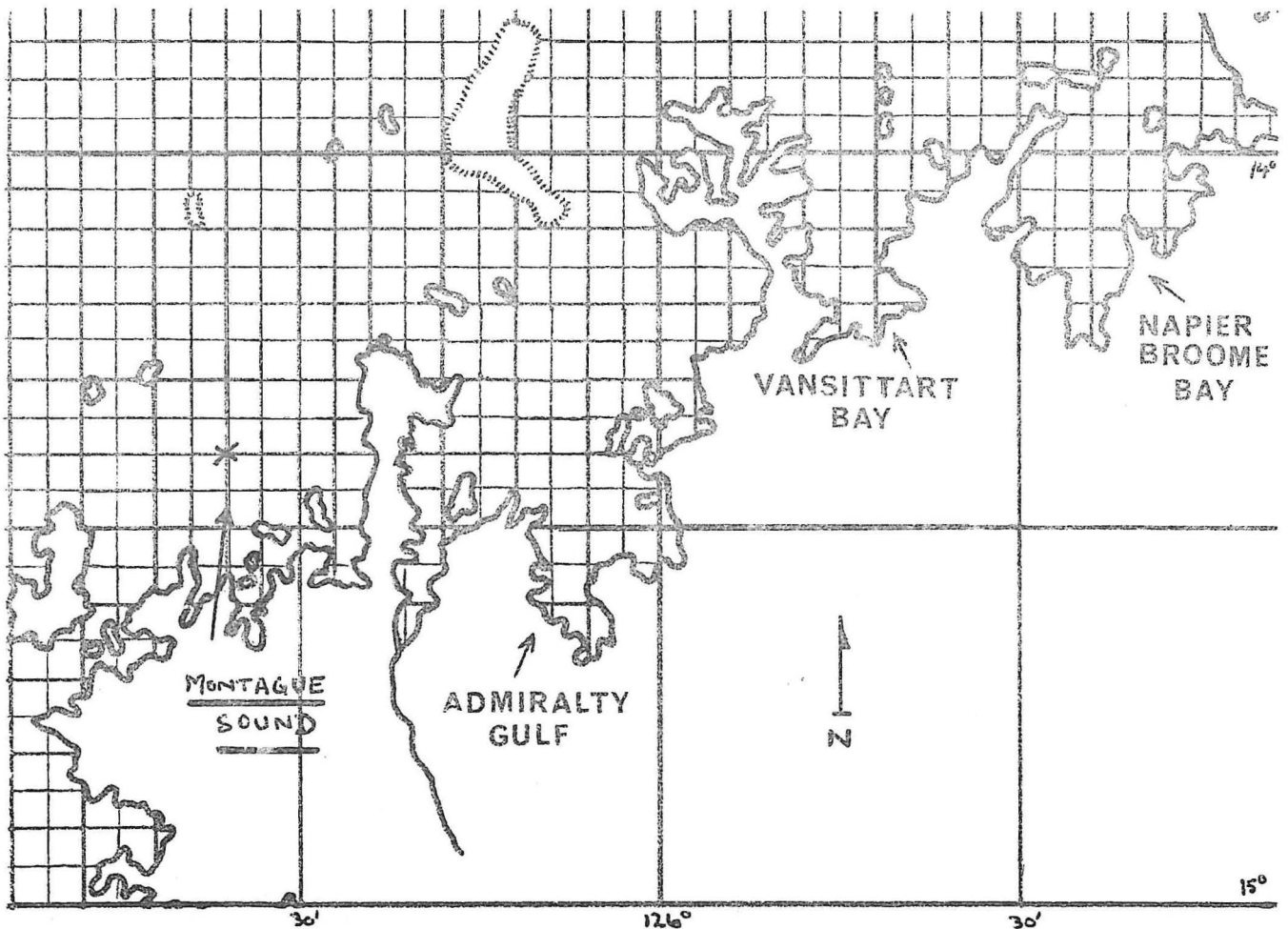
In more recent times, Rudyard Kipling popularized the expression "seven seas" by using it as the title of a volume of poems. There has been a tendency to divide the world's ocean into seven oceans to retain this legendary number. The popular division is Arctic, North Atlantic, South Atlantic, North Pacific, South Pacific, Indian, and Antarctic. However, International Hydrographic Bureau at Monaco does not accept the existence of an Antarctic Ocean. Actually, of course, all limits of oceans are arbitrary, as there is only one global sea. The International Hydrographic Bureau subdivisions are primarily for the purpose of filing Notices to Mariners and have little to do with natural boundaries.

The International Hydrographic Bureau lists 54 seas; some are seas within seas. The Mediterranean Sea contains seven seas so one could sail the seven seas (of the Mediterranean) without ever venturing into an ocean. ("Questions About The Oceans," U.S. Naval Oceanographic Office.)

PRAWN DEVELOPMENT RESEARCH - 1969

Since 1967 the Department has been conducting prawn surveys with boats in the waters off the extreme northern coast of this State. This year's exploration survey of the commercial prawn potential has been concentrated in the Montague Sound area. A charter vessel has operated in these waters since April and is to continue until the end of October. Although the survey is centred on Montague Sound, the vessel has spent periods of monitoring in Admiralty Gulf, Vansittart Bay and Napier Broome Bay at specified intervals.

Results to the end of June from Montague Sound indicate that this area shows promise of becoming a good commercial prawn producing area. Maximum catch rates, although few, range to 700 lbs of Banana Prawns per hour.



DR. N.M. MORRISSY VISITS NORTHERN AREA

The Department's Freshwater Biologist, Dr. N.M. Morrissy, undertook a tour of a portion of the North-West during April-May last, to acquaint himself with northern streams, and in particular with the barramundi situation. Mr. R. Baird, the Pearling Superintendent stationed at Broome accompanied Dr. Morrissy during the 3 weeks inspection tour.

Investigational work was carried out at the mouth of the Fitzroy River, in the waters of the Fitzroy in the Camballan area, at the Fitzroy Barrage area, at Fitzroy Crossing and in the Geike Gorge area. A further investigation was also made in the waters of the Ord River from the mouth to the Main Dam area.

The trip was undertaken with a view to learning as much as possible about the following situations and problems on the Fitzroy and Ord Rivers.

- * The commercial barramundi fishery in the estuaries of both rivers.
- * The influence of the Fitzroy Barrage and Ord Diversion Dam, and proposed Ord Main Dam, on the migration of fish especially barramundi, that is:
 1. The extent of accumulations of fish below the structures;
 2. The occurrence of fish above the structures; and
 3. The likely magnitude of these structures as obstacles to movement of fish at different flow stages.
- * The controversy of amateur line fishing versus amateur and professional netting of barramundi in freshwater reaches of the Fitzroy River, especially near Derby.

The estuarine barramundi is a highly regarded table fish in the Kimberleys, and is rated as one of the best in Australia.

Barramundi are widely distributed in rivers and estuaries in the semi-tropical and tropical regions of the Indo-Pacific from South China to the Persian Gulf and along the coast of

northern Australia. The limiting factors to the distribution appear to be temperature and salinity. A factor limiting its abundance in northern Australia appears to be the absence of large rivers which flow permanently, to allow upstream migration of young fish and survival during the dry season.

A report by Dr. Morrissy which sets out the results of his tour of inspection of the northern streams is to be published by the Department in the near future.

* * * * *

SENIOR WARDEN VISITS PILBARA REGION

The Senior Warden, Mr. S.W. Bowler, departed from Perth on Monday, July 7, for a two weeks' inspection and patrol tour of the Pilbara region. Centres visited included Carnarvon, Exmouth, Onslow, Dampier, Roebourne, Port Hedland and Wittenoom, as well as other areas en route.

Mr. Bowler proceeded to Carnarvon with Mr. L.R. Moss who took up duties as the Departmental Warden for Patrol District No. 4. Mr. R.F. Dear, the Warden stationed at Wittenoom, accompanied the Senior Warden during his inspection tour of Patrol District No. 2.

* * * * *

FISHING INDUSTRY APPOINTMENT

The Department has been informed by Tropical Traders Limited that Mr. John Walters was appointed as the company's General Manager. Mr. Walters, who hails from London, has been in Western Australia for the past 5 years.

* * * * *

Staff Note

The Department welcomes Miss Beverley Ann Preece, who commenced duties on Monday, July 21, in the Fauna Research Branch. Miss Preece has been appointed to assist the Research teams in tabulating their research data.

ROTTNEST ISLAND

FISHING NET RESTRICTIONS

The Minister for Fisheries and Fauna has renewed the fisheries restriction, by virtue of Notice in the Government Gazette, dated May 23, 1969, prohibiting the use of fishing nets as described in the Notice. The Notice has been reproduced below to replace the Proclamation published in Government Gazette (No. 58) on July 3, 1964.

*(Extract from Government Gazette (No. 50)
of 23rd May, 1969)*

FISHERIES ACT, 1905-1969.

Department of Fisheries and Fauna,
Perth, 15th May, 1969.

F.D. 202/46.

THE Minister for Fisheries and Fauna, pursuant to the powers conferred by Section 10 and Section 11 of the Fisheries Act, 1905-1969, does hereby prohibit all persons from taking any fish whatsoever by means of fishing nets in any portions of Western Australian waters specified in the first schedule hereto from 1st July, 1969 until further notice and from any portion of Western Australian waters specified in the second schedule hereto from 1st August, 1969 to the 31st December, 1969 inclusive, and thereafter from 1st January, to 30th April, inclusive, and 1st August to 31st December, inclusive, in each and every year.

G. C. MacKINNON,
Minister for Fisheries and Fauna.

Schedule 1.

That portion of the Indian Ocean, including Parakeet, Geordie, Longreach and Thompson Bays bounded by lines starting from North Point on Rottnest Island, and extending north 40 chains; thence east 153 chains; thence southeast 135 chains; thence southwest about 40 chains to Phillip Point, and thence generally northwesterly and westerly along the high water mark of the said island to the starting point.

Schedule 2.

That portion of the Indian Ocean within the sea limits of half a mile of the foreshore of Rottnest Island bounded by lines starting from Phillip Point and extending east 40 chains; thence southwest, northwest, west, southwest, west, north; thence in a northeasterly direction to a point 40 chains north of North Point and thence south to the foreshore at North Point.

SHOALWATER BAY ISLAND
FAUNA OBSERVATIONS

On July 7, Cadet Fauna Warden D. Mell conducted an inspection of Shag Rock, Seal Island, Bird Island and Penguin Island. During this patrol a number of new Departmental signs were also erected.

Shag Rock

On this islet were a large number of Pied Cormorants with broods ranging from eggs ready to hatch to juvenile birds at the age where they begin to wander away from the nest. The greater proportion of the fledglings had left or were about to leave the islet.

A number of Silver Gulls that had nested on the island had fully fledged chicks with them.

Seal Island

The majority of the young Silver Gulls were almost ready to leave the island. Very few Gulls under the age of three weeks were sighted, although a number of eggs were still being incubated. Caspian Terns, Fairy Penguins, Pied Cormorants and King Skinks were also sighted. One Sooty Oyster Catcher was observed flying near the south end of the island.

Bird Island

Silver Gulls were the only birds breeding on this island. There appeared to be a much later breeding season among these when compared to the Silver Gulls breeding on the other islands in the Shoalwater Bay area. None of the fledglings were over three to four weeks old. Large numbers of eggs were being incubated. Other observations on the island included two Hair Seals, Fairy Penguins, Crested Terns, Pied Cormorants and Little Pied Cormorants.

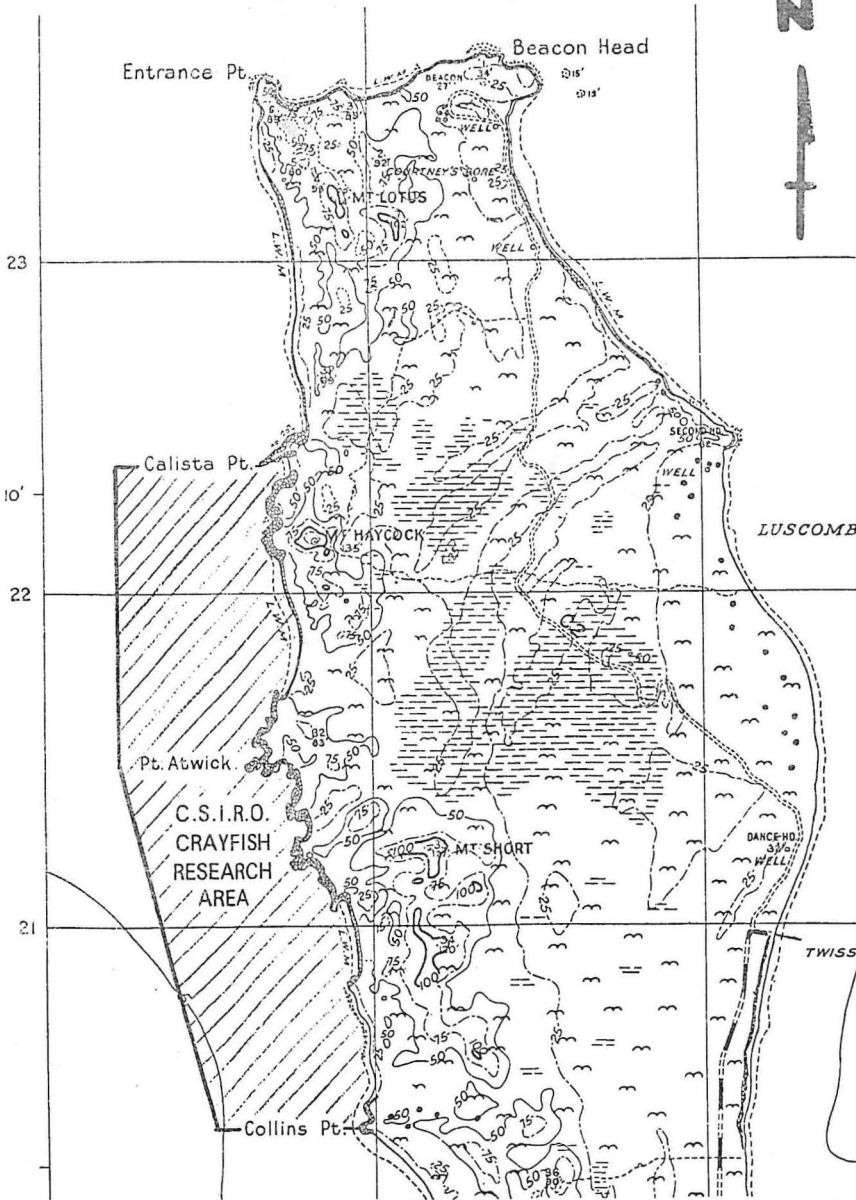
Penguin Island

A large colony of Silver Gulls was noted near the north end of this island. Breeding being at a similar stage as was noted on Seal Island. Also observed were Pied Cormorants, Crested Terns and Caspian Terns.

Fremantle
Garden Island
Area

FISHERIES RESTRICTIONS

CRAYFISH CLOSURE



The northern end of Garden Island showing the area on the west side which is being utilised by the C.S.I.R.O. research team in its crayfish research programme. The shaded area is closed to crayfishing by any means whatsoever.

Fisheries Act, 1905-1962.

PROCLAMATION

WESTERN AUSTRALIA, } By His Excellency The Honourable Sir John
TO WIT, } Patrick Dwyer, Knight Commander of the Most
JOHN PATRICK DWYER, } Distinguished Order of Saint Michael and
Lieutenant-Governor. } Saint George, Lieutenant-Governor in and over
[L.S.] } the State of Western Australia and its
Dependencies in the Commonwealth of Australia.

F.D. 51/65, Ex. Co. No. 92.

IN pursuance of the provisions of section 9 of the Fisheries Act, 1905-1964, I, the Lieutenant-Governor of the State of Western Australia, by and with the advice and consent of the Executive Council, do hereby prohibit all persons from taking by any means of capture whatsoever, the fish known as or called "crayfish" in all that portion of Western Australian waters specified in the schedule hereto for a period of five years from the date of publication of this Proclamation in the *Government Gazette*.

Schedule.

The whole of the waters adjacent to Garden Island, bounded by lines commencing at Callista Point on that island, and extending one-quarter of a mile west; thence generally southerly and parallel to the foreshore to a point one-quarter of a mile west of Collins Point; thence east to Collins Point; thence generally northerly along the high water mark of Garden Island to the starting point.

Given under my hand and the Public Seal of the said State at Perth this 20th day of January, 1965.

By His Excellency's Command,
ROSS HUTCHINSON,
Minister for Fisheries and Fauna.

GOD SAVE THE QUEEN ! ! !

[Extract from Government Gazette (No. 26) of
11th March, 1966.]

FISHERIES ACT, 1905-1965.

Department of Fisheries and Fauna,
Perth, 4th March, 1966.

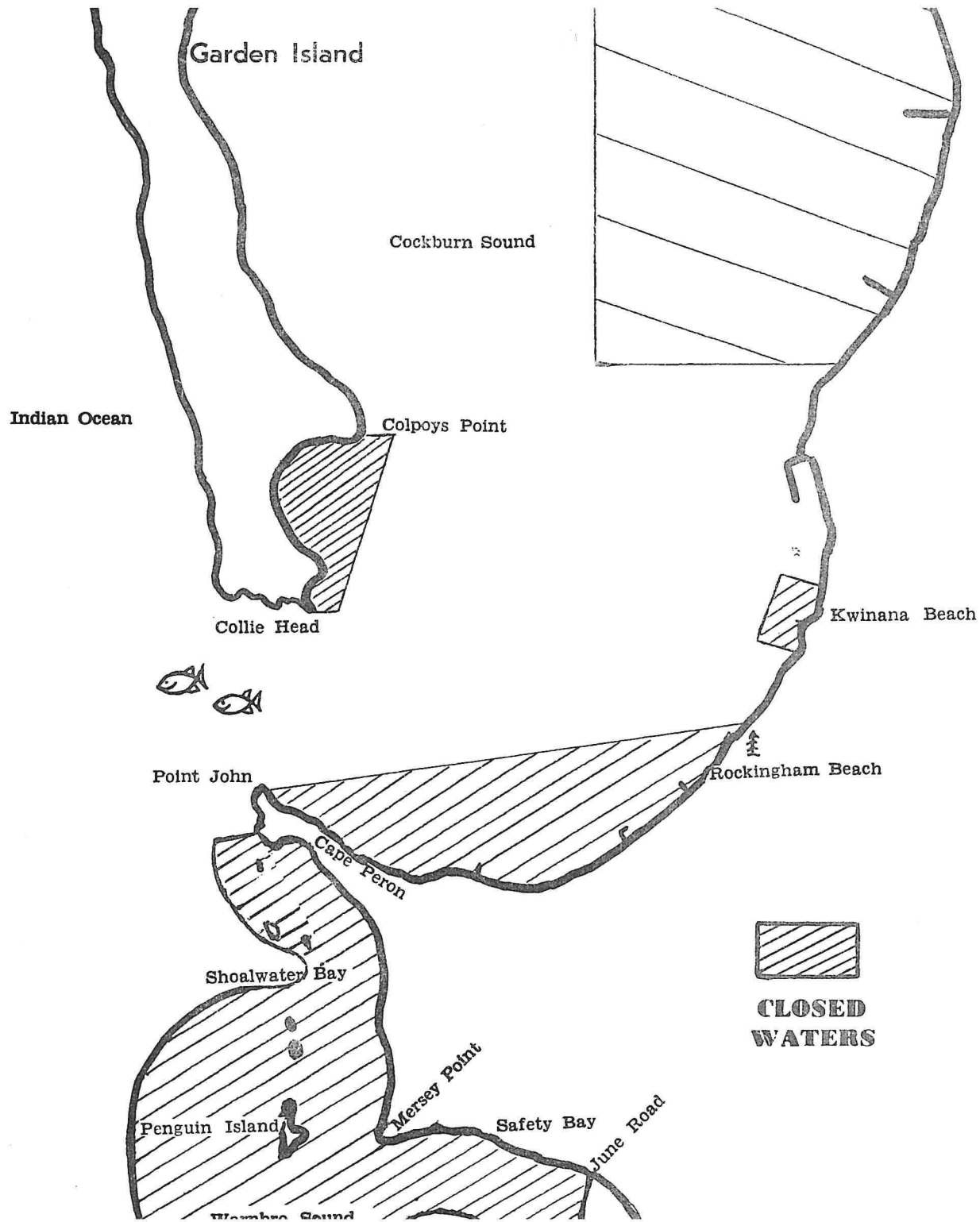
F.D. 54/45.

THE Minister for Fisheries and Fauna, pursuant to the powers conferred by sections 10 and 11 of the Fisheries Act, 1905-1965, doth hereby prohibit all persons from taking any fish whatsoever by means of fishing nets other than hand scoop nets in all that portion of Western Australian waters described in the schedule hereto during the period commencing at six o'clock in the forenoon and ending at 6 o'clock in the afternoon of each and every day, from the date of publication of this notice in the *Government Gazette* until 29th July, 1970.

Schedule.

All that portion of the Indian Ocean from the western extremity of Rous Head and extending in a north-easterly direction along high water mark for a distance of forty chains, with a width of a quarter of a mile from the foreshore.

G. C. MacKINNON,
Minister for Fisheries and Fauna.



foreshore one hundred and fifty (150) yards south of the said jetty, and extending into the waters aforesaid to a distance of one-quarter of a mile from high-water mark.

G. C. MacKINNON,
Minister for Fisheries and Fauna.

Extract from Government Gazette, (No. 106) of
15th December 1967

FISHERIES ACT, 1905-1966.

Department of Fisheries and Fauna,
Perth, 11th December, 1967.

F.D. 54/45.

THE Minister for Fisheries and Fauna pursuant to the powers conferred by section 9 of the Fisheries Act, 1905-1966, doth hereby prohibit all persons from taking any fish whatsoever by means of fishing lines known as or called "long lines" or "set lines" in all those portions of Western Australian waters described in the Schedule hereto, as from the date of publication of this notice in the *Government Gazette*.

Schedule.

- (1) The whole of the waters of Warnbro Sound (Safety Bay), including the waters surrounding the offshore rocks and islets, bounded on the north by a line drawn from Mersey Point and extending seawards to a position one mile west of that Point; thence by a line drawn in a generally southerly direction to a position one and one-half miles west of Becher Point; thence by a line drawn in an easterly direction to the said Becher Point.
- (2) The whole of the waters of the Indian Ocean commencing at the North Mole at Fremantle and extending in a northerly direction to Wreck Point with a width seawards of one mile from the foreshore.

This notice cancels the following Proclamations:—

Proclamation dated 30th November, 1939, and published in *Government Gazette* of 1st December, 1939.

Proclamation dated 29th April, 1965, and published in *Government Gazette* (No. 51) of 14th May, 1965.

Proclamation dated 22nd June, 1964, and published in *Government Gazette* (No. 58) of 3rd July, 1964.

G. C. MacKINNON,
Minister for Fisheries and Fauna.

CLOSED WATERS

(Extract from Government Gazette (No.72)
of 2nd August, 1968)

FISHERIES ACT, 1905-1967.

Department of Fisheries and Fauna,
Perth, 22nd July, 1968.

F.D. 365/66.

THE Minister for Fisheries and Fauna, pursuant to the powers conferred by sections 9 and 10 of the Fisheries Act, 1905-1967, doth hereby prohibit all persons from taking any fish whatsoever by means of fishing nets, other than prawns by hand trawl nets, in all those portions of Western Australian waters described in the schedule hereto.

Schedule.

The waters of the Swan River and of its affluents and tributaries from a line drawn from the southwestern extremity of Point Resolution to the southwestern extremity of the Point Walter jetty (situated at Point Walter), downwards to a line drawn from the western extremity of the South Mole to the western extremity of the North Mole at Fremantle.

This notice cancels the Proclamation dated 11th December, 1967, and published in the *Government Gazette* (No. 106) of 15th December, 1967.

G. C. MacKINNON,
Minister for Fisheries and Fauna.

[Extract from Government Gazette (No. 72) of
29th July, 1966.]

FISHERIES ACT, 1905-1965.

Department of Fisheries and Fauna,
Perth, 22nd July, 1966.

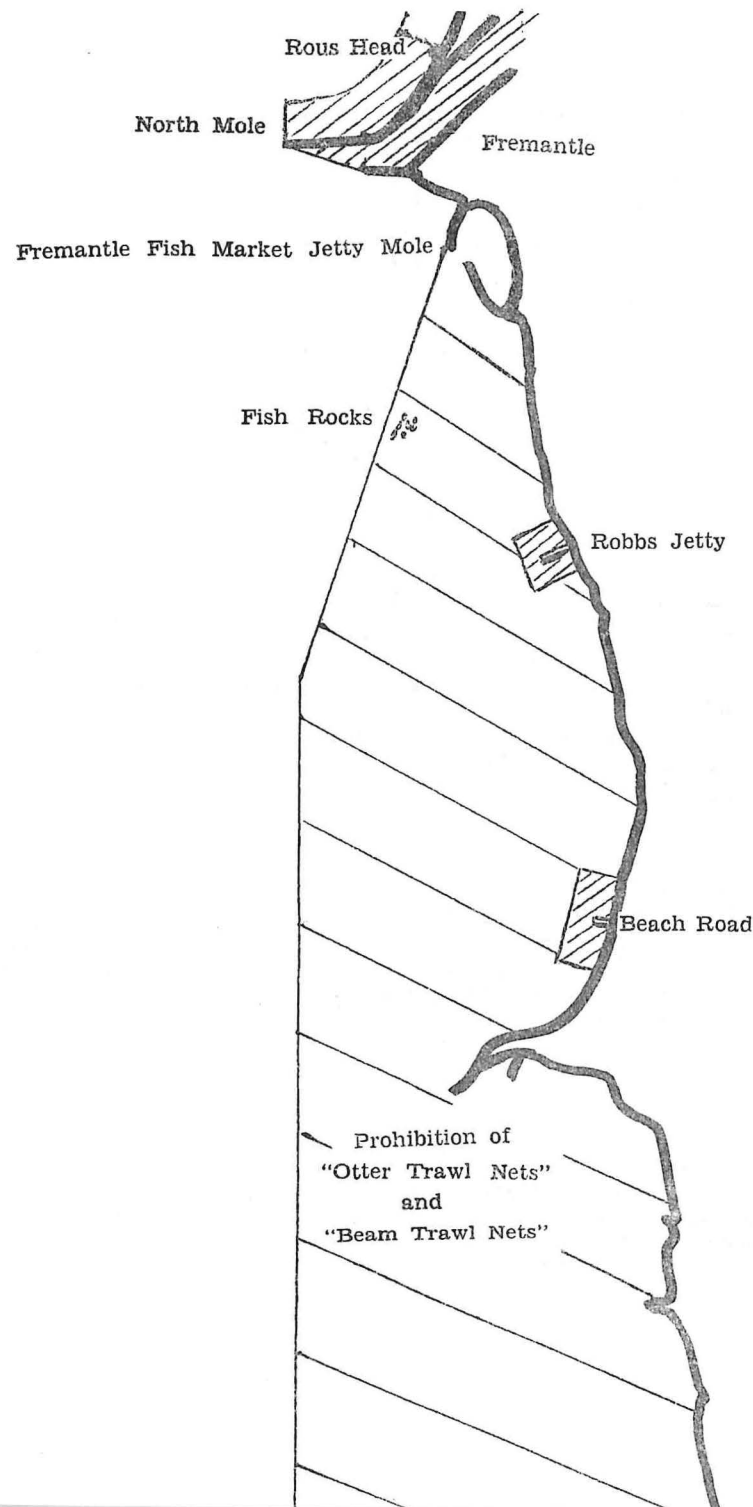
F.D. 81/42.

THE Minister for Fisheries and Fauna, pursuant to the powers conferred by sections 10 and 11 of the Fisheries Act, 1905-1965, doth hereby prohibit all persons from taking any fish whatsoever by means of fishing nets from 1st January to 31st May, inclusive, and from 1st November to 31st December, inclusive, in each and every year, in that portion of Western Australian waters described in the schedule hereto, from the date of publication of this notice in the *Government Gazette*.

The notice dated 18th January, 1966, and published in the *Government Gazette* (No. 7) of 21st January, 1966, is hereby cancelled.

Schedule.

All that area of Western Australian waters in Cockburn Sound commencing at a point on the foreshore one hundred and fifty (150) yards north of Robbs Jetty and extending to a point on the



N



Indian Ocean



TOTAL CLOSURE

(Extract from Government Gazette (No.102)
of 8th November, 1968)

FISHERIES ACT, 1905-1967.

Department of Fisheries and Fauna,
Perth, 31st October, 1968.

F.D. 367/66.

THE Minister for Fisheries and Fauna, pursuant to the powers conferred by sections 10 and 11 of the Fisheries Act, 1905-1967, does hereby prohibit all persons from taking any fish whatsoever by means of fishing nets in any of the portions of Western Australian waters described in the schedule hereto, from the date of publication of this Notice in the *Government Gazette* until further notice.

Schedule.

Metropolitan Beaches.

- (1) All those portions of Warnbro Sound, the Indian Ocean and Shoalwater Bay bounded by lines starting from a point on the foreshore of Warnbro Sound situate in prolongation southerly of the eastern side of June Road, and extending southerly along that prolongation to a line parallel to and half a mile from the foreshore of Warnbro Sound aforesaid; thence generally westerly along that line to its intersection with a line parallel to and one mile from the foreshore of Penguin Island; thence generally southerly, generally westerly, generally northerly and generally easterly along that line to a point situate south from Cape Peron; thence north to that cape and thence generally south-easterly along the foreshore of Shoalwater Bay and Warnbro Sound aforesaid to the starting point. (Public Plan 341D/40.)
- (2) All that portion of the waters of Cockburn Sound (near Rockingham Beach) lying south of a line drawn from the north-western extremity of Point John intersecting the north-western extremity of the northernmost pier or jetty at Rockingham Beach, and extending to a point on the foreshore at the said Rockingham Beach.
- (3) The waters of that part of Cockburn Sound at Kwinana Beach extending one-quarter of a mile north and south of the "Kwinana" wreck and extending seawards one-quarter of a mile measured rectangularly from the foreshore.
- (4) All that portion of Cockburn Sound and Careening Bay, Garden Island, bounded by lines starting at the easternmost extremity of Colpoys Point, on that island, and extending east for twenty chains; thence south-south-westerly to a point situated twenty chains east of the easternmost extremity of Collie Head; thence west to that point and thence generally north-north-easterly along the foreshore of Cockburn Sound and Careening Bay aforesaid to the starting point.
- (5) All that portion of the Indian Ocean from the western extremity of the North Mole and extending in a north-easterly direction to the western extremity of Rous Head, with a width of a quarter of a mile from the foreshore.
- (6) All that portion of the Indian Ocean from a point on high water mark forty chains north-easterly from the western extremity of Rous Head and extending in a north-easterly direction to a point one-half mile south of the drain at Swanbourne with a width of a quarter of a mile from the foreshore.
- (7) All that portion of the Indian Ocean at City Beach commencing at a point on the foreshore one-half mile south of the southern groyne and extending in a northerly direction to a point one-half mile north of the northern groyne with a width seawards of one-half mile from the foreshore.
- (8) All that portion of the Indian Ocean at Scarborough Beach commencing at a point on the foreshore fronting the western extremity of Reserve Street, and extending in a southerly direction to a point two chains south of Brighton Road, and to a width of one-half mile from the foreshore.
- (9) All that portion of the Indian Ocean at Yanchep Beach commencing at a point on the foreshore one-half mile north-west of the north-western corner of Reserve No. 12439 and extending in a generally south-easterly direction to a point on the foreshore one-quarter mile south-east of the south-western corner of the said reserve, with a width seawards of one-half mile from the foreshore.
- (10) All that portion of Indian Ocean bounded by lines starting from a point on the high water mark of the Indian Ocean situate in prolongation westerly of the centre line of Beach Road and extending generally southerly along that high water mark to an east-west line passing through a point situate 23 chains south of the starting point; thence west 20 chains; thence north 46 chains; thence east to the high water mark of the Indian Ocean aforesaid and thence generally southerly along that high water mark to the starting point.

The notice dated 11th December, 1967, and published in the *Government Gazette* (106) on the 15th December, 1967, is hereby cancelled.

G. C. MacKINNON,
Minister for Fisheries and Fauna.

NET CLOSURE

(Extract from Government Gazette (No.91)
of 27th October, 1967)

FISHERIES ACT, 1905-1966.

Department of Fisheries and Fauna,
Perth, 21st July, 1967.

F.D. 183/60.

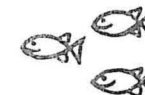
THE Minister for Fisheries and Fauna, pursuant to the powers conferred by section 10 of the Fisheries Act 1905-1966, doth hereby prohibit all persons from taking any fish whatsoever by means of fishing nets known as or called "Otter Trawl Nets" and "Beam Trawl Nets" in all that portion of Western Australian waters described in the schedule hereto.

G. C. MacKINNON,
Minister for Fisheries and Fauna.

Schedule.

All that portion of the Indian Ocean bounded by lines starting from the southern extremity of the Fremantle Fish Market Jetty Mole and extending south-south-westerly to Fish Rocks and onwards 85 chains; thence south to a point situate west of the northwestern corner of lot 1 of Cockburn Sound Locations 244 and 704 as shown on Land Titles Office Diagram 16889, a point on the low water mark of the Indian Ocean; thence east to that point, and thence generally northerly, generally westerly generally southerly along that low water mark to the starting point. (Admiralty Chart Aus. 77, Public Plans Fremantle 186, F217-4 and 341A/40.)

The notice dated the 21st July, 1967, and published in the *Government Gazette* (No. 65) of 11th August, 1967, is hereby revoked.



FISHERIES RESTRICTIONS

The Minister for Fisheries and Fauna has renewed the fisheries restrictions, by virtue of Notices in the Government Gazette dated May 30, 1969, prohibiting all persons from taking any fish whatsoever by means of fishing nets in any of the Western Australian waters as specified in the following paragraphs. The Notices are in effect until further notice.

- * The whole of the waters of the Hay River, and its tributaries, and that portion of the waters of Wilson's Inlet East and South-East of a line drawn from the North-East corner of Plantagenet Location 1500 to the South-West corner of Plantagenet Location 3502.
- * The whole of the waters of the Denmark River and its tributaries and that portion of the waters of Wilson's Inlet within a radius of half-a-mile from the mouth of said Denmark River.
- * Taylor's (Nammerup) Inlet: The whole.
- * The whole of the waters of Bow River (near Irwin's Inlet).
- * All the Western Australian waters of the Indian Ocean lying within a radius of half a mile of the northernmost extremity of the Mole situated on the West side of the channel entrance to Peel Inlet, Mandurah.

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STAFF NOTE

Mr. E.A. MacKenzie, the Engineer on the R.V. "Flinders", will proceed on three months' Long Service Leave as from November 3. It is understood that Mr. MacKenzie may, during his period of leave, visit the United Kingdom. All members of the staff wish him a happy holiday.

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It is much easier to be critical than correct.

- Disraeli.

REPORT ON CARNAC ISLAND - RESERVE NO. 26646

During May 1969, the Department with the assistance of the Agriculture Protection Board's specialist research staff conducted a rabbit control programme on Carnac Island. This island, some 6 miles west of Fremantle, and just north of Garden Island, carries a number of the fauna species found on our off-shore islands. The rabbit control measures were undertaken at the request of the Western Australian Wild Life Authority which acted on the advice of the Reserves Manager, Dr. A.A. Burbidge.

The rabbits had to be severely reduced if not eliminated and to do this it was necessary first to burn the vegetation then lay poison baits. The reasons for these measures were:

- * The rabbit's food supply was already low due to the high population plus seasonal conditions which made autumn the best time to hit the rabbit population hard.
- * Most rabbits which survived the poison would die due to increasing environmental pressures - cold plus starvation.
- * Most natural fauna could escape the fire - birds by flight and reptiles by taking cover in holes in the ground.
- * The poison baits - carrots with 1080 - proved in control trials to be unattractive to the natural fauna.

Secondary poisoning risks have been lowered by Departmental personnel revisiting the island and disposing of all rabbit carcasses. There were of course risks to be taken in such a programme but the need to destroy the rabbits because of what they were doing to the habitat and indirectly to the natural fauna was so great that the risks were considered to be well worth taking and every effort was made to reduce them to a low level.

The programme appears to have been successful to date but the results will be assessed later in the year. The response of the island's vegetation is quite remarkable and many of the shrubs that had been browsed back almost to base wood have produced large numbers of new shoots.

During patrol of the island on July 16, 1969 by Cadet Fauna Warden D. Mell, a number of fauna observations were recorded. As the P.V. "Lancelin" approached a Wedge-tailed

Eagle was sighted over the island. Several dead Silver Gulls that had obviously been killed and eaten by an eagle were later located. Fauna present on the island included Australian Gannet, Silver Gull, Pied Cormorant, Hair Seal (16), Giant Petrel (3), Bridled Tern (1), King Skinks, Tiger Snake, Gecko, Willy Wagtail, Silvereye, Welcome Swallow, Great Skua and Fairy Penguin.

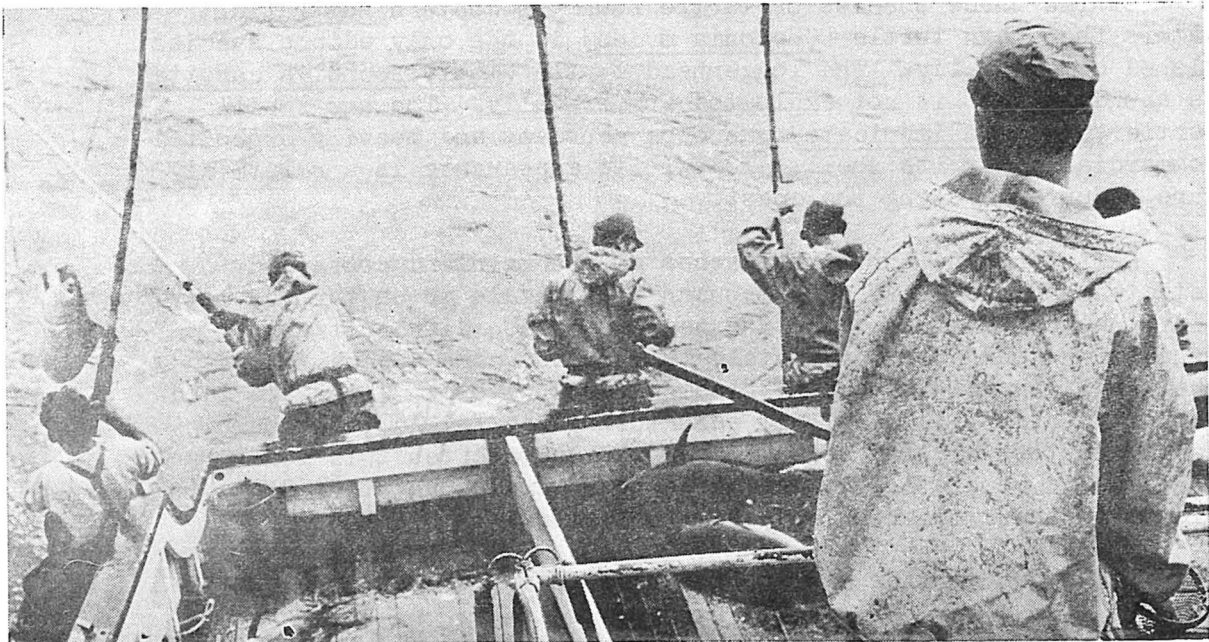
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Southern bluefin tuna

Fishing for Southern Blue-fin Tuna in the waters off Albany during the period April to June by five vessels has yielded approximately 230 short tons. Mr. J.P. Robins, the Research Officer in charge of Developmental Research, said present indications are that a limited fishery on this species of tuna could be substantiated at about 500 short tons per year.

Of the five vessels operating in this fishery in the Albany area, only one, the 57 foot F.V. "Torbay" is equipped to stay at sea longer than one day. The F.V. "Torbay" can remain at sea 10 to 14 days at a time. The other vessels, ranging in length from 25 to 40 feet return to port daily with their catch.

The fishing method employed by all these vessels is the live-bait and pole method.



Live-bait tuna pole fishing in South Australian waters.

THE TURTLE FISHERY OF WESTERN AUSTRALIA

As early as 1901 the then Chief Inspector of Fisheries, Mr. C.F. Gale, reported that to his surprise he had observed very large numbers of green turtle in waters off the north-west coast and coastal islands of this State. Despite this enthusiastic report a turtle industry was not established until many years later, and then only on a small and restricted scale. Several attempts were made over the years to commercialise these animals without any marked degree of success although prior to 1939 turtle soup was canned and exported to France.

In recent years two Western Australian processing companies have undertaken commercial exploitation of the green turtle. Each company has one licensed freezer boat operating in adjoining areas off the north west coast to take turtles for an established export market. The areas comprise the territorial waters extending along the coastline for approximately 100 miles northwards from 23° 10' south latitude.

The two boats licensed to take turtles operate on a quota system, caused by a very competitive and limited European market. In 1968 the export of processed turtle meat from Western Australia was 362,027 lbs and in the previous year (1967) it was 299,030 lbs.

The fishing season generally commences in mid-winter, about June or July, and terminates in September or October, depending on when the quota for the available market is obtained.

Of the three species of turtle found in Western Australian waters the green turtle (Chelonia mydes) is the only edible species fished commercially. The loggerhead turtle (Thalassochelys caretta) is abundant, but is not exploited commercially. The hawks-bill turtle (Chelonia imbricata) was once abundant and heavily exploited commercially for its shell. Today, its appearance is a relatively rare occurrence along the coast.

All along the northern beaches of the mainland coast and selected off-shore islands, thousands of female green turtles leave their natural environment - the sea, to make a difficult and exhausting journey. Fortunately the turtles come ashore to lay their eggs shortly after the fishing season closes. Eggs are laid above the high tide mark, and each turtle may lay 150, although larger turtles may lay as many as 200. Quite often this lonely struggle is completely wasted, because hatched youngsters fall victim to their numerous and eager predators.

The young turtles hatch after nine to ten weeks and begin

life by digging out of the sandy nest. Not all the eggs hatch, and not all the young turtles that do hatch reach the surface. The weaker suffocate in the sand. Many of those that reach the surface perish, as they have many enemies in the form of sea birds by day and ghost crabs by night, as well as other forms of predators. Of those that make the sea, only two or three turtles out of each nest may reach maturity.

The green turtle has not only a low recruit survival and a very slow growth rate, it has one other main factor that is very important when considering the status of the population. The female evidently only reproduces every three or four years. This factor makes this animal therefore extremely susceptible to over-fishing. Hence the restrictions of only two boat licenses. These boats complete research log books providing information to the Department enabling it to decide if the fishery is in danger of being overfished.

Each licensed freezer boat has several small 16 foot scooter catcher boats, powered by 40 H.P. outboard motors. These scooter boats operate within a one mile radius of the mother freezer boat, in the relatively shallow water inside the offshore reefs, where the turtles graze on the brown and green algae of the rocky sea bed. When a turtle is located it is harpooned from the scooter boats as it races through water from 3 to 8 feet deep. On attaining a full load of about 10 turtles, the scooter boats unload their catch onboard the freezer boat for processing. Turtles are gutted, beheaded, washed, drained and blast frozen. Each carcass weighs about 120 lbs. dressed. When the freezer boat attains a full load, usually about 300 turtles taken in about 3 days fishing, it returns to port to unload its catch.

From the port of landing the catch is taken by freezer trucks to Robbs Jetty, near Fremantle, for further processing and storage pending export. Most of the best quality cuts of meat come from the muscles of the fore-flippers. Very little wastage of the landed dressed turtle occurs.

The Department is concerned about the depletion of turtle stocks mainly because of their susceptibility to over-fishing. In an effort to maintain a satisfactory turtle population off our northern coastline, it is apparent in view of what has occurred in turtle fisheries elsewhere that sanctuary areas will need to be established in the near future.

DISTRICT REPORT

NEW FISH PROCESSING ESTABLISHMENT FOR SHARK BAY

Rose Cape Fisheries Pty. Ltd. of Perth has been granted permission by the Department to build a new fish processing establishment at Shark Bay in accordance with plans and specifications submitted. Subject to compliance with such plans and specifications and with the requirements of the Public Health Department, the premises when completed will be licensed as a Fish Processing Establishment under the Fisheries Act. This processing establishment, however, is not permitted to be used for the processing of crayfish or prawns.

At this stage, it is not proposed to license any additional premises at Denham, Shark Bay as a fish processing establishment.

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Western Fisheries Research Committee

The 1968 meeting of the Western Fisheries Research Committee is to be held during the period August 5 to August 8. The venue for this meeting will be the Marine Research Laboratories at Waterman. This will be the Committee's first meeting to be held at the new Laboratories which were opened last year.

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A man of words and not of deeds,
is like a garden full of weeds.

- Old Rhyme.

OFFENCES UNDER FISHERIES ACT

NAME	D.O.O.	D.O.H.	COURT	NATURE	FINE
ALLEN F.R.	8.3.69	9.7.69	Perth	U/S Crays	\$200 + \$32
ALTAMURA V.	3.3.69	25.6.69	Perth	U/W C/tails	\$116
COOPER K.	3.3.69	25.6.69	Perth	U/S Crays	\$118
CURWEN J.	12.4.69	9.7.69	Perth	U/S Crays	\$100 + \$36
HOLLAND L.	3.3.69	9.7.69	Perth	U/W C/tails	\$100
JAMES W.	12.2.69	9.7.69	Perth	U/S Crays	\$100 + \$28
LO PRESTI R.	3.3.69	25.6.69	Perth	U/W C/tails	\$156
MOORE N.	3.3.69	9.7.69	Perth	U/W C/tails	\$100
NELSON R.	3.3.69	9.7.69	Perth	U/W C/tails	\$100
PAPARONE F.	31.3.69	14.7.69	Ftle.	Closed wtrs.	\$250
SENZIO M.	30.12.68	14.7.69	Ftle.	U/S Crays	\$124
VIEIRA J.	12.4.69	9.7.69	Perth	U, S Crays	\$100 + \$36
WARD E.	15.12.68	25.6.69	Perth	U/L Proc. of Crays	\$20

U/S = Undersize
 U/W C/tails = Underweight craytails
 U/L = Unlicensed
 Wtrs. = Waters
 U/L Proc. = Unlicensed Processing

OFFENCES UNDER FAUNA CONSERVATION ACT

NAME	D.O.O.	D.O.H.	COURT	NATURE	FINE
AGGETT M.	12.11.68	29.5.69	Pt Hedland	U/L Selling of P/F	\$10
HENRY R.	16.2.69	25.6.69	Perth	T/F in C.A.	\$20
MACDONALD J.	12.11.68	29.5.69	Pt Hedland	U/L selling of P/F	\$20
PAVISICH M.	22.1.69	25.6.69	Perth	Illeg. T/F	Cautioned
REEVE J.	23.2.69	8.7.69	Pinjarra	T/F in C.A.	\$40
WATERS B.	16.2.69	25.6.69	Perth	T/F in C.A.	\$20

P/F = Protected Fauna
 T/F = Taking Fauna
 C.A. = Closed Area

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oceanographers, marine biologists, marine geologists, and
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The seine net - its origin, evolution and use.

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192 p. bibl. figs. tabs.

VALENTI, Robert J.

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WOLDENDORP, Richard

joint author

The hidden face of Australia, by Richard Woldendorp and Peter Slater.

Melbourne. Thos. Nelson (Aust.) Ltd. 1968.

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WOODFORD, Peter F. ed.

Scientific writing for graduate students. A manual on the teaching of scientific writing. A Council of Biology Editors manual prepared by the CBE Committee on graduate training in scientific writing.

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published weekly by Furnell and Sons Ltd., Bristol, England.

Received Nos. 1 - 31.

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People ask you for criticism, but they only want praise.

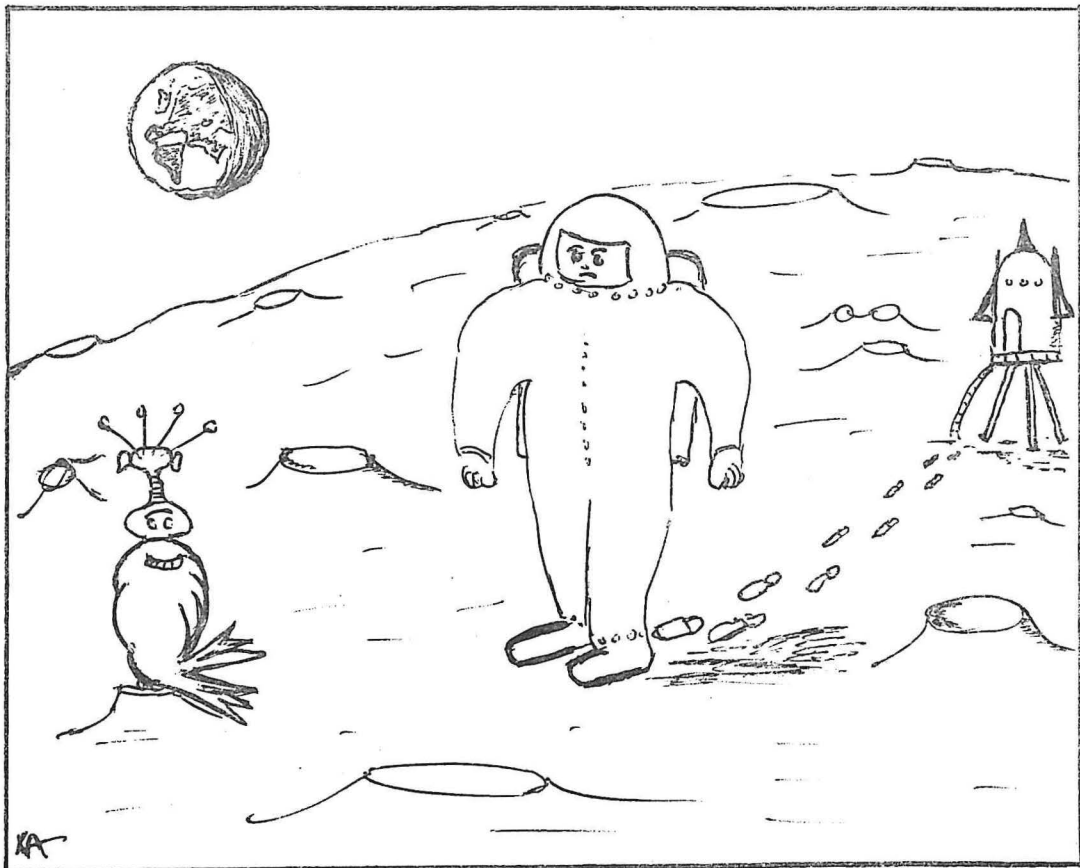
- Somerset Maugham

TREATMENT OF WATERFOWL

The Department has prepared a booklet outlining the treatment of waterfowl affected by either Algal poisoning or Botulism. Cases of these two sicknesses are likely to occur throughout the State at any time of the year, and frequently do, causing heavy mortality among the waterfowl. Large outbreaks, however, usually develop in the South-west only during the summer months. When they do, a considerable number of birds is affected and the Department is unable to cope. The booklet has been prepared as a guide for anyone willing to care for and treat afflicted birds.

Booklets are available from Head Office on application.

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"Mr. Earthman, may I see your license to enter this sanctuary, your license to collect, to hunt, to walk, to photograph, to fish, to.....?"