SERVICE BULLETIN

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DEPARTMENT OF FISHERIES AND FAUNA
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DEPARTMENT OF FISHERIES AND FAUNA

MONTHLY SERVICE BULLETIN

ABROLHOS ISLANDS

A recent request by the owner of a freezer-boat engaged in fishing the Abrolhos area to fish north of the 27th parallel, highlights the need for fishermen -- and departmental officers as well -- to understand the conditions placed on licenses.

The ministerial directive published in June, 1962, concerning crayfishing at the Abrolhos reads in part ..... "Fishermen and boats engaging in the taking of crayfish in the Abrolhos Islands area shall not be permitted during the whole of the Abrolhos Islands season to engage in the taking of crayfish elsewhere."

The conditions applying to boats crayfishing in the Abrolhos area applies to every boat so engaged, whether it is a freezer-boat acting as a catcher boat, or otherwise. Conditions concerning freezer boats north of the 27th and 28th parallels or south of the 33rd parallel do not apply to freezer-boats which are being used as catcher-boats in the Islands area.

Freezer-boats cannot by law operate as such in the Abrolhos but only as a catcher-boat, in which case it is unlawful to have on board any gear, appliance, wrapping, packing box or other equipment whatever that is used or might be used in the processing of crayfish.

Because the Abrolhos season extends from March 15 to August 14 and crayfishing is totally prohibited in all waters of the Indian Ocean from then until November 14, it follows that once a boat begins crayfishing at the Abrolhos it may not lawfully engage in crayfishing elsewhere until the commencing date of the next open season, i.e., November 15.

Inspectors must make themselves completely familiar with these conditions so that they may properly instruct fishermen.

MULLET PLENTIFUL

Fishermen at Leschenault Inlet (Bunbury) are enjoying a good autumn season, with mullet and yellow-eye mullet predominating.

Fishing for whiting would also be quite good but for the presence of large numbers of crabs.

In one haul, 2,000 lb. of yellow-eye mullet was caught at Bunbury during the first week of May. Generally, however, fish numbers in the Inlet taper off very much from June onwards.

Prices for mullet in quantity have been very depressed for over a year.

RECHERCHE ARCHIPELAGO SEALS

A recent survey of the islands of the Recherche Archipelago, near Esperance, has confirmed that the population of Hair and Fur Seals is still struggling to recover from the operations that took place many years ago. The seals on these islands have been protected from 1892 to the present day, with only one open season, in 1920. So after nearly 70 years they have still not fully recovered from the "bad old days".

The Director of Fisheries and Fauna has decided that because of this situation no further permits to take seals are to be issued without a preliminary investigation and recommendation by competent departmental personnel.

Any requests for permits should be forwarded to the Fauna Officer who will arrange the appropriate investigation.

BEAGLE ISLAND

Seagoing Inspector Denis Wright visited Beagle Island with Inspector Willey during April and reported that seal activity appeared to be normal. Approximately thirty-five seals were sighted, of which four were mature bulls.

One dead seal was found by Inspector Wright among the weed and a small carcase was discovered on the sands at the northern end. While the cause of death was impossible to determine, a large number of shot-gun cases were found at several points around Eastern Island, as well as several used cartons previously containing .22 high-speed ammunition. Although it is not possible to say with certainty that shooters are damaging the fauna population of this sanctuary, it is certainly an indication that illegal shooting has occurred from time to time.

Birds sighted by the two inspectors included Pied Cormorants, Silver Gulls, Crested Terns, one immature Pacific Gull, one Kingfisher and what they described as a "Grey Egret", probably a Reef Heron in the dark phase.

CRABS MAKE EARLY APPEARANCE

Small Blue Manna Crabs are now plentiful in the Swan River at South Perth and in Melville Water.

The appearance of crabs in large numbers is most unusual at this time of year. They are also reportedly becoming quite common at Wilsons Inlet, (Denmark). One Perth fisherman is said to have recently taken three hours to clean his cobbler net of crabs.

During April a species of crab, Charybdis natator, not usually seen south of Shark Bay was caught in the Swan River. Dr. R. George, Curator of Crustaceans at the W.A. Museum, said the 1966-67 summer's conditions were apparently an attraction for the species to migrate south.

PROGRESS AT KURI BAY

The activities of Pearls Pty. Ltd. during 1966 indicate a continued growth in the pearl culture industry at Kuri Bay, some 250 miles N.E. of Broome.

Despite trouble experienced with two of its boats and the consequent loss of working time, the company was able to report a 30% increase in the value of cultured pearls produced. The total value of cultured pearls produced is said to have been in excess of $1½ million.

Although not up to company expectations, the 1966 production of round, baroque and seedless pearls was up to 90%, and half pearl production increased by 15% over the 1965 figures.

As the areas leased at Samson Inlet and Brecknock Island were still being rested, the bulk of round pearls were cultured at Hiro Bay. Most half pearls were cultured at Mura Bay.

Although the quantity harvested was below estimate the quality of pearls produced was quite good and equal to anything produced in the past.

In the coming year the company plans to experiment by operating at Hiro Bay rather than transport oysters in which a nucleus has been from Kuri Bay, where all operations are at present done. The planned development of Hiro Bay has meant providing accommodation for staff who will be engaged in operations there.

Extensions have also been made to the accommodation at Kuri Bay for Torres Strait islanders who have proved to be highly satisfactory workers in the pearl culture industry. The number of people employed at Kuri Bay has grown to 77 with further increases envisaged as development of Hiro Bay and other areas proceeds.

The company has almost completed a new 195 gross ton steel vessel valued at $240,000. The boat, named "Merindah Pearl" ("Merindah" is an aboriginal word for "beautiful") will service Kuri Bay and other areas. There will be, in addition to cargo, freezer and cool-room capacity, live shell tanks which have about 50% more capacity than those in the existing vessel, the "Kuri Bay". Accommodation for twenty-five persons will also facilitate the movement of labour from Thursday Island.

During 1966 approximately 50,000 live shells were shipped from Kuri Bay to Papua, where they were used to establish a new cultured pearl station at Fairfax Harbour; this venture is the third started by Pearls Pty. Ltd. to grow cultured pearls. Continuing shipments of large quantities of live shell from Western Australia to Fairfax Harbour is anticipated by the Company.

PEACEFUL BAY

As a result of evidence taken by the General Fisheries Advisory Committee during a visit to the Albany area in January 1967 the Hon. Minister for Fisheries and Fauna made the following notice.

(Extract from Government Gazette (No. 21) of 3rd March, 1967).

FISHERIES ACT, 1905-1966.

Department of Fisheries & Fauna,
Perth, 21st February, 1967.

F.D. 114/67

The Minister for Fisheries and Fauna pursuant to the powers conferred by sections 10 and 11 of the Fisheries Act, 1905-1966, doth hereby prohibit all persons from taking any fish whatsoever by means of fishing nets in the portion of Western Australian waters specified in the schedule hereto, from 1st January to the Monday next following Easter Monday and from 1st November to 31st December in each and every year.

G.C. MacKinnon,
MINISTER FOR FISHERIES AND FAUNA

Schedule

All the waters of Peaceful Bay bounded by a line extending east from a notice on the southern foreshore to the southernmost end of Flat Rocks and then northward to a notice on the northern foreshore.

* * * *

The use of partial closures at Peaceful Bay is designed to meet the needs of both professional and amateur fishermen.

R.V. LANCELIN TO VISIT ABROLHOS & SHARK BAY

The Department's research vessel Lancelin is soon to visit the Abrolhos where she will be used for research work in the crayfish fishery. Technical Officer J.S. Simpson will be directing her research activities at the Abrolhos until the end of June.

From the Abrolhos, Lancelin will move to Shark Bay where she will be used by geologists from the University of W.A. who have an oceanographic programme proceeding in that area having relevance to the prawn programme. Lancelin is expected to continue at Shark Bay until she returns to Fremantle at the end of August.

PROSECUTION RESULTS

JANUARY 1 - APRIL 30, 1967.

Name	Offence	Place of Hearing	Date of Hearing	Fine
STAR, G.	Taking crayfish in close waters.	Perth	3. 2. 67.	$200
KILLEN, M.V.	Taking protected fauna.	Perth	10. 2. 67.	$ 15
MCGOWAN, D.	Obstructing inspector.	Perth	7. 3. 67.	$ 20
FORDHAM, E.C.	Close waters.	Perth	4. 4. 67.	$ 20
WARTON, E.W.	u/s crayfish	Perth	4. 4. 67.	$100
BUTLER, M.F.	Taking protected fauna.	Perth	10. 2. 67.	$ 25
WARD, G.W.	u/s crayfish	Fremantle	6. 2. 67.	$ 50
SAGGERS, S.G.	Excessive cray-pots.	Fremantle	20. 2. 67.	$ 40
BLAKEY, J.H.	Excessive cray-pots.	Fremantle	20. 2. 67.	$ 40
LENZO, G.	u/s crayfish u/w craytails u/l processing	Fremantle	1. 3. 67.	$300 (All fishing licenses suspended).
MONDI, A.	u/s crayfish u/l processing	Fremantle	1. 3. 67.	$300
BROMLEY, W.R.	u/l processing	Fremantle	20. 3. 67.	$ 15
BROMLEY, W.R.	u/s crayfish	Fremantle	20. 3. 67.	$100
CRIFO, L.	Excessive cray-pots.	Fremantle	17. 4. 67.	$ 25
JENKINS, R.	u/s crayfish	Rockingham	23. 2. 67.	$100
DAWE, R.L.	Taking marron in close season.	Mandurah	21. 2. 67.	$ 41
LAST, J.	u/s crayfish	Mandurah	21. 3. 67.	$100
FLEMING, P.S.	u/s crayfish	Mandurah	21. 3. 67.	$100
IOVINE, D.	Taking wild ducks in closed area.	Manjimup	23. 3. 67.	$ 4
DYER, R.E.	Close waters.	Manjimup	23. 3. 67.	$ 20
DYER, R.E.	u/s marron	Manjimup	23. 3. 67.	$ 20
ANTENUCCI, V.	Shooting brush kangaroo.	Midland	5. 4. 67.	$ 10
AARSEN, R.	u/w crayfish	Geraldton	17. 1. 67.	$ 25
DAVIS, C.	u/s crayfish	Geraldton	17. 1. 67.	$100
DAVIS, C.	u/s crayfish	Geraldton	17. 1. 67.	$100
TAYLOR, R.P.	u/s crayfish	Geraldton	17. 1. 67.	$ 40
DRUSKAVICH, Z.	u/s crayfish	Geraldton	17. 1. 67.	$100
KING, A.N.	Cons. u/s crayfish	Geraldton	17. 1. 67.	$400

Name	Offence	Place of Hearing	Date of Hearing	Fine
THOMPSON, W.J.	u/s crayfish	Geraldton	17. 1. 67.	$ 40
SORENSEN, C.	Trawling in close waters.	Geraldton	17. 1. 67.	$ 20
TIMMERMAN, B.J.	No fisherman's license.	Geraldton	28. 2. 67.	$ 10
HIPPER, M.C.	No fisherman's license.	Geraldton	28. 2. 67.	$ 10
VINCI, A.	Cons. u/s fish.	Geraldton	21. 4. 67.	$100
BEAL, N.A.	Cons. u/s fish.	Geraldton	21. 4. 67.	$ 10

NOTES: Cons. - Consigning.
u/s - undersize.
u/l - unlicensed.
u/w - under weight.

FRESHWATER FISHERIES RESEARCH

Research Officer N. Morrissy commenced duty with the Department on May 8. He has been appointed to do research into the freshwater fisheries of the State.

In addition to studying the success or otherwise of trout acclimatisation in this State, Mr. Morrissy will work on marron biology and investigate the possibility of marron farming. While working in South Australia for his Ph.D. degree he made a complete study of the trout populations in the various streams and of growth and other environmental factors which will be of great use in his work in Western Australia.

1967 PRAWN SEASON

Reports received to date suggest that this could be a bumper season in the Western Australian prawn fishery.

As at the first week in May, 16 catcher boats and 9 freezer boats were operating outside Carnarvon and had taken approximately 600,000 lb. of prawns, mainly tigers. Fishing started at the beginning of March, approximately one month earlier than in 1966.

The major part of the catch has been taken in the Quobba Point area where the figures are very much better than at the corresponding date last year. The majority of boats operating in this area have reported excellent catches.

At Exmouth Gulf prawning commenced just prior to Easter and figures to the first week in May show the catch as approximately 530,000 lb. also consisting principally of tigers. Because of the great quantity of prawns being caught boats have been placed on a quota by the land-based plant and also by the factory ship anchored off Learmonth. The small size of the prawns contributed largely to the inability of the factories to cope with the numbers of prawrs being caught.

At Nickol Bay the small number of boats working are making excellent catches. To the end of April one boat alone had taken in excess of 67,000 lb. of banana prawns. All the prawns taken have been drawn from the confines of Nickol Bay itself.

A very encouraging aspect from the Research Branch's point of view is that all prawn boats are voluntarily using the log books provided by the Department.

It is anticipated that production for this season will be much higher than that for last year.

LOBSTER TAILS "SPINY" - PRIMARY WHOLESALE PRICES PER LB.
NEW YORK, U.S.A., MARKET QUOTES WEEK ENDED 26TH APRIL, 1967.
Below are CURRENT WHOLESALE SELLING PRICES (reported by primary receivers, importers, brokers etc.) located principally in the New York Metropolitan Area.

(Prices are U.S. currency ex warehouse)
(Prices for corresponding week in 1966 shown in brackets).

	GRADES - WEIGHT IN OUNCES			
	4 - 6	6 - 8	8 - 10	10 - 12
AUSTRALIA	$2.20 - $2.25 ($2.35 - $2.40)	$2.10 - $2.15 f.h. ($2.35 - $2.40)	$2.15 - $2.20 f.h. ($2.35 - $2.40)	$2.15 - $2.25 ($2.35)
NEW ZEALAND	$2.20 - $2.25 ($2.30 - $2.35)	$2.10 - $2.15 f.h. ($2.30 - $2.35)	$2.15 - $2.20 f.h. ($2.30 - $2.35)	$2.15 - $2.25 ($2.30 - $2.35)
BRAZIL	mostly $2.00 ($1.92 - $1.95)	$2.00 - $2.05 ($1.95 - $2.00	$2.00 - $2.05 mostly $2.05	-
OTHER	$1.50 - $1.92	some $2.00	some $2.03	-

	GRADES - WEIGHT IN OUNCES			
	$5\frac{1}{4}$ - $6\frac{1}{4}$	$6\frac{1}{4}$ - 8	8 - 9	9 - $10\frac{1}{2}$
SOUTH AFRICA	$2.35 - $2.40 ($2.35 - $2.40)	$2.40 - $2.45 ($2.40 - $2.45)	$2.45 - $2.50 ($2.45 - $2.50)	$2.45 - $2.50 ($2.50)

SOURCE: U.S. FISH & WILDLIFE SERVICE - COMMONWEALTH FISHERIES OFFICE.

STAFF NOTES

The following additions to the Fauna Branch staff were made during May:-

Mr. V.T. Nelson, appointed Fauna Warden, G.II.1/2. He will be stationed at Wyndham after initial induction. Mr. Nelson is the first full time Fauna Warden to be stationed in the Kimberleys.

The first district office to be opened in the North-West Fauna District will be in charge of newly appointed Fauna Warden R.F. Dear and will be located at Wittenoom.

Both wardens commenced initial induction into the Department on May 9. It is expected that each will take up his new duties in about 6 to 8 weeks.

The North is as rich in fauna as it is in minerals and other treasures, and both new wardens should find their tasks both absorbing and challenging.

* * * *

The waterfowl research programme proceeds apace with the appointment of new staff to assist Research Officer T.L. Riggert.

Mr. P.R. Rumkorf was appointed Technical Assistant G.VII.1/3 at the end of April to assist Mr. Riggert with his bird banding programme. He takes the place of Mr. Jim Hogan, deceased.

* * * *

On the debit side the Department has received the resignations of Fauna Warden Malcolm MacDonald, who was stationed at Albany, and Cadet Fauna Warden P.M. Lambert, who was assisting Fauna Warden Evans at Pingelly. The position created by Peter Lambert's departure has been filled by Robert Emiliani, formerly of Bunbury, who has commenced initial training under the direction of Senior Warden S.W. Bowler. The vacancy at Albany is being advertised.

* * * *

Two Assistant Inspectors, G.VII.1/2, have been appointed to the Fisheries inspection staff and commenced duty on May 8. They are Mr. I.W. Burns, who was previously employed at the Government Stores Department, and Mr. D. Blackman, who comes back to the Department after a short period with the Agriculture Department.

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Fisheries Research in Western Australia has received yet another boost with the arrival of Research Officer N.M. Morrissy. Mr. Morrissy commenced duty on May 8 and will do freshwater fishery research (see story page 6).

* * * *

On May 5 the Department farewelled Dale Patrick prior to her departure for New Zealand. Dale's pleasant manner at the switchboard will be missed by all staff who wish her well in New Zealand and wherever else the "wanderlust" may take her.

Mary Jolob has been promoted to the switchboard and Beverley Forsyth has joined the Department to take over from Miss Jolob.

ISLANDS BETWEEN LANCELIN AND DONGARA RESERVED

The Under Secretary for Lands has recently notified the Department that in response to a report from this Department, a number of islands between Lancelin and Dongara are to be vested in the Fauna Protection Advisory Committee for the purpose of fauna conservation.

All staff, particularly sea-going inspectors, are requested to make special note of the islands concerned.

They are :-

Jurien Bay Group

(a) Boullanger or Long Island.
(b) Escape Island.
(c) Whitlock Island.
(d) Favorite Island.
(e) Tern Islet.
(f) Osprey Islet.

Green Islets Group

(a) South Island.
(b) North Island.
(c) Buller Island.
(d) Whittell Islet.

Cervantes Islands Group

(a) North Island.
(b) Middle Island.
(c) South Island.

Wedge Island
Sandland Island

Fisherman Islands

(a) North Island.
(b) South Island.

Leeman-Green Head Group

(a) Lipfert Island.
(b) Milligan Island.
(c) Snag Island.
(d) Webb Islet.
(e) Orton Rock.
(f) Drummond Rock.

Ronsard Bay Islets

(a) North Rock.
(b) South Rock.

Essex Rocks Group

(a) North Island.
(b) Middle Island.
(c) South Island.

Sandy Knoll Ledge

(a) North Island.
(b) South Island.

These Islands contain quite distinctive races of fauna as well as important colonies of ground nesting sea-birds which use the islands for breeding.

Perhaps their greatest value, however, lies in their reptilian fauna and the unique opportunities that exist there for scientists to study the effects of competition on the evolution of species and the causes of vulnerability of island populations.

The need to reserve the islands was first brought to our notice by honorary warden Julian Ford who has contributed most to our knowledge of them and their fauna.

LICENSE LIMITATION IN THE PRAWN FISHERIES

The following information has been released to the fishing industry and fishing associations via other media but is reported -- in a greatly abridged fashion -- here so that each member of the staff may have a ready reference in regard to the Department's policy on prawn fishing.

Prawn fisheries have only recently been established in Western Australia. The first developments were at Shark Bay, which were closely followed by the fishery at Exmouth Gulf. More recently still a prawn fishery was opened up at Nickol Bay.

As indicated, Shark Bay was the first area to be fished by a fleet of trawlers. In 1962, three trawlers fished the grounds consistently and their catch rate was sufficiently high to attract the attention of fishermen throughout Australia.

When it was suggested there would be an invasion of Queensland vessels in 1963, both the company operating the new processing factory at Carnarvon and individual prawn fishermen asked that a policy of license limitation be adopted.

The proposals for restriction of licenses were approved by the Minister and a quota of 25 boats was fixed for Shark Bay and adjacent territorial waters. This number was raised to 30 in the following year when a second shore-based processing plant commenced operations at Denham. The companies conducting the processing factories between them received three-fifths of the licenses issued, the remaining two-fifths being allocated to individual fishermen, most of whom owned vessels capable of carrying out processing aboard.

In 1965 somewhat similar provisions were introduced to Exmouth Gulf, although here, out of a total of 17 boats authorised, 9 were allocated to the shore-based plant, 4 to a floating factory and 4 to independents.

This policy was designed to ensure rational exploitation of a new resource. The limitations allowed the fishermen and processors to gain experience without the complications which could have arisen if a large prawning fleet had worked the two areas.

However, in determining a general policy for the coast at large, a number of problems which either did not arise in Shark Bay or Exmouth Gulf, or were less significant, came up for consideration. The Department had some knowledge of catch rates and trawlable grounds in these two areas, but with respect to the remainder of the coast the prawn potential was virtually unknown.

A decision concerning the approximate number of boats appropriate to an area cannot properly be made until information on the catch per unit of effort and the extent of the trawlable ground is available. This kind of information would not be available until each area had been worked for approximately two years.

The allocation of licenses would present the greatest problem as there would be a greater number of conflicting interests.

At both Shark Bay and Exmouth Gulf it was observed that fishermen soon became discontented by being tied to one comapny. The Department had received a number of requests from tied operators at those places that they be granted independent licenses. The discontent seemed to stem from a feeling that the fishermen could possibly obtain better prices if they were free to negotiate with other buyers, and that a fisherman's traditional right to operate and sell where he chose was being abrogated at the stroke of the ministerial pen. Under existing conditions, the tied fishermen at Shark Bay and Exmouth Gulf were virtually controlled by the firms which had nominated them. Many fishermen expressed the desire that this be not repeated elsewhere.

By the same token, a number of men would not have been able, by reason of the limitation policy, to operate in those areas had they not been the subject of a company nomination.

The Department had no data on either the extent of trawlable ground or the prawn density within any of the northern areas. It was then unable, therefore, to decide how many boats could work any area economically. If at the end of a two year survey period it became obvious that a large number of boats intended moving into the area, the Government might decide that a boat quota was desirable on economic grounds.

The resources of the sea are traditionally common property. This general philosophy has developed through the ages because areas in the sea cannot be "fenced off". In addition, it is in the nature of fishermen to want freedom of movement so that they can exploit the most profitable resource. Enforcement of restrictive regulations is never welcomed, but rather generally resisted, and this has always posed problems.

Industry appears to be keen to move into northern waters with survey vessels. If these vessels locate payable or potential prawn fisheries, then processing facilities and a prawning fleet will undoubtedly follow. Government too will be undertaking surveys and making information available to industry. With the experience gained from the Shark Bay and Exmouth Gulf prawning ventures and the results of the survey vessels, industry will be in a position to judge the degree of risk involved in capital expenditure and the most profitable ways of exploiting the resource. Shore-based processing factories may be built. However, it is likely that, under a policy of free movement of boats, processing vessels or mobile shore plants would be preferred. In some areas, these would probably be more suitable than permanent shore-based structures.

The speed at which the northern waters will be surveyed will depend largely upon the success achieved by boats moving into the area immediately north of Exmouth Gulf. If good trawling grounds are located it seems likely that the search for similar grounds will proceed quite rapidly. In addition, the Department will be investigating areas outside the exploited areas.

If a policy of free movement of boats were adopted in northern waters, the Department would be able to limit effort indirectly by introducing close seasons or by closing areas to fishing. In fact, research might indicate that some areas should be closed for a complete season from time to time.

This system of management would probably mean that individual fishermen would virtually be compelled to range over a greater length of coastline than they would under a limitation policy. If the Shark Bay policy were extended to all other areas, it would be difficult for a prawn fisherman to operate throughout the year. For instance, a fisherman who worked Shark Bay would not be able under the existing restrictions to operate successfully much later than August because his license would not permit him to work other productive prawning areas, these having been already allocated to other groups of fishermen. Under a free-movement policy he would be able to fish wherever he might choose. After considerable research has been carried out, it might be found desirable to divide the coastline north of Exmouth Gulf into three or four distinct zones, but this would still give an individual fisherman an abundance of room to operate within a major zone.

Figures supplied by the Department of Harbours and Marine, Brisbane indicate that in 1965 there were 383 local boats rigged for prawn trawling in Queensland. The total catch was 6 million lb. In the same year, Western Australia had 43 boats trawling for prawns, which produced approximately 2,100,000 lb. The catch in 1966, when 47 boats were authorised, was of the order of 2,900,000 lb.

FAUNA WARDENS MOVE

Expansion of the Fauna Branch staff, both inspectoral and research, has brought about accommodation problems.

Although a more permanent arrangement is at present being investigated the Wardens have temporarily moved from Perth District Office to Fremantle District Office (telephone 5.3405). The growing research staff will take over the vacancies left by the wardens at Perth District Office.

GAME MANAGEMENT PLAN FOR WESTERN AUSTRALIA

Mr. M.C. Downes, Superintendent of Game Management of the Fisheries and Wildlife Department of Victoria, was through the courtesy of his Director, Mr. A. Dunbavin Butcher, commissioned in 1965 by the Department to advise us on our plans for stepping up waterfowl research in this State.

During April Mr. Downes published, in attractive pamphlet form, the result of his survey as a suggested game management plan for Western Australia.

Game management is considered by Mr. Downes to be an essential feature of a wildlife conservation programme which, he says, must be attuned to society's needs. He sees it as the solid basis from which other less economic, but just as essential, studies or projects can be developed.

The hunting of wild duck over the past hundred years has been the greatest and most persistent direct kill of any wildlife in Australia, in the view of Mr. Downes. He writes that game management must have a factual basis of which duck banding, species research, habitat surveys and ecological research are of vital importance.

Habitat management in Western Australia, Mr. Downes believes, must contain facilities for both research and implementation and he warns that the conservationist must beware of too great a separation of research from political and social environments. Research, he stresses, must be kept relevant to the real conditions and the needs of society. Such factors as preliminary fauna surveys, acquisition and management of reserves and land-use problems must be considered under the general heading Habitat Management, but it is stressed in the study that these activities contain a significant proportion of difficult research.

In stressing the need for a realistic programme that meets the requirements of the community as well as of conservation, and identifies one with the other, Mr. Downes uses these forceful paragraphs :-

"Properly designed game work leads to a total wildlife conservation programme, concerned with the community's needs, not just a section of the public with specialised demands. In this way it receives the support from the public necessary for the whole programme. This is not to say that non-game work cannot develop the same broad approach and consequent support. It is just that it has not done so in Australia and probably never will.

"Failure to recognise this important principle often leads to attempts being made to initiate narrowly-based programmes having limited and specialised contact with the general public. These are rapidly converted into the less complicated but more academically acceptable research projects, or worse, stagnate through lack of support from the people. This type of wildlife conservation

programme fails 'to take' because it does not contain the essential core of practical wildlife management acceptable to public thinking, and hence to the Government, in terms of what it needs, what it understands and what it will pay for.

"These considerations are important for several reasons. It must be recognised as a major lesson from Australia's unhappy experience with wildlife conservation in the past, that wildlife will not be preserved unless the people participate, as a society. Wildlife ranges too far and wide for individual ownership of the land to recognise its responsibility as in parts of Europe. In addition our history of land tenure sets as an ideal the sharing of the available game. Society's interaction with the land, rather than directly with the wildlife, is the major force which has acted against the wildlife. So it is through society that our counter measures for conservation of wildlife must act. Man's use of land, regarded as a social habit, cannot be changed nor the decline of wildlife reversed without the participation of the people themselves. Neither Governments nor the natural history societies can force the people into conservation. This can only come through a study of ecology, an understanding of society's behaviour, and consequently the evolution of a new ethic or attitude toward the land and its products. When wildlife conservation is based on the people's real needs, within a whole and healthy community, finance and staff will be made available. In Australia under existing conditions game management has the greatest chance of success in this regard because, through its very nature, it must take into account the needs of the people and wildlife, rather than either one to the exclusion of the other.

"That we live in a technological age is a truism repeated so often that we are in danger of ignoring it. Applied to wildlife conservation, it surely implies that unless technical facilities are used in the race to preserve our dwindling wildlife stocks, we are hopelessly outclassed by the massive, technically organised forces acting against wildlife in Australia today."

BROKE INLET TRANSFERRED TO ALBANY DISTRICT

Inspectoral responsibility for Broke Inlet passed from Bunbury to Albany District Office on June 1, 1967.

Withdrawal of Broke Inlet from the Bunbury District has been caused by an increase in the number of marron and beach patrols in that area.

In addition Broke Inlet is approximately 55 miles closer to Albany than Bunbury and will be easier to patrol from Albany.

FISH SEEN BY T.V. CAMERA

The development of a television camera by the Instrumentation Department has shown effects of tests conducted at simulated depths down to 45,000 feet, according to the United States Naval Oceanographic Office.

The camera operates from outside of a high pressure test and evaluation vessel and relays a clear picture to a T.V. monitor. The picture shows what is happening to instruments having to withstand pressures in the ocean's deepest known parts - up to 20,000 pounds per square inch.

The T.V. camera is light and compact enough to be handled easily by one man but the test vessel weighs 18 tons and has a plug type cover weighing 4,000 pounds. The test device is capable of accepting instruments up to eight feet in length.

Commercial Fisheries Review, December 1966, says that the closed circuit T.V. monitoring system clearly shows how instruments will react when subjected to pressures claimed by manufacturers.

According to William L. Bryan, of the Naval Oceanographic Office, some instruments disintegrate, others collapse, but many perform as claimed. It was better, however, to test the instruments in a laboratory, rather than risk having a failure at sea.

(Melbourne Fish Trades Digest March 1967)

SOUTH AFRICAN LIVE SPINY LOBSTER TRADE GROWS

The export by airfreight of 175 short tons of live spiny lobster to Europe in 1965 was a marked increase over the 1964 figure of 17½ tons, according to reports by the Cape Lobster Exporters' Association.

A central marketing body has been set up to co-ordinate the activities of the six South African companies holding concessions to sell live lobster in Europe. Eighty percent of the live lobster are sold in Paris and Nice and during the first five months in 1966, 139 tons, worth about US$425,000 were exported. The 1966 catch was limited because of adverse fishing conditions. In 1964, 1½ tons of whole fresh frozen lobster were exported and in 1965, 64 tons. Export of tails is valued at about $11,900,000 a year..

(South African Digest February, 1967).

FISHERIES PROTEIN APPROVED

The U.S.A. Food and Drug Administration has approved whole fish protein concentrate as a food additive. The F.D.A. regulation states "the food additive whole fish protein may be safely used as a food supplement in accordance with conditions prescribed." The conditions called for include "that the additive is derived from whole wholesome hake and hake-like species of fish handled expeditiously and under sanitary conditions in accordance with good manufacturing practises recognised as proper fork fish that are used in other forms for human food."

Also described are the specifications to be met with respect to protein, moisture, and fat content. The additive to be used is to be packaged in consumer-sized units not exceeding one pound in weight labelled "whole fish protein concentrate."

F.D.A. approval will accelerate U.S. Department of the Interior fish protein concentrate programme, according to 'Commercial Fisheries Review'. Food experts believe that fish protein concentrate can become a lifeline to a better future for hungry millions everywhere. American scientists worked three years to develop the present process for making F.P.C. One break-through was the discovery that isopropyl alcohol would satisfactorily extract oil and water from fish. This was an indispensable step toward making a stable and palatable product from an inexpensive fish.

(Australian Fisheries Newsletter April 1967)

BOATS MOVE ONTO OIL

Supplies of local fish (N.S.W.) are likely to be affected in the near future through a switch by some of the larger trawlers to the petroleum industry.

The search for oil at sea in Australia and New Zealand has been stepped up and sturdy boats are needed for a variety of purposes.

"The Sensation", a 71-foot prawner, was bought last month by Hegarty and Allen of Eden and chartered almost immediately to an off-shore oil group.

"The Southern Endeavour", also part-owned by Hegarty and Allen, is in New Zealand on an oil survey.

Tuna Fleet Hit

This month, five of Eden's largest fishing boats - including Australia's only stern trawler the Twofold Bay - went over to the oil industry on charter. Some of the nation's largest tuna-clippers are either on charter or in the process of being diverted to the search for oil.

The boats are being used as tenders to the big oil rigs already operating in Bass Strait, as personnel carriers or as explosive ships.

Vessels of up to 500-tons are needed to carry the seismic gear, the explosives and the scientists on a search at sea for oil. In Bass Strait for instance 100 tons of dynamite were used in one small area alone. Since boats of this size are not as yet available, the oil companies are chartering the next biggest vessels and dividing the task.

Charter work is not as profitable, as fishing but the return is more regular.

Some boat owners are receiving more than $200 a week clear for charter work.

Top-line skippers earn more than this. The $200 profit is not an exorbitant return on the capital outlay of $120,000 required to build a 70-foot trawler.

SOVIET TO FISH OFF AUSTRALIA

The Soviet Union plans to extend its fishing operations in the Pacific with fleets operating off the Australian coast and ranging as far south as Antarctica.

Soviet research vessels have conducted many investigations off the Australian coast in the past two years, according to an article in 'Pravda', a Moscow party newspaper, quoted in the 'Australian'.

Off the southern coast and near Tasmania the Soviets found dense commercial concentrations of fish, including anchovy, sardine and Australian salmon, the article said.

The writer of the 'Pravda' article, Dr. I. Kizivetter, says the Pacific already produces about one-third of the Russian catch, but as home consumption increases it is becoming more difficult to meet the demand from established grounds.

The Soviet penetration of the southern Pacific is only beginning, the writer says, as until now it has not had enough ships to survey the area.

Dr. Kizivetter proposes that the Pacific fishing fleet should be boosted by adding modern vessels with trawling equipment for both near-surface and deep-water fishing.

The fleet will start intensive operation near Australia. New Zealand, Chile and Antarctica soon, the article says.

(Australian Fisheries Newsletter April, 1967.)

MARINE FISH MAY BE BRED IN POWER STATION WATER

As part of its long-range development work in marine fish farming, the White Fish Authority is investigating the use of warm water discharge from the cooling systems of coastal power stations. If experiments now being carried out are successful and are found to be commercially viable, this water, which at present goes to waste, may be effectively used to farm marine fish.

In a brief progress report issued this week, the W.F.A. says that the investigations are taking place at two stations: Hunterston in Scotland in co-operation with the South of Scotland Electricity Board, and Burry Port in Wales in co-operation with the Central Electricity Generating Board.

Initial trials showed that plaice, which under natural conditions in the sea make little growth during the winter, maintained a steady growth rate throughout the year when kept continuously in the warm water discharge and did not suffer adverse effects.

At Hunterston, the largest work involves artificially hatched young soles and plaice flown in from the W.F.A. Hatchery at Port Erin in the Isle of Man and oyster spat from the Seed Oyster Unit at Conway, and suggests that fish grown in the warm water environment may reach marketable size in two years or even less, compared with the four years necessary under natural conditions.

The main diet of the captive fish is crushed mussel, and further work on the conversion ratios of this and alternative artificial foods continues in an effort to determine the most economical method of feeding.

(Fishing News February 10, 1967)

JAPAN IS BECOMING BIG FISH IMPORTER

Japan, which thinks of itself as the world's leading fisheries nation, has developed into a heavy importer of fish.

Fish imports amounted to only US$7,700,000 in 1959 but jumped to $160,000,000 in 1966 and are likely to hit $200,000,000 this year. The rise is attributed to steadily rising consumption and a leveling off in the domestic fish catch.

Japan is the world's largest consumer of fish as well and consumption is rising steadily because of higher standards of living. High meat prices have also stimulated fish consumption.

Surveys indicate that farm households now eat as much fish as urban families. Western methods of cooking fish have made it more acceptable to younger people, who have been impressed by what they learned in school about getting more animal protein in their diet.

Controls on fish imports were lifted in 1951, and the result has been a constantly growing inflow of shrimp, sea bream, tuna, herring, salmon roe, and cuttlefish, mostly frozen.

Heavy sellers in the Japanese market include not only neighboring countries like South Korea, Soviet Union, and Taiwan but more remote fisheries nations like Peru, Mexico, Spain and Australia. The big Japanese fisheries companies have become leading importers as well. Imports have been further stimulated by reciprocal deals in which Japan sells fishing vessels and equipment and supplies technical aid in exchange for fish imports.

Meanwhile, Japan's own fish catches have leveled off sharply. Its total catch in 1965 was 6,880,000 tons, or only 20,000 tons more than in 1962. A marked decline has appeared in offshore fishing.

(Asahi February 1967).

EDUCATING FISHERMEN

by K. Mitchelson

Development of the fishing industry will be very slow unless there is an extensive programme to teach potential young fishermen new methods.

At present they are following set patterns of fishing which have altered very little over the years.

In Japan and Russia, boys interested in becoming fishermen can learn approved courses along with the rest of their subjects at their schools. In Scotland, training is more intensive. After the boys leave school, they study all aspects of boats and nets for an approved period and then spend the equivalent time at sea on different fishing boats acquiring first hand knowledge.

Why cannot a similar scheme be available for boys here? Perhaps an exchange system could be arranged with other countries. We must get overseas ideas into our industry to open up new methods of developing our fishing areas. At present there is no incentive whatsoever for a lad with a good education to go fishing.

The types of boys coming into the fishing industry as deckhands are those boys who could not attain a professional career. We cannot look to them to give the industry the boost it needs.

(Australian Fisheries Newsletter April, 1967)

FOOTNOTE:

Mr. K. Mitchelson, a Victorian fisherman and boat builder attended the Australian Fisheries Development Conference in February.

SHRIMP THREATENED BY DESTRUCTION OF ESTUARIES

A report of the Texas Parks and Wildlife Department to the Governor and legislature paints a discouraging picture of the shrimp fishery's future. The report states that "the continuation of the present trend toward bulk-headed shorelines would result in diminishing shrimp production".

Here are some excerpts: "The life of the shrimp is short, and the period spent in the bays is only two or three months in duration for each successive overlapping swarm. There may be five or six such swarms during the warmer months. This brief but vital period in the bay nursery areas has become the weakest link in the life cycle of the shrimp. It is on this weak link that the future of the shrimp industry must depend.

"The crisis that has arisen is the accelerated disturbance and destruction of the estuarine nursery areas along the Texas coast. While such submerged land areas are public lands belonging to the State of Texas, they are unprotected by State regulation and are open to any and all types of man-made modification .....

"Rapid development of the coastal region in both industrial and residential expansion has brought piecemeal channel dredging, filling and spoiling throughout the bay systems without overall design or plan. The combined effect of such modification is great."

The report cites a recent B.C.F. study in the Galveston Bay area comparing shrimp production along two similar shorelines -- but one had been modified by construction of a dredgefill bulkhead. Intensive sampling for 10 months produced 2.5 times more brown shrimp and 14 times more white shrimp along the natural shore than along the bulkheaded shore.

The report makes clear what is at stake: "The shrimp fishery is this nation's most valuable commercial fishery, and that of Texas is today the largest of any state. Dockside value to the fisherman amounts to about $35,000,000 per year."

(Commercial Fisheries Review March 1967.

CRESTED PIGEONS SIGHTED AT PORT DENISON

Inspector E.I. Forster has reported sighting three crested pigeons at at the Port Denison Township.

Until comparatively recent years these birds were seldom seen below Geraldton or Mullewa but have extended their range Southwards in the last decade. Since 1956 a few birds have even been reported around Perth and other sightings have been made in the Eastern Wheatbelt District.