

[MONTHLY SERVICE BULLETIN  
(WESTERN AUSTRALIA FISHERIES

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DEPARTMENT OF PARKS AND WILDLIFE

DEPARTMENT, WESTERN AUSTRALIA

MONTHLY SERVICE BULLETIN

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Vol. XII, No. 8

August, 1963

STAFF NOTES

The Director, Mr. A.J. Fraser, with Mr. A.G. Bollen, Assistant Director of the Fisheries Division of the Department of Primary Industry, Canberra, last month called on all crayfish processors in the State in connection with the economic survey of the crayfishing industry to be implemented later in the year. The two administrators also visited the whaling and prawn processing plants at Carnarvon and Shark Bay, being flown from Carnarvon to Shark Bay and return in the "spotting" aircraft of the Nor'-West Whaling Company. Mr. Bollen will return to Canberra on August 1. Later in the month Mr. Fraser will be present at a reception to be given by the Consul-General for Japan. On August 23, Mr. Fraser and the Administrative Officer, Mr. B.R. Saville, will attend a meeting of the Pemberton Hatchery Board to be held at Pemberton.

The Senior Research Officer, Mr. B.K. Bowen, and Technical Officer R.J. McKay left Perth by air on July 30 for Onslow, where they joined the r.v. "Lancelin" to commence the fishing tests on northern crayfishes. Messrs. Bowen and McKay are booked to return to Perth on August 23.

The Pearling Superintendent (Broome), Mr. R.J. Baird, will fly to Perth on September 4, preparatory to leaving for Cronulla, New South Wales, to attend the 1963 School for Fisheries Field Officers. Other officers to attend from this State will be Technical Officer E.H. Barker, and Inspector D.P. Gordon, of Bunbury. They will leave Perth on September 6 and return on September 28.

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Research Officer R.J. Slack-Smith left for Shark Bay towards the end of July to continue field and laboratory work at that centre in connection with the prawn research programme. Technical Officer E.H. Barker accompanied him.

The Fauna Officer, Mr. H.B. Shugg, addressed a meeting of the Central Great Southern Regional Council at Hyden on July 27. He was accompanied by the Curator of the State Herbarium, Mr. R.D. Royce. The two officers also inspected a number of areas which might possibly be reserved in the eastern wheatbelt for flora and fauna. The principal one included Mt. Crampthorne, a huge granite outcrop of nearly 900 acres situated north-east of Narembeen. Messrs. Shugg and Royce were absent from Perth from July 26 to 29.

\* \* \*

We welcome back to the staff Mrs. M.A. Stone, typist, who commenced duty on July 9. Mrs. Stone had previously spent a few weeks in Head Office prior to the appointment of Miss S. Paton, who resigned from the service on July 5.

\* \* \*

Officers to commence annual leave this month will include Assistant Inspector C.P. Ostle on August 5, Inspector B.A. Carmichael, of Albany, on August 24, and Miss H.M. Gilfellon, of Head Office, on August 26.

Officers who will be on leave next month will include Assistant Inspectors A.H. Ullrich, of Perth, from September 2, R.G. Emery, of Fremantle, from September 23, and J.T. Kelly, of Geraldton, from September 30.

\* \* \*

#### PERSONAL PAR

Our congratulations are extended to the well known Fremantle fisherman, Mr. Frank Del Rosso, who last month received from the Italian Government an award titled "The Star of Italian Solidarity". It is understood that Mr. Del Rosso, who has been in Australia for 43 years, including 4½ years service in the A.I.F., received the award in recognition of his service in this State to migrants of Italian origin. He is skipper of the 75-foot freezer boat, Geraldton Empress.



DR. THOMSON LEAVES C.S.I.R.O.

James Miln Thomson, D.Sc., Principal Research Officer, Division of Fisheries and Oceanography, has resigned from C.S.I.R.O.

A Western Australian by birth, Dr. Thomson was educated at Christ Church Grammar School, Claremont, and the University of Western Australia. Graduating B.Sc. in 1942, he took first class honours in zoology in 1943; M.Sc. in 1944 and D.Sc. in 1957.



**Dr. J. M. Thomson**

Thomson joined the then Division of Fisheries, C.S.I.R.O., in 1945, as assistant research officer. He has been principal research officer since 1957. On two occasions (for four months in 1957 and for eight months in 1959-60) he acted as Chief of his Division. He was scientific adviser to two Australian delegations, that on the Conservation of the Living

Resources of the Sea at Rome in 1955 and that on the International Law of the Sea at Geneva in 1958.

Dr. Thomson made three other visits overseas in the course of his official duties. These were to Japan for three months in 1948 to study oyster cultivation methods; for nine months in 1958 to study brackish water fish farming and oyster cultivation in India, Italy, France, Holland, Denmark, Britain and the U.S.A.; and for seven months in 1960 to the U.S.A., Canada and Britain to study the methods of investigating fish behaviour.

From 1948 to 1952 Thomson was officer in charge of the C.S.I.R.O. field station at Dunwich, Queensland, and has been a member and project leader of the Western Fisheries Research Committee since its inception in 1961.

Dr. Thomson has published many scientific papers, the more important of which have appeared in the Australian Journal of Marine and Freshwater Research and other C.S.I.R.O. publications. He was also the author of two papers published as fisheries bulletins of the W.A. Fisheries Department.

It is a matter of the deepest regret that this

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Department and the Western Fisheries Research Committee will lose the services of such an accomplished and widely experienced officer as Jim Thomson. Indeed, his departure from the official scene will be a blow to Australian fisheries as a whole. He leaves to take over the management of a new public aquarium to be built near Sydney, New South Wales, where it is possible research facilities will be available to him.

#### IN-SERVICE TRAINING

Mr. P. Yewers, of Head Office, recently attended an induction course conducted by the Public Service Commissioner's Office. This course was one of a series designed for young officers and Mr. Yewers reports that he found it most informative. He says that it covered most aspects of the public service, and was broken into three sections - the history and establishment of the Service; the conditions of service in respect to salaries, promotion and allowances; and, finally, how to improve one's work methods and public relations. A set of notes relevant to each section was distributed and, as space permits, some of these will be reproduced, perhaps in an abridged form, in future issues of this Bulletin.

Remembering the dynamic address on public relations given at our last staff conference by Mr. H. Ende, the course notes on this topic are reproduced elsewhere in this issue.

Arrangements will be made for selected cadet inspectors to attend some of the future courses, which occupy only one morning.

#### NEW BUNBURY OFFICE

Although the contract date for the completion of the new office and boatshed at Bunbury is September 24, 1963, it is understood that the actual finishing date may be some time later. Let last May at a cost of £5,228, the contract was awarded to Messrs. A.D. & D. Dalton, of Bunbury.



KEY POINTS IN PUBLIC RELATIONS

1. Everyone is a public relations officer -
  - for himself
  - for his family
  - for his employer
2. People judge you every day -
  - by your appearance
  - by your speech
  - by your manner
  - by your smile
3. You can change your personality -
  - learn polite words
  - learn kind words
  - learn words that draw people out
  - learn words that make people comfortable
  - learn words that carry tones of praise
4. You can learn to overcome nervousness -
  - to greet people warmly
  - to remember names
  - to make introductions
  - to relax in "tough" situations
5. This business of acting as your "best" self is Public Relations•-
  - people will remember you favourably
  - people will admire your self-control
  - people will be favourably impressed by your appearance!
  - people will be glad to have met you.

YOUR FUTURE DEPENDS ON IT!

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CONVICTIONSAPRIL-JUNE, 1963.

Date	Defendant	Court	Charge	Result
			<u>FISHERIES ACT</u>	Fined.
8.4.63	WADE, Elsie E.	Fremantle	U/s cray-fish	£17. 0.0.
"	WADE, Elsie E.	"	"	10. 0.0.
"	CONNOR, Michael J.	"	"	17.16.0.
"	SICLARI, Giovanni	"	"	16.10.0.
"	THOMAS, Clark	"	"	12. 5.0.
"	HARRIS, Leonard S.	"	"	10.13.0.
"	PARKE, Raymond L.	"	"	11.17.0.
"	SHARPE, Ronald A.	"	"	10. 0.0.
"	SHARPE, Ronald A.	"	"	29. 0.0.
"	BRIGUGLIO, Guiseppe	"	Unlicensed fishing	10. 0.0.
"	BRIGUGLIO, Guiseppe	"	Closed waters	10. 0.0.
"	DOMENICO, Villari	"	"	10. 0.0.
"	DOMENICO, Villari	"	Unlicensed fishing	10. 0.0.
"	OTERIO, Gaetano	"	"	10. 0.0.
"	OTERIO, Gaetano	"	Closed waters	10. 0.0.
6.5.63	LOCANTRO, Gaetano	"	U/s cray-fish	54. 5.0.
"	CIKARELA, Ivan	"	"	10. 0.0.
"	CIKARELA, Ivan	"	"	10. 0.0.
22.4.63	MANGANARO, Antonino	"	"	48. 2.6.
10.6.63	VINCI, Antonio	"	"	16.15.0.
20.11.62	GERALDTON FISHERMANS CC-OP	Geraldton	U/s cray-tails	31.15.0.
21.11.62	GERALDTON FISHERMANS CO-OP	"	"	73. 2.6.
13.6.63	PEARCE, Douglas L.	Mandurah	Unlawful Netting	5. 0.0.
"	LEAHY, Harold L.	"	"	5. 0.0.
9.5.63	TODARO, Vincenzo	Perth	U/s cray-fish	27.12.0.
"	HYNES, Coleman W.	"	"	11. 2.0.



CONVICTIONS  
(continued)

Date	Defendant	Court	Charge	Result
9.5.63	BATEMAN, Clarence B.	Perth	U/s cray-fish	Fined. 27. 4.0.
2.5.62	NATIONAL FISHERIES LTD.	"	U/s cray-tails	14. 4.0.
16.5.63	KONGRAS, Anthony	"	U/s cray-fish	34. 8.0.
"	KONGRAS, Anthony	"	"	5. 0.0.
"	COLES, Reginald G.	"	U/s cray-tails	15. 2.0.
30.5.63	BOX, John Daniel	"	U/s cray-fish	6. 0.0.
"	O'DEA, Francis J.	"	"	41.16.0.
24.6.63	RUDEFORTH, Colin E.	"	"	35. 0.0.
26.6.63	McMAHON, John T.	"	"	20. 0.0.
10.4.63	SAMIOS, Arch * Late reports. Convictions confirmed on appeal.	Moora	"	10. 0.0.
<u>FAUNA PROTECTION ACT</u>				
9.5.63	ALLARDYCE, Ian	Perth	Taking Protected Fauna	3. 0.0

CONSERVATION OF SHORT-NECKED TORTOISE

The first specimen of a Short-necked Tortoise (Pseudemydura umbrina) found this year was discovered at the Viticulture Research Station maintained by the Department of Agriculture, near the southern reserve at Bullsbrook. The tortoise was found in a small pool near the house on July 11. It was picked up by Fauna Warden N.E. McLaughlan the following day, measured, numbered and released on the reserve.

The intensive research work to be carried out by graduate scholars of the University of Western Australia will commence in the next few weeks. The work will be supervised by Dr. A.R. Main, a Deputy Member of the Fauna Protection Advisory Committee, and Reader in Zoology at the

University of Western Australia. The work will be integrated and disciplined to produce a management programme for the species. It will be keyed with work to be done by another scholar in connection with a Ph.D. thesis on the three species of tortoises found in this State south of the Kimberleys. They are the Long-necked tortoise of the Murchison (Chelodina steindachneri), the common Long-necked tortoise of the South-West (Cheladina oblonga) and the rare Short-necked species of Bullsbrook.

#### COCONUT IN WHALE

A brief but interesting report has been received from Assistant Inspector D.H. Smith, of Albany. He tells us that during the week ended July 27, a sperm whale taken by a chaser of the Cheynes Beach Whaling Company was found to have in its stomach a whole coconut still encased in its husk. The outside diameters of the fruit were said to be approximately 10" and 8" respectively. When the coconut was opened it was found to contain mature milk and "meat" about one quarter of an inch thick.

Mr. Smith added that the finding of the coconut added to the belief that sperm whales sometimes feed on the surface. This had previously been indicated by the presence in their stomachs of small squid, which are known to occur in masses of up to 100 acres on the surface of the sea out from Albany.

How the sperm whale and the coconut came together is, of course, not known. It is possible that the whale picked it up in tropical waters, but far more likely that the fruit came south on ocean drifts, or was released from a ship.

#### GAME-FISH CAUGHT

The press last month carried an unusual number of reports of the taking of prize game-fish - marlins and sailfishes. Included among them was a 63 lb. sailfish, which was the first ever taken on regulation game fishing gear in our waters. It was caught, on July 25, by Dr. H. Illingworth, a member of the recently formed Norwest Game-fishing Club. The fish, which was taken on live mullet bait, was reported to be 8'4" long, with a bill



of 2'4" and a girth also of 2'4". Earlier in the month, the Club President, Dr. C. Georgeff, was reported to have hooked and lost two marlin of unidentified species. The Club has established a camp on Rosemary Island in Dampier Archipelago, which is only 3 sea miles from the edge of the continental shelf where the big game-fish are found.

An 8' marlin was caught last month by a Fremantle fisherman, Jose Telo, of the fishing boat Vela Luca while drifting across a snapper patch in Shark Bay. One press report had it that the fish was a blue marlin and weighed about 300 lb. while another recorded it as a black marlin, a different species, and weighing only 200 lb. No matter of what species, it was a very large fish to be caught on a snapper line, and it was undoubtedly one of the istiophorids.

#### LIMITATION OF CRAYFISH POTS

In a joint statement released on July 10, the Minister for Fisheries, Mr. Ross Hutchinson, and the Commonwealth Minister for Primary Industry, Mr. C.F. Adermann, announced that the State and Commonwealth Governments had agreed to introduce a system of pot limitation in the Western Australian crayfishery. The limitation would apply from November 1, 1963, to each fishing vessel operating off Western Australia in State territorial waters and Commonwealth "proclaimed waters."

The Ministers said that this action was considered necessary because crayfish production had not responded to the appreciable increase in the overall quantity of pots being used by fishermen during recent years. This situation indicated that unless some restrictions were placed on the number of pots in use, it could in future seriously affect the livelihood of both the fishermen and those employed in allied industries.

The Ministers stated that each vessel would be limited to 3 pots per foot of vessel, but vessels of 67 feet and over would be restricted to a maximum of 200 pots.

This type of restriction is not new in Australia, the Ministers said. They added that rather more severe limitations had been in force in the Tasmanian crayfishery for a number of years. They concluded the statement with

the comment that the restrictions imposed would be reviewed from time to time in the light of results obtained from any economical or biological studies which might be carried out in the industry.

Adding to the combined statement, Mr. Hutchinson said that papers were awaiting Executive Council approval for the levying of a license fee of 2/-d. a pot. The funds derived from this source would be directed, he said, towards the employment of additional and much needed staff, including 5 inspectors.

#### DIVING FOR CRAYFISH

In the May, 1963, issue of this Bulletin, we published the Department's views on a request made by the Geraldton Professional Fishermens' Association to prohibit the taking of crayfish for commercial purposes by means of diving. In the June issue, we reported that advice had been received from South Africa that the authorities there had decided to prohibit completely the taking of crayfish by this method for commercial purposes. This decision, the opposite from ours, prompted us to write to Dr. C.G. du Plessis, Director of Sea Fisheries, Cape Town, and to seek the reasons why the restrictions had been found desirable in that fishery. A most informative reply has been received and in view of its general interest is summarised as follows :-

The decision was reached on biological and socio-economic grounds. The main implications of the former were -

- \* the traditional methods of capture by netting and trapping neither disturbed nor caught moulting fish, which sought sheltered crevices and were seriously damaged before the diver noticed their soft state;
- \* the largest and strongest fish were seldom caught in nets but were regularly taken by divers;
- \* certain areas could be denuded of rock lobsters by divers in a short time and areas where commercial diving had taken place were rendered uneconomic to net fishing within 18 months.

Dr. du Plessis advises that an annual quota



of 3,400 short tons of frozen tails has been applied. He says that it was soon evident that diving was more effective and would in time, usurp the older methods of netting and trapping with the following socio-economic consequences :-

- (a) Quotas would be filled more rapidly, leaving idle for several months of the year the considerable capital invested in boats, nets and traps, compressors and diving gear;
- (b) the development of a separate "diving fleet" would mean unnecessary duplication of capital expenditure during a difficult period in the industry which had been brought about by stringent and essential conservational measures;
- (c) a total, or even partial, switch over to the diving method would mean a drastic reduction in the number of fishermen who could be gainfully employed in obtaining the annual catch;
- (d) the diving method called for special skills beyond the ability of the traditional fisherman. Diving attracted younger men, with a higher standard of education and more ready access to capital, who could be gainfully employed in other spheres of the country's economy, where they would not endanger the livelihood of the traditional fisherman. The latter were relatively unskilled and not easily re-employable in other fields.

Commenting on Dr. du Plessis' letter, the Senior Research Officer, Mr. B.K. Bowen, suggests that the economic structure of the South African fishery, as well as the fishery itself, seems to be different from that found in Australia. The one crayfisherman who was diving commercially for crayfish at the Abrolhos has found that it is not a paying proposition and intends to revert to normal fishing methods next season. Mr. Bowen says that diving for crayfish on the mainland reefs would be more difficult than in the Abrolhos. He acknowledges that "soft" crayfish could be damaged or disturbed by divers, but points out that we set the opening date for the season to give the crayfish time to "harden up". Mr. Bowen thinks that diving for crayfish will never be widely practised by Western Australian crayfishermen, but

agrees that we might have to adopt similar restrictions to those imposed in South Africa if the situation changes.

A PAT ON THE BACK

Mr. B. Johnsson, of Yass, Victoria, to whom we sent (on request) samples of our posters and pamphlets, wrote on July 26 -

"I must commend you on your posters, which I feel are in the manner acceptable and encouraging to the general populace, exemplary to all other States.

"I would appreciate it if I could be placed on your regular mailing list for all your productions on fauna conservation".

Such comments should inspire us to pay more attention to this aspect of the Department's activities, which has owing to staff shortages been sadly neglected in recent years.

MATERIAL FOR ANALYSIS

Whenever it is necessary, officially, to ascertain the cause of death of any fish or fauna, the material must be sent to the Government Chemical Laboratories near Head Office. Dr. L.W. Samuel, Director of the Laboratories, has advised that whenever any poisoning is involved, he is required to notify the Police Department in case public health was endangered.

On the other hand, whenever a living animal is involved and a diagnosis of its complaint is officially required, it must be left at the Animal Health and Nutrition Laboratories, Jarrah Road, South Perth.

PRAWNING

It was notified in the Government Gazette of July 26 that the Minister for Fisheries (Mr. Hutchinson) had imposed the following conditions on the licenses of all fishing boats, other than those permitted to operate



in the Shark Bay prawn fishery:-

"No licensed fishing boat shall be used, and no person shall permit or suffer such boat to be used, for the purpose of taking prawns in any of the waters in the Indian Ocean and Shark Bay lying between the parallels of 24 deg. 30 min. and 27 deg. 0 min. of south latitude and east of 112 deg. 50 min. of east longitude."

This condition has, of course, obtained in respect of all such licenses for some time, but its gazettal puts the matter on a sounder footing.

A group of freezer boats owned or under charter to Australian Food Exporters, a subsidiary of Empress Australia Ltd., will leave Fremantle about August 14 to undertake experimental prawn fishing in the Gulf of Carpentaria. The vessels concerned are the Kingfisher Corporation's freezer boats "Wendy", "South Seas", "Proton", "Kingfisher" and "Geraldton Empress", and the chartered vessel "Nelma". They are being refitted and adapted to prawn trawling, and it is understood that they will work around Weipa, about 80 miles north-east of Karumba, situated at the estuary of the Carron River, which empties into the south-east corner of the Gulf.

#### CRAYFISH CLOSURES

##### Closed Waters to be Extended:

The Minister for Fisheries announced last month that he had approved a recommendation by the Fishermen's Advisory Committee that the close season for crayfish each year be extended to cover all the waters lying between the 24th and 34th parallels of south latitude. As a result of the Minister's decision, the season will be closed in all that area from and including August 15, and will remain closed until November 14. Action to give legal effect to the Minister's decision will be taken immediately. Concluding his press release the Minister said :-

"Information I have received indicates that although production is being maintained at former levels,

the fisheries are being subjected to exceedingly heavy pressure. This could have serious repercussions in the future, if not checked. Let us hope the fishermen will take a rational view of the amended close season and do their utmost to assist in the conservation and protection of this most important industry".

Old Abrolhos Closure Restored:

The Minister advised that he had also approved a recommendation that the close season in the Abrolhos continue each year until March 14. The opening of the Abrolhos date would, therefore, be the same as it was some years ago. It has been delayed to give recently moulted crayfish, which are prevalent in the area at that time of the year, a better opportunity to "harden up" before the season opens. It is considered that the high mortality experienced last year among crayfish in transit to processing works at Geraldton was largely due to a late moulting run. As it is not possible to predict accurately such seasonal changes, the later opening has been re-applied.

The Abrolhos season will also close on August 14, in line with the general closure on the mainland reefs.

SMALL INCREASE IN SALARIES

Following the recent quarterly declaration of the State basic wage by the Court of Arbitration of Western Australia, the Public Service Commissioner has announced that the basic rate applied to the salaries of adult male officers will be increased by £3. a year.

The increase, which will apply on and from July 29, will approximate 2/4d a fortnight for all male officers of 19 years or more. Junior males will receive pro rata increases, and female officers will receive two thirds of the male increase.

A PERSIAN PROVERB

We are indebted to "Wildlife Review", published by the Fish and Game Branch of the Department of Recreation and Conservation, Vancouver, Canada, for this thought -

"When you point the finger of scorn, look at your hand -  
You will find three fingers pointing back at you."



## CLEARING HOUSE

### EXTRACTS FROM-

#### "HOW TO SELECT THE RIGHT BINOCULARS"

The most important factors to consider in buying a binocular are the brightness and clarity of the image, and the durability of its workmanship. Unfortunately, both are difficult to evaluate accurately by simple examination. You'll become acquainted with all the advantages of a truly fine binocular only as you use it over a season. Conversely, the worst faults of an inferior binocular (such as grease packing in joints or susceptibility to corrosion) may not show up until it has been in use for a few weeks. Other faults such as poor alignment or poor prisms will, of course, become evident after a few hours' use even to an untrained eye. To check out a high quality binocular thoroughly requires extensive testing with special equipment.

A few relatively simple tests can help you avoid a binocular with some of the more obvious faults, however. First of all make sure that the binocular you are considering contains prisms. Without prisms a high-powered binocular would have an uncomfortably narrow field of view. Prism binoculars generally have the objectives (the large ends of the barrels) either wider apart or closer together than the oculars (the small ends which are placed against the eyes).

Light reflected by the prisms travels a zig-zag route through the barrels. In one type of prism binoculars, the Hensoldt Dialyt line, objectives and oculars lie in the same axis. This is achieved through a special "roof prism" lens combination which gives the binocular a long slender shape. In other brands you can generally tell the prism binocular because its oculars and objectives lie in different axes. Don't be fooled by bogus bulges used in some cheap models at the spots where prisms are conventionally located.

Next, examine the joints of the binocular; flex them to and fro. They should require a certain effort to adjust, but move smoothly. Watch for grease or even corrosion spots; some cheap models are packed with grease to compensate for loose milling of parts. On a hot day the grease can melt and flow either into the binocular

(causing smudges on the lenses) or out onto other objects. In either case the binocular will soon loosen up and give an unwieldy amount of play.

Look inside the barrels too, holding them about a foot from your eyes. Peering into the large ends (objectives), make sure there is no dust or moisture inside.

You can spot faulty binocular prisms, which will tend to dim the image you see, by the following method: aim the binoculars at a light-colored object and hold them about a foot from your eyes. If you have high quality prisms you will see two perfect circles in the eyepieces (the exit pupils). If the prisms are imperfect you will see a bright white square superimposed on a dull grey circle.

You can check the alignment of the binoculars by sighting on an object a hundred yards away or more. Hold the binoculars in a fixed position (on a tripod, window sill, or other firm mount) with the object near the top of the field of vision. Sight through one barrel and then the other, using the same eye for both. If the binoculars are properly aligned, the object will appear in the same spot in both barrels. Check also with the object sighted near the bottom of the field of view, near the left and the right-hand sides. Sight on a straight line also (roof top or telephone pole, for example) and see if it is tilted more in one barrel than in the other. Any such irregularities indicate the binocular is not properly aligned.

#### How Much to Spend

One of the first questions most people ask when they are considering buying a binocular is, "How much should I spend?" The answer depends on the answers to three other questions :

(1) How long do I expect to be using this binocular and how high a level of performance do I want?

(2) What magnification do I need? Magnification does not affect the price of binoculars nearly as much as factors of quality, workmanship and durability. Prices of different brand binoculars of the same magnification may vary by as much as £100. In a single



brand of binoculars, however, you will generally pay more for a higher magnification.

(3) Will use of the binocular be limited almost entirely to the daylight hours, or will it also be used during twilight and night-time periods? If you expect to use the glasses at dusk or night, you will want a model with a large objective lens diameter, specially designed to give high "twilight performance". A 7x50 or 8x50 binocular will give a good twilight performance, for example, as well as good daylight viewing. The first number in the designation tells the magnification - seven times and eight times in the two examples just given. The second number 50 in both cases above - gives the diameter of the objective lens in millimeters. The wider this lens, the more light it admits, and so the better the viewing it affords in dim light. Binoculars used in wartime for spotting submarine periscopes at night, for example, had extremely wide objective lenses. For daylight viewing, on the other hand, objective lens of 40 millimeters are generally considered wide enough.

Magnification also affects "twilight performance", the greater the magnification, the greater the detail that is visible. ("Twilight performance" is actually a numerical value for the amount of detail visible under dim lighting conditions. This numerical value is determined by the formula  $\sqrt{M \times D}$ , in which M = magnification, and D = objective diameter in millimeters.)

The main factors in deciding how much to spend on a binocular are: how long do you expect to use it, and how clear, sharp and accurate an image do you expect? Magnification and twilight performance affect binocular prices, but to a relatively minor degree. If you want a binocular for one or two seasons of use, you may be satisfied with a model from the lower end of the price range. If you want a binocular that will give you a clear, bright image year after year, without clouding, fogging, contracting loose joints, or any of the other multitude of ailments that can affect binoculars, then the cost is relatively higher, as it would be for any fine instrument.

FAO WORLD GEAR CONGRESS

MOST MODERN EQUIPMENT IS AN ESSENTIAL

... and fishermen need more  
intensive training

If the Second World Fishing Gear Congress held by the Food and Agricultural Organization (FAO) in London last week has revealed anything, it is that fishing today is a highly technical industry and that only the use of the most modern equipment and knowledge can produce from the seas a greater contribution to the food stocks required to feed the world's increasing population.

On the opening day of the congress, Dr. D.B. Finn, director of the Fisheries Division of FAO revealed the use of submarines and underwater laboratories for studying the behaviour of fish, while later speakers told of the use of aeroplanes and scientific instruments for locating shoals and of new materials and machinery for the catching of fish.

The need for more intensive training of fishermen was stressed by a number of participants and representatives of Ghana, Nigeria and Ceylon, asked for more assistance and enlightenment in connection with their problems.

Filling Gap

Considerable discussion took place on mid-water trawling, as a means of filling the gap between the conventional near-surface and bottom fishing, thus opening up hitherto untapped resources. One paper from Germany reported on the successful, though economically-limited, use of fairly large trawlers of 1,200 hp in one- and two-boat mid-water trawling.

Accurate net depth telemeters are essential and a Japanese delegate spoke of a technique by which the net depth, the opening height of the net mouth, as well as the fish swimming in and around the net opening, are continuously reported to the operator.

The need for quick manouvability in connection with midwater trawling was stressed and it was stated that this could best be achieved by the use of centralised controls. Efficient and simple propulsion could be



obtained by the use of a variable - pitch propeller or diesel - electric drive. Mr. Jonsson, an Icelandic delegate spoke of good success having been obtained with gill netting in Icelandic and Norwegian waters.

### Net Material

Mr. Eric Kwei of Ghana, said that although the fishermen of his country worked quite a lot of gill nets they preferred to have them made of cotton. This was because they had a lot of rocky ground and they found that nets made of nylon or other such materials were much more difficult to disentangle than nets made of cotton material. Cotton nets were also easier to mend.

In his paper on purse seine fishing, Mr. Jakob Jakobsson said that since 1958, the annual yield of the Icelandic herring fishery had increased rapidly after 14 very lean years.

Apart from natural causes, such as fluctuation in stock strength, the increase was partially attributed to the introduction of asdic-guided purse seining for deep-swimming shoals, mechanized handling by power blocks, and the use of deeper and stronger seines of nylon netting hung on Terylene ropes.

During the discussions speakers dealt with the different types of seining, their advantages and drawbacks such as the two-dory system with carrier boat, the one dory towed by a carrier vessel and the latest system whereby the net is operated from the main boat.

### Present System

In the present system as operated at Iceland the net is usually stacked at the stern of the wheelhouse on vessels of up to 85 ft., or on the boat deck on larger vessels. Experience has shown that in most cases it is advantageous to start shooting with the wind straight ahead. Then the boat is also in that position while pursing takes place and in bad weather this is the best position for manoeuvring. As the net is hauled, the boat slowly makes almost a whole circle, finishing with the stern or the port side into the wind when brailing starts.

One of the greatest difficulties, according to



some delegates was that of preventing the boat from fouling the net.

For the making of purse nets, some favoured nylon, others preferred ordinary cotton or those of polyamide monofilament.

One speaker said he thought that where this method of fishing was falling behind was in the purse winch which he thought should be stronger and more powerful.

Several Japanese papers described the vast fleet operations being carried out by that country. One paper stated that last year some 12,000 Japanese fishermen, floating factory operators and fish patrol crews undertook a two-month salmon drift-netting operation in the North West Pacific.

#### Essential Research

Basic research into new types of fishing gear, together with technological-economic studies, were stated to be essential for the development of commercial fishing gear.

In connection with the economics of commercial fishing, Captain Dennis A. Roberts, director of Ross Trawlers Ltd., pointed out that if they brought in more fish it further brought down prices. What they wanted to know was how to bring in the same quantity of fish more cheaply.

Equipment designed to transmit information to the fishing vessel on fish behaviour in the net mouth was of particular interest and aroused considerable discussion.

The use of artificial lights to attract the fish, the use of electrical fields to shock them into the net, and the use of air bubble "curtains" to contain them for harvesting were amongst promising developments reported.

It has been found that under certain light conditions, herring avoid nets with high visibility. Various types of materials were tested and certain of these, such as monofilament nylon and polyamide monofilament, were found to catch fish even in full daylight. One delegate said the colour of the nets was also a strong factor with certain fish.



Mr. R. Balls, Yarmouth, appealed for more intensive research into the disappearing herring shoals in the North Sea.

Herring were so scarce in the North Sea, he said, that they were catching only spawning fish or "babies". There was a time when fishermen could predict the movement of the shoals with great accuracy, but that was impossible today. He wondered if constant interference by trawl nets was upsetting herring movements.

#### Great Emphasis

Great emphasis was placed on the further development of echo sounders, particularly the use of netzsonde transducer devices to transmit information on the height of the net mouth to the operator. It was suggested that a tandem netzsonde would allow observation of fish both below and above the net. This equipment has already confirmed the fact that too high a towing speed negates herding effect of the net.

A British developed high-resolution scanner which, by scanning in angle within one pulse duration, multiplies many times the recorded information per transmitted pulse was described.

Mr. R. Rowe, Lowestoft, claimed that the contribution of British scientists to the development of trawling gear had been "practically nil".

Mr. Rowe, manager of a trawling company, said deep sea trawlers landed 90 per cent of the nation's fish, but any progress that had been made in the development of trawling gear had resulted from the "trial and error" methods of the trawler owners. He urged United Kingdom scientists to specialise on fishing gear in the immediate future.

Mr. J.H.S. Blaxter, of the Department of Agriculture and Fisheries for Scotland, Aberdeen, agreed with Mr. Rowe's criticism that there was need for a greater degree of specialisation. It would be better to specialise in one small field rather than trying to do too much at once, he said.

### Electrical Fields

An interesting paper from the U.S.A. described how the fish catch can be increased up to 500 per cent by the use of electrical fields around the mouth of the trawl.

Reference was made to electrical fields to lead the fish towards a pumping device which, through powerful suction, delivers the catch on deck.

### Final Session

The final session of the congress was devoted to future developments in fishing gear. The application of automatic data processing to fishery operations was suggested. For instance, it was felt that by accumulating voyage records, programming them and feeding them into a computer, that the most promising catch areas could easily be selected. Other uses would include basic research, patterns of fish distribution and market analysis.

At the close, the chairman, Mr. Harper Gow, of Chr. Salvesen and Co., Leith, thanked those most closely associated with FAO and primarily concerned with organising the Congress.

He also thanked the 650 delegates from 50 countries, all concerned very closely with fishing gear.

(The Fishing News, London, 7 June, 1963)

### FROM A NATURALIST'S NOTEBOOK

by

Eric Hardy, FZS.

Fish movements and migrations are generally linked up with three things - spawning movements, water temperature changes, and following prey or escaping predators.

A new American fishery bulletin (No. 211) by J.L. Squire on the distribution of tunas in the north Atlantic shows how explorations of the research ship Delaware found water-temperature to be an important clue



to the distribution of the six species of tuna in the area just north of the Gulf Stream.

Squire's bulletin is an important addition to information about these increasingly valuable commercial fish, rivals to salmon if not ahead in economic importance.

There is no evidence so far that the tuna shoals which move in May up the North-west Atlantic with the Gulf Stream from Florida to the commercial fishery off the Continental Shelf between Newfoundland and Cape Hatteras, continue like the Gulf Stream across the north Atlantic, as we have often wondered.

They appear to return by a more circuitous, oceanic route to more southern spawning waters, in the Caribbean.

The importance of this fishery was shown by a 1959 purse-seining catch of 750 tons of bluefin tuna (largest and commonest of North Atlantic tunas) in 21 days' fishing off Cape Cod. The commoner method of fishing off the Grand Banks is with long lines of 600 hooks catching at a rate in winter of up to 5.7 bluefins per 100 hooks.

Most bluefin were caught within a temperature range of 52 to 70 deg.F, albacore 60 to 70 deg., bigeye tuna from 46 to 70 deg., and yellowfin from 65 to 84 deg., varying somewhat with depth. The Japanese have shown that tuna are most numerous near the boundaries of the major water currents.

Amongst enemies of the tuna are the sharks, but these were found to have damaged only 13 per cent of the catch in the Gulf of Mexico and 4 per cent in the north-west Atlantic.

(The Fishing News, London, 7 June, 1963)

#### POTPOURRI OF NEW PRODUCTS

by John Burgess

An entirely new deck-covering composition has been introduced by Plastics and Resins Ltd., The Municipal Airport, Wolverhampton.

It is called Dekaplex and is a viscous plastic

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liquid which you can apply to a deck or wheelhouse top with a brush, trowel or spray gun. It then sets into a tough, flexible skin which is absolutely impermeable to water and will not crack when exposed to extremes of temperature.

Its flexibility is such that it will not come unstuck or break with the normal working of decks and it is unaffected by any oils with which it is likely to come in contact in a fishing vessel.

Dekaplex has a roughish finish when it has dried; if you want to increase its non-slip properties, you can add sand when applying it. It can be applied to wood or steel surfaces, and to canvas, and it doesn't matter if they are damp.

It might be too much to expect it to withstand the bashing it is bound to get on a fishing vessel's working deck but it should prove invaluable for application over wheelhouses and the accommodation in wooden vessels.

(The Fishing News, London, 21 June, 1963)

#### IMPOUNDMENT INTELLIGENCE

After years of hopeful talk we are now embarked on a thorough-going study of fisheries problems on big reservoirs. The Government's South Central Reservoir Investigation Center at Fayetteville, Arkansas, opened in March with Bob Jenkins in charge. It is staffed by six biologists who will be aided by part-time services of five state-university faculty members.

The first job is pre-impoundment studies at the site of Beaver Reservoir on the White River. This will be a 30,000-acre impoundment and is the last dam planned for the stream. It marks the first time that truly adequate studies of a big reservoir site have been made before flooding. Besides fish life, soils and vegetation of the site will be thoroughly examined. These studies will be continued as the water rises. The programme is something that fisheries workers have begged for over the years, and we trust it will come to mean something not only about the time between bites but what species bite.

(Field & Stream, New York, June, 1963)