FISHERIES DEPARTMENT
WESTERN AUSTRALIA.
MONTHLY SERVICE BULLETIN

Vol. VII, No. 2. February, 1958

ANNUAL INSPECTORS' CONFERENCE

The Annual Conference of Inspectors will be held from February 12 to February 14, 1958, in the Conference Room on the 2nd Floor of the State Government Insurance Office Building, 182 St. George's Terrace, Perth. The Conference will be opened at 10 a.m. on February 12 by the Public Service Commissioner, Mr. K.J. Townsing.

Included among those who will address the Conference will be Dr. D.L. Serventy, Wildlife Survey Section, C.S.I.R.O., and Dr. W.D.L. Ride, Director, W.A. Museum.

OBITUARY

We regret to advise that just before going to press notification was received that Mr. F.J. Griffiths, Chief Guardian of Fauna, Sydney, had passed away.

STAFF NOTES

The Superintendent (Mr. A.J. Fraser), as Chief Warden of Fauna, led the Fauna Protection Advisory Committee on a field inspection of the Great Southern and Eastern Goldfields Districts from January 20 to 31. He was accompanied by Dr. D.L. Serventy, Mr. G.E. Brockway, Mr. J.B. Higham (committee members), Mr. H.B. Shugg (secretary) and Mr. S.W. Bowler, Fauna Warden. A report of the tour appears elsewhere in this issue.

The Superintendent will visit Geraldton on February 9, 10 and 11 and at the end of the month will leave for the eastern States on long service leave. He will visit Canberra and Cronulla.

Officers on leave at the present time include - the Supervising Inspector (Mr. J.E. Bramley), annual leave; Captain H.C.W. Piesse, master of the research vessel "Lancelin", annual and special leave, and Technical Officer J.S. Simpson, long service leave. Each will resume duty this month.

Mr. G.C. Ferguson of Head Office is on special leave attending a 3 months' national service training course.

Technical Officer L.G. Smith will undergo an operation at the South Perth Community Hospital this month.

Technical Officer J. Traynor, who resumed duty after sick leave on January 6, is continuing the duck banding programme in the metropolitan area. He will shortly leave for Cape Riche to set up a permanent trap on the property of Mr. D. Moir, an honorary warden who has offered to co-operate in the Department's wild duck research programme.

Technical Officer J.S. Simpson will, after resuming duty, carry out empirical tests of trout in dams in a survey of progress made in the "Trout for the Inland" scheme.

Mr. C.R.C. Haynes, mate, r.v. "Lancelin", who recently resumed after annual leave, is engaged in routine work on that vessel.

We welcome to the staff Mr. H.D. Kavanagh, who has been appointed as Assistant Inspector (Seagoing), and Master D.H. Smith, as Cadet Inspector.

DISTRIBUTION OF STAFF AND BOATS

For general information the Department's establishment of officers and boats, in their respective sections, is published hereunder.

HEAD OFFICE :

Administrative Section -

Mr. A.J. Fraser (Superintendent);
Mr. B.R. Saville (Clerk-in-Charge);
Mr. A.J. Buchanan (Statistical Officer);
Mr. J.C. Mitchell (Clerk, Records);
Mrs. V.T. Priest (Senior Typist);
Miss P.J. Pegrum (Typist);
Mr. G.C. Ferguson (Clerk, absent on special leave);
Mr. B.L. Guinan (Clerk).

Research Section -

Mr. B.K. Bowen (Research Officer);
Mr. L.G. Smith (Technical Officer);
Mr. J. Traynor (Technical Officer);
Mr. J.S. Simpson (Technical Officer).

Fauna Section -

Mr. H.B. Shugg (Fauna Protection Officer);
Mr. S.W. Bowler (Fauna Warden);
Mr. W.K. Cherrington (Clerk).

Inspectorial Section -

Mr. J.E. Bramley (Supervising Inspector);
Mr. J.E. Munro (Senior Inspector);
Mr. H.J. Murray (Inspector);
Mr. R. Emery (Cadet Inspector);
Mr. D.H. Smith (Cadet Inspector).

OUTSTATIONS :

Fremantle -

Mr. A.K. Melsom (Inspector in charge);
Mr. A.J. Bateman (Boats Maintenance Officer);
Mr. K.L. Brooks (Assistant Inspector).

Broome - Mr. R.J. Baird (Pearling Inspector).

Shark Bay -

Mr. N.E. McLaughlan (Inspector in charge);

Geraldton -

Mr. R.M. Crawford (Inspector in charge);
Mr. D. Wright (Assistant Inspector).

Lancelin - Mr. G.C. Jeffery (Relieving Inspector);
Mr. R.J. McKay (Assistant Inspector).

Mandurah - Mr. A.V. Green (Inspector in charge);
Mr. S. LaRoche (Assistant Inspector).

Bunbury - Mr. T.B. Baines (Inspector in charge).

Albany - Mr. B.A. Carmichael (Inspector in charge).

VESSELS AND CREWS :

R.V. "Lancelin" -

Captain H.C.W. Piesse (master);
Mr. C.R.C. Haynes (mate);
- slipped at Fremantle for general overhaul.

P.V. "Kooruldhoo" -

Mr. G.H. Lyon (Inspector in charge);
Mr. E. Barker (Cadet Inspector).
- working north of Lancelin.

P.V. "Silver Gull" -

Mr. E.I. Forster (Assistant Inspector in charge);
Mr. H.D. Kavanagh (Assistant Inspector);
- based at Fremantle.

P.V. "Misty Isle" -

Mr. S. Stokoe (Inspector in charge);
Mr. G. Hanley (Cadet Inspector).
- based at Fremantle.

P.V. "Garbo" -

- based at Shark Bay for use by district inspector.

P.L. "Leschenault" -

- based at Geraldton for use by district inspector.

A.V.G. - - based at Mandurah for use by district inspector.

LABOUR DAY PROCESSION

After a lapse of a number of years it has been decided to revive the practice of holding a procession through the city on Labour Day, March 3, primarily to publicise local industry. In collaboration with the Fremantle Fisherman's Co-operative Society Ltd. and Hunt's Canning Co. Pty. Ltd., this Department's officers Mr. A.J. Buchanan and Senior Inspector J.E. Munro will prepare a float to advertise the fishing industry.

ALBACORE IN WESTERN AUSTRALIA

By D.L. Serventy *

When my publication on the Australian tunas was prepared in 1941 (1) the albacore (Thunnus alalunga) was known only from the east Australian coast, from Port Macquarie to southern Tasmania. This is still the area where most of the fish are caught, but we now realise the species has a much greater range in Australian waters.

On March 6, 1945, we were amazed at a report that Mr. P. Klaehn had found an albacore stranded at Quindalup in the South West. The fish was frozen and forwarded to the W.A. Museum, where it was examined by Mr. G.P. Whitley (of the Australian Museum), Mr. A.K. Melsom and myself. It was an albacore essentially similar, except for its much greater size, to the fish being trolled in the eastern States. The gill-raker formula was 9/22, and the elongate pectoral fin extended to between the 5th and 6th dorsal finlets (counted from the end). The total length was $3\frac{1}{2}$ ft. and the length to the caudal fork, 99.9 cm. The greatest depth was 24.8 cm. It was a male, with shrunken gonads.

The next discovery was not altogether a surprise, as it filled the gap between the South-western Australian and the East Australian occurrences. It was a $9\frac{1}{2}$ lb. albacore trolled by the C.S.I.R.O. Fisheries Research Vessel "Derwent Hunter" 50 miles south of Cape Wiles, South Australia (2).

Now we have another report of the occurrence of the albacore in Western Australia, which vastly extends its known range in our waters.

Inspector N.E. McLaughlan wrote from Shark Bay on January 6, 1958, as follows : "On December 30 a local fisherman, Mr. M. Fry, caught a 57 lb. tuna in rather an unusual manner. He noticed the fish swimming in the shallows in front of his house (at Denham) and threw a rock which killed the fish instantly. I compared this fish with those described in the C.S.I.R.O. pamphlet, 'The Australian Tunas', and it

* Wildlife Survey Section, C.S.I.R.O.

appears to have all the characteristics of the albacore. However, as that same pamphlet states that the albacore is un-recorded in Western Australian waters and only refers to this fish in the 18 lb. size range, I have collected most of the relevant data and two colour photographs." From the very full account sent by Mr. McLaughlan there is no doubt that he correctly identified the fish. Mr. McLaughlan made the gill-raker count as 9/20, and found the tip of the pectoral fin to be level with the rear of the anal fin. The total length was 3 ft. 6½ in., and the weight 57 lb.

Recent fishing tests by the C.S.I.R.O. in the eastern States have thrown further light on the distribution of these interesting giant mackerels. When the F.R.V. "Warreen" was investigating the occurrences of the pelagic fishes it was operating only with surface fishing gear (by trolling, pole-fishing and purse-seining). Surface-fishing produced examples only of the smaller size-groups, from 5 to 19 lb., and these were taken between southern N.S.W., through eastern Victoria to southern Tasmania. The newer fishing techniques of the C.S.I.R.O. Fisheries Division include long-lining at depth, and the results have been of dramatic interest. Tuna of very much larger size are caught at depth and over a greater area than had previously been suspected (cf. 3).

Thus the casual records of the strandings of large fish, which had previously been puzzling, take on a new significance. The presence of moribund fish in shallow water and their subsequent strandings on beaches point to the presence of the species in deeper water off-shore. Sufficient surface sampling has been done along the Western Australian coast to indicate that the albacore certainly does not occur plentifully at the surface - at least in the inshore zone. There is now a prima facie case for testing its commercial potentialities by long-lining at depth. The Japanese are making profitable catches of tuna by this method in the area between north-western Australia and Indonesia.

References

1. SERVENTY, D.L. (1941) - The Australian Tunas. Coun. Sci. Ind. Res. (Aust). Pamph. 104.

2. ANON. (1953) - First Albacore from South Australia. Fisheries Newsletter vol. 12, no. 5, May 1953, p. 3.

3. ROBINS, J. (1957) - in Report 5, F.R.V. "Derwent Hunter", C.S.I.R.O. Division of Fisheries and Oceanography, pp. 3-5.

SNAPPER OR SCHNAPPER?

Though fisheries authorities in the eastern States have been trying to change the popular spelling of the fish which almost everyone refers to as "schnapper", to the simpler "snapper", they have met with scant success. The authorities say the original spelling was "snapper", applied to a fish which snaps. But just how old is the variant spelling "schnapper" and is there any real point in trying to change it now?

When the members of the Fauna Protection Advisory Committee were at Kalgoorlie last month they called on Mr. Barton Jones, of Hampton Hill Station, Bulong. Mr. Jones' father was mayor of Bulong in the goldfields boom days and the members were shown several souvenirs of that time. One item which took their fancy was a menu card of a banquet given in 1898 by the mayor of Kanowna to various local and visiting celebrities. It indicated a sumptuous repast which suggested that the early pioneers did not always subsist on brackish water and damper. Fortified with various wines, and starting off with oysters au naturel, the diners enjoyed a fish course of "schnapper".

This old usage of the term prompted one member of the Committee, following a discussion with the Superintendent (Mr. A.J. Fraser), to delve into the records to find out just how old was the usage "schnapper" in Australia.

On looking up Morris' "Australasian Dictionary" (1898) he found that the earliest usage quoted there was 1882. In that year the naturalist

Tenison-Woods wrote of "the genus Pagrus, or as we term it in the vernacular, 'schnapper', a word of Dutch origin". Morris commented: "Schnapper, or snapper ... the latter spelling gradually changed by the fishermen, perhaps of Dutch origin, to schnapper, the form now general. The name snapper is older than the settlement of Australia, but it is not used for the same fish".

Edgar Waite, in his "Fishes of South Australia", 1923, did not like the spelling "schnapper". "There does not appear", he said, "to be any justification for the Teutonic way of spelling the word 'schnapper'".

However, public usage seems to insist on "schnapper" rather than "snapper", and the name certainly has a long history in Australia. As our fish is not the same as the one called "snapper" in the northern hemisphere there is warrant, perhaps, for us to keep on using "schnapper" for our distinctive Australian fish. Naturalists have adopted a somewhat similar stand in connection with the word "possum". This name stems from the American word "opossum", but though both creatures are marsupials our Australian animal is very different from the American one. Therefore the variant "possum", without the "o" is now used for the Australian marsupial.

NEW CHASER

The Nor'-West Whaling Co. has purchased a new chaser to augment its existing fleet of five chasers; This was announced by Mr. R.B. Moore, Manager of the Company, on his return last month from an extensive tour overseas. The new craft was both heavier and faster, Mr. Moore said, and delivery was expected in March. It would be used as an auxiliary to supplement any chaser that broke down or to take more whales if they were needed on any particular day. This would enable the Company to take a more consistent daily catch.

MANDURAH FISHPOT ENDS

The Minister for Fisheries (Mr. Kelly) will present about £350 in prizes at the conclusion of the Mandurah Fishpot activities on February 3. The organisers of the competition must be very well satisfied with their efforts for, judging by all accounts and the reports of departmental officers, it aroused State-wide interest and attracted hundreds of visitors to the district.

The highlight of the competition was the release of a silver whiting which had been tagged by Technical Officer L.G. Smith, assisted by Assistant Inspector S. LaRoche. Despite a £1,000 prize on its head, it eluded capture on any of the multitude of assorted lines that had been hopefully baited for it. Although the time limit for payment of this prize has expired, the organisers have offered a £25 consolation prize for the capture of the fish at any time up to 6 p.m. on Easter Monday, April 7.

Rumours that "Percy", as the whiting was affectionately known, was taken by a shag within minutes of being released, were considered to be completely without foundation.

PEARLERS EXPRESS CONCERN

Fears that the combined competition of Japanese pearlers and synthetics would ruin our pearling industry are held by Australian master pearlers, according to recent press reports.

Writing to the Minister for Primary Industry (Mr. McMahon), the President of the Broome Shellers Association (Mr. A.S. Male) said that the vastly improved quality of plastics had caused a fall in demand for pearlshell. With this in mind, his Association was particularly concerned at the prospect of a Japanese fleet being permitted to operate in Australian waters in 1958. He considered

that if the Japanese fleet were permitted to operate and to re-victual on our mainland or adjacent islands, it would deal a death blow to the Australian pearling industry.

Mr. Male said that the operators employed by the Japanese were only paid about half the Australian wage and were thus able to produce shell more cheaply and undersell the Australian production. He added that Broome was almost entirely dependant on the pearling industry and said its collapse would reduce the population level of our already underpopulated north.

He warned against the dangers of overfishing by Japanese and complained that what he termed as the "very generous attitude of the Government" jeopardised the Australian pearling industry.

The President of the Master Pearlers Association, Mr. N. Paspaley, said in Darwin that Australian and overseas production of pearlshell now exceeded demand and forecast that the industry would soon be fighting for survival due to the competition from plastics.

No recession in the price of pearlshell has been communicated to this Department, however. Some plastics have been improved so much in recent years that it was difficult to distinguish them from pearlshell, but it is understood that there is still a good and discerning market in the United States which could be enlivened by a suitable advertising campaign.

INCREASES IN ALLOWANCE RATES

Following the bi-annual review of hotel tariffs, the Public Service Commissioner has agreed with the Civil Service Association of W.A. (Inc.), that the daily rates of reimbursement of travelling, transfer and relieving expenses shall be increased on and from January 1, 1958. For general information the old rates and the new rates are overpage.

		Old Rate	New Rate
1.	(a) Travelling within the State	38/6	39/6
	(b) After 14 days in one place	35/6	36/6
	(c) Involving an overnight stay at a city hotel	51/6	53/-
	(d) Travelling with a Minister of the Crown or an officer whose maximum salary margin exceeds £880 per annum over the basic rate	41/-	42/-
2.	Transfer expenses for the first 14 days after arrival at new headquarters	38/6	39/6
3.	Reimbursement of relieving expenses for first 21 days after arrival	38/6	39/6

Officers should note the following :-

(a) The special loading of 4/- per day which applies north of the 26° of south latitude to travelling and relieving allowances, and transfer expenses, remains unaltered.

(b) Where claims in respect of January have been submitted, the increase should be claimed when next submitting a claim form (P.S.C. Form 10).

(c) No increase applies in the case of meal, camp or subsistence allowances.

GERALDTON CO-OPERATIVE'S GOOD YEAR

Reporting to the annual general meeting of the Geraldton Fishermen's Co-operative Ltd., the Chairman (Mr. W.F. Burton) announced a record production year in 1957. Over 2,750,000 lb. of crayfish had been purchased by the Co-operative, enabling 40,380 cases of

crayfish tails to be processed. This represented an increase of about 25% on the total of 32,162 cases processed in 1956.

The rise in production had been made possible, Mr. Burton said, by the purchase and installation prior to the start of the last season of a new snap freezing unit. Since then an additional large holding room had been built. The outlook, due to the steady price maintained overseas, was very satisfactory and it was proposed to carry out further extensions to the processing factory.

CRAYFISHING BOAT LOST

Efforts by Geraldton crayfisherman Maurice Glazier, to take stores to his sister-in-law, Miss Muriel Thomas of Shark Bay, had brought him two unhappy experiences.

Mr. Glazier first set out by car, but his vehicle collided with a large kangaroo and he was forced to return to Geraldton as his car was extensively damaged. On January 8, Mr. Glazier set out from Geraldton in his boat "Gay Cherie", but near Coronation Bay the propellor fouled a stray crayfish-pot rope and, while so disabled, the boat drifted on to a reef. Although he managed to push the boat clear of the reef, the pounding that she had taken caused a bad leak which flooded the engine. Mr. Glazier was forced to dive overboard and swim ashore. After hitchhiking back to Geraldton, he arranged for a search to be made by the "Suda Bay", but unfortunately no trace of the "Gay Cherie" could be found and it was presumed that she had sunk.

NEW GERALDTON OFFICE

The Public Works Department has let a contract to a Geraldton builder for the erection of new offices for the Harbour and Light and Fisheries Departments at Geraldton. Advice was received from Inspector Crawford that building operations commenced on January 20, and it was expected that the building would be completed in two months. It will be situated near the gate to the main wharf.

BOTULISM KILLS WATERFOWL

In the last issue of the Bulletin for Honorary Wardens, it was forecast that further outbreaks of botulism might reasonably be expected towards the end of this summer. It seems, however, from the recent discovery of sick and dead ducks along the Como foreshore, that the disease commenced earlier than had been expected. Dr. H. Bennetts, of the Animal Health and Nutrition Laboratory, Nedlands, diagnosed the disease as botulism and it is thought it has probably been caused by the dredging undertaken east of the new Narrows Bridge preparatory to the construction of the new non-access highway. The disease is caused by a very small organism which occurs in decaying vegetation and flesh. When circumstances are favourable, the bacillus multiplies very rapidly and generates a particularly potent poison known as botulinus toxin. The botulinus bacillus is related to two other well known organisms which are the causative agents of gas gangrene, a disease which was prevalent in France in World War I, and tetanus.

A minor outbreak of botulism has also occurred among the ducks in Queen's Gardens where carp and a tortoise have also died tecently.

The birds picked up at Como included grey teal, little pied cormorants, little stints (sandpipers) and a banded plover, while those at Queen's Gardens included a domesticated khaki-campbell, a mallard-black duck hybrid and two black ducks. One of the black ducks was carrying band no.1044, which had been placed on its leg on June 6, 1952, at Queen's Gardens.

ADVISORY COMMITTEE'S LONG TOUR

During January, the Fauna Protection Advisory Committee was engaged on the longest and busiest field tour it has yet undertaken.

Departing from Perth on January 20, the Committee covered over 1,800 miles of country in the

Great Southern and Eastern Goldfields Districts before returning on January 31.

Field inspections were made of the waterfowl on lakes south-west of Wagin, and Gundaring and Dumbleyung Lakes, east of Wagin. Fauna surveys of sections of the Coblinine River Flats, in the Dumbleyung and Katanning road districts, were carried out in consideration of a recommendation previously made to the Committee for the reservation of these Flats. Other inspections embraced land development projects and an experimental pine plantation at Esperance and disputed shooting areas at Kalgoorlie. The Jilbadji flora and fauna reserve south of Southern Cross was also visited.

The Committee met representatives of the Wagin, Dumbleyung, Katanning, Gnowangerup and Esperance Road Boards, to discuss fauna reserves under its control and other problems associated with the conservation of fauna. At Kalgoorlie it had discussions with the District Committee of the Eastern Goldfields Branch of the Pastoralists' Association and also with representatives of the Eastern Goldfields Gun Club to obtain first-hand knowledge of the dispute which existed over shooting on pastoral leases.

PAY DECREASE

On the pay period ending February 27, all officers will receive a reduced pay packet.

As a result of the half yearly review of salary rates in the eastern States, the marginal allowance will fall by about 8/5 per fortnight from 3/1/58. Additionally, from 7/2/58 the basic rate will drop by 8/5 per fortnight consequent upon the decrease in the State basic wage.

This means that next pay day an officer on or over the maximum of the automatic range will find his gross pay reduced by about £2. 5. 3, while the pay of junior officers will be reduced proportionately. In subsequent pays the gross reduction will be approximately 16/10 per fortnight

A reduction in taxation will offset the decreases to a small extent.

MILEAGE RATES

A recent instruction from the Public Service Commissioner's Office authorises payment of an additional ½d per mile in certain cases.

It will be remembered that as from July 1, 1956, an officer who uses his motor vehicle on official business and who has not at any time received financial assistance in any form from the Government to purchase a motor vehicle, has been paid an additional ½d per mile. Under the new instruction the additional ½d per mile will be paid to those officers -

1. who have been granted a subsidy or subsidies and who -

   (a) are no longer under any financial obligation to the Government in respect of their vehicles, and

   (b) have travelled more than 100,000 miles on official business since receiving the last subsidy;

2. who have received no subsidy but who have received an interest free loan or loans and who are no longer under any financial obligation to the Government in respect of their vehicles;

3. who have been granted one or more subsidies and one or more interest free loans and are no longer under any obligation to the Government in respect to the purchase of their vehicle or vehicles and who have travelled more than 100,000 miles on official business since the granting of the last subsidy.

The instruction lays down that no claim for the extra allowance will be paid unless the claimant appends the following certification on the claim form -

"I hereby certify that I have fulfilled the conditions set out in paragraph 1*, 2*, 3*, of the proviso to sub clause (b) of clause 13 of the Public Service Allowance Agreement, 1955."

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* Cross out whichever do not apply.

THE CLEARING HOUSE

Electricity is used in the Philippines

Fishing at night using lights to attract the fish into the bag net, employs 670 commercial fishing boats and accounts for 30 per cent of the total production of fish in the Philippines.

The gear is an inverted rectangular box-like mosquito net, and from 12 to 24 fishermen operate it.

The development of this form of fishing, of local origin, was told by Mr. Santos B. Rasalan, of the Bureau of Fisheries at Manila in a paper, read at the International Fishing Gear Congress in Hamburg.

The nettings, of six-strand twine, are used in boats ranging from 53 to 136ft., power propelled, with an electric generator, temporary "horns" or booms and masts.

The Fish Regroup

The generator supplies the power for the 6 to 14 electric bulbs each of 1,000 candle power.

At dusk, the lights are switched on to attract fish. When a sufficient quantity has been attracted the net is dropped on to the windward side of the boat. It is then spread and allowed to hang far underneath.

The fish are allowed to regroup themselves, after which all lights except two amidships are extinguished. These are left on to concentrate the fish within that area. The net is then raised and the two remaining lights are either put out or covered.

Shrimps and Sardines

The windward side portion of the net is passed under the bottom of the boat to the leeward side and then hauled in until the impounded fish are concentrated within a small area of the net ready to be lifted out with the brailer. The fish are sorted according to species and size and packed in ice.

In the early days a torch was used but later electric lights came into use. Fishermen noticed that bigger catches, including small fish like sardines, herring and shrimps, were landed with brighter lights.

Since the war small engines have been installed in the boats, and the sizes of nets increased with temporary "horns" or booms.

As this gear is still operated by hand, the hauling of the net is still rather slow, so that big pelagic fishes such as mackerel, tuna and bonito, also attracted by light, are rarely caught.

The operation of the net can, however, be speeded up by the use of multiple winches and the number of fishermen be reduced by mechanisation.

("The Fishing News" London November 22, 1957)

"Red Tide" Outbreak Causes Excitement

Just as the scientists of the U.S. Fish and Wildlife Service were about to make a large-scale test of the efficacy of copper sulphate in fighting the "Red Tide," in case a visitation of the deadly fish killer should occur, evidence of a definite outbreak suddenly was noted along the Gulf beaches near St. Petersburg.

Varying quantities of dead fish - mostly species of little or no value commercially - were spotted at different places from Pass-a-Grille to Bellair Beach, and later as far south as Venice.

John E. Evans, acting administrator of the laboratory of the Federal bureau at Pass-a-Grille, said water samples showed about 200 million "Red Tide" microorganisms (gymnodinium brevis) per liter, the highest number found in tests made since the Fall of 1954. He pointed out that a concentration of 500 million per liter is deadly.

Laboratory men and fishermen at once started spreading 7,200 pounds of copper sulphate (the only chemical that has been found of value in killing the "tide" microbe) where it seemed to be most needed. This operation was followed by plane spreading of 2,400

pounds of the chemical in Gulf waters around Long Key.

Dr. George A. Rounsefell, chief of Gulf Fisheries Investigations, hurried to St. Petersburg from Galveston headquarters, and made a helicopter observation of the infested area. He noted signs of an increase in the outbreak and ordered the purchase of 25 tons of copper sulphate for immediate use.

Director Ernest Mitts, of the State Board of Conservation, then obtained the release of a $50,000 emergency fund and his staff joined the Federal scientists in fighting the "tide."

At some places along the Gulf beaches, quantities of dead fish came ashore and their disposal grew into a local problem, although Mr. Evans said the outbreak was "small in comparison to those of 1946-'7 and 1953-'4.

An easterly wind kept many dead fish out in the Gulf several miles from shore and fishermen told of seeing live fish dodging patches of poisonous water reddened by the "tide" and thus escaping destruction.

The situation changed from day to day as sprayed areas cleared up and outbreaks were reported in new territory. Over a period of about two weeks, some 100 tons of copper sulphate were broadcast. The chemical cost $215 a ton, delivered. Planes charged an additional four cents a pound to spread the bluestone. The forces working from boats also had to be paid for their services.

The Gulf Fisheries Investigations, of the U.S. Fish and Wildlife Service, acted with notable speed to stem the spread of the fishkiller as soon as it was spotted, but it is basically a research laboratory and soon asked the Florida Conservation forces to take over the fight.

Robert M. Ingle, assistant director of the latter, promptly assumed charge of operations, saying that control of the "tide" is the primary job of the department until the scourge is overcome.

Dr.. Robert F. Hutton, chief biologist of the Conservation board's laboratory at St. Petersburg, was placed in charge of a branch set up at Fort Myers

to keep an eye on conditions in that territory.

As this is written, it appears - after about a month of intensive attack with copper sulphate - that the battle is meeting with success.

Incidentally, when the excitement was at its height, Leon S. Kenney, head of the Pinellas Seafood Co., in St. Petersburg, and a man of wide experience with Florida commercial fishing, expressed the opinion to Fishing Gazette, that the "tide" outbreak was not as serious as generally believed. He added that there are so many fish in the Gulf of Mexico the comparatively few killed by the outbreak will never be missed.

("Fishing Gazette" New York November, 1957)

Two of Canada's Largest Nylon Seine Nets Made by Dominion Textile Co.

Two of the largest nylon fishing nets ever made in Canada were completed recently at the Drummondville Que. plant of Dominion Textile Co.

The nets are the largest nylon herring purse seine yet manufactured for fishing in Canadian waters and the largest seine net destined for fishing in Peru.

The herring purse seine ordered by the Quebec department of fisheries is 90 feet deep and 960 feet long covering an area of 86,400 square feet. It weighs 1800 pounds.

The tuna seine is the largest yet made in Canada and weighs 5200 pounds. It has an area of 324,000 square feet, and will stretch 1800 feet with a depth of 180 feet. This huge net is larger than any presently being used in Peru.

The herring seine was purchased by the Quebec department for the provincial biological laboratory to use in the Gulf of St. Lawrence. The belief is that herring can be caught in early spring before they approach the Magdalen Islands where traditionally they have been caught in trap nets. It is also planned to follow the herring with the seine and fish them in deep water.

Should the experiment prove successful, it will extend the herring season to approximately nine weeks instead of five.

(Western Fisheries" Vancouver November, 1957)

Electric Signals by Fish

Certain fish send out weak electrical signals, and apparently use these signals to gain information about their surroundings. The first such case was reported by Dr. H.W. Lissmann, of the Department of Zoology, Cambridge University, in 1951. The one which he first observed was an African freshwater fish, Gymnarchus niloticus, which is roughly one foot in length. It sends out continuous signals at a rate between 258 and 318 pulses a second. The rate is affected by the temperature of the water but not by the degree of activity shown by the fish. The greatest observed strength of the signals was about 30 millivolts.

Dr. Lissmann found that the fish responded by their behavious to changes in the electric field which they set up about them, and also to pulses similar to their own. Soon after he found that signals of the same general type differing in details were produced by two other species of fish. He pointed out that the production of these weak signals was of interest to the origin of organs of electric discharge, notably in the electric eel, which gives a high enough voltage to be of obvious value to the fish.

Later the electric eel itself was found by Dr. R.D. Keynes to produce smaller pulses which it appeared to use, like those other fish, to obtain information about its surroundings. These pulses, normally at the rate of about one a second and some few milli-volts in strength, are sent out by the eel only when it is moving. Their rate is increased sometimes to as much as 20 a second, when the eel is showing interest in any object nearby. The case of the electric eel seems to prove that pulses sent out at comparatively long intervals can be of value to the fish.

("Current Affairs Bulletin" July, 1957)

Recreation Areas Dwindling

New York's Conservation Commissioner Sharon Mauhs gave not only his state's Conservation Council but interested citizens of the entire nation something tough to chew on when he warned that acquisition of additional land suitable for recreation by the public might be impossible ten years hence. This prediction was made in a talk early in the autumn. It was based on a report from his advisory committee, which had consulted with conservation authorities in many states.

In some parts of the country, this committee says, land suitable for recreational use has already been priced to a point where no public agency can hope to purchase more. After another decade has passed, this forecast has it, the last area suitable for public forest or hunting ground or park or access-to-water site will have been acquired by private interests in those sections where population is heavy.

Such a prospect should give one and all plenty of pause. What about the millions of acres of wetlands needed to insure continuing waterfowl production? What about enough places for the ordinary citizen to hunt? What of the park problem, with state and national parks already overwhelmed by customers? What about access sites to fishable lakes and streams?

It's an alarming situation to contemplate.

("Field and Stream" January, 1958.)

Huge Demand For New Pickled Fish Pack

Ocean Fresh Pickled Fish is the pack to watch among South Africa's new food lines. Canned in the Maitland factory of Irvin & Johnson Fish Products (Pty.) Ltd., the line was only introduced to Cape Peninsula consumers at the end of June this year.

The first full month's sales were in July, but by the end of this month sales had soared to thousands of cases and the sudden, huge and sustained demand shows that the packers have another outstanding product from the factory that introduced the fish stick, the quick frozen fillet and the smoked Cape cod.

The basis of the pack is, of course, the choice hake brought in by trawlers of the Irvin & Johnson fleet. This is fried, prepared in onions and the best spices to an old Cape Malay recipe, and then canned in one line in 14 oz. rounds. Already several extra batteries of fish fryers have had to be installed and it is apparent that more lines will have to go over to the product once it is distributed throughout the Union and the Federation.

Since its first appearance Ocean Fresh Pickled Fish has been selling mostly in the Cape Peninsula, but limited supplies have been sent to the other main centres. It has not been intensively promoted and the rapid increase in demand could be described as a spontaneous tribute to a quality pack, tasty and well-prepared. Many wholesalers consider it the fastest selling food line yet introduced in South Africa.

With the Cape demand doubling and trebling each month since July, Irvin & Johnson are now preparing to introduce the pack throughout the Union and the Rhodesias.

("The South African Shipping News and Fishing Industry Review" November, 1957.)

SEAFOOD - An Aid in the Diet Of Atherosclerotic Patients

by
Averly M. Nelson, M.D., F.A.C.C.

Dr. Nelson is a Seattle specialist in diseases of the heart. His work, as suggested in this article, indicates that many fish and seafoods can contribute most importantly to the lowering of blood cholesterol, while at the same time providing the patient with needed protein and unsaturated fats in limited degree.

Dr. Nelson presented his findings in more extended form in an address before the Northwest Fisheries Association at Seattle in November.

While the work here reported upon is concerned essentially with the diet treatment of patients who have suffered heart attacks in one degree or another, and has large significance to the fish industry on that account alone, it points to a possibility of immensely greater importance. This is the use of fish and seafoods on a prophylatic basis. More research work will have to be done as to this interesting possibility.

Foremost health problems needing solution in the United States is the disease atherosclerosis, commonly called "hardening of the arteries." If present trends continue 60% of Americans past 40 years of age will succumb to this disease. The problem is huge, but research work suggests that it is definitely capable of solution.

From studies made in selected countries it is evident that atherosclerosis is more prevalent among people having higher blood cholesterol levels, which are directly related to the amount of fat consumed. To expedite the study of the effect of fat in human nutrition, it is impossible to confine research to the American people alone, for nearly all are subject to high fat intake. It becomes necessary to turn to other environments fully to complete the study of fat intake, blood cholesterol levels and the amount of atherosclerosis. Without exception, in countries studied, such as Japan, Italy, Finland, South Africa, Norway, Sweden, India, Costa Rica, and the Hawaiian Islands, it is clear that the amount of atherosclerosis depends on the blood cholesterol levels, which in turn are determined by fat intake.

Saturated and Unsaturated Fats

All fats are not similar in their action. The unsaturated fats exert a cholesterol lowering action, while the saturated fats tend to increase blood cholesterol levels. The unsaturated fats are those which have occasional double bonds connecting the carbon atoms in their chain. Examples are corn oil, safflower seed oil, nut oils, and fats of numerous - but not all - fish.

The saturated fats seem to be the villain in atheroscerosis. Animals which form their fat from carbohy-

drates are unable to synthesize any fat but a saturated type. It becomes apparent that the most commonly used meats in the American diet, and to a lesser extent poultry, represent saturated fats. Unless these meats are prepared in such manner that much of the fat is lost before consumption they exert an atherosclerotic effect.

Another aggravating factor is that of hydrogenating vegetable oils for commercial shortenings which means that a relatively unsaturated fat is chemically made saturated for greater ease in all-purpose cookery.

Recent research has shown that it takes three tablespoonfuls of corn oil to neutralize the blood cholesterol raising effect of one tablespoonful of butter, animal fat, or hydrogenated vegetable oil. This might falsely suggest that the remedy lies in merely increasing the consumption of unsaturated fats. However, a diet high in fat either saturated or unsaturated causes an increased tendency for the blood to clot, and so while blood cholesterol shifts might be obtained, blood vessels with minimal disease could clot more readily and thus the hazard actually increased.

Moreover, if one is to consume the usual American diet and add unsaturated fat in sufficient quantity to lower blood cholesterol the diet would contain 70 to 80% of its calories in the form of fat. This is extremely unpalatable and can be tolerated only for very short periods. We have no record of any people following such a diet and it represents laboratory experimentation carried into practice without precedence.

Meaning of Percent Fat in Diet

From studies already made in other countries it is possible to predict the amount of atherosclerosis based on the per cent of calories furnished by fat in the diet. The Japanese diet supplies about 9 to 12% of the day's calories in the form of fat and the rate of atherosclerosis is about one-tenth our own. When more than 28% of the calories are supplied by fat the rate of atherosclerosis increases proportionally until when reaching 40% or more, as we have done, atherosclerosis becomes a veritable plague.

The therapeutic diets which we have used for atherosclerotic patients for eight years have about 20% fat calories. All fats are reduced in this

diet. Meats are prepared by low fat cookery but still contain from 25 to 30 grams of fat in every eight ounces, or two servings. This diet used in 175 patients treated for periods varying from 5 to 8 years has been about 60% successful in lowering blood cholesterol levels, and this group enjoys a death rate one-third as high as expected. In Norway during the war where necessity reduced the fat intake a similar fall in death attributal to atherosclerosis occurred. Numerous medical writers have reported a lowering in death rate related to a lowering of fat intake.

Atherosclerosis is an extremely treacherous disease. It is not detected until manifesting itself by arterial occlusion and thus the first warning comes only after considerable disease is present. Obviously, prevention is the solution.

Why Seafoods are Important Diet

The accompanying table shows the fat content of some of the more popular Pacific seafoods. Most of these are low in fat, with the exceptions of King salmon and Columbia River smelt. (The cholesterol lowering or raising effects of the fat in these fish is unknown at this time.) However, to those low in fat we can add unsaturated fat and still have a total fat equivalent to beef, the commonly used meat in our work. This added unsaturated fat may be used to aid cooking, in flavorsome seafood dressings, or in side salad dressings. The result is a flesh protein product of many varieties, excellent in nutritional value, and flavorable patient acceptance.

In the above manner it is possible, by serving seafood a minimum of three servings a week, at spaced intervals, to have a diet low in fat and yet relatively high in unsaturated fat. This situation approximates that of countries enjoying a low death rate from atherosclerosis. Theoretically, from all knowledge now known regarding atherosclerosis, a diet of this type is desired.

Now, instead of lowering cholesterol in from 60 to 70% of patients it can be changed in about 95% of the cases. The leverage exerted by this simple method in diet makes it possible to add more eggs each week to the patients diet and make it Americanized in type, with much wider patient acceptance.

In this work the low fat diet including seafoods has been found practical and effective. We have learned that we must treat both the body and minds of patients.

The low-fat programme could be continued indefinitely as far as the body welfare is concerned, but in practice the patient is living in a society in which other members are partaking in very high saturated fats - and for practical purposes this must be recognised.

Fat Content of Common
Northwest Seafoods
(in grams per 8 ozs.)

	Grams
Scallops	.3
Sole	.5
Cod	.8
Tuna in water	1.2
Yellow Perch	1.6
Clams	3.2
Shrimp	3.2
Ocean Smelt	4.4
Oysters	4.7
Crab	6.1
Halibut	10
Herring	11
Salmon -	
Chum	11.8
Pink	14.1
Silver	19.1
Sockeye	21.8
King	30

It is possible now to give the patient four consecutive meals a week - such as Saturday supper and all meals on Sunday - completely off diet and still maintain cholesterol correction. We can also allow two or three additional meals off-diet by the pre-meal use of sitosterol, and still hold cholesterol correction thus the patient can associate with friends and not deny himself social dining - which was a serious barrier to full observance in previous treatments.

Antedating recorded history, seafood has played an important role in the diet of man. It appears likely now that again our descendants will realise the importance of this simple food.

("Pacific Fisherman" December, 1957.)

Plastic Material Protects Boats in Tropical Waters

A new material which, when fitted to dinghies and boats in the tropics, provides complete protection from borers and other tropical pests, is now being fitted to craft manufactured by a Dorset firm with a worldwide reputation for their "Aquacraft" boats.

The new material, called "Aquasheath", is a mixture of nylon and vynyl and can be fitted by means of resin glues direct to the wood. It has high abrasive resistance, is water repellent, and is elastic.

The firm, Aquacraft Ltd., Bridport, Dorset, manufacture all types of boats, from 10 ft. sailing dinghies to 25 ft. cabin cruisers, and all types can be supplied with this new material fitted to the hull.

("The South African Shipping News and Fishing Industry Review" November, 1957.)

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British trawlers report that they catch twice as much fish during full moon than when it is waning.

("Western Fisheries" Vancouver November, 1957.)