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DEPARTMENT OF PARKS AND WILDLIFE

DEPARTMENT

A U S T R A L I A

MONTHLY SERVICE BULLETIN



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STAFF NOTES

The Director, Mr A.J. Fraser, visited Busselton from March 20 to 24 and from thence continued on to Pemberton, where he inspected the local trout hatchery and discussed the future of trout acclimatisation in Western Australia with local officials.

We regret to report that Inspector A.V. Green, of Mandurah, was involved in a road accident on March 28. Mr Green, who was returning to his district from Head Office, suffered fractures of a rib, a knee-cap and foot, as well as head lacerations and extensive bruising. He was admitted to the Fremantle Hospital, but is expected to be discharged, with his leg in plaster, early this month.

Congratulations are extended to Mr W.K.H. Cherrington, of Head Office, whose promotion to Clerk (C-II-1) at the Plant Depot, Mechanical and Plant Engineers' Branch, Public Works Department, has been gazetted to apply from January 26, 1962. Mr Cherrington has been acting as Statistical Officer since the transfer of Mr A.J. Buchanan last November. Mr Cherrington's services will be retained until Mr Buchanan's successor, Mr J.E. Byleveld, whose appointment has been approved, is transferred from the position he now occupies in the Accounts Branch, Department of Agriculture.

Research Officer B.K. Bowen, visited Geraldton

last month. He left Perth on March 19, and spent some days at local processing factories on crayfish research before returning to Perth on March 26.

Cadet Inspector P.A. Smith commenced sick leave on March 19, and the following day underwent an operation. He will be on sick leave until April 16, and will then commence three weeks' annual leave. He will not return to duty until mid-May.

Relieving Inspector G.C. Jeffery was forced to take a few days' sick leave from March 29, owing to a recurrence of an internal complaint.

Mr J.M. Mitchell, of Head Office, has been recommended for promotion to a higher position in the Mental Health Services. His appointment to the position is, however, subject to appeal.

Officers who will commence annual leave this month include Assistant Inspector D.H. Smith, of Fremantle, on April 16; Senior Inspector A.K. Melsom, also of Fremantle, on April 26; and Mr B.R. Saville, of Head Office, on April 30. Next month, Fauna Warden N.E. McLaughlan will go on leave on May 14, followed by Assistant Inspector G.J. Hanley and Cadet Inspector K.P. Enright, on May 28.

STANDING COMMITTEE ON FISHERIES

The first meeting of the Standing Committee, which was established at a meeting of Commonwealth and State Ministers in September, 1961, was held in Canberra on March 8 and 9. There were present the Director, Fisheries Division, Department of Primary Industry (Mr C.G. Setter) and the Assistant Director (Mr A.G. Bollen); the Assistant Chief (Fisheries) of the Division of Fisheries and Oceanography, C.S.I.R.O. (Dr G.L. Kesteven) and the Divisional Administrative Officer (Mr G.R. Williams); the Chairman of the Sea Fisheries Advisory Board of Tasmania (Mr F.W. Hicks) and the Secretary, Fisheries Division, (Mr L.A. St. Leger); the Director of Fisheries and

Wildlife, Victoria (Mr A. Dunbavin Butcher); the Superintendent of Fisheries, N.S.W. (Mr N.V. Harris) and the Senior Research Officer (Dr Donald Francois); the Chief Inspector of Fisheries, Queensland (Mr E.J. Coulter); the Director of Fisheries and Game, S.A. (Mr A.C. Bogg); and the Director of Fisheries, W.A. (Mr A.J. Fraser) and the Chief Clerk (Mr B.R. Saville). The Secretary of the committee (Mr A. Spencer, of the Department of Primary Industry) was in attendance. Mr Hicks was elected chairman.

The Secretary, Department of Primary Industry (Mr J.V. Moroney) delivered an address of welcome to the members of the committee.

Altogether more than 30 items were on the agenda. These included -

- * East Coast Tiger Flathead Fishery
- * Pearl Shell Marketing
- * Nomenclature of Fish
- * Constitution of Western Fisheries Research Committee as sub-committee of Standing Committee
- * Report of Southern Pelagic Project Committee
- * Report of First Meeting of Western Fisheries Research Committee
- * Trawling in the Great Australian Bight
- * Design of Fishing Vessels
- * Uniform Fisheries Statistics
- * Fish Marketing Research
- * Gear Technology
- * Food Technology
- * Sperm Whale Research in W.A.
- * Fisheries Education and Training
- * Publication of Book on Australian Fisheries
- * Extension Services

Mr Fraser and Mr Saville returned to Perth on March 11.

FISHERMEN'S ADVISORY COMMITTEE MEETING

Sitting continuously from 9 a.m. to 6 p.m., with only a short break for lunch, members of the Fishermen's

Advisory Committee dealt with a considerable amount of business at their meeting in the Fremantle Courthouse on March 28. In the absence of the Director, the chair was taken by Mr B.R. Saville, Chief Clerk.

During a series of interviews with professional and amateur fishermen, and representatives of other organizations, conflicting views on a number of contentious matters were put before members.

The subjects dealt with included -

- * the conservation of the Fremantle-Jurien Bay crayfish fishery;
- * use of snapper-traps in Shark Bay; and
- * trawling in Cockburn Sound.

The Committee also considered matters placed before it during its visit to Geraldton, the Abrolhos Islands and Port Gregory earlier in the month. These comprised -

- * aerial surveys of closed waters;
- * limitation of cray pots;
- * restricting boats to certain fishing grounds;
- * provision of navigation lights at the Abrolhos;
- * stationing of inspectors on Abrolhos groups;
- * seizure of underweight tails;
- * crayfishing operations on the foreshore of the Pakington townsite;
- * control of the island jetty at Port Gregory.

After prolonged discussion, both during the interviews and in plenary session, the Committee resolved on 21 recommendations. These will in due course be put before the Minister for Fisheries for his consideration.

GOATS SHOT ON BERNIER ISLAND

Thanks to co-operation between the research and fauna sections of the Department, and to the willing assistance of Carnarvon shooters, history was made early last month when a determined effort to protect the habitat of the extremely rare fauna found on Bernier Island was carried out.

Some staff members will recall that in July,

1959, at the request of the Fauna Protection Advisory Committee, in whom the islands are vested, an ecological survey of Bernier and Dorre Islands was undertaken. One of the expedition's recommendations, which were adopted in May, 1961, was that an attempt be made to eliminate the goats which had been introduced many years ago on Bernier Island. The survey party had found that these animals were seriously interfering with the environment to the detriment of the native fauna. It was forecast that if the goats were left undisturbed, they would, in time, by destroying the flora lead to the extinction of much of the fauna, for the conservation of which the Islands had been set aside. In its report the party referred to the established fact that overgrazing by goat populations was the major cause of the creation of much of the present desert country in the Middle East. A repetition of those events must be avoided if the flora and the fauna on Bernier Island are to be saved.

Rounding up and removal of the goats would have been too time-consuming and costly, and it was reluctantly decided that the only practical method was to attempt mass destruction. As poisoning was out of the question, it was resolved to organize a shooting-party.

With the first-rate assistance of Mr A.R. Whitworth, honorary warden, of Carnarvon, who organized a team of volunteer riflemen, and the co-operation of the research section, the party was landed by the R.V. "Peron" at Red Cliff Point, near the southern end of Bernier Island, on March 4. Fauna Warden S.W. Bowler, who took over the direction of the party, reports that the operations were reasonably successful. Once ashore, the shooters were quickly formed into a line and a drive was made from the Point southwards to Cape Couture, shooting continuing until dark. By this time 23 goats had been destroyed and two kids captured. The next morning the party moved off towards Cape Ronsard at the northern end of the 18-mile-long island. The shooters, 18 in number, were spaced about 500 yards apart and covered the whole width of the island. Mr Bowler says, and we can well believe it, that the drive to Cape Ronsard was no picnic. The shooters, loaded down with their heavy rifles (.303's were used), struggled over the rough and undulating country which ranged from soft drift sand and sandhills, to razor-backed limestone outcrops and cliffs. It was a very weary party which finally reached the distant northern cape. Indeed, Mr Bowler says, some were so "tuckered out" that they flopped fully clad into the water to revive themselves. They were taken aboard "Peron", the crew of which had picked up the campers' gear from Red Cliff Point

and were returned to Carnarvon at 7.p.m.

Naturally enough, during the shoot, no time could be spent searching for fauna, but Mr Bowler reported that of the rare marsupials, a few Banded Hare-Wallabies and Boodie Rats were seen, while Western Hare-Wallabies were very plentiful. He was pleased to report, he said, that there were no accidents and, apart from the goats, none of the fauna was molested. Indeed, the behaviour of the whole party was above reproach, all members being most co-operative. The total number of goats destroyed was 69.

It is hoped to arrange a further expedition before the "Peron" returns to Fremantle after she has completed her present assignment.

RIDING THE TRAWL

Three officers of the Research section have recently qualified to use under-water breathing apparatus and dive to a depth of 100 feet. This allows direct observations to be made on fish and fishing gear. By this means we are enabled to add greatly to our overall knowledge. At the present time r.v. "Peron" is in the Shark Bay area engaged in a trawling research programme, and on occasions Technical Officer R.J. McKay has dived in the trawling gear to observe its efficiency. The following extract has been taken from Mr McKay's description of one of his dives:-

"During this haul, I dived on the trawl net, swimming down a buoyed line tied to the head rope. At the normal trawling speed of 3 to 4 knots, a diver has little difficulty in holding on to the net.

"The net was fishing very well. All the meshes of the belly, wings and cod-end were open. Water-drag held the net to its fullest extent, with the result that each mesh was almost completely open. The meshes in the cod-end were tending to pull together slightly, and as the strain in the cod-end increased, the meshes would gradually close. The brail lines stitched along the net took a great deal of the strain, thus relieving the meshes of much of the load. Although the wing meshes were wide open, I did not observe many fish escaping, as they seemed to be almost carried down the throat of the net straight into the cod-end, rather than pressed against the wings.

"All sections of the net were under strain and the head-rope overhung the ground rope by about 4 feet. The whole of the ground rope was on the bottom and along its

extent was a fine cloud of sand, passing over it but under the net itself. The leg ropes were towing about 12 inches above the bottom, and the wing spreaders about 4 inches. The boards travelling over the bottom stirred up great clouds of silt, sand and, in this area, broken shell. The billows of silt streaming from the boards looked like smoke-screens and herded schools of small fish into the net. The boards were seen to ride very steadily and quite smoothly.

"The small fish I observed, for the most part, swam rapidly in front of the ground rope, not showing any real signs of panic, until the ground rope actually passed beneath them, when quite often they turned and were rapidly carried down into the cod-end. Some fish, however, remained swimming right down the full length of the net to the cod-end. Small flounder were seen on many occasions to swim just above the bottom, and then as they gradually tired, to flip over the ground rope and pass between it and the net. Crabs swam rapidly sideways, keeping up with the ground rope for a minute or so and then passing into the net and down to the cod-end in great confusion.

"The end of the cod-end was entirely obscured in clouds of silt. The only portions of the net in direct contact with the bottom were the ground rope along its entire length; occasionally a portion of the belly about 10 feet behind the throat and the last third to quarter of the cod-end where the mass of material collected. At normal trawling speeds it was quite impossible to gather up a handful of meshes. When the trawling speed was increased, I had to hold my face-mask to prevent it from pushing too hard against my face. At this speed the ground rope still remained on the bottom and the head rope, which was normally 4 feet from the bottom, rose to a height of about 5 feet.

"At normal speed I had little difficulty in pulling myself along the head rope from one end of the wings to the other. I could drift back to the cod-end and then crawl along the entire length of the net by hooking my fingers in the open meshes. At the risk of having my face-mask swept off my face, I could overhang the head rope and look down into the net itself.

"After remaining on the trawl net for 20 minutes I came up the buoyed line and observed the net from above".

CONSERVATION OF RARE FAUNA

Special measures to protect rare fauna have

been applied and others are to be introduced. They were agreed upon at the last meeting of the Fauna Protection Advisory Committee and have been endorsed by the Minister for Fisheries, Mr Ross Hutchinson.

A list of rare fauna will be drawn up and collecting of the named species will be prohibited or permitted only under strictly controlled conditions. A total ban has been applied on the taking of the short-necked tortoise and the noisy scrub-bird. Other species which will be similarly protected are the rufous and western bristle-bird, the western whipbird and the ground parrot. It is probable that some marsupial species will also be included.

With the exception of one small lot, negotiations for the acquisition by the Crown of the Bullsbrook swamps where the short-necked tortoise was found, have almost been completed. The final acquisition of the land, however, will not mean that our worries in the care of this rare species will end. Indeed, although it will be a relief to have the area reserved, and fenced, it will mark the commencement of new problems of management, while the onset of the first winter rains will see wardens and honorary workers paddling about all over the place searching for additional populations.

Approaches for the protection of the habitat of the noisy scrub-bird have been made to the Lands Department by this Department as well as by the National Parks Board. Both authorities are seeking to achieve the postponement of the development of the Two People Bay town-site, as well as the reserving of the surrounding areas, where a series of species of other rare fauna, including both bristle-birds and the western whipbird, occur. It is expected that tourists will be attracted to the area, not only to glimpse the rare fauna to be observed there, but also to enjoy the magnificent scenery and rugged terrain of the whole promontory, which includes Mount Gardner and its surrounding and densely vegetated ravines.

FISH MORTALITY

In the February, 1962, edition of "Fisheries Newsletter", Dr G.L. Kesteven wrote at length on the phenomena of mass fish mortalities. Another instance of such occurrences has been reported by Supervising Inspector J.B. Bramley. On Saturday morning, March 24, while aboard the p.v. "Dampier" with Skipper A.T. Pearce, and crew member, L. Frizzell, Mr Bramley observed a vast quantity of dead atherines (silver-sides) in the waters of the

southernmost group of Houtman Abrolhos. He said that fishermen potting in the centre of the group had reported that the atherines were floating on the surface in large quantities over an extensive area in the group. A very large mass was noticed in Whales Bay, where sharks and tuna were seen to be feeding on them on the surface. Mr Bramley says it occurred to them that the mortality might have been caused by underwater explosions and the crew checked to see whether explosives had been used in attempts to free the reef-stranded "Morning Star". These investigations showed, however, that none had been used so the cause of the mortality remains a mystery.

SAILFISH CAUGHT OFF WHITFORDS

On March 13, professional fisherman John Matich caught a fine specimen of a sailfish in a net he was working off Whitford's Beach, about 18 miles north of Fremantle. Very few records of sailfish in Western Australian waters have been published, and this is the first specimen known to have been taken south of Shark Bay. In the Western Australian Naturalist (Vol.6, No.6) Research Officer B.K. Bowen recorded details of one caught from the State ship "Dulverton" while it was anchored at Point Samson. When the ship reached Fremantle, Mr Bowen identified the fish as Istiophorus ludibundus. This identification was later verified by Mr G.P. Whitley, of the Australian Museum, Sydney, from the information which Mr Bowen forwarded him as well as from a photograph. The specific name, ludibundus, is apparently a synonym for orientalis, which is the only species recorded by Munro in his part-completed Handbook of Australian Fishes. The sailfishes and marlins are grouped in the same sub-order as the mackerels, bonito and tuna, to which they are distantly related.

Although the fish caught by Mr Matich was not available for measurement, accurate data have been obtained from a plaster cast made from the fish by the Western Australian Museum. The measurements, which were made by Mr Bowen, are as follows (all lengths in inches) -

Total length,	112;
head length,	34;
greatest height of body	14;
length of pectoral fin	18;
length of upper jaw	26;
length of lower jaw	11½.

(46)

The length of the pelvic fin, and the anal and dorsal fin counts could not be accurately obtained from the mould.

In the press report of the taking of this specimen, its weight was given as between 130 and 140 lb.

NOR'-WEST WHALING ENTERS OTHER FIELDS

Interest in the prawn and scallop fisheries of Shark Bay has revived. The Nor'-West Whaling Company Ltd., of Carnarvon, is having two prawn trawlers built locally and is installing extensive ice-making plant at its station at Carnarvon to cope with expected catches of prawns, scallops, crayfish and scale-fish from the waters of Shark Bay.

The company intends to operate its trawlers for about 20 weeks each year. They will concentrate on tiger and king prawns but will fish for other seafoods. The processed catches will be brought to Perth by refrigerated road transport and sold on the local and eastern States markets. The possibilities of developing an export trade, particularly to the United States, will be kept under review.

GIANT RAY CAUGHT AT BROOME

What was believed to be the biggest ray ever seen in the Broome area was landed last month by professional fisherman Solve Wiberg. From a photograph published in the press with the report of the catch, it appears that the animal was one of the devil rays, perhaps Bathytoshia brevicaudata, the largest of the ray tribe recorded from Australian waters.

Mr Wiberg made his catch in a trap set at the foot of the Broome jetty. His first efforts to have the big ray moved by a four-wheel drive vehicle failed, and he estimated its weight at about one ton. As the giant manta rays of the Atlantic measure about 24 feet across the 'wings' and at that size have been estimated to weigh about two tons, we doubt that the Broome ray would have weighed any more than 1,000 lb., for it was reported to be a mere 12 feet wide. However, these are only guesses and Mr Wiberg certainly caught himself a "big 'un".

CONVICTIONSJANUARY-MARCH, 1962

Date	Defendant	Court	Charge	Result
			<u>FISHERIES ACT</u>	
15.1.62	GAZELEY, Thomas	Fremantle	U/s crayfish	Fined £39.6s
12.2.62	MINUTA, Stephen	"	" "	" £13.6s
19.2.62	PAPARELLA, Cosimo	"	" "	" £15
19.2.62	RICCIARDI, Guiseppe	"	" "	" £10
19.2.62	VINCI, Tony	"	" "	" £15
19.2.62	VINCI, Pasquale F.	"	" "	" £10
19.2.62	PAPPAGALLO, Lorenzo	"	" "	" £10
26.2.62	BROZ, Frank	"	" "	" £25
26.2.62	BROZ, Frank	"	" "	" £25
26.2.62	BROZ, Frank	"	" "	" £25
26.2.62	BROZ, Frank	"	" "	" £25
26.2.62	TOGNOLINI, John S.	"	" "	" £29.6s
26.2.62	KRAMER, Neville	"	" "	" £15
26.2.62	TAYLOR, Thomas G.W.	"	" "	" £15
26.2.62	LUITO, Giacomo	"	" "	" £41.18s
26.2.62	KATNICK, Frank	"	" "	" £35.2s
26.2.62	TELFER, Robert R.	"	Netting closed waters	" £5
26.2.62	ULINOVICH, Ricardo	"	U/s crayfish	" £25
26.2.62	MARINO, Dominic	"	" "	" £20.16s
26.2.62	MONKHOUSE, Lloyd	"	Unlicensed fishing	" £5
26.2.62	ALLEGRETTA, Modesto	"	U/s crayfish	" £10
9.3.62	LA MACCHIA, Gaitano	"	" "	" £35
9.3.62	PITTORINO, Umberto	"	" "	" £33.2s
9.3.62	PITTORINO, Umberto	"	" "	" £40.6s
12.3.62	LOPRESTI, Salvatore	"	" "	" £29.8s
12.3.62	LOPRESTI, Salvatore	"	" "	" £33.18s
12.3.62	TATULLI, Leonardo	"	" "	" £15.14s
12.3.62	TATULLI, Leonardo	"	" "	" £23.10s
12.3.62	CAVALEI, Antonio	"	" "	" £27.8s
12.3.62	SANDNES, Willy J.	"	" "	" £67.12s
12.3.62	MERCIADRE, Aldo	"	" "	" £32.4s
12.3.62	SICLARI, Johnny	"	" "	" £56.16s
12.3.62	KATNICK, Roko	"	" "	" £22.10s
12.3.62	RULJANCICH, Nick	"	" "	" £20.14s
12.3.62	REBELO, Franciso S.	"	" "	" £26.4s
12.3.62	PAPARELLA, Guiseppe	"	" "	" £19.18s
26.3.62	PAPARELLA, Vito	"	" "	" £39.6s
19.2.62	RICCIARDI, Natoli	"	" "	" £25
16.1.62	PLUG (Snr), Dirk	Geraldton	" "	" £13.10s
19.3.62	BIANCUCCHI, Carmelo	"	" "	" £11.15s
19.3.62	BIANCUCCHI, Carmelo	"	" "	" £34

CONVICTIONS

(continued)

Date	Defendant	Court	Charge	Result
19.3.62	WILKERSON, Charles	Geraldton	U/s crayfish	Fined £12.11s
19.3.62	LANG, John I.	"	" "	" £52.15s
19.3.62	LANG, John I.	"	" "	" £36.15s
19.3.62	LOPRIORE, Nunzio	"	" "	" £16.9s
19.3.62	GAVRANICH, Peter	"	" "	" £10.18s
19.3.62	COSTELLO, Edward W.	"	" "	" £11
19.3.62	MORRIS, Lawrence F.	"	" "	" £11
19.3.62	STRAW, Thomas A.	"	" "	" £11
19.3.62	NISBETT, James	"	" "	" £25.16s
19.3.62	SPENCE, A. William	"	" "	" £10.14s
19.3.62	DAVIS, Cecil E.	"	" "	" £10.8s
19.3.62	DE JUDICIBUS, Anthony	"	" "	" £16.2s
19.3.62	THOMSON, Ronald I.	"	" "	" £10.18s
19.3.62	ORMEROD, Thomas	"	" "	" £10.7s
19.3.62	RUSSELL, Kevin J.	"	" "	" £10.18s
19.3.62	WOINER, Bernard	"	" "	" £13
19.3.62	McDONALD, Thomas	"	" "	" £11.15s
19.3.62	CARR, Ben S.	"	" "	" £10.15s
19.3.62	HEALEY, Irwin F.	"	" "	" £26.2s
19.3.62	MILLET, Ronald	"	" "	" £11.5s
19.3.62	HAMS, William C.	"	" "	" £36.5s
19.3.62	MASIELLO, Gesualdo	"	" "	" £11.3s
19.3.62	ATKINSON, Colin	"	" "	" £20.12s
23.11.61	ROSS INT. FISHERIES	Perth	" "	" £10
"	KAILIS, M.G. & S.	"	" "	" £14.16s
7.2.62	ANDREWS, Alfred W.	"	" ")	" £21.5s
7.2.62	HYDE, George C.	"	" "	" £26.7s
21.2.62	DOUGLAS, Frank W.	"	" "	" £29.7s
21.2.62	CORSER, Douglas	"	" "	" £15.4s
7.3.62	SALKILLO, Clement W.	"	" "	" £5
7.3.62	SALKILLO, Clement W.	"	" "	" £25
15.3.62	WALKERDEN, Errol R.	"	" "	" £10
15.3.62	WALKERDEN, Errol R.	"	Obstruction	" £31.16s
15.3.62	BOWERS, Wallace H.	"	U/s crayfish	" £11.2s
29.3.62	CALDERA, Angelo	"	" "	" £27.14s
29.3.62	CALDERA, Angelo	"	" "	" £12.11s
29.3.62	McCULLOUGH, B.K.	"	" "	" £12.11s
<u>FAUNA PROTECTION ACT</u>				
16.2.62	FONG, Victor D.	Broome	Shoot. Protec-	" £2
16.2.62	FONG, Douglas	"	ted fauna	" £4
26.2.62	REID, David R.A.	Bunbury	Obstruction	" £5
6.3.62	DRY, Harold	Mid. Junct.	Shoot. Protec-	" £3
			ted fauna	

CLEARING HOUSE

Fish Spawn and Light

It has been suggested by an American scientist that strong, bright light may well be a factor in the survival of fish eggs and larvae. Experience in fish breeding showed that cool-white fluorescent lamps over the troughs of eggs were responsible for a high mortality, and this has been confirmed by other observers.

If this is so, the survival rate of a "year class" of spawn could be severely reduced by a period of bright sunny weather, with calm, clear water which allowed the penetration of blue and violet light. This theory could explain the poor results from year classes that appeared to have everything in their favour. It would apply especially to eggs having little or no pigmentation to filter out the more damaging light rays.

(World Fishing

London

March, 1962)

The Age of the Giant Tuna Seiner

Last month, we gave details of a fleet of tuna purse seiners which have been built in Britain for the Government of Ghana. With an overall length of 127 ft. 4 in., these ships are of the generally accepted size for catching these valuable migratory fish, and with a modern brine freezing system and a carrying capacity of some 250 tons of tuna the ships had something in hand over many vessels in the American tuna fleet - most of which were conversion jobs from the old type of vessel utilising poles and bait.

King-size

The U.S. and Canadian fishing publications, however, are now choc-a-bloc with details of new king size, super seiners, built (and we quote from one of them, Fish Boat) to help "beat out foreign competition through a dramatic technological revolution". The Americans have got the biggest - a converted minelayer called Nautilus, which is 189 ft. overall, has its own spotting helicopter, cost £300,000 to convert, can attain 13.3 knots, and has a capacity of 850 tons of tuna.

Canada, too

Or how about the 142 ft. Royal Pacific, the first U.S. tuna seiner to be built (and not converted) on the West Coast for 10 years, at a total cost of £250,000. From Western Fisheries, we culled the accompanying Canadian design for a 150 footer. This ship has a cruising

radius of 15,000 miles and a capacity of 730 tons of fish. The Canadians are relatively new to tuna fishing, but now they propose to operate down off California, Mexico and Central America in competition with the U.S. fleet.

Tuna fishing is essentially a mechanical fishery these days, with a factory load of hydraulics aboard each ship and an investment in purse seine gear that can run up to over £22,000. Knotless nylon nets, power blocks and other developments have all helped to bring about a resurgent tuna industry in the States. In the world as a whole, the world tuna catch has risen from about one and a half million tons in 1955 to a spectacular two million plus last year. But is the fishery getting too intense? This is a question for the 1962 FAO California meeting on tuna to decide - meanwhile we wish the new super seiners all the luck in the world.

(World Fishing

London

March, 1962)

Where Are Britain's Gear Technologists?

Top marks for a realistic, practical approach go this month to the Canadian Department of Fisheries. When they wanted their fishermen to try new methods and gear, they assumed (quite rightly) that the only way to persuade a fisherman that a new idea works is to take it to sea and show him. This was a good start, but they went further: they next admitted - quite openly - that fishing was a science and not a home for misfits, and said that any bloke who knew B from a bull's foot about fishing gear must be a Fishing Gear Technologist. (See the crafty way they're working?) The next thing to do was to get their hands on one of these types, which they did. Quite by chance he was an ex-fisherman, name of Johnson, and he knew more than most about the mid-water trawl.

So. When they wanted fishermen on the Great Lakes and the Bay of Fundy to have a go with this gear, what more simple than to load Mr J. and the gear aboard one of the boats and start off on the right foot. The results are well known for being most satisfactory.

In demand

Since then, gear technologists have been much in demand, although that was only a few years ago, and several more have been taken on full-time. In addition, fishermen expert in any particular branch of fishing are engaged on short-term assignments and sent where needed. Expenses paid, of course. Others are engaged in the

design of vessels and the trials of new material and gear.

Jolly good, isn't it? And what's the chances of a Man From The Ministry coming our way to show us how to use a headline echo sounder, or a ring net - or even a midwater trawl? Pretty slim, I'd say. For one thing, I don't think anyone in Britain is (officially) a Gear Technologist, because there's no establishment for one on the books. We've got 'em of course - but they're probably known as Scientific Officers and with a name like that you just have to be scientific. I bet there's nothing they'd like better than to go out and have a bash with the lads, but I don't think it's considered to be time well spent by the man who pays the wages.

Big enough

Besides, let's face it, the really big fishing companies are big enough to carry out their own trials, and the weight of fish they land over-shadows the smaller boat so much that it doesn't rate very high in importance. In other countries, the big trawler is the exception rather than the rule, and even the man who catches oysters with a pair of long tongs in Nantucket Bay is liable to find a Time and Motion Study man peering over the rail. I don't say that, even with help, the small boat can compete on white fish, but a good many shell fishermen might not have drifted ashore if a more practical helping hand had been held out. Many a good bit of gear has been dumped on the quay as a failure because someone didn't know how to use it. So let's all start talking about Gear Technologists, and writing letters asking for one. Maybe then the Powers That Be will have to admit that there is such a species - after which we're practically home and dry.

(World Fishing

London

March, 1962)

Whale Stocks Continue to Decline

Overshadowing the Antarctic whaling operations of 21 floating factory expeditions which are now drawing to a close, and of the manoeuvrings over the distribution of the annual quota between them, lies the gloomy but indisputable fact that whale stocks continue to decline. While the increasing restrictions imposed during the last few years on the catching of Blue whales have not had any apparent effect in arresting this steady decline there are now indications that the next most important species, the fin whales, is also being overfished.

Complete protection?

It is probable that nothing short of complete

protection for several years will be sufficient to save Blue whales from virtual extinction; this would be a drastic measure and one likely to be resisted by the whaling companies. Yet, even if it were agreed to, it would simply have the effect of increasing still further the pressure on the fin whale, which already provides something like five times as many victims each year as all the others put together.

The evidence supporting the view that the present annual catch of around 16,000 Blue Whale Units is too high is fairly conclusive.

When one realises that the average maximum speed of catchers is going up all the time it is obvious that their efficiency should be increasing instead of decreasing. Another fact pointing towards the same conclusion is the steady reduction in the average size of Blue whales caught each year. This has dropped from 78 ft. in 1954 to 74 ft. in the 1960/61 season.

But statistics of this kind can only give a warning. They do not tell us what precise conservation measures should be taken. How to find an answer to this question was the chief pre-occupation of the International Whaling Commission's Scientific Committee at meetings held in London last year. This committee is composed of eminent biologists from Australia, Canada, France, Japan, Netherlands, Norway, U.S.A., U.S.S.R., and U.K. In their deliberations on this matter they are being assisted by a special committee of three scientists experienced in population dynamics.

The problem they have to solve is extremely complex. While it is known that there are a number of distinct stocks within each species, their geographical limits and other characteristics have never been precisely defined. Until this is done there remains the risk that conservation measures will only have the effect of over-burdening each separate stock in turn - as has been happening already in the case of whole species. Whale marking can furnish valuable information on migration and movements and on the relationship between age and growth. It is also a way of providing a critical test of the various methods of age determination by the examination of ear-plugs, ovaries and baleen plates. Japanese and Russian expeditions marked 300 whales during the 1960/61 season and some 50 marks were recovered during the same period. But marking on at least 10 times this scale will be required from now on and the committee is considering how this can best be done.

Energetic

Finally the Bureau of International Whaling Statistics at Sandefjord has records of the length, sex and time and place of capture of some 800,000 whales. The analysis and interpretation of this formidable mass of unprocessed data is now being energetically tackled, and it is hoped that from all these sources of information the geographical limits and age composition tables for each stock of whales can be discovered. It will then be possible, for the first time, for conservation measures to be based on facts instead of guesses.

(World Fishing

London

March, 1962)

FMC Has New Method of Desalting Sea Water

The U.S. Office of Saline Water has picked FMC Corporation to construct an experimental plant to test a new way of desalting sea water.

The process, described as cheap and practical, was developed by Teynham Woodward, an engineer in the research and development branch.

If the plant proves successful, a larger plant with 100,000-gallons a day capacity will be built.

The pilot plant will be constructed and begin operations by March or April in Santa Clara. Its average capacity, under experimental conditions, will be 1,000 gallons daily. Tank trucks will bring sea water from San Fransisco Bay.

FMC was chosen because its system for changing salt water into fresh water shows promise of becoming less expensive than the other processes under study.

The Office of Saline Water, currently engaged in a 75 million dollar research plan to find low-cost desalting methods, has a number of large-scale pilot plants in operation. But none has come up with a process that is economically feasible, except in areas of extreme water shortage.

FMC calls the process a direct contact distillation system. Sea water is boiled in oil. The oil, a specially refined hydrocarbon liquid, bubbles through the water, but it cannot become mixed.

Twin columns of the hydrocarbon are used as the heat exchanger. Sea water is changed into vapour in one

column, and the vapour condenses into hot water in the other column. The hydrocarbon flows through both columns, heating the sea water and cooling the fresh water, in a closed loop.

The advantage of such a system, according to Mr Woodward, is the relative absence of scaling and corrosion. This means that maintenance costs are low.

Another advantage is the low cost of materials needed for construction. Direct contact distillation lends itself to the use of prestressed concrete in construction of columns for large plants.

FMC's experiments with this system have been under way since 1955, although Woodward said he had been thinking about the problem even earlier when he was with FMC's minerals products division at Newark, where magnesium and other minerals are extracted from sea water.

The Department of the Interior helped out in 1958 with a small research and development contract.

A small plant model in the FMC Central Engineering Laboratories has shown "very good results".

William J. Adams, director of research and development at FMC, foresees conversion plants putting out 10 to 100 million gallons a day. The cost, according to preliminary estimates, would be about 50 to 60 cents for every thousand gallons.

(Shipping News South Africa February, 1962)

Report on Walvis Seabirds

Birds eat some 27,457 tons of fish a year in the vicinity of Walvis Bay. If worked by the factories, this tonnage could mean an additional revenue of R1½ million. This fact is contained in a report released recently by the South West African Administration. The report states further that birds along the coast of South West Africa can influence the breeding of pilchards.

It is estimated that each Cape Gannet devours some 405 lbs. of fish a year; the Cormorant 375 lbs.; the Pelican 532 lbs.

It is further estimated that there are some 50,000 Gannets alone in close proximity to Walvis Bay.

The Director of Agriculture with the South West Administration, Dr James Watt has, however, stated that the fish devoured by birds was not a total loss.

Apart from the guano production from the various bird platforms erected along the coast which each year provided a valuable crop, many of the droppings fell into the sea to serve as fertilizer for the plankton on which again the fish lived. Only part of this cycle was taken up in the production of fish products, he added.

(Shipping News

South Africa

February, 1962)

NAUTILUS

Today's Giant Among American Tuna Seiners

Biggest tuna seiner of them all - up to now - is the 189-ft. 800-ton Nautilus, which last month made two test cruises out of San Diego, and went fishing off Mexico and Central America.

This new leviathan, owned by Eddie and Joe Madruga, Frank Gonsalves and their associates, is not just a bigger boat, but a new type of vessel which may open up new worlds in tuna fishing. This is a vessel that can cruise efficiently to any ocean in the world, can ride out weather that will drive almost any other tuna vessel into port. With two power blocks, fish wells in both bow and stern sections, and two big skiffs, she will be able to wrap up the biggest schools quickly and efficiently. Carrying her own helicopter aboard, she will be able to scout for fish no matter how far from shore she may be cruising.

Nautilus is radically different from conventional tuna vessels. A former U.S. Navy mine-layer, she carries her cabin amidships, with plenty of deck space fore and aft. She has 16 fish wells, 12 forward and 4 aft, 8 on each side. With power blocks on booms fore and aft, she will be able to brail either way or both. She will use fish hoppers and chutes to stow the fish in the hatches. Before she sailed on her first fishing trip, fish boss Peter Cekalovich had in mind brailing on the foredeck, but the exact method of handling a catch will be worked out in practice, and will no doubt be modified as the crew learns just how the vessel works best.

One question that was answered clearly on her first test cruise was her manoeuverability. Eddie Madruga, her navigator, was able to turn her on an extremely

short radius for such a big boat, her stern swinging around handily and smoothly with virtually no list.

For so long a ship, Nautilus rides very low in the water except in the bow where her rail rises to a high gunwale. Built to accommodate a crew far larger than she will carry as a fishing vessel, her superstructure rises high amidships, with three deck levels above the waterline. Beside the main cabin amidships she has a roomy storage cabin above decks in the forepeak, on top of which the helicopter is mounted on a specially-built platform.

On the main deck are the galley aft and a big machine shop with a lathe in it as well as other full equipment to handle the ship's work. Sharing the machine shop space are two engines, a GM 471 with a Twin-Disc clutch which runs the big net winch aft, and a Graymarine which is a general standby. There is also a 50-hp. electric motor as a standby for the winch engine, and complete dual hydraulic controls, engineered by Marine Construction and Design Co. of Seattle, for the normal-operation engine and the standby electric motor. The net winch is a Model 450 SM Northern, largest size of its type, made by Tacoma Boat Building Co. Inc.

Crew's quarters are on the second deck, the skipper's and engineer's rooms forward under the pilot house. The top deck mounts the pilot house and chart rooms and more quarters, and there is still a flying bridge above the pilot house. A former Navy vessel, she is built like a battleship all the way through, using heavy steel plate. Her masts, for instance, are at least 12" diameter, heavy-gauge steel tube. Her decks, all steel, feel as solid as a boulevard to walk on.

(Pacific Fisherman Portland, Ore. February, 1962)

A New Fishery?

The Antarctic Krill

Within the very near future B.C. will have the two largest refrigerated seiners ever built. These boats were described in detail in the November 1961 "Western Fisheries". Seinners with a 30,000 mile range and a payload capacity of 730 tons are capable of fishing any area on earth. These vessels were designed primarily for tuna fishing. However, these, or similar vessels with only modifications of fishing gear, would be ideally suited to a type of Antarctic fishing which has not been attempted

on a commercial scale yet.

In the water surrounding the ice-bound continent of Antarctica lives a bright red, shrimp-like crustacean: Euphausia superba known to whalers as: "Krill" or "whale food". Now this little fellow (for he seldom attains a body length of over $2\frac{1}{2}$ ins.) feeds on plankton which grows in prodigious quantities in the Antarctic summer. According to scientific observations, krill abound in an area about Antarctica of about three and a-half million square miles and to a depth of about 30 feet, which is the normal maximum depth of their food supply. They swarm in shoals and windrows from a few yards in diameter to half an acre in size. At times they are so densely packed that they give a reddish hue to the water, and these swarms may extend for hundreds of miles. Whales browse in their midst, singly and in herds, consuming great numbers of them. Krill is the principal food of whales, seals, fish, penguins and other oceanic birds, yet this little creature maintains a huge population and breeds larvae all summer long.

I have met several people who, during the 1930's, have eaten krill while on Antarctic whaling expeditions, and describe them as a real delicacy. A biochemical assay on krill carried out by W.E. Pequegot of Pomona College, California, revealed it to be fairly rich in protein and fat. A pound of krill will yield at least 460 calories or about the same as other shellfish.

As to the abundance of krill in Antarctic waters, scientific estimates range as high as 1,000 lbs. per acre over the entire three and a-half million square mile area. As indicated on the small map of the area, there are four areas of dense concentrations, the largest of which extends eastward from south of Cape Horn and near its center is South Georgia Island. This area would seem to be the logical one for exploration as it is closest to British Columbia.

Calculations based on operating costs of ships, processing and a likely market price for krill indicate krill-trawling or seining might be very profitable.

I can only add that a krill fishing project would enable scientists, fishermen, and canneries to join forces which would advance knowledge and develop a valuable source of food for a growing world population.

Scientists on New Fish Flour Project

Scientists at the Halifax technological station of the Fisheries Research Board of Canada are involved in a programme to produce a high quality fish flour for possible submission to the Food and Agriculture Organisation of the United Nations.

The international food organisation is seeking the best possible quality flour, one that will pass the rigid specifications of Canada and the United States.

It is wanted in quantity and the Halifax station plans to produce at least one ton.

Revitalized

As a result of the interest shown by FAO, the Research Board's scientists have revitalised the original fish flour project which produced an excellent quality product from cod and haddock scraps and the new programme calls for a product made from cod fillets. Already this has been made experimentally, and is of the highest standard yet produced.

Production from fillets now has top priority in this field of research and if the product is acceptable - and there is reason to believe it will be - it rests with private industry to produce the flour in quantity required by FAO for distribution to protein-hungry nations.

When the current project is completed, the scientists will again turn their attention to production of flour from less desirable fish, herring, alewives, etc.

For all practical purposes the flour is tasteless and odourless. It is roughly 90 per cent protein and is of high nutritive value.

(Fishing News London February, 1962)

Whaling season in B.C. waters

Whalers from Japan to teach the Canadians

A six-months whaling season in British Columbia waters will open on March 1 under the auspices of a joint Canadian - Japanese company known as the Western Canada Whaling Co.

The company was formed recently by British Columbia Packers Ltd., of Vancouver, and a large Japanese

firm. The joint effort will involve bringing in experienced whalers from Japan to teach the Canadians how to harpoon and how to treat whales after landing.

United Fishermen and Allied Workers Union have agreed that the Japanese are the best teachers when it comes to electronic detection and preservation of whale meat for human consumption.

Instruction is necessary because in the past the B.C. whaling industry has been catching for meal and oil processing only, while now the idea is to sell the meat for consumption in the Far East.

Two fast Japanese whale catchers are to be transferred to Canadian registry and apart from a couple of Japanese experts will be carrying Canadian crews.

The ships will operate out of Coal Harbour on the west coast of Vancouver Island. The whale catchers Seki Maru No.2 and Katsu Maru No.5 are of the most modern design and they will operate in conjunction with three steam whalers owned by B.C. Packers.

Storage Plant

It is intended to build a cold storage plant at Coal Harbour to handle the meat and prepare it for shipment to Japan. The catchers will have Japanese captains, mates and engineers, but after the first season the engineering side will be completely Canadian.

A Japanese assistant manager will supervise the meat processing while the mate on the catchers will handle the detection gear and show how to handle the whales. They will eventually be replaced by Canadians.

Eight men will be brought from Japan to work as a flensing crew to teach how to cut meat when it is intended for human consumption. The meat will initially be handled at Quatsino Sound on Vancouver Island.

(Fishing News

London

February, 1962)

Russians will "Scoop it up"

Before a Russian fleet of some 25 ships sailed from South-West African waters for Christmas in Russia, the commander hinted that they would be back early this year. Return of these ships was awaited with grave concern by South-West African fishing industry.

A director of a large pilchard-processing factory in Walvis Bay said: "We have reason to believe that they will start extensive pilchard fishing next year. That will be the first serious threat to our fishing industry since their arrival at the beginning of 1961.

"So far they have concentrated on deep-sea fishing, mainly trawling for white fish about 30 miles offshore. But they recently started extensive experiments with pilchard fishing and several converted 80 ft. herring boats, ideally suited for pilchard-fishing, arrived in the area.

Boats followed

"Some of them followed our pilchard boats around and studied our method. When they come back they will probably have factory ships with canning equipment on board".

The South-West African Administration has for many years used quotas and restrictions to build up huge reserves of pilchards off South-West Africa. "And now the Russians are going to 'scoop it up' - and we cannot do a thing to stop them". Extension of territorial waters to 12 miles may not help much, as boats based on Walvis Bay catch most of their fish as far as 60 miles offshore.

(Fishing News

London

February, 1962)

Canadian Fisheries Forecast

At the Resources for Tomorrow conference - called the most significant conference since the Confederation - held in Ottawa late last year a "workshop" committee consisting of Drs K.H. Doan, W.A. Clemens and A.L. Pritchard discussed the maintaining of adequate stocks.

Three general points were given emphasis in their presentations:

Fish are extremely sensitive to changes in their environment and to man's activities, particularly those which change water quality.

Potential productive capacity on a sustained basis cannot be achieved without a good understanding of biology of stock being fished.

Objectives of fishery regulations must be appreciated by those engaged in the fishery, as well as by those who administer it. A fishery is

essentially an experiment requiring continued study to achieve full understanding and realisation of its potential.

Salmon

Reviewing the fisheries of Canada the Committee said that a continued high demand for salmon was forecast. Substantially increased supplies of sockeye, pinks and chums are possible from the increase of currently depleted runs to the point of maximum productivity. But this could only be achieved by the application of strict and selective regulations supplemented by improvement of spawning facilities.

Other species - chinook and coho offer rather small opportunities for increase.

Herring

For the present level of utilisation, the supply of herring is sufficient and likely to remain so. The Committee added that some expansion was possible if demand increases.

Halibut

It was forecast that the demand for halibut is likely to increase gradually and that increase in production may be possible. The Committee recommended that the international agreement between Canada and the United States should be continued to persuade other nations to refrain from entering this fishery.

Other bottomfish

Demand for soles, cod, lingcod, black cod and rockfish, etc., is likely to increase gradually and supplies of most species will permit expansion of production.

Oysters and Clams

Gradual increase in demand for oysters is likely and intensive culture by present methods could increase yield four-fold.

The Committee emphasised the need for continued research into all species to increase productivity and find methods of utilising certain other species.

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A National "Pocket Liner"

When the United States Line's United States had logged somewhat more than 1,000,000 miles it was revealed that she had carried over $\frac{1}{2}$ million passengers across the North Atlantic, had earned more than \$140 million and contributed approximately \$126 million to the domestic economy in seven years.

Annual wages of officers and crew aboard the United States total about \$7 million - her fuel bill goes over \$3 million. Insurance premiums amount to \$1 million.

(Shipping News

South Africa

February, 1962)

Don't Forget This Factor

"Because synthetic ropes will outperform manila or sisal size for size, there is sometimes a tendency to forget the 5 to 1 safety factor and seriously overload them.

"When this happens, an extra hazard is created. Unlike manila, both nylon and polypropylene rope have a high degree of elasticity. This is a desirable quality for towing and securing but it can be very dangerous if the line is subjected to excessive strain. In such cases the line will seldom part but it may break other equipment such as blocks, hooks, shackles, etc., which are being used in conjunction with rope, but do not have an equal breaking strength. A severe whip back may result which could cause damage and injury.

"It is well to remember that even synthetic cordage has certain limitations and will not stand undue abuse. You can ensure against this possibility by using synthetic lines of adequate size and strength to stay within the standard 5-1 safety factor, and also by making sure your line is well secured and your fittings strong and firmly embedded".

(World Fishing

London

March, 1962)