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DEPARTMENT OF
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JANUARY-FEBRUARY, 1967

VOL. XVI, Nos. 1 & 2

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

RESEARCH SECTION ACTIVITIES

The r.v. "Lancelin" has sailed for Shark Bay to collect hydrological data to be used in connection with the prawn studies there. Staff of the Geology Department of the University of W.A. are doing this work.

Mr. K. Steicke will be skipper of the vessel, and Mr. G. Faulkner will act as mate. Cadet Research Officer J. Penn will act as crew member.

* * * *

Research Officer R. Lenanton will spend 3 weeks in Shark Bay collecting gut and scale samples of whiting and undertaking factory sampling. He will also be recording data on whiting catches.

* * * *

Research Officer, R.J. Slack-Smith will soon be commencing a new research programme in Shark Bay.

Juvenile prawns entering and leaving known nursery areas will be caught and measurements recorded. This data will be related to the size of prawns caught the following season. Nets will be set in channels leading to the nursery areas. He will be assisted by Cadet Peter Wood.

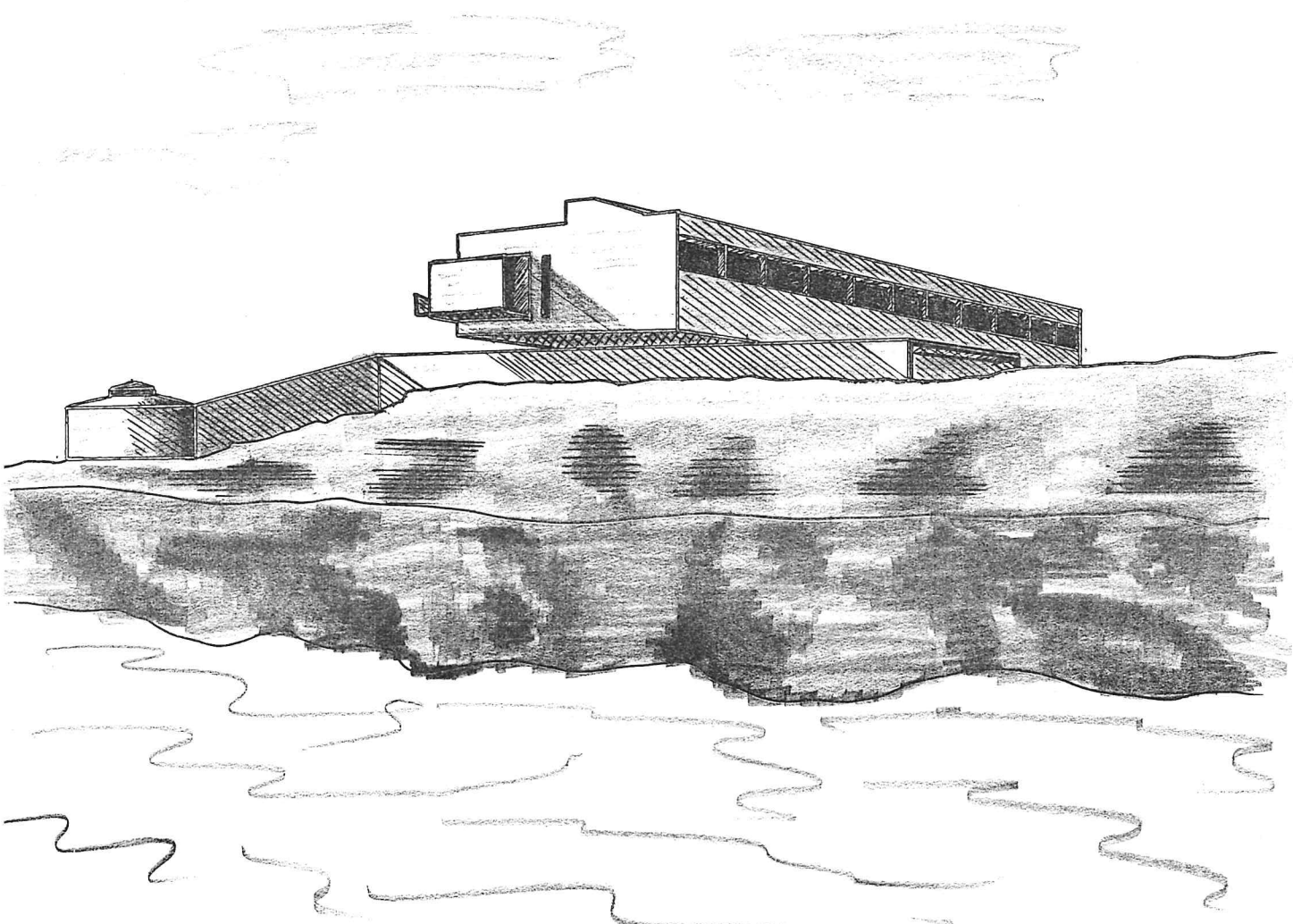
COMPUTERS GO FISHING

The research section of the Department of Fisheries and Fauna is making use of the computer installed at the University of Western Australia.

While initial preparatory work on logs submitted by fishermen is not, in fact, much lighter, the information is much more accessible when it has been recorded on punch cards.

Tabulated data on a particular area, for a particular period of time, can be provided by the computer in a matter of minutes, while it would require hundreds of hours of work by hand. 40,000 cards are prepared each year from information provided by fishermen and these cards can be fed into the computer to extract the particular information required.

MARINE AQUARIUM AND RESEARCH LABORATORIES
TO BE BUILT AT WATERMANS BAY FOR
DEPARTMENT OF FISHERIES AND FAUNA.



A VIEW OF THE LABORATORIES AS
THEY WILL APPEAR FROM THE OCEAN.

ESCAPE-GAPS IN CRAYPOTS

In 1963 the Senior Research Officer, Mr. B.K. Bowen, published a report on the effectiveness of escape-gaps in crayfish pots. A research program to study this had been carried out earlier that year off Rat Island, Houtman Abrolhos.

Twenty-three pots, some having escape-gaps of different sizes and others having no escape-gaps at all, were used in the programme. Observations were made of the crayfish while in the pots, and also as the pots were being hauled. For this purpose research workers used underwater breathing apparatus.

Undersize crayfish could, when returned to the sea, suffer damage causing death if handled roughly by fishermen. The solution to this problem, therefore, is to allow them to escape before being hauled out of the water. This is just what the research team was aiming at.

As a result of their studies, which showed quite clearly that escape-gaps were effective, regulations were introduced making their use compulsory. These provided that all pots must have a gap measuring not less than 12" x 2" fitted as closely as possible to the base.

Research did not stop there. Mr. Bowen has been continuing his work. North Bank, not far from Dongara, is known to hold a quantity of juvenile crayfish and it has been here that work was continued. Six types of pots were employed there. They were pots having -

- * No escape-gaps.
- * Normal escape-gaps (12" x 2").
- * Escape-gaps measuring 12" x 2-1/16".
- * Escape-gaps measuring 5" x 2".
- * Escape-gaps measuring 10" x 2".
- * Escape-gaps measuring 5" x 2".

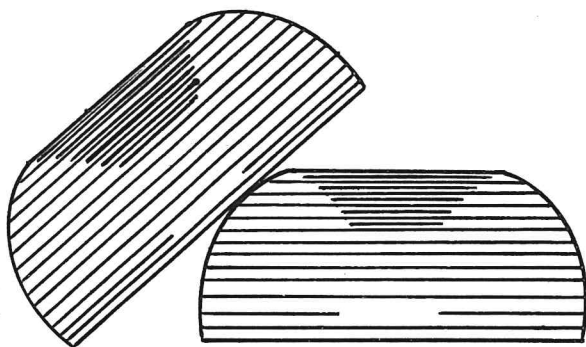
The first four had escape-gaps near the base and the last two on the shoulder of the pot. Five pots of each type were used.

The following table shows the final results of the study -

Pot type	Average number of undersize crayfish per pot	Average number of size crayfish per pot
No escape-gap	30.46	1.06
12" x 2" escape-gap at base.	11.17	1.14
12" x 2-1/12" escape-gap at base.	9.8	1.16
5" x 2" escape-gap at base.	19.76	0.92
10" x 2" escape-gap at top	10.82	1.07
5" x 2" escape-gap at top.	12.26	1.64

The high number of undersize in relation to size crayfish was expected, because the area used in the programme was a predominantly juvenile area.

The table indicates that the position of the escape-gap is not significant and will allow the undersize crayfish to escape regardless of where it is placed in the pot. This is borne out by underwater observations by members of the research group.



PROSECUTIONS FOR 3 MONTHS ENDED 31.12.66.

Date of Offence	Defendent	Place	Charge	Fine
4.5.66.	Clayton, G.A.	Perth	FPA Sec.6	\$30
22.5.66.	Greenway, N.J.	Fremantle	FPA Sec.6	\$20
12.6.66.	Franchesi, A.	"	FPA 14(2)	\$15
21.8.66.	Loveridge, A.	Perth	FPA Sec.6	\$20

CRAYFISH APPEAL UPHELD

Some months ago a Western Australian crayfisherman, John Pascov appeared in the Midland Police Court to answer a charge that on January 19, 1966, he had had in his possession 142 undersize crayfish and 15 underweight craytails.

The charge against him was dismissed when the Magistrate accepted the defendant's submission that the legal maxim "de minimus non curat lex" (the law does not concern itself with trifles) should be invoked.

An appeal to the Supreme Court by Inspector A.T. Pearce, the Complainant, was upheld and the Court directed that two convictions be recorded against Mr. Pascov and minimum fines imposed.

In delivering his reserved decisions, Virtue, J., said that the defence was a slender one and he could not agree that the case was a trifle. There was a considerable number of crayfish involved and Pascov had delayed checking them for some time. This had not helped their chance of survival. Even if they had been thrown back after having been left in the sun it was likely their survival would be prejudiced.

DEPARTMENTAL EXPANSION

Like the rest of the State, the Department of Fisheries and Fauna is expanding.

Applications have been called for ten newly created positions, as part of our program^m to provide a better service to the fishing industry, etc., and toward fauna conservation.

Fisheries

Two research officers are required, one to undertake study of the biology and ecology of the Western Australian crayfish, in both juvenile and adult stages. Studies to be undertaken by the Research Officer will be directed toward the behaviour of the crayfish in relation to fishing gear. This will enable us to improve the precision of stock assessment estimates, based on commercial statistics. The studies will encompass feeding rates, food preferences and habitat preferences of the crayfish.

The second research officer will be utilised on fresh-water, or inland, fisheries. He will be required to study trout acclimatisation in the fresh water streams in the South-West and provide technical supervision of the Pemberton Trout Hatchery. He will also investigate the problems of introducing exotic species for acclimatisation.

Brown and rainbow trout have been introduced into fresh-water streams in the South-West over a number of years but, to date, there has been no research to determine the success or otherwise of these plantings.

The Research Officer will also be required to undertake research on marron in streams, and in pond conditions.

Five new positions of Inspector, Relieving, Class 2 (G.II.1) have also been created. Four of the new appointees will be used to permit the rostering of existing staff to reduce the number of hours worked each week and to allow time off for week-ends. The fifth will relieve during periods of annual and long service leave. The Assistants will be required to care for and maintain captive birds and record research data. The work will be carried out in areas frequented by waterfowl. Their duties will include duck banding.

A Fauna Warden is to be stationed in the metropolitan area. This is the first step in a planned expansion program to provide fauna services over the whole of the State.

It is expected that new positions will be created shortly to cover other districts. The Fauna Warden stationed in Perth will be required to assist with reserve management and to patrol reserves in his district. He will also be required to relieve country wardens from time to time. Hunters will come under his scrutiny and he will be empowered to apprehend offenders and confiscate weapons and game. Pet food processors, dealers and private aviaries will be inspected periodically to ensure that standards are maintained.

Public relations will be an important part of his duties. The Fauna Warden will be required to liaise with honorary wardens and organise talks and discussions. Schools, Junior Farmers Clubs and other organisations will be able to call on him periodically to give talks on fauna subjects.

Fauna Warden, Mr. S.W. Bowler, has been reclassified to Senior Warden, G.II.3. The reclassification has effect from January 2.

Cadet Research Officer, John Mott, having successfully completed his University studies, has commenced duty with the Department.

Mr. Mott will be engaged, initially, on a situation survey of the grey kangaroo and will familiarise himself with the animal and its peculiarities. His investigations into the status of the grey kangaroo over its present range will be used as a basis for a management program for the specie.

It is hoped that Mr. Mott will be able to spend some months with other research units, both in W.A. and in the Eastern States.



NEW VESSEL

The Department's new vessel, "Settler", arrived in Fremantle on January 7 from Brisbane. The vessel came "north-about", the crew consisting of Captain C.J. Seabrook (Master), Engineer E.A. McKenzie and deckhand K. Steicke. Mr. K. Ammerer, of Head Office, took annual leave and accompanied "Settler" from Brisbane to Fremantle.

The party sailed from Brisbane on Tuesday, December 6. Fuel stops were made at Mackay, Cairns, Cooktown, Thursday Island, Darwin, Broome, Port Hedland and Geraldton.

Fine weather was experienced during most of the trip, except for patches off the Queensland coast and from North West Cape in Western Australia southwards.

A number of tuna sightings were made along the North West Cape and details of these have been passed to the Department's Research Officer, Mr. J.P. Robins.

A number of modifications will be effected before the vessel is put into service on prawn research. She is to be re-named "Hamelin".

BETTER CONDITIONS FOR FISHERIES INSPECTORS

Fisheries Inspectors have received a measure of relief from the long hours of duty they have put in over the past few years. Regulations brought in by the Department and a greater effort on the part of the Inspectors have helped bring about a stabilisation in the fishing industry. This has imposed long hours of duty on the field staff.

Recent discussions between the Field Officers Association, Departmental Heads, the Civil Service Association and the Public Service Commissioner, and a compulsory conference before the Chief Industrial Commissioner, have resulted in some measure of relief being given to inspectors.

As a result of these discussions, and in order to facilitate rostering of hours of duty, the Public Service Commissioner has approved the creation of five positions of Inspector, Grade 2 (Relieving). These have already been advertised. In addition, payment of an allowance of 10% of gross salary has been granted by the P.S.C., retrospective to September 1, 1965. Payment of the arrears will be made on February 16.

(Continued on page 9).

TUNA SURVEY - FLIGHT I.

During the period December 5 - 13 the Senior Research Officer (Development), Mr. J.P. Robins, undertook the first flight of a tuna survey of our northern coastal waters. The area surveyed extended from Fremantle to Wyndham. Mr. K. Godfrey, of the Division of Fisheries and Oceanography, C.S.I.R.O., acted as "spotter" and recorder. The Director joined the aircraft at Broome on the way north and returned with it to Perth.

Eighty per cent of all sightings were within the area from Onslow to Port Hedland. Approximately 480 schools were sighted, ranging from 2 to 10 tons in each school.

The next survey flight is scheduled for mid-January.

1966 SPERM WHALING SEASON

During the 1966 whaling season, which ran from March to December 5, 606 whales were taken by Cheynes Beach Whaling Co. Ltd., operating from Albany.

The Company produced 4,175 tons of whale oil, 1,845 tons of solubles, 990 tons of whale meal, 4,440 lb. of teeth and 226 lb. of ambergris.

A new aircraft has been purchased by the company. It is a twin engined, push-pull aircraft. The plane will be used as a spotter for the Company's three chasers next season.

(Continued from Page 8).

The Field officers Association is still negotiating for a maximum number of hours of duty per week to be fixed, and for a system for taking days off in lieu of Saturdays and Sundays worked. Fisheries Inspectors, because of the nature of their duties, are required to work at unusual hours to coincide with the activities of fishermen. Inspectors are seeking 5 days on and 2 off, or 10 days on and 4 off.

Fauna Wardens have been advised that when they work Saturdays and Sundays, to take days off in lieu during the following week.

The task of a field officer is always difficult and, in the long run, there is little that can be done to alleviate the conditions they encounter, especially in a State with an expansive coastline such as ours. However, the new allowances granted and the relief that will come from the appointment of the five new inspectors should go a long way toward compensation for the inspectors.

I.U.C.N.

The Minister for Fisheries and Fauna, Mr. G.C. MacKinnon, has received a letter from the Survival Service Commission of the International Union for Conservation of Nature and Natural Resources.

The text of the letter, which concerns the now well known Noisy Scrub Bird and the Short-necked tortoise, is reproduced below :-

"At their most recent meeting the members of this Commission, who are concerned with efforts to save the world's vanishing species of wildlife, were given reports upon the present position of both the abovementioned interesting species.

First and foremost, the Commission was greatly heartened by the wonderful news of your outstanding decision not to proceed with plans for the Casuarina township, on the coastal slopes of Mount Gardner, at Two People Bay.

I have been directed to convey to you my Commission's heartfelt thanks and congratulations for the step you have taken. Without any doubt at all it will ever be quoted as a most memorable example of true conservation, designed to ensure the survival in perpetuity of an interesting and unique bird.

The other report we received concerned the remarkable research being undertaken under the auspices of your Fauna Protection Advisory Committee, to safeguard the future of that remarkable tortoise Pseudomydura umbrina.

I have been asked also to say how gratified members of this Commission are at this second, and unusual, conservation endeavour, which so emphasizes the need to obviate neglect of any natural resource. It is hoped that you may be so kind as to convey our appreciation to members of your Fauna Protection Advisory Committee. We should be most grateful too, if we could be kept informed of progress in the conservation of these endangered species, as well as of any research into their biology."

This letter is only one of several that have been received and there is no doubt that the progressive steps taken in these two conservation measures will be long remembered overseas.

STAFF NOTES

John Mott has commenced duty as Research Officer in the Fauna Section. He successfully completed his examination last year for the degree B.Sc.

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Kurt Ammerer has returned from his holiday cruise aboard the "Settler" and has recommenced duty. Kurt was very impressed by the trip and claims to have met some very interesting people.

* * * *

The Annual Christmas party was held at lunchtime on Friday December 23, at our South Perth offices. The party was well attended.

* * * *

Bevan Kerr has been off duty on sick leave and spent a few days in hospital.

* * * *

Miss Beth Smith, typist, came back from her annual leave wearing an engagement ring. While this will undoubtedly result in us losing her before long we extend to her our congratulations and best wishes.

* * * *

Geoff Galbraith has been temporarily transferred to the Fremantle office to cope with the heavy, seasonal demand for fishing licenses.

* * * *

To replace Geoff in Head Office Andy Skreiner has been appointed to Head Office. Andy has come from the University where, last year, he completed a Bachelor of Arts degree, majoring in economics.

* * * *

A temporary appointment was necessary in Geraldton to cope with license renewals. Mr. A.J. Saffrey, also a student of the University of W.A., has been appointed.

* * * *

Inspector W.M. Mahoney submitted his resignation and left the Department in December.

* * * *

Colin Ostle has been transferred to Lancelin and will be commencing duty there shortly. His previous position, on the mobile patrol has been advertised.

* * * *

Rick Hammond, mobile patrol, is off duty with a back injury. Reports have indicated that he received the injury when his landrover hit an unexpected bump on the track.

* * * *

C. Grubba has been called up for National Service and will have entered camp at the end of January.

* * * *

Inspector A.E.V. Tanner passed away on December 29. His funeral was held on January 3 and was attended by the Hon. Minister, Mr. G.C. MacKinnon, the Director, Mr. A.J. Fraser, and other senior departmental officers.

* * * *

The Social Club has arranged for the annual social dance to be held on Friday, October 20, the week of the Staff Conference. Tentative arrangements have been made for a compere. The venue has not yet been selected.

CYCLONE WARNINGS

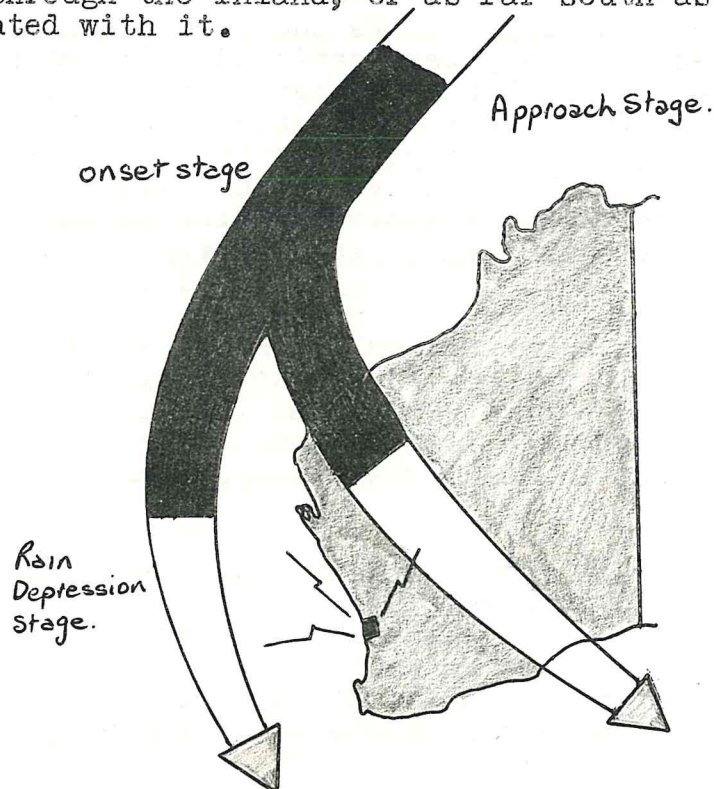
The Commonwealth Bureau of Meteorology has issued a pamphlet dealing with cyclones. Copies are available from their office.

About three times a year a tropical cyclone roars down the coast of Western Australia. We are always warned by the "Met" bureau and from there it is up to the individual to secure his buildings and boat against the lashing wind and rain.

A cyclone is a roughly circular system of gale to hurricane force winds moving clockwise about a centre of very low pressure. For a radius of 2 to 20 miles of the centre only light winds and rain may be experienced, or even sunshine, but for the next 50 miles or so outward, look out. Wind speed can top 100 m.p.h. with dense rain clouds.

The first sign to coastal dwellers is perhaps, rain 200 miles in advance of the cyclone and a long swell, slight at first but continually rising if the centre is seaward of them. Gales have raised very high seas, with a hurricane surge wave up to 10 feet above high water roving ahead of the storm.

The cyclone may last a few days, or it may last a fortnight. As it weakens, and moves south or south-east, winds of up to 60 knots through the inland, or as far south as Cape Leewin, can be associated with it.



THE WARNING SYSTEM

Six hourly warnings
issued.

TUNA COLOR

When freshly caught, some tuna show on their flanks a pattern of vertical bars, like pale strokes of paint, that rapidly fade away. This transient coloration has long been noted by fishermen. Now it has caught the interest of scientists, who see in it a clue to understanding more fully the behaviour of tuna. At the U.S. Department of the Interior's Bureau of Commercial Fisheries Biological Laboratory, Honolulu, biologists have found that they can induce this pattern -- first described to science only a few years ago -- at will and very readily: they simply feed the fish. For the bars, which briefly change the tuna's normal marking of horizontal stripes to a plaid in some species, have been found to represent, for one thing, the creature's response to the presence of food. Any food stimulus will do -- odor, sound, sight, food. Or even the presence of their feeder. Some little tunny will display the pattern if an attendant approaches the tanks in which they are kept. The first extensive observations on the behaviour of the skipjack tuna in the sea were made when underwater viewing ports were installed in the Laboratory's research vessel "Charles H. Gilbert." For the first time, scientists could get down among the fish and observe their behaviour in the sea. What they saw confirmed the reports of fishermen and earlier naturalists. The fish in the sea at times presented a very different appearance than when dead. The pronounced barred pattern of the skipjack tuna appeared as the fish began to feed and rapidly disappeared when they were satiated. The bars might serve as one way for a skipjack tuna to signal the presence of food to another skipjack; a sort of visible dinner bell. The fishery for the skipjack tuna depends on the fact that the fish often feed near the surface. They are then taken by pole and line. Thus it was the feeding activity which accounted for the barred pattern on recently caught fish. Further research has indicated that the barred pattern may have additional functions. The Pacific bonito, a fish closely related to the tunas, was observed during courting and spawning, the first such observations on record for any tuna-like fish. The males exhibited a striking barred pattern similar to that of the feeding skipjack tuna and little tunny. The pattern may also serve as a threat to keep others away, like the growling of a dog.

The most recent work on the barred pattern has shown that under optimum conditions a skipjack tuna can see the barred pattern on another skipjack tuna about 11 miles away. Threat or invitation, or both, the pattern would thus appear to serve valuable communication functions within the school. (News Notes of Bureau of Commercial Fisheries, Honolulu, for Feb., 1966).

N.Z. LOBSTERS CRITICISED

Because of their superior quality, West Australian lobster tails are bringing a premium price of up to 15c a lb. above New Zealand lobsters on the U.S. market, the N.Z. Fishing Industry Board stated in a circular last month.

The widening gap between the prices of New Zealand and Australian lobsters "is evidence of the unreliability of the quality of some New Zealand packs", the Board said.

The circular lists the principal faults of N.Z. lobsters as -

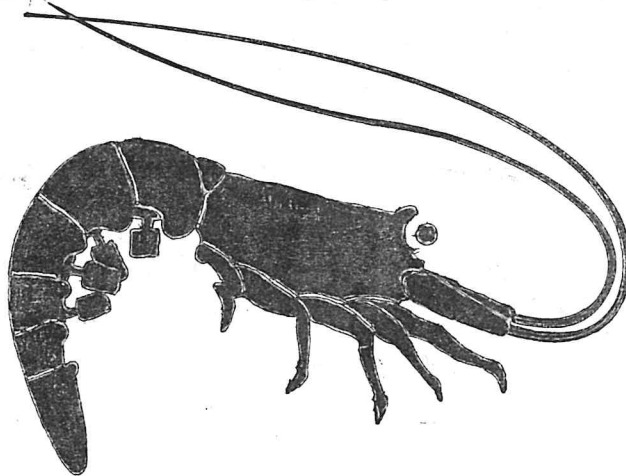
- * Dark colouring or brown staining of the exposed flesh of the tails and an occasional "pink" tail in a box.
- * Some tails go mushy on cooking and are rejected by diners.
- * Strong and unpleasant smell when tails are thawed. Some tails are thawed. Some tails break up when cooked and have a sour taste.
- * Bad drainage of cartons, resulting in dirty ice being frozen to the tails. Unreliable grading.

The Massey University is now carrying out a survey into the best method of treating lobster tails and the standards for export certificates will be tightened, the circular warned.

(Fish Trades Review

Sydney

November, 1966)



SHELL FISHING IN WESTERN AUSTRALIA

Australia is the world's largest producer of crayfish, or spiny lobster. By world standards its total fish catch is small, only ten percent of the 2,000 known species in its waters are being exploited commercially.

Vast expanses of relatively unfished water exist in Western Australia and Northern Territory, and it is in these areas that the best possibilities for future expansion of the Australian fishing industry appear to exist.

Fears of the past.

In Western Australia - the nation's richest fishing state - prawns are considered to offer the greatest development potential. But with the history of over-exploitation in the crayfishery still fresh in many minds there is an awareness that any new resource found in northern waters must be guarded carefully.

Commercial prawning grounds have recently been found in Shark Bay and Exmouth Gulf but, until their full potential is known, the Western Australian Government has limited the number of vessels that may engage in trawling.

Prawn development is not the sole objective in the northern investigations. Tuna, snapper, mackerel, and a number of other fish species are believed to exist in commercial quantities in these waters, and it is intended to fish them in conjunction with prawning.

Although catches have declined in the past three years, crayfishing is still the mainstay of the Western Australian fishing industry. With careful management is likely to remain so for some time.

Western Australia provides two-thirds of Australia's annual crayfish catch. In 1964-65 it amounted to 26 million lb. The industry is based on overseas markets, mainly in the United States. Its most spectacular period of development was between 1945 and 1963, when production in Western Australia soared from half a million to 22 million lb. But in the course of this the crayfish population was severely depleted and is now estimated to be only about one-quarter of its original size.

The number of vessels engaged has risen to more than 700 from a handful 20 years ago, and the annual catch is down to 18 million lb. Efforts are being made to stabilise production by restricting the number of licensed vessels, introducing pot limits and making escape-gaps in pots compulsory.

The boom years are well and truly gone, perhaps for ever, and the industry is being sustained, temporarily it seems, by the high prices U.S.A. buyers are prepared to pay for craytails. In the 1965-66 financial year, although the total weight of exports fell, the value rose to a record \$A15 million. Now prices are falling and crayfishermen are facing the prospect of declining incomes.

The Western Australian crayfishing industry gained its impetus during the World War II when a cannery was set up at Geraldton to supply American forces in the Pacific. The Americans developed a liking for crayfish (they called it lobster) and after the war continued to ask for it back in the U.S.A. This led to the establishment of today's big export trade in craytails.

The area where crayfishing is carried out in Western Australia covers 8,000 square miles, within the 45-fathom line in inshore and offshore waters, and extends from Bunbury in the South to Shark Bay in the North, with the main centres at Fremantle, Lancelin, Cervantes, Jurien Bay, Dongara, Geraldton, and the Abrolhos Islands. The season, with the exception of the Abrolhos Islands, extends from November 15 to August 14 and the main species caught is the Western crayfish (Panulirus cygnus).

Fisherman's Gold.

One of the most productive grounds is among the chain of coral islets named Houtman Abrolhos by the Dutch in 1619. Here during the short season from March 15 to August 14 every year 300 fishermen set pots among reefs strewn with the wreckage of 17th century galleons, lost during storms on their way home to Holland from the spice islands in the East Indies. Fishermen leave the sunken treasure for skin divers to recover and win another kind of 'gold' - crayfish tails which are sold for \$US2 a pound and more in the U.S.A. During the season they catch upwards of three million lb. of crayfish in wood-batten and beehive-shaped wire mesh and cane pots.

Fishermen live ashore on the larger islands in timber, galvanized iron and coral-rock hut settlements. Some bring their families with them from the mainland and have equipped their homes with gas stoves, kerosene refrigerators and electric light plants. There is no fresh water on the islands, and the residents rely on rain water for their domestic needs. They have solved the bathing problem by erecting makeshift communal sauna bath houses.

'Scooter' Boats.

Shallow waters within the outer reef system are fished mainly with small 'scooter' boats which can be manoeuvred among the breakers. Catches are sent to mainland processing plants in carrier vessels.

More distant waters are fished by ocean-going freezer vessels which process their catches on board.

Each year, Western Australian fishermen are removing vast numbers of crayfish from the fishing grounds, but if the industry is to continue at the present high level, much will depend on the capacity of remaining stock to provide replacements. With this in mind scientists of the C.S.I.R.O. Division of Fisheries and Oceanography and the Western Australian Department of Fisheries are combining to study all aspects of the life cycle of the crayfish. A new \$A170,000 laboratory is to be built near Perth for this work.

The gross value of fisheries production in Western Australia for 1964-65 was \$A16 million - 36.3 per cent of the Australian total - of which \$12 million came from crayfish and \$2 million from prawns. Production of fish was valued at only \$2 million.

Prawning is concentrated in the Shark Bay and Exmouth Gulf prawn grounds where two Australian subsidiaries of British companies - W. Angliss (Aust.) Pty. Ltd. and Ross Fisheries (Aust.) Pty. Ltd. - are playing a leading role in developments.

Ross Fisheries, a subsidiary of the Ross Group, Grimbsy, England, have moved into Exmouth Gulf and W. Angliss, a subsidiary of Union International Co. Ltd. has bought out Nor' West Whaling, which switched to prawn trawling in Shark Bay after humpback whaling ceased.

W. Angliss also took over Planet Fisheries, of Shark Bay, and has merged the two companies' operations, at Carnarvon.

"Our aim is a round-the-year fishing operation based on Carnarvon" said the company's fishing operations manager, Mr. D.F. Townsend, who has spent two years in Shark Bay organizing the new project.

The company now operates 18 vessels from the processing plant at Carnarvon.

Mr. Townsend said it had become obvious that combination crayfish-prawn vessels could be used only to develop new grounds. Specialized trawlers must take over at the first opportunity. With this in view, steps were being taken to design a completely new type of prawn trawler for Western Australian requirements. It probably would be a 60 ft. all-steel vessel based on the lines of double-rigged Gulf of Mexico shrimp trawlers.

Prawn catches in Shark Bay this season had been disappointing, Mr. Townsend said, although it was hoped the catch would be increased by extending the fishing period. Experience suggested that an annual catch of two million lb. in Shark Bay was possible. However, a visiting American expert estimated it could rise to four million lb. a year.

Experimental trawling.

In Exmouth Gulf, where prawning started three years ago, indications are that the grounds may develop into the highest producing in Australia. The man mainly responsible for the establishment of this prawn fishery is Mr. Michael Kallis, principal of Gulf Fisheries Pty. Ltd. He undertook experimental trawling in the area in 1963 and, when nine licenses were granted in 1965, he persuaded nine Australian vessel owners to go north for a full season.

Gulf Fisheries established a processing factory at Learmonth and provided facilities for the families of 25 persons employed to live in caravans on the site.

Fifteen boats are licensed to trawl for prawns in Exmouth Gulf. Catches this year have been consistently large and this has encouraged surveys to be undertaken northwards along the coast.

Individual vessels are landing up to 1,500 lb. of prawns a night and some owners caught 50,000 lb. in the first three months of the season, which opened in April. Prawners were paid 28 cents a lb. at the start of the season but catches, and demand, have been so good that they are now receiving 30 cents a lb.

This season Ross Fisheries began prawn trawling and processing in Exmouth Gulf. The company is using the factory ship "Ross Endeavour" to process the catches from its five catcher vessels which operate on a daily basis and are equipped with brine refrigeration units.

Ross Fisheries report that most of the prawns caught have been tigers. Catches of up to 2,000 pounds a night have been made, with some vessels averaging 8,000 pounds a week.

The company says a surprising number of new prawning grounds have been found. This has encouraged the company to survey new areas further north and results have been promising.

To further development Ross Fisheries plan to establish a shore-based plant at Learmonth for the 1967 season and move "Ross Endeavour" up into the Onslow area as a mother ship for a

fleet of boats that will be fishing there. New boats entering the area will be designed to fish for prawns and tuna on a nine-months basis.

Limited fishing for tuna further south, at Shark Bay, yielded 50 tons of bluefin, caught mainly by vessels on a part time basis.

Further afield in the Northern Territory five Queensland prawn trawlers are fishing the expansive Gulf of Carpentaria. Moderate catches of banana, tiger and king prawns have been caught and processed at a shore plant at Karumba operated by Craig Mostyn and Co. Pty. Ltd. The plant was recently upgraded for export processing, and shipment of frozen headless prawns have been made to the U.S.A.

Encouraged by reports of the potential of northern Australian waters the 300-ton Japanese carrier vessel Suruga Maru and the 95-ton catcher boat Kyoshin Maru No. 12 have moved into the Gulf of Carpentaria. The last report said they were averaging 700 pounds of prawns a day.

Western Australia and Northern Territory hold great promise for fishermen adventurous enough to go there. Developments so far in these areas have largely been based on inshore fishing, with small vessels dependent on scattered shore facilities. Future progress is likely to be limited somewhat by these factors.

However, little effort has been expended to date on the potential in offshore waters of the Indian Ocean and it may be here that the biggest and most spectacular development will be seen. Japan is already fishing for tuna in the region and the Soviet Union is showing interest in the pelagic fish stocks.

(Fishing News International London November 1966).

AERIAL FISHING

An amphibious helicopter has started on an extensive fishing programme for mullet in the Manukau harbour, Auckland, New Zealand.

Launched by Marine Helicopters Ltd., who had experimented with this new form of fishing earlier this year, hopes are high that mullet netting will reach a commercial scale. A Hughes 300 type helicopter costing £15,000 and based at Ardmore, south of Auckland is being used for the project.

Fishing is carried out with the helicopter dropping the nets into the water. This is followed by the lowering of an aluminium dory.

Two men work from the dory retrieving the fish and placing the catch in 4 ft. wide buoyed nets. The nets are picked up by the helicopter which transfers them direct to trucks waiting on the shore. From there the catch is delivered to a canning factory.

Total time involved in the operation is approximately 15 minutes. Many kinds of fish had been landed during the trials from snapper to nine-foot sharks.

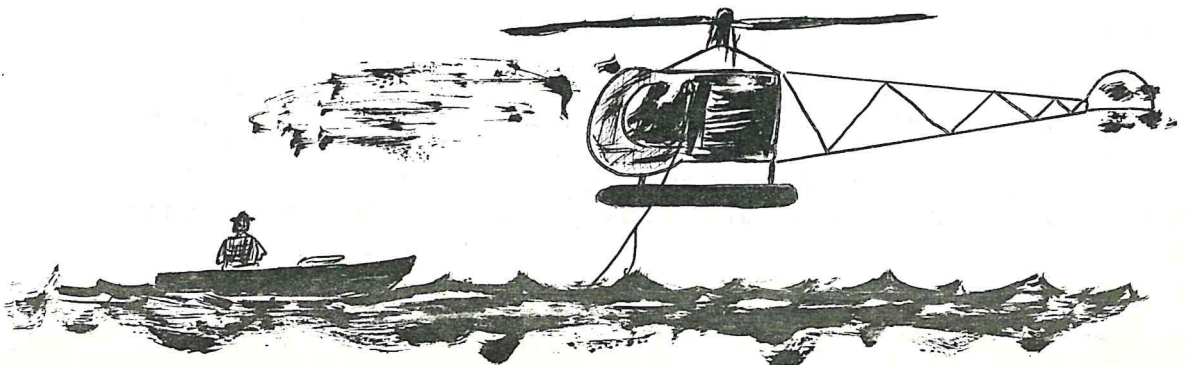
Trials have also been carried out using the long lining method. Lines of up to three quarters of a mile in length were laid, and when recovered 16 out of 100 hooks on one line held snapper. A spokesman for the company said that while this was not outstanding a similar result during full scale work would be satisfactory.

It is intended to conduct further experiments using two miles of nylon line fitted with hooks and using a pulley device. This will be run out from the shore by helicopter. When the line is laid out around the pulley, winches will move it to and fro to prevent the fish from struggling free.

(Fishing News International

London

December 1966).



A CITY'S ANCIENT FOREST

Within the shadow of Miami's towering skyscrapers is a unique area of primitive beauty; eight acres of walled-in wilderness the last vestige of virgin forest anywhere within the heart of a great American city.

The area is Simpson Park, named for a great botanist and dedicated to the preserving of one and a half city blocks of fascinating jungle from extinction.

Simpson Park is not a park in any usual sense. To be sure, it has footpaths but many of these are confusingly overgrown or take erratic turns in deference to a venerable oak or a vine-entangled ficus tree. The park has benches too, but not always discernible as such in the maze of jungle growth.

Simpson Park is an outdoor "botanical showcase" of a vanished era, when great forests (or Hammocks) covered the southern Florida peninsula and made it almost impossible to traverse.

Nowhere in Simpson Park has the delicate balance of Nature been permitted to be disturbed by the addition of plants or insects beneficial to man, or by the destruction of those which might be harmful to man.

Enclosed within Simpson Park's 4-foot-high rough coral wall is more than 125 varieties of rare and beautiful trees, such as thrive only in the American sub-tropics. Some of these trees have been in danger of extinction. One in particular, the Misanteca triandra, a flowering ornamental, native to the Florida Everglades, has only two existing specimens on the United States mainland. Both of these are in Simpson Park.

There is Inkwood whose sap the Siminole Indians use as a dye and which early settlers used as a writing fluid. And dread Machineel, poisonous to the touch and to the taste, used by the Indians of the Amazon Valley to make deadly their arrow tips, blow-gun darts and spear points.

Simpson Park had its beginning in 1924 when a group of civic minded Miami citizens, conscious of its obligations to future generations, induced the City to purchase five acres of rapidly vanishing hammock land to be preserved as Nature had intended it. The area purchased was christened

"Jungle Park" and Charles Torrey Simpson, a noted botanist and specialist in sea-shells who had settled in the Miami area in 1904, was hired as its advisor. Later the name of the Park was changed to honor Dr. Simpson who died in 1933.

In 1937 a Garden Centre, constructed of the same coral rock as the wall surrounding the park, was set in its northwest corner. The building with its auditorium, kitchens and a botanical library immediately became the meeting place of many of the garden clubs of the Greater Miami area.

An additional 3-3/10 acres, last of the hammock land, was acquired in 1940 to bring the Park to its present spacioussness.

If your taste in public parks runs to broad vistas of velvety lawns, sculptured hedges, prim walks and stately trees, Simpson Park is not for you.

But if you delight in stepping into a domain where the whirr of traffic fades to an insect hum, muted by a blanket of leaves; where the Florida sunshine flecks downward on a world unspoiled by the hand of man, you will love Simpson Park.

(Florida Wildlife

November 1966).

SOVIET UNION MEAL PRODUCTION

If the Soviet Union reaches the target set under the current five-year plan (1966 to 1970), her fishing industry will become one of the world's largest producers of fish meal. During 1965 Soviet meal production reached 240,000 metric tons, twice as much as in 1963. This, however, is still considered to be well below the needs of the country which are estimated at about 500,000 tons.

The 1965 production exceeded the planned quota of 200,000 tons by 20 per cent or even more if whale meat meal is excluded from the fish meal total. To satisfy a growing need for the meal the Soviet fishing industry plans one million tons by 1970. And 80 per cent of this is to be produced at sea aboard trawlers and factory ships.

Although there is a demand in the U.S.S.R. for meal, there is no evidence of any being imported.

(Fishing News International

London

December 1966)

WILDLIFE PRESERVATION

HIS EXCELLENCY, Sir Alan Mansfield, K.C.M.G., LL.B, Governor of the State of Queensland, had a long and distinguished career as a barrister, university lecturer, Judge of the Supreme Court and as Chief Justice of Queensland before being called to his present high office in March, 1966.

This report of his talk to the Rotary Club of Ipswich, which was supplied by District Governor David Munro, is reprinted by kind permission of the "Queensland Times".

His Excellency called for positive action to preserve Australia's wildlife in a talk to the Rotary Club of Ipswich.

He warned that if the present massacre of kangaroos continued they could become as rare as the koala and the platypus.

Sir Alan said that one of the major problems confronting Australia's wildlife was that there was no control on the numbers being killed and the numbers being preserved.

He said that in some places it would be possible to preserve the habitat of animals, as was done in South Africa which had large reservations.

At no time would the animal population be allowed to become too great for the reservations.

When Australia became an island, perhaps about 100,000,000 years ago, a variety of animals was isolated here and so they were preserved from outside molestation, he said.

In short, the more "progressive" furred animals that were on the Eurasian and African land masses were unable to cross the intervening seas and so did not replace the older and more primitive stocks as they did elsewhere.

Thus, from the ancestral, kangaroo-like creature there developed the red kangaroo, grey kangaroo, rock wallaby, wallaby, wallaroo, pademelon and potaroo. Possums and wombats also developed.

Sir Alan said, "Even more archaic than the marsupials are the monotremes - platypus and two species of spiny anteater.

At the time of the first European settlement in this country in 1788, kangaroos and platypus were abundant around the shores of Sydney Harbour and Botany Bay.

The bush to our great grand-fathers was the enemy to be conquered. In the early days animals were eaten for food, but this had no effect on their survival."

From 1815 onwards, when the way across the Great Divide was found from Sydney, the explorers and then the landholders and bush workers pushed further into the hinterland. By 1836 kangaroos had become scarce as far afield as the Western slopes of the Blue Mountains. This was nearly 20 years before the first gold-rush and after the establishment of sheep runs on the western plains.

This was only a depletion of the local population of animals; the species still remained safe.

But when the destruction of animals for trade in their fur began, a more insidious danger developed.

By 1852 kangaroos had been reduced in numbers, but they were in no danger of extermination.

In 1863, the large diminution in numbers of the platypus was serious, but still was not a real threat. Even though these animals were relatively scarce near the coast, they still abounded inland.

Soon, however, came the great extermination and for this the sheep farmer was almost entirely responsible.

The men who were known as squatters had no feeling for the countryside. What they wanted to do was to run as many sheep to the acre as they could. They set about ringbarking every tree, and so today you can see mile after mile of dreary treeless artificiality - particularly in the western district of Victoria.

The other thing they did was to kill all the bigger native animals on the place. They butchered every kangaroo, every koala and every pademelon.

Also, the introduction of the fox, the rabbit, sparrow and prickly pear caused many problems because they flourished here in their new environment.

The fox was responsible for the decimation of the small native pouched mice.

For a century the kangaroo remained plentiful in the hills and lands around the pastures, but the spotlifter and the sheep farmer became engaged in the production of pet food in the exportation of sub-standard sausage and other meat to West Germany, Hong Kong, Singapore and Japan.

This trade got heavily under way in 1958. In 1960-61 over 5,500,000 lb. of kangaroo meat was exported.

David Fleay, who first drew national attention to what is still going on, has calculated that at least 10,000 kangaroos, including pouch joeys, are killed in Queensland every week.

In many parts of Queensland, New South Wales, South Australia and Western Australia the slaughter continued.

In Western New South Wales at least 25,000 were killed every week.

As recently as July, 1964, newspaper reports from Mildura said that red kangaroos were being shot at the rate of 200,000 per week in south-western New South Wales.

Pressure groups of sheep farmers and kangaroo-shooters say that kangaroos are in no danger of extinction, but they can be ignored.

Nobody thought the American bison in its millions was in danger, but today it exists only in a few national parks.

Who would have thought that the koala - at one time one of the commonest mammals in Queensland - would ever be rare? But where is it today in its wild state?

One of the most regrettable episodes in relation to wildlife occurred in this State in August 1927, when an open season of one month was declared for possums and koalas, and the Government drew license fees from 10,000 registered trappers. Over 1,000,000 possums and nearly 600,000 koalas were massacred in that month.

David Fleay had stated that at that time the Queensland koala population suffered a blow from which it had never recovered.

In New South Wales the position was worse. In South Australia they were all wiped out. There were some in Phillip Island in Victoria.

In less than two centuries we had exterminated a number of species and endangered dozens of others.

There are now many people who were extremists in relation to the animals of Australia. Some said the indigeous animals must be destroyed because they prevent pastoralists keeping their herds and flocks alive. To some others, every furred or feathered creature must be preserved.

It was, however, clear that pests, feathered, furry or invertebrate, must be reduced in numbers.

At the same time, an enlightened community would do its best to achieve a humane and sensible balance between legitimate development and conservation.

And that is where we, the Australian people, have failed. We have been not only negligent, but criminally culpable.

There is today an appreciable proportion of the sheep farming fraternity which would exterminate the red kangaroo if it could, and if an open season were declared for koala and platypus there would be plenty of socially acceptable people who would race in for the quick quid and wipe them from the face of the land.

The key to the survival of our native animals is the preservation of their habitats and the declaration of a close season.

Australia is a vast country and there is room for sheep and kangaroos, koalas, platypus and farmers.

We can help by supporting any genuine cause which you think deserves your sympathy. Let your Member of Parliament know your views, and join a conservation society.

(Rotary Down Under)

CRAYFISHERMEN WARNED ON PRICES

Crayfishermen could expect to get slightly lower prices for their catches in the 1966-67 season, according to the Fisheries Branch of the Department of Primary Industry.

Mr. T.H. McClelland and Mr. T.F. Meany, of the department's economics section, say that this is because craytail prices in the United States, Australia's main market, are easing from the record levels of 1965.

This year consumption of crayfish in the U.S. has been less than imports, which have been particularly high, and stocks have risen to a record level.

Between 80 and 90 per cent of craytails are sold to restaurants in America and Australia ranks second on the list of suppliers after South Africa.

Demand for crayfish in the United States shows little evidence of any big-scale recession. It is likely that prices will continue to ease gradually till stocks in America are substantially reduced.

The first of the new season W.A. crayfish (50,000 lb.) has left for the U.S.

The Western Australian Fisheries Department expects to know about the middle of next year whether the industry has stabilised itself at an annual catch of between 16,000,000 lb. and 18,000,000 lb.

U.S. 12-MILE ZONE PASSED BY CONGRESS

The United States will have a 12-mile fisheries limit as soon as President Johnson signs a bill sent to him.

The Senate accepted a House amendment on October 5 and sent the bill to the White House for the President's consideration. The legislation will give the U.S. ownership of fish within 12 miles of its coasts. It will establish a nine-mile fishery zone extending from its present three-mile territorial waters.

The sudden about-face in U.S. policy results from increasing fishing pressure, on both the Atlantic and Pacific coasts, of Russian fleets. This year, a fleet of about 85 U.S.S.R. vessels have been dragging for hake and other groundfish right up to the three-mile limit off Washington and Oregon.

The new U.S. limit is based on a line following the sinuosities of the coast, not on a point-to-point baseline.

(Western Fisheries Vancouver October 1966).

NYET IS NO

The Russians have rejected fishing recommendations worked out several weeks ago in Moscow, in which the Soviets reportedly agreed to instruct their fleet not to fish within 12 miles of the coast, and not to fish for salmon.

The rejection, forwarded to the U.S. State Department recently, during week ending September 18, came after the department had pressed for approval of the recommendations which were to have gone in effect September 1, 1966. Another meeting is scheduled between the two countries for week of November 13, 1966.

(Fishing Gazette New York October 1966).

JAPANESE IN FISH FARMS IN BIG WAY

Japan is making extensive use of fish farms to supplement its tremendous catch of fish in the world's oceans.

The country has been engaged in artificial hatching and breeding of salmon and trout since 1876, and back in the 17th century, the Japanese started growing laver, an edible seaweed, by artificial means and began artificial breeding of oysters.

From this, the Japanese achieved the cultivation of pearls by 1893, and cultured pearls are, today, one of the country's most important consumer exports.

In recent years, there has been a marked drop in high quality fish in coastal waters, while low quality and inexpensive fish such as sand eels were multiplying.

When the livelihoods of coastal fishermen were threatened, the government stepped in. A major measure taken to remedy the situation was the establishment of five fish farms in the Inland Sea since 1962.

The five centres are located in Yashima, Kagawa Prefecture; on Hakata Island, Ehime Prefecture; at Kamiura, Oita Prefecture; in Tamano City, Okayama Prefecture and Shibu City, Kagashima Prefecture.

Authorities are confident that the advances made in breeding techniques at government fishery research institutes, as well as at universities, will assure the production of large quantities of profitable fish.

Already, the Japanese are claiming vast improvements on nature. For example, a single red sea bream lays hundreds of thousands of eggs, but under natural environment, only a few are hatched and grow to maturity. With new techniques, it is now possible to hatch and raise several thousands.

Japan is the first country to artificially cultivate the prawn, from a mature prawn to eggs, fry and back to a mature prawn. Studies on the life cycle of the prawn began in 1932, and some 30 years later, scientists had them under control.

Prawns go through a number of stages in the metamorphosis cycle and it is very difficult to cultivate them artificially. For example, a crustacean changes from an egg to a nauplius and then to a zoea, mysis and into the postlarva stage before

maturing. When it changes from a nauplius to a zoea it begins to feed immediately. It took six years to find out what was the most suitable type of feed - the bacillariophyta bred by pure culture.

Some fish farms on the Inland Sea have ponds up to 25 acres in size, with the ebb and flow of the tide used to change the water. Motor boats are used to spray feed to all areas of the ponds.

Despite the spectacular success in cultivating certain species, however, Japanese authorities admit there are a couple of problems to be overcome in fish farming. Probably the most serious need is a new, inexpensive type of fish food. Where production of cultivated yellow-tail, known as "hamachi", increased materially, increasing costs of their feed, such as sardines, sand eels and mackerel pike, shaved the margin of profit to an uneconomical level. Now the fish farmers are seeking artificial feed.

(Western Fisheries

Vancouver

October 1966)

CUBAN FLEET EXPANDS

From 1961 to mid-1966, Cuba added almost 700 small vessels, built in local yards, to fishing its fleet and purchased abroad 50 larger vessels. They were purchased from Spain, others come from Japan, U.S.S.R. and Poland. Nearly all were tuna vessels except for about 11 trawlers, some of which began fishing for cod on the northwest Atlantic grounds. The Cuban goal for 1970 is fishing fleet of 700 large vessels and 900 small craft.

About 4,000 young Cubans are being trained at various marine fishery schools.

(Fishing Gazette

New York

October 1966)

25 FISH A MINUTE

After 18 years of experimenting an Aberdeen fish merchant, has designed a machine that can gut fish at the rate of 25 a minute.

An earlier machine of his gutted fish at the rate of 10 a minute, but he states that with his new one it is instant gutting.

The machine has now been fitted with a loading device as a safety measure. It has been inspected by a number of trawler skippers.

Mr. Johannesson said he would begin marketing the machine, which is a foot long and 18 in. high, this week. The machine is patented and he intends assembling it at his workshops behind his fish premises in Aberdeen.

He added that larger machines could be made to cope with larger-sized fish.

He has already successfully marketed a finning machine, but different concerns, interested in the introduction of a gutting machine have failed to provide the industry with a comparable one.

(Fishing News

November 4, 1966).

TUNA DOG FOOD

It is not generally known that large quantities of canned dog food, chiefly made up of Australian tuna, is sold by American interests to some Middle East nations.

There are no dogs in these particular countries.

(Fish Trades Review

October 1966).