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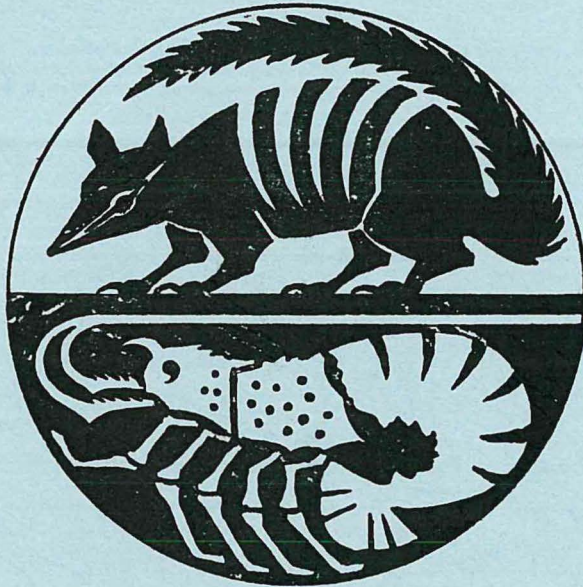
19(3) Mar 1970

DEPARTMENT OF PARKS AND WILDLIFE

STAFF

BULLETIN

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MARCH, 1970

VOL. XIX, No. 3

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

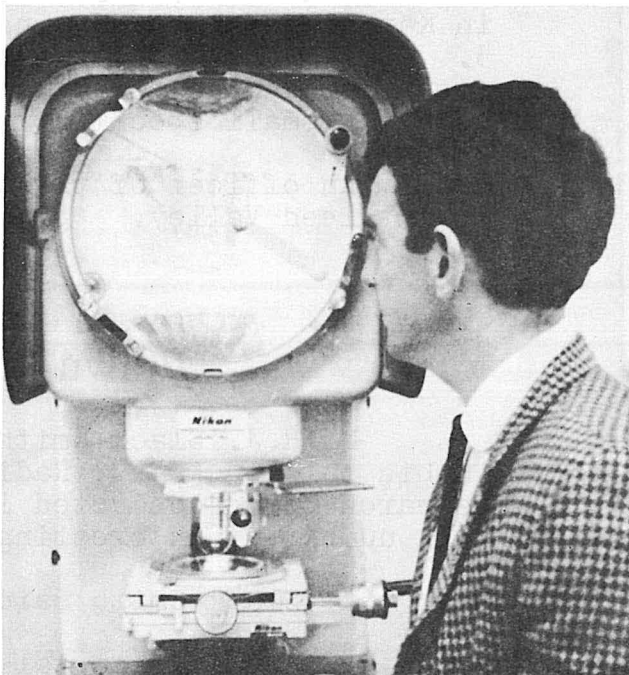
FISHERIES RESEARCH OFFICER TO

TRAVEL OVERSEAS

Mr R.C.J. Lenanton, Fisheries Research Officer, departed March 26, 1970, on a study tour that will take him around the world. The purpose of the tour will be to gain experience in fisheries research and an on the spot appreciation of the work that is carried out in a number of fisheries research establishments.

A brief resume of Mr Lenanton's itinerary is a week stop over at Hawaii, then for ten weeks at the International American Tropical Tuna Commission, La Jolla, California, then for a three weeks visit to the Washington State Fisheries Department in Olympia to study estuarine environments. From there he will proceed to Denmark via Washington D.C. and New York. In Denmark he will attend the F.A.O. Symposium on Recruitment and Stock Abundance which is being held at Aarhus near Copenhagen. The Director, Mr B.K. Bowen, who will be overseas at that time on a private visit, and Mr G.R. Morgan, Fisheries Research Officer, will also attend this one week symposium.

Mr Lenanton will then proceed to Lowestoft, England, to spend one month at the Fisheries Research Laboratories to study the methods of age determination of scale fish. During his stay in England Mr Lenanton intends to look at fishing ports, fishing boats and the gear in use.



* * * *

1970 R.A.O.U. CONGRESS TO BE HELD IN W.A.

The Royal Australasian Ornithologists Union will hold its 1970 Congress and camp-out in Western Australia. It is proposed to hold the camp-out on Wanjarri Station in Kathleen Valley, during the period August 29 to September 5. During the camp-out the R.A.O.U. proposes to conduct a general survey of the birds occurring in that area as well as a few small specific projects.

An officer of the Department will accompany the party to Kathleen Valley.

* * * *

Prawn Research in W.A.

Mr R.J. Slack-Smith, Fisheries Research Officer, in his talk on A.B.C. Radio on March 10, spoke on the prawn research being conducted in Western Australia and referred to a number of interesting developments.

Mr Slack-Smith said:

"Since my last talk to you about prawn research in W.A. there have been a number of interesting developments.

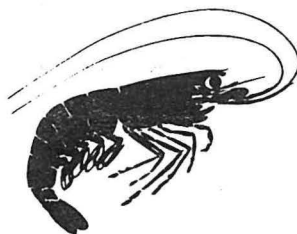
You may recall I mentioned that we are conducting a series of experiments at the WAMRL on prawn marking and that I hoped to give you further information on this work during this talk. We have been considerably hampered in this work by an inadequate supply of healthy live animals for the aquaria. Initially, we attempted to transport live king and tiger prawns from Shark Bay firstly by road transport; and, secondly, on the research vessel "Flinders". We found that these prawns were all too badly injured to use in our experiments. Next we attempted to transport tiger prawns from Exmouth Gulf, except, in this experiment we used cold dry sawdust as the transporting medium. This method of transport showed great promise. However, several months ago we decided to investigate Cockburn Sound as a/

local source of live king prawns. We discovered that the Sound contained more than sufficient prawns for our work here at the Laboratory. Supplies are now trawled at night using the "Flinders" and transporting prawns, from Rockingham to the Laboratories. The first part of the prawn marking investigation has been to look at the effect of vital stains on prawn survival. You may recall that I described this marking method in a previous talk. We have now determined the critical doses of the stains, and intend within the next 2 months to field test these doses in Cockburn Sound. The second part of this investigation is to develop a method of individually tagging prawns, so that we can investigate their rates of growth. Over the years several methods have been suggested, and tried, but it now appears that the only feasible method is to insert tiny stiff plastic tags into the muscles of each prawn's tail. We also hope to try this method in Cockburn Sound.

On the commercial side of the prawn industry the fishing season is now getting under way. In Shark Bay, trawlers have been working since mid-January, and to date over a quarter of a million lbs. of both king and tiger prawns have been taken. Up until about a week ago these prawns were the remainder of last year's brood but within the last week, small prawns have commenced flooding onto the grounds, showing us that the 1970 brood has arrived from the nursery areas. In Exmouth Gulf, fishing has commenced within the last few weeks and good catches of tiger prawns have been reported. The banana prawn fishery in Dampier/Port Hedland area is showing promising signs for 1970 but the prawns that have been taken are far too small, as yet for processing.

The CSIRO, Division of Fisheries and Oceanography, have recently commenced an intensive research programme in the Dampier area.

In the next talk I shall give you more information on the research and development work being carried out in our North West."



ANTECHINUS APICALIS SURVEY

Mr W.H. Butler conducted on behalf of the Department a survey of the area in which the Dibbler (Antechinus apicalis) was re-discovered in April 1967. The survey was made during the period January 29 to February 4, 1970, and no Dibbler was caught.

A request to the Lands Department for a temporary reserve to protect the habitat in which the Dibbler was re-discovered was refused in January 1969, on the ground that there were already several reserves covering most of the area applied for. At that time the Lands Department was not asked to create a permanent reserve for fauna because of the lack of information to back up such a request. For this reason it was arranged for Mr Butler to carry out an initial survey of this area in the Cheynes Beach locality, in order to find out more about the animal's abundance and habitat preference.

The next step will be to start looking elsewhere for this animal. The Two Peoples Bay Reserve is considered to be a most unlikely area since it contains a very different type of habitat. Investigations will have to be made for areas that possibly contain similar floral arrays to those in the Cheynes Beach locality. Analysis shows that the Dibbler's preferred habitat has a floral composition that enables a nectar flow all year round. Some of the flow is copious and will support a large population of insects. This in turn allows insectivorous fauna, especially that which supplements its diet with nectar, to establish a good foothold. As a result, the area where the Dibbler was re-discovered is rich in small mammal species but because of its very limited size, the number of animals for each species is very low.

* * * *

REPORT OF WARDEN OF LAKE WANNAMAL

An inspection by Mr L.J. Silvester, Fauna Warden, on February 2, 1970, revealed that there was no water nor were any water birds present.

A patrol of this lake situated in the Gingin Shire by Departmental wardens was conducted in November, 1969. At that time the water level was extremely low, and sections of wetland areas usually under water, were already dry. Honorary Warden Mr C. Wedge informed the inspecting officers at the time, that the water level was the lowest he could recall for possibly 35 years. During his inspection in November, Warden A.R. Marshall and Cadet Warden R.I. Gardiner sighted the following water birds: 1,000 Grey Teal, 200 Black Duck, 35 Blue-winged Shoveler, 500 Mountain Duck, 4 Musk Duck, 35 Black Cormorant, 19 Coot, 3 Little Grebe, 7 White-faced Heron, 5 Straw-necked Ibis, 300 White-headed Stilt, 1 Yellow-billed Spoonbill and 73 Black Swan.

A second inspection of this lake on December 10, 1969, by Warden Silvester revealed that there were about 7,000 water birds on it, mainly Grey Teal, and some Mountain Duck, Black Duck, Blue-billed Duck, 50 Black Swan, 8 Pelican, some White-faced Heron, White-headed Stilt Straw-necked Ibis, Black Cormorant and White Egret. This build up of water birds towards the end of December was most probably due to the fact that the surrounding smaller swamps were drying out.

In order to obtain a clear picture of how the prevailing drought conditions were affecting waterfowl habitat, periodic inspections were made of Lake Wannamal.

Mr Silvester conducted a further patrol on January 4 and found the water level barely high enough to allow the birds to float. At the time of inspection 120 Grey Teal, 9 Mountain Duck and 3 White-headed Stilt were present. A follow-up patrol on February 9 revealed that Lake Wannamal was dry and no water birds were present.



FRESHWATER CROCODILES BRING MEN TO COURT

The Chief Warden of Fauna has been advised by Constable T.P. Wright, of the Fitzroy Crossing Police Station, that he and Constable Thurston apprehended three men who were shooting Johnstone crocodiles - the freshwater species that is fully protected under the provisions of the Fauna Conservation Act. Constable Wright said in his report that a complaint was received and a subsequent investigation of the Junction Hole area lead to the apprehension.

On arrival at Junction Hole a well equipped crocodile shooting party of 3 men was encountered. A search of the camp revealed 2 four-wheel drive vehicles, 3 dinghies, 2 outboard motors, 3 bags of fishing nets, 2 bags of salt, a number of smaller items, unlicensed firearms and ammunition, some freshly killed and a number of skinned Johnstone crocodile carcasses.

The three men apprehended appeared that very same day in the Fitzroy Crossing Police Court and were convicted. One was fined \$100 for being in possession of an unlicensed firearm and \$100 for taking protected fauna, another was fined \$100 for being in possession of an unlicensed firearm and the third was fined \$100 for taking protected fauna. The Court ordered that the carcasses be disposed of by burying them and that all the equipment, except the vehicles, be forfeited to the Crown.

HERE AND THERE-----

This column is used to present to you snippets from reports submitted to the Department and are presented in a lighter vain to our field staff.

"I observed a man pulling rock lobster pots through the binoculars."

"Not many would be interested in shooting the kangaroos and consider that the only solution is for the property owner to shoot himself!"

* * * * *

HE CAME HOME - WITH A FISH

Sometimes it is said that 'old snag haunter' the Black Bream has deserted our Swan River, but not according to one angler. Mr Bill Bailey, of Eden Hill, dragged from the said waters (the night before Friday, March 13), a 2 $\frac{3}{4}$ lbs of gourmet's delight.

Tackle used was a 6 ft flick rod, 18 lbs B.S. line with a no. 4 hook, and a small prawn for bait as well as an outside amount of patience.

* * * * *

Staff Notes

Congratulations are extended to Mr H.B. Shugg on his appointment as Administrative Officer C.II.11 as from January 9, 1970.

* * * * *

Congratulations are also extended to Mr P.C. Willey on his promotion to Inspector Grade 2 (Geraldton) classified G.II.2 as from February 13, 1970.

* * * * *

Mr A.H. Webster commenced duties with the Department on March 3 to fill the position of Assistant/Cook on the R.V. "Flinders. Mr T.A. Goadby and Mr O.E. Thiel commenced duties at Head Office as clerks C.IV on February 13 and March 12 respectively. Miss Diane Jecks commenced duties at Head Office as Assistant G.IX on March 18.

A warm welcome is extended to these officers.

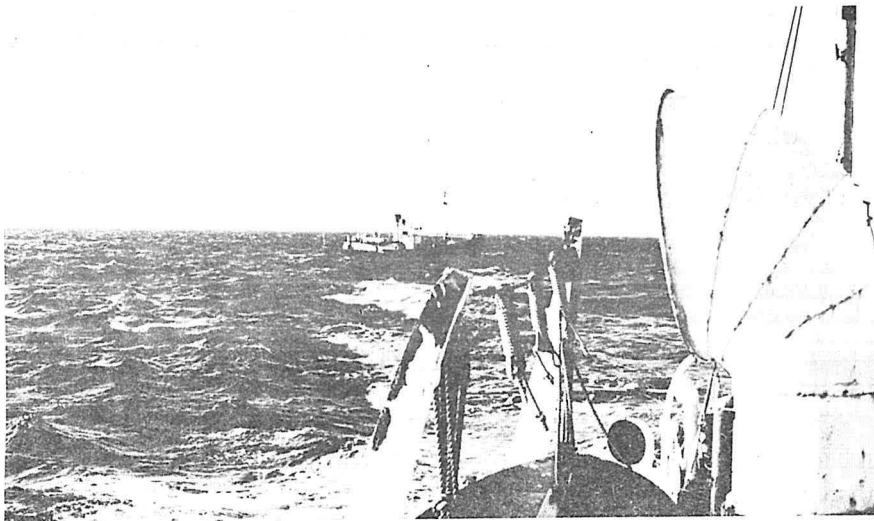
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Miss B.A. Forsyth, Assistant at Head Office and Miss J.M. Daniel, Typist at Waterman have decided to resign and intend to travel interstate. We wish them both "bon voyage".

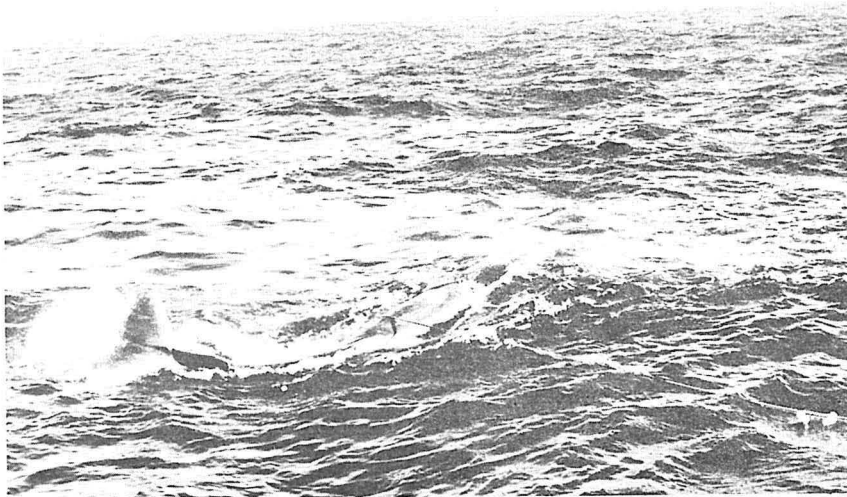
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WHALING OFF ALBANY

Inspector R. Green has supplied a number of photos illustrating whaling operations as carried out by the company operating at Frenchman's Bay, Albany.



The whale chaser "Gascoyne" seen from the deck of the whale chaser "Cheyne II".



The harpoon has found its target



Flensing
commences....
Whaling Inspector
J. Williams is
seen at right
foreground

* * * * *

WHAT IS BIOLUMINESCENCE?

Bioluminescence is light produced by living organisms, both animals and plants. In contrast to incandescent light, high temperatures are not necessary; oxygen, however, appears to be essential to the light-producing process.

Thousands of species of marine animals produce bioluminescence; most of them are animals of the lower orders. In addition to single-celled animals, various jellyfish and related animals produce displays. Among vertebrates, luminescence is found only in certain fishes and sharks.

Displays are seen most commonly in warm surface waters. Although most of the organisms are small, there are such immense numbers present that brilliant displays occur when the waters are disturbed by the passage of a ship at night.

Luminescent bacteria are present in sea water, but not in fresh water and can cause decaying fish to glow in the dark.

At ocean depths where light does not penetrate, there are strange-looking luminescent fishes. Beebe estimated that 96 percent of all the creatures brought up by nets were luminescent. There is controversy among biologists concerning the purpose of lights on marine animals. Some creatures have well-developed eyes but no light to enable them to see in the dark; others have brilliant light organs but are too blind to see. The property of luminescence is perhaps used as a defense against predators or as a means of hunting food or finding members of the opposite sex in the dark. ("Questions About The Oceans," U.S. Naval Oceanographic Office.)

PLEASE NOTE

(Extract from Government Gazette (No. 12)
of 6th February, 1970)

FISHERIES ACT, 1905-1969.

Department of Fisheries and Fauna,
Perth, 28th January, 1970.

F.D. 91/65.

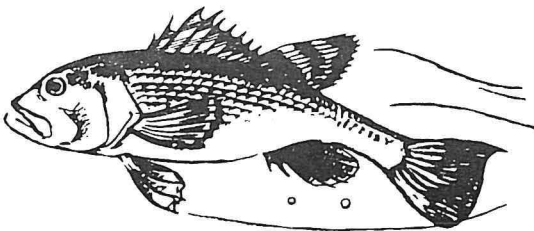
THE Minister for Fisheries and Fauna in pursuance of the powers conferred by section 9 of the Fisheries Act, 1905-1969, does hereby prohibit all persons from taking any fish whatsoever by means of set nets in all that portion of Western Australian waters specified in the schedule hereto for a period of five years from the date of publication of this notice in the *Government Gazette*.

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

Schedule.

All that portion of the Indian Ocean bounded by lines starting at a point on the low water mark of the Indian Ocean situate in prolongation easterly of the easternmost northern boundary of Sussex Location 580 and extending generally southeasterly and generally northeasterly along that low water mark to a point situate in prolongation northwesterly of the southwestern boundary of the northern severance of Wellington Location 531; thence northwesterly 20 chains at right angles to the low water mark of the Indian Ocean aforesaid; thence generally southwesterly and generally northwesterly along a line 20 chains from and parallel to that low water mark to a point situate north-east from the starting point and thence southwest to that point. (Public Plans 413A/40 and 413B/40.)

The Proclamation dated 17th February, 1965, and published in the *Government Gazette* (No. 22) of 26th February, 1965, is hereby revoked.



(Extract from Government Gazette (No. 3)
of 16th January, 1970)

FISHERIES ACT, 1905-1969.

Department of Fisheries & Fauna,
Perth, 16th January, 1970.

F.D. 51/65.

THE Minister for Fisheries and Fauna, pursuant to the powers conferred by section 9 of the Fisheries Act, 1905-1969, does hereby prohibit all persons from taking by any means of capture whatsoever the fish known as or called "rock lobster" in all that portion of Western Australia waters specified in the schedule hereto.

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

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.

(Extract from Government Gazette (No. 12)
of 6th February, 1970)

FISHERIES ACT, 1905-1969.

Department of Fisheries and Fauna,
Perth, 28th January, 1970.

F.D. 90/65.

THE Minister for Fisheries and Fauna in pursuance of the powers conferred by section 9 of the Fisheries Act, 1905-1969, does hereby prohibit all persons from taking any fish whatsoever by means of fishing nets in all that portion of Western Australian waters specified in the schedule hereto for a period of five years from the date of this notice in the *Government Gazette*.

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

Schedule.

All that portion of the Indian Ocean lying within a radius of 40 chains from the centre of Canal Rocks. (Public Plan 413A/40.)

The Proclamation dated 17th February, 1965, and published in the *Government Gazette* (No. 22) of 26th February, 1965, is hereby revoked.

PROCLAIMED FISHING ZONE PORTION OF TWO PEOPLES BAY

(Extract from Government Gazette (No.61)
of 5th July, 1968)

Fisheries Act, 1905-1967.

PROCLAMATION

WESTERN AUSTRALIA, } By His Excellency The Honourable Sir Albert
TO WIT, } Asher Wolff, Knight Commander of the Most
A. A. WOLFF, } Distinguished Order of Saint Michael and Saint
Lieutenant Governor } George, Lieutenant Governor and Administrator in
and Administrator. } and over the State of Western Australia and
[L.S.] } its Dependencies in the Commonwealth of
Australia.

WHEREAS it is enacted by subsection (2) of section 12A of the Fisheries Act, 1905-1967, that the Governor on the recommendation of the Minister, may at any time and from time to time declare a specific portion of the State south of the thirty-second parallel being any part of the seashore up to high water mark, and any portion of Western Australian waters contiguous to that part of the seashore, to be a proclaimed fishing zone for the purposes of that Act during any specified time in any specified year, or during a specified portion of every year; and whereas the Minister has recommended that the part of the seashore up to High Water Mark and the portion of Western Australian waters contiguous to that part of the seashore, as specified and described in the schedule hereunder, such seashore and contiguous waters being a specific portion of the State south of the thirty-second parallel, be declared a proclaimed fishing zone for the purposes of the Act referred to during the periods hereafter in this Proclamation mentioned: Now, therefore, I, the Lieutenant Governor, acting with the advice and consent of the Executive Council, do hereby declare that the part of the seashore up to High Water Mark and the portions of Western Australian waters contiguous to that part of the seashore, as specified and described in the schedule hereunder, shall be a proclaimed fishing zone for the purposes of the Fisheries Act, 1905-1967, during the period commencing on the 15th day of February, 1969, and ending on the 30th day of April, 1969, and during the period commencing on the 15th day of February and ending on the 30th day of April in each and every year thereafter.

Schedule.

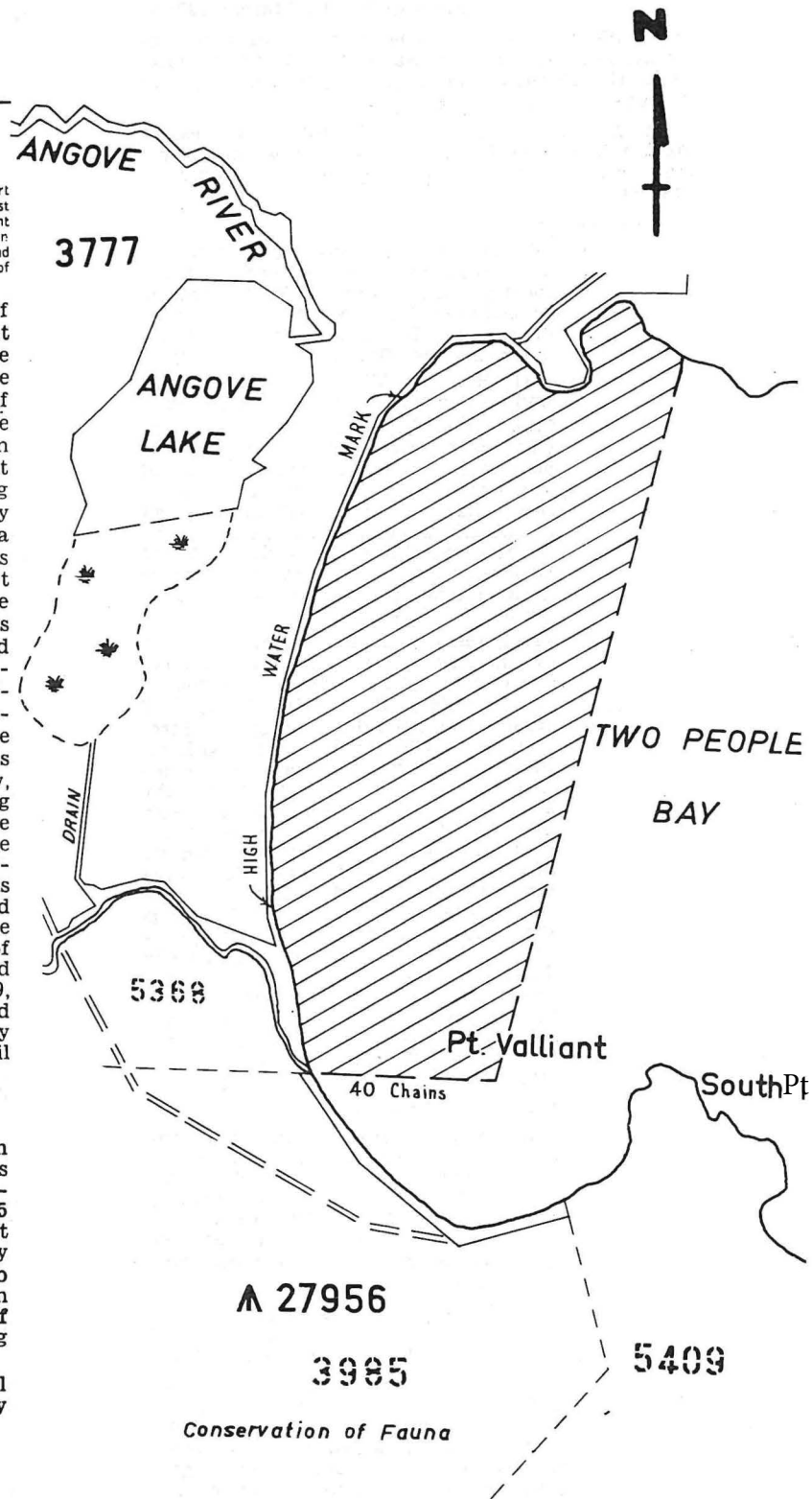
All those waters bounded by lines starting from a point on the High Water Mark of Two Peoples Bay situate in prolongation easterly of the northern boundary of Plantagenet Location 3985 (Reserve 27956) and extending easterly along that prolongation 40 chains; thence north-northeasterly to a point on the High Water Mark of Two Peoples Bay aforesaid; situate in prolongation southerly of the easternmost eastern boundary of location 3777 and thence generally southerly along that mark to the starting point.

Given under my hand and the Public Seal of the said State, at Perth this 25th day of June, 1968.

By His Excellency's Command,

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

GOD SAVE THE QUEEN !!!



Conservation of Fauna

Scale: 40 Chains to an inch

NAVIGABLE WATERS REGULATIONS.

Harbour and Light Department,
Fremantle, 4th March, 1970.

ACTING pursuant to the powers conferred by regulation 48A of the Navigable Water Regulations the Harbour and Light Department, by this notice—

(1) Defines and sets aside the following areas of navigable waters for the purpose of water skiing only, and orders that bathing shall be prohibited therein:—

(a) Ocean areas—

- (i) All the navigable waters of the Indian and Southern Oceans, except those meeting the shore at Port Denison, Shoalwater Bay, Safety Bay, Mandurah and Busselton, and the Ports of Fremantle, Bunbury and Albany.
- (ii) Port Denison—All the waters seaward and to the north of William Street.
- (iii) Shoalwater Bay.—All the waters seaward between a point on the foreshore 50 yards north of Boundary Road and Cape Peron but that no boat or skier shall approach within 300 feet of the shore except between the point on the foreshore 50 yards north of Boundary Road and a point 300 yards in a northerly direction which shall be the take-off area.
- (iv) Safety Bay.—All the waters seaward of an area commencing on the foreshore at a point opposite the southern boundary of lot 244, Safety Bay Road, and extending along the foreshore for 200 yards in a southerly direction; seaward of an area commencing on the foreshore at the access way to the beach at Hanretty Street and extending along the foreshore for 200 yards in a southerly direction; seaward of an area commencing on the foreshore at the access way to the beach at Summons Way and extending along the foreshore for 200 yards in a southerly direction and seaward of an area commencing on the foreshore at the access way to the beach at Bates Way and extending along the foreshore for 300 yards in a southerly direction.
- (v) Mandurah—
 - (a) Within a line extending from the Western Breakwater Head westwards along the foreshore for 300 yards; thence 600 yards due North; thence 300 yards due East; thence approximately 600 yards in a southerly direction to the starting point.
 - (b) Within a radius of $\frac{1}{4}$ mile from the point of the junction of Orion Road with the foreshore.
- (vi) Busselton—All the water seaward between the foot of Carey Street and the foot of Milne Street, eastward of the Busselton Jetty (a distance of approximately 600 feet); and all the water seaward between Lennox Drain and the western boundary of location 34.

(b) Swan River Areas.—All water of the river lying—

- (i) between a line across the river at a point situated 2,500 feet east of the Garratt Road Bridge to a line across the river at a point situated 720 feet east of the prolongation of Epsom Avenue, Belmont.
- (ii) between a line from a spit post at or about the centre of Belmont Park racecourse due east to the bank and a line between the two chimneys of the Swan Portland Cement Works on the southern bank and the chimneys of the brickworks on the northern bank. This area shall not be used for skiing after 2 p.m. on Sunday afternoon when the Maylands Yacht Club are conducting their races;
- (iii) between the south-western end of Heirisson Island (and on either side of the island) and the Bunbury Railway Bridge. This area will be an official headquarters area under the Western Australian Water Ski Association.
The following areas only shall be used between 1st October and 30th April in any year on Saturdays, Sundays and holidays:—
- (iv) Within a line extending 1,500 feet in a westerly direction from the prolongation of Jutland Parade, Dalkeith; thence 2,500 feet in a north-north-westerly direction to the beacon on Karrakatta Bank; thence in an east-north-easterly direction to the shore but so that no boat or skier shall approach within 300 feet of the shore other than in an area extending 1,000 feet along the foreshore from the said prolongation of Jutland Parade which shall be the take-off area.
- (v) Within a line commencing at the prolongation of Forrest Street, Peppermint Grove, in an easterly direction for 1,000 feet; thence in a north-north-easterly direction to the foreshore in Claremont.
- (vi) Within a line from Roe Point, Mosman Park, in a due easterly direction to the foreshore at Bicton, and a line from Chidley Point, Mosman Park, in a north-easterly direction to the foreshore at Point Walter, between the hours of 8 a.m. and 2 p.m. on Saturdays and Sundays, but so that no boat or skier shall approach within 200 feet of the shore except at Roe Point and Chidley Point which are set aside as take-off areas; on Saturdays, Sundays and holidays, between 8 a.m. and 7 p.m., all that area of water within 1,000 feet of the shore for a distance of 2,000 feet to the north-west of Chidley Point but so that no boat or skier shall approach within 200 feet of the shore except at Chidley Point.
- (vii) Within a radius of 1,500 feet from the point of the junction of Stock Road with the foreshore at Attadale.

- (viii) All the waters of the Swan River contained within an area bounded on the north by an imaginary line drawn from Bricklanding Pile to North Point Walter Spit thence to the extremity of Point Walter Spit and bounded on the south by the foreshore between the extremity of Point Walter Spit and the boat launching ramp but so that no boat or skier shall approach within 200 feet of the Point Walter Jetty nor within 250 feet of the Point Walter foreshore between the Jetty and the limit of ski area sign situated 540 feet along the foreshore south-east of the jetty.
- (ix) Between lines extending for 2,500 feet in a north-westerly direction from points on the foreshore 500 feet on either side of Cunningham Street, Lucky Bay, as a take-off area; thence opening out in a semi-circle with a radius of 2,500 feet as a ski area, between the hours of 8 a.m. and 2 p.m. on Saturdays and Sundays.
- (x) Within a line extending 1,500 feet from Heathcote Point, Applecross, in a north-easterly direction; thence in a north-westerly direction for 750 feet; thence south-westerly for 3,500 feet; thence due southerly to the shore, but so that no boat or skier shall approach within 300 feet of the shore except within an area on the foreshore extending for 500 feet in a south-westerly direction from Heathcote Point as a take-off area, between the hours of 8 a.m. and 2 p.m. on Saturdays and Sundays.
- (xi) Within a line extending from Mill Point, South Perth, in a south-westerly direction for 1,500 feet; thence in a south-south-westerly direction for 5,000 feet to the beacon and thence due easterly to the shore.
- (xii) Within a radius of 1,350 feet from a point on the foreshore 200 feet downstream from the Queen Street Jetty, South Perth. This site is reserved for commercial ski schools only.
- (c) Canning River Areas.—All that area of water within the following boundaries:—
- (i) Between the 1st April and the 30th September in any year.—From a point on the foreshore where the prolongation of the south-western boundary of the Esplanade meets the foreshore on the south side of Deepwater Point, Mount Pleasant, marked by a sign, along the foreshore to the foot of Queens Road which is set aside as a take-off area; thence along the western foreshore to the junction of Bulls Creek, but so that no boat or skier shall approach within 200 feet of the shore; thence due east to the foreshore at Riverton; thence along the foreshore to the junction of Fifth Avenue at Rossmoyne; thence due north to Salters Point; thence north-westerly along the foreshore to Sulman Avenue; thence due west to the foreshore at Mount Henry; thence around the foreshore to the most westerly point of Mount Henry, and thence northward to the starting point at Deepwater Point, but so that no boat or skier shall encroach on the rowing course set aside for the Western Australian Rowing Association.
- (ii) Between 1st October and 31st March in any year.—All the waters of the Canning River between Canning Bridge and a line drawn between the junction of Fifth Avenue at Rossmoyne and Salters Point, but so that no boat or skier shall approach within 200 feet of the foreshore on the west bank between Canning Bridge and Deepwater Point or between the foot of Queens Road and the junction of Bulls Creek or inshore of a line from the foot of Sulman Avenue due west to the foreshore at Mount Henry known as Aquinas Bay.
- (d) Mandurah.—All that area of water—
- (i) Within a line commencing at the northern boundary of lot 1 in the area known as "Placid Waters" for 120 chains in a north-easterly direction; thence for 80 chains in an easterly direction; thence for 80 chains in a southerly direction, returning to the foreshore in a westerly direction, a distance of 200 chains to the southern boundary of lot 6 of the area known as "Placid Waters"; and
- (ii) All waters of the Southern Estuary lying between a line drawn from the south boundary of Caddadup Reserve 2851 eastwards to Pt. Grey and a line extending from Wannanup Spring eastwards to Stony Point.
- (e) Augusta.—All the waters lying within the Hardy Inlet known as the "Dead-water"
- (f) Geraldton.—All the waters lying within 1,000 feet of the shore within a distance of three chains extending in a south-westerly direction from the western boundary of Gregory Street.
- (g) Carnarvon.—All that portion of the northern arm of the Gascoyne River from the mouth two-and-a-half miles upstream known as "Dwyers Leap".
- (h) Lake Poorarecup—Shire of Cranbrook.—All the water of Lake Poorarecup with the exception of an area on the eastern shore measuring 660 feet along the shore and 600 feet into the water set aside as a swimming area and defined by markers.
- (i) Dumbleyung Lake—Shire of Dumbleyung.—All that area of water from a point on the foreshore of the lake within lines extending in a northerly direction for one-and-a-half miles, thence in an easterly direction for three-and-a-half miles; thence in a southerly direction for two-and-one-quarter miles to the foreshore, and thence along the foreshore to the starting point, as defined by markers with the exception of an area commencing 30 feet south-east of the launching ramp and extending 150 feet south-east by 110 feet north which is set aside as a swimming area and defined by markers.
- (j) Ewlyamartup Lake—Shire of Katanning.—All the water of Ewlyamartup Lake with the exception of an area in the western shore of the lake measuring 450 links along the shore and 415 links into the water set aside as a swimming area and defined by markers;

- (k) Norring Lake—Shire of Wagin.—All the water of Norring Lake with the exception of the aforementioned area set aside for speedboat racing and the area to the north of the reserve No. 19772 measuring 400 feet in a northerly direction from the most easterly point of the reserve and 800 feet due westerly to foreshore set aside as a swimming area and defined by markers.
- (l) Quindalup.—All the water seaward of an area commencing from the prolongation of the eastern boundary of Quindalup Lot 32 extending eastwards along the foreshore to a point at the north-north-east prolongation of the estuary boundary of Quindalup Lot 28.
- (m) Wilsons Inlet—Shire of Denmark.—All that area of water as defined and coloured red on Lands and Surveys Department registered plan Miscellaneous 351.
- (n) Esperance Bay.—All waters lying within a line commencing at a point at the foot of the southern side of the spur at the breakwater head extending in a 300° direction for 600 feet, thence parallel to the breakwater in a 210° direction for 2,000 feet, thence in a 120° direction for 600 feet to the shore.
- (o) Lake Unicorn—Shire of Cranbrook.—All that area of water within lines extending from survey peg E 50 on the northwest shore of the lake in a southeasterly direction for 20 chains, thence in a northeasterly direction for 20 chains, thence in a northwesterly direction for approximately 20 chains to the shore.
- (p) Lake Preston: All the waters of Lake Preston lying southward of a line drawn due East from the dividing boundary between lots 705 and 806, and extending to the eastern shore of the lake.
- (q) Oyster Harbour—within a radius of ½ mile from a point situated on the eastern limit of Albany Townsite Boundary on the southern foreshore of Oyster Harbour.
- (r) Kalgan River—all that portion of the Kalgan River bounded on the south by a line drawn westwards from the northern boundary of Plantagenet Location 517 and extending northwards to a line drawn eastwards from the southern boundary of Plantagenet Location 241.
- (s) Collie River—For one mile east along the course of the river from the junction of the Collie and Brunswick Rivers.
- (t) Lake Towerrinning—All the waters of Lake Towerrinning leased to the Shire of West Arthur with the exception of an area set aside as a swimming area and defined by markers commencing at the survey peg on the shore at the junction of Reserve 4016 and Wellington location 2098 and extending along the foreshore in a southerly direction for a distance of 800 feet, thence in a westerly direction out into the lake for a distance of 300 feet, thence in a northerly direction for a distance of 800 feet, thence in an easterly direction for 300 feet, finishing at the aforementioned survey peg.
- (u) Gngangara Lake—Shire of Wanneroo—All the waters of Gngangara Lake with the exception of an area set aside for swimming and boating in the southern portion lying southward of an imaginary line drawn from the northernmost point of Part of Location 887 situated south of Sydney Road and extending to the northernmost point of Uganda Road Survey.
- (v) Lake Numjup—Shire of Cranbrook—All of the water of Lake Numjup with the exception of a swimming area contained within a radius of 450 feet from a marker post erected at the easternmost corner of Reserve 29175.
- (2) Imposes as a condition of water skiing in any of the abovementioned areas of navigable waters that every person engaged therein shall conform with the rules of the West Australian Water Ski Association for the time being in force.
- (3) Limits the speed of motor boats to that of eight knots within all the waters lying—
- Within Bulls Creek from its junction with the Canning River;
 - within the area known as "Aquinas Bay" on the Canning River to the north of a line from the foot of Sulman Avenue, Salters Point due west to the foreshore at Mount Henry;
 - between Canning Bridge and a line drawn between Point Heathcote and the outer end of Como Jetty;
 - in the upper reaches of the Swan River upstream of a line drawn across the river at a point situated 720 feet east of the prolongation of Epsom Avenue, Belmont;
 - between the Fremantle Traffic Bridge and a line drawn from Roe Point, Mosman Park, in a south-westerly direction to the foreshore at East Fremantle;
 - within the river at Mandurah between the bar and the entrance to Peel Inlet;
 - within the Murray River;
 - within the Serpentine River;
 - within the Moore River;
 - within the Murchison River;
 - within the entrance channel to Oyster Harbour, Albany, between King George Sound and the first beacon on the left hand side of the channel; and
 - within the Collie River with the exception of the water skiing area set aside by notice published in the *Government Gazette* of 28th July, 1967.
 - within Walpole Inlet and the channel connecting Walpole with Nornalup Inlet.
 - within the Greenough River;
 - within all the water lying from Cape Naturaliste for 1,000 yards off shore to Castle Rock in Geographe Bay;
 - within the Frankland River;
 - within the area of water of the Swan River from the Bunbury Railway Bridge upstream to the spit post marking the northern extremity of the Goodwood ski area but provided that this restriction shall apply only on Sunday afternoons between the hours of 2 p.m. and 5 p.m. whilst the Maylands Yacht Club is conducting races.

(4) Limits the speed of motor boats to that of four knots within all the waters lying—

- (a) within the Denmark River;
- (b) South of the ford which extends from the easternmost point of Lot 1990 to Heron Point in the Harvey Estuary.

(5) Defines and sets aside the following areas for the racing of speedboats and orders that bathing shall be prohibited therein—

- (a) Perth Water—southern side—Coode Street Course defined by buoys—W.A. Speedboat Club;
- (b) Norring Lake—Shire of Wagin—All that area of water measuring 2,640 feet by 178 feet in a north-northeasterly direction as defined by marker buoys.

(6) Revokes the notices published in the *Government Gazette* pursuant to the powers conferred by the Navigable Waters Regulations on 24th June, 1966, 20th January 1967, 5th May 1967, 28th July, 1967, 6th October, 1967, 1st March, 1968, 24th May, 1968, 4th October, 1968, 29th November, 1968, 18th April, 1969, 19th December, 1969 and 31st December, 1969.

A. M. FULLER,
Manager.

GOVERNMENT GAZETTE, W.A.

6 March, 1970



WHAT DOES THE SEA FLOOR LOOK LIKE?

The sea bottom is divided into three distinct areas: the continental shelf, the continental slope, and the ocean floor.

The continental shelf has numerous hills, ridges, terraces, and even canyons comparable to the Grand Canyon. The average width of the shelf is about 30 miles, but it may extend several hundred miles from shore. The continental slope, between the shelf and the deep ocean, has an average slope of 2 to 3 degrees, although the slope off a volcanic island may be as much as 50 degrees.

Features of the ocean bottom are comparable to those on land. Many mountains under the sea are higher than Mt. Everest. All oceans except the North Pacific are divided by an almost continuous system of mountains, the largest being the Mid-Atlantic Ridge.

Most of the deep-ocean floor is made up of basins surrounded by walls of lesser depth. Oceanographers have compared the floor of the Pacific to the surface of the moon.

Deep trenches rim the Pacific in areas associated with great volcanic activity and lie near islands and continental slopes. The deepest known trenches are in the Western Pacific.

Scientists once believed that the ocean floor was covered by a layer of recently deposited sediments, but it is now known that sediments deposited 100 million years ago lie near the surface of the ocean floor and in some areas are even exposed. ("Questions About The Oceans," U.S. Naval Oceanographic Office.)