DEPARTMENT
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STAFF NOTES

The Minister for Fisheries, Mr Hutchinson, was admitted to Hollywood Repatriation General Hospital on July 19, but we are pleased to report that he was discharged on July 26 and has now resumed his official duties.

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The Director, Mr A.J. Fraser, will attend the Country Tourist Bureaux conference to be held at Bunbury on August 31 and September 1. He will leave Perth on September 2 for Tasmania for the biennial meeting of the Australian Fauna Authorities in Hobart. The Fauna Protection Officer, Mr H.B. Shugg, will also attend the Hobart conference. When it has concluded the Director will attend a meeting of Commonwealth-States Fisheries Conference to be held in Sydney commencing September 19. He will probably, as the guest of Pearls Pty. Ltd., go to Thursday Island in the interim to inspect the company's pearl culture activities at that centre.

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Research Officer B.K. Bowen is recovering from a severe bout of influenza. He was on sick leave from July 18 until July 30, but is now well enough to leave for Cronulla on August 1 to lecture at the fisheries field officers training school.

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We welcome to the staff Kevin Douglas Morrison, who commenced duty as on July 16 as cadet inspector. Colin William Ostle, of the Immigration and Inspection

Branch of the Lands and Surveys Department, is being appointed assistant inspector, and will take up duty at an early date.

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Our congratulations are extended to Assistant Inspector E.H. Barker, who has been recommended for promotion to Inspector, Grade 2. Mr Barker will take over the Bunbury district from Inspector T.D. Baines, who is being transferred to Shark Bay. Inspector H.D. Kavanagh, at present in charge of the Shark Bay district, is removing to the Perth district.

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The r.v. "Peron", as mentioned in last month's issue, is expected to arrive in Fremantle about August 8. The name of Cadet Inspector J.T. Kelly was unfortunately omitted from the list of the "Peron's" crew when we prepared that item from the July number. We are pleased to report that Mr Kelly has been recommended for promotion to the position of Assistant Inspector. He will be stationed at Geraldton.

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Officers on leave this month will include Mr J.B. Byleveld, of Head Office, from July 23, and Inspectors T.B. Baines and F.J. Campbell, from July 30. Inspector A.V. Green will commence leave on August 27.

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During the absence of Skippers A.T. Pearce, at the fisheries field officers training school, and F.J. Campbell, on annual leave, the p.v. "Dampier" will be moored at Geraldton, while the p.v. "Kooruldhoo" will be under the command of Assistant Inspector D.P. Gordon, assisted by Cadet Inspector P.K. Enright. Inspector E.I. Forster will be on his own in command of p.v. "Misty Isle", which will be used patrolling the Swan River and the Rockingham area.

PERSONAL PAR

Mr D.J. Gates, Project Officer of the Fisheries Division of the Commonwealth Department of Primary Industry, called on the Director on July 27. Mr Gates arrived by air from Canberra the night before to pay visits to the whaling stations at Albany and Carnarvon, and to call at Geraldton in connection with our request to amend the boundaries of the Abrolhos closed area. He expects to

return to Canberra about August 10.

COMMONWEALTH VETOES COUNCIL

It may be remembered that we published in the October, 1961, issue a report of a meeting of State and Commonwealth Ministers held at Parliament House, Canberra, on September 1, 1961. One of the decisions taken at that meeting was to establish an Australian Fisheries Council, comprising the Ministers charged with the administration of fisheries laws in Australia, together with the Minister in charge of C.S.I.R.O., and also the creation of a Standing Committee on Fisheries consisting of the respective permanent heads. Subsequently, in May last, the States were advised that the Commonwealth Government was not prepared to agree to the setting up of what was described as the somewhat elaborate machinery of a Fisheries Council and Standing Committee. The Commonwealth agreed, however, that it would be highly desirable that conferences of the Commonwealth and State Ministers responsible for fisheries be held as and when necessary, and that regular meetings between the Commonwealth and State officials be continued.

In a letter to the Prime Minister, dated July 23, the Premier advised that this State accepted, but with some reservations, the decision not to proceed with the establishment of the Council and Standing Committee. The Premier expressed our Government's opinion that the considerable benefits which had flowed from the regular meetings of State and Commonwealth officers would have become greater still if a Council had been created. The Premier added that meetings of officers should continue at more or less regular intervals and that the Ministers should meet occasionally as circumstances warranted.

Arrangements are being made for a meeting of Ministers to be held in Sydney on Monday, September 24. It will follow a meeting of officers and a seminar on fisheries management during the preceding week. Mr Hutchinson is hopeful that he will be able to be present.

W.A. FISHERIES PRODUCTION

At page 144 is a table of fisheries production by species for the twelve months ended December 31, 1961. For the sake of comparison, 1960 production is also given.

It will be noted that the weight of the total catch in 1961 was very similar to that of 1960. Once

W.A. FISHERIES PRODUCTION

	Production 1961 (Round Weight) lb.	Production 1960 (Round Weight) lb.
Crayfish	18,881,998	18,376,144
Salmon, Australian	2,~~435,755~~ 697,115	2,550,054
Snapper	1,782,034	1,681,185
Mullet	993,212	638,682
Ruff (Sea Herring)	871,323	1,084,077
Cobbler	736,330	503,426
Whiting, Sand	512,507	439,948
Shark	423,718	496,382
Mullet, Yellow-eye	410,705	543,290
Jewfish, Westralian	303,600	367,374
Tailor	159,570	144,929
Mackerel, Spanish	129,828	129,969
Herring, Perth	93,147	124,705
Whiting, King George	65,898	61,349
Trevally (Skipjack)	83,825	99,033
Samson Fish (Sea Kingfish)	65,732	86,742
Garfish	63,397	88,476
Bream, Yellow fin	56,148	56,167
Turtles (processed weight)	54,160	38,706
Leatherjacket (Silver Flounder)	51,906	53,465
Crabs	49,882	61,389
Bream, Buffalo	44,674	30,840
Tuna	35,854	1,992
Prawns	29,513	160,709
Pike	28,655	24,054
Cod	27,638	22,641
Cuttlefish	26,507	43,841
Mackerel, School, or "Mulie"	22,007	46,049
Groper	21,137	20,964
Sardines	20,589	22,063
Mulloway	19,399	10,286
Bream, Black	17,709	15,712
Squid	16,794	13,321
Flathead	15,923	22,139
Skate	15,572	10,040
Butterfish	14,674	122
Whitebait	10,157	13,235
Oysters	2,575	75,151
Other	61,636	134,805
	28,655,688	28,293,456

again it was less than the record 1959 catch of 30,328,670 lb. The main increases in 1961 were in the production of crayfish, mullet and cobbler. Increased production of snapper, whiting, tailor and turles also took place. The most notable falls occurred in respect of prawns, salmon, ruff, shark, yellow-eye mullet, jewfish and oysters.

The total value to the fishermen of the 1961 catch was estimated at close to £5 million.

UNPROTECTED FAUNA

The Fauna Protection Act provides that all fauna is protected until it is declared to be not protected or until an open season in respect of a particular species is proclaimed. Hitherto, it has been the practice to declare a list of certain species, which are considered to be pests or are of exotic origin, to be not protected for set periods of five years. As the 1957 proclamation lapsed on June 30 last, the list was reviewed and past practice re-considered. It has been decided that the new proclamation shall be of a permanent character and include a number of new exotic species. Protection is therefore not now accorded to the species specified in the new list.

To coincide with the revised list, a new folder has been printed publicising the unprotected species and setting out very briefly some of the needs of conservation. The cover of the folder features the Numbat, or Banded Anteater, the scientific name of which is Myrmecobius fasciatus. It is a marsupial: harmless, attractive and almost purely Western Australian. It has been adopted by the Fauna Protection Advisory Committee as its mammalian emblem. A copy of the pamphlet will be found as a loose insert in this issue. Additional copies are being forwarded to all district officers and more will be made available to any office or to any individual officer on request.

PRAWNING RESTRICTIONS

In a press release on July 18, the Minister for Fisheries, Mr Hutchinson, referred to a statement attributed to Mr D. Hopper, of Queensland, on the possibility of eastern States vessels coming to Western Australia to engage in prawning.

In his statement, the Minister said that he had been giving much thought to this question and had decided

to apply two restrictions which he expected would help to conserve the new industry. The first would have the effect of limiting the number of boats which would be allowed to trawl in Shark Bay-Carnarvon waters, while the second would prohibit all trawling in "nursery" areas.

Regarding the restriction on boats, Mr Hutchinson said that the prawn resources of the area concerned, where a fishery was in course of development, had not been fully exploited. There was probably room for more boats, but local fishermen should have a prior right to obtain licenses. He had directed, therefore, that no prawn trawler from the eastern States should be issued a license unless it were purchased by or brought here under charter to an approved local fisherman. At the same time, he said, he had decided that Western Australian fishermen must not regard prawn-fishing in the Shark Bay-Carnarvon region as a right. He had issued instructions to the effect that no local craft not already operating could enter the fishery in that area without prior approval from the Department. This was being done primarily to safeguard the fishery against over-exploitation, but incidentally was a protective measure for the fishermen themselves.

Setting down his reasons for this decision, the Minister explained that one of the problems concerning fishermen operating in other parts of the world on species of prawns similar to our own, was the very violent annual fluctuations in fishing productivity. For example, in Florida in 1959, the catch of the Tortugas pink shrimp, a close relative to our own king prawn, totalled only 13,000,000 lb., whereas the 1958 production was in excess of 24,000,000 lb. This sort of fluctuation, continued Mr Hutchinson, made it completely impossible to estimate accurately the maximum sustainable future yield. He warned that it would be most unwise to assess next year's Shark Bay production on the basis of the exceptionally high catch rates at present. To do so, he said, could cause heavy financial loss. The Department believed that the investment of any large capital in additional boats, improved facilities, etc., was scarcely warranted at this stage. Persons planning large-scale developments should await the outcome of the next couple of years, when we would have a wider experience of prawning and a much more intimate knowledge of the potential of the fisheries themselves.

The second restriction would be applied, the Minister added, for the conservation of the fishery. Early action would be taken, he said, to prohibit trawling in the areas of Shark Bay south of lines drawn east from

Cape Peron and Cape Bellefin. He explained that these areas were considered to include the nursery grounds where the young prawns spent their adolescence.

PORT GREGORY FISHERMEN FIND SUPPORT

As reported in the March, 1962, issue of this Bulletin, the Fishermen's Advisory Committee visited Port Gregory last March to take evidence from fishermen in a dispute which they said had arisen between them and the Northampton Shire Council concerning crayfishing operations on the beach at Port Gregory. The fishermen feared that they would be denied use of the section of the beach opposite the island jetty, the use of which they also thought might be withdrawn.

On the recommendation of the Advisory Committee, representations were made to the Departments of Local Government and Public Works setting out the fishermen's need for certain freedom of action in the use of both facilities. It was pointed out, as an example, that the fishermen at Horrocks Beach, not many months ago, were excluded by the same Shire Council from carrying out fish-landing operations there and had been forced to land their catches three miles farther north and to blaze new trails across extensive sand drifts to the new anchorage. Port Gregory fishermen had developed the area and were using the island jetty extensively during their operations. Our letter stressed that the fishermen were engaged principally in the production of crayfish, a dollar-earning commodity, and depended upon fishing for their livelihood. Local authorities, which were frequently dominated by sectional interests, did not always appreciate the value of the fishing industry nor the needs of the persons engaged in it.

As a result of these representations the Local Government Department has agreed to submit to this Department for comment any by-law submitted by the Northampton Shire Council for the control of crayfishing on the foreshore of Pakington townsite. The Under Secretary for Works has written that while his Department does not desire to undertake responsibility for the jetty in its present condition, any request for its future control will be referred to this Department.

FAUNA PROTECTION AND GREY KANGAROOS

Some officers may have noted in the Government Gazette of July 13 a proclamation referring to grey

kangaroos. The effect of the proclamation was merely to renew the so-called grey kangaroo reserve which is established in the south-west corner by a line drawn from Lancelin Island to Merredin, then south to Gnowangerup, then east to the coast. Outside this area there are no restrictions on the taking of grey kangaroos unless they are being taken for gain or reward, in which case, the taker must be licensed. Within the grey kangaroo reserve, open seasons have been declared in some districts - see page 107 of the June, 1962, issue. If and when the open seasons lapse or are cancelled, full protection will be restored to kangaroos in the areas concerned. Within the reserve and outside the "open season areas" they are fully protected and may only be taken by holders of a current scientific license, or a damage license, or, in rare cases, a food license.

ABROLHOS POACHERS WARNED

A report from the Deputy Commonwealth Crown Solicitor giving the result of the prosecution under the Commonwealth Fisheries Act against the skipper of the fishing vessel "Zora" reminds us that we have overlooked publishing the results of these cases of fishing in proclaimed Australian waters west of the Abrolhos.

On May 15 the skippers of the "Blue Dolphin" and "The Western Star", C. Moss and C. Hill respectively, were each convicted and fined by Magistrate K.A. Philp in the Geraldton Police Court. Moss was fined £500 and ordered to pay costs of £20.3.0., while Hill was also fined £500 and ordered to pay costs of £5.13.0.

The case against George Diletti, skipper of the "Zora", was heard also by Mr Philp at the Geraldton Police Court on June 27. The defendant pleaded guilty and was convicted and ordered to pay a fine of £400 with £14.19.0. costs. In imposing a fine less than that imposed on Moss and Hill, the Magistrate said he had taken into consideration the fact that Diletti had co-operated with the inspectors and his gear had been impounded for some days. In his report the Deputy Crown Solicitor wrote that in view of the fact that no forfeiture of gear was ordered in the cases of Moss and Hill, it would have been inequitable for the Magistrate to have ordered the forfeiture of any of Diletti's craypots. The Magistrate reiterated his warning, however, that in future cases he would seriously consider ordering the forfeiture of the vessel concerned, irrespective of its value.

FAUNA NOTES

The Supervising Inspector, Mr J.E. Bramley, reports that on July 15, he saw the largest concentration of musk ducks on Goegrup Lake, near Mandurah, that he had seen for five or six years. He also saw a pair of black duck nesting near the Goegrup cut, but said that generally speaking there were few pairs. Fauna Warden N.E. McLaughlan also observed more musk ducks than usual on Mongers Lake, West Leederville, and added that they were displaying.

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Assistant Inspector E.H. Barker reported that at 8 a.m. on July 16, he saw a white-breasted sea eagle sitting on an electric light pole on West Coast Highway at the boundary of the City and Scarborough wards of the Perth Shire. Although this bird is said to occur along the entire coastline of the State, it is rarely reported in the metropolitan area.

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Fauna Warden S.W. Bowler carried out a comprehensive district patrol in the lower South-West from July 18 to 27. He paid special attention to reported irregularities in the kangaroo pet-food trade which has flourished during the four years of continuous open season in many districts in the South-West. One freezer plant alone received over 40,000 kangaroos in that period. A particularly interesting item in Mr Bowler's report was the sighting of four cattle egrets (Bubulus ibis) among cattle at Wonnerup, near Busselton. An earlier sighting of this species at Wonnerup was made on June 1 by Fauna Protection Officer H.B. Shugg and Mr Bowler. Other interesting observations were of black duck nests at three different localities while a number of reports of more than usual interest were received. These included increased sightings of grey possums in the Boyanup, Manjimup and Donnybrook Shires; a Mundarda, or South-western Pigmy Possum (Cercartetus concinnus) on the farm of Mr Ralph Kelly, of Pemberton; Woilies, or Rat Kangaroos (Bettongia penicillata) on the farm of Mr J.C. Conner, of Mordalup; and Chudiches, or Native Cats, near Brookhampton, by Honorary Warden S. Keall. The patrol was made by Land Rover and covered 1,089 miles.

NEW PATROL VESSEL

Good progress is being made in the construction

of the 40-ft. twin-engined patrol vessel by the contractors, Messrs Back Bros., of North Fremantle. The engines, a pair of matched General Motors 4-cylinder diesels, became available for supply to the contractors at the end of the month and will be installed as soon as they have been checked by engineers of the Public Works Department.

NEW OFFICES

A report from Geraldton late last month said that the area for the Department's new offices and yards at Geraldton had been pegged and work was due to start on July 30. The building will be constructed in a fenced area at the base of Fishermen's Wharf on the west side of the road. It will include offices, staff quarters and a garage, all in brick. Not so many years ago the Geraldton district was run comfortably by one officer. These days he usually has at least one assistant and will require more in the near future, if recommendations arising from conferences of all sections of the industry are adopted. The patrol vessel "Dampier" and her crew are also stationed at the port and regular crayfish research is being conducted there by Research Officer B.K. Bowen and Technical Officers J.S. Simpson and L.G. Smith.

The new offices at Mandurah are under construction, and tenders have been called for the building of new quarters and offices at Shark Bay.

At Jurien Bay and Lancelin land has been set aside for quarters for the use of inspectors at those centres, but while plans have been prepared, progress is subject to the availability of Loan funds.

At Bunbury, a final decision on the land to be made available is awaited, but it is anticipated that a commencement will not be made on the new offices this financial year as the plans have not yet been prepared for the buildings required.

It also seems likely that it will be some time before new buildings are provided for the Department at Fremantle. While some consideration has been given to the growing needs of the Department there, further progress will probably have to await the completion of the reclamation work being carried out in the fishing-boat harbour.

WHALING

Inspector B.A. Carmichael reports from Albany

that humpback whaling has become a secondary consideration to the Cheynes Beach Whaling Co. Ltd. From July 26, he says, the company's chasers recommenced sperm whaling and humpbacks will be taken only if conditions on the shelf are unsuitable for sperm chasing. Even then, he adds, probably only one chaser will look for humpbacks. This company took its first humpback on June 16, and to July 26 only an additional 39 had been captured. Last year, the company had filled its quota of 105 humpbacks by July 16. On the other hand, 230 sperm whales have been taken to July 6, compared with 152 to the same date last season.

At Carnarvon, the Nor'-West Whaling Company's first humpback for the season was taken by its chaser "Gascoyne" on June 9. Although only 5 more were taken that month, the total had reached 194 by July 28. Earlier, in May, the company had secured 4 blue whales, while in June two sei whales had also been captured. Up to the time that their chasers concentrated on humpbacks, 26 sperm whales had been taken this season.

For some reason which is not clearly understood in the Department, the price of humpback oil is well below that of sperm oil. This is just the reverse of the position which obtained for many years. With the lower price, humpback whaling today is considerably less profitable than sperm whaling. In any case, humpbacks do not seem to be available, not only in Western Australia but also in the eastern States, where the whaling companies are going through an unusually lean period.

DIRECTOR APPOINTED TO NEW COMMITTEE

At its meeting on July 17, State Cabinet set up a committee of departmental heads to examine suggested methods of preserving our wildflower asset and to recommend what legislation they thought would be required. As Chief Warden of Fauna and chairman of the Fauna Protection Advisory Committee, in which a substantial number of flora and fauna reserves have been vested, Mr Fraser has been closely associated with the setting aside, maintenance and control of habitat reserves, and has drawn attention to the inseparable interdependence of the flora and the fauna. He has been appointed a member of the new committee.

The other members are the Under Secretary for Lands, Mr F.C. Smith, who has been appointed convenor; the Commissioner of Main Roads, Mr J.D. Leach; and the Conservator of Forests, Mr A.C. Harris. Already one meeting has been held. The broad recommendations of a previous and much larger committee under the chairmanship of the

Premier's Department,
Under Secretary,/were considered. These recommendations may be summarised as -

1. by legislation to provide greater protection against indiscriminate destruction of wildflowers;
2. to actively restore and regenerate wildflowers in public places and along roadsides;
3. to ensure conservation through wider roadside reserves and the establishment of adequate and permanent wilderness reserves;
4. to implement a widespread publicity campaign for the better protection and conservation of wildflowers.

MORE TRAWLING GROUNDS CLOSED

A Proclamation issued by the Minister for Fisheries and published in the Government Gazette of July 27, has closed additional waters to trawling in Cockburn Sound. The area in which the use of otter trawls and beam trawls is now prohibited extends from the Fremantle Fish Market Jetty Mole sou'-sou'-westerly to Elbow Buoy opposite Middle Ground, thence due south to a point opposite the northern boundary of the refinery at Kwinana.

The Proclamation follows closely along the lines recommended by the Fishermen's Advisory Committee after its meeting last March when it took evidence from representatives of the local authority, small boat owners, and amateur fishermen, as well as from professional fishermen, a number of whom had been actively engaged in trawling

ABROLHOS ISLAND AREA AMENDED

A second Proclamation has put into effect another amendment urged by the Fishermen's Advisory Committee, this time in relation to crayfishing. As recommended by the Committee at its last meetings in Geraldton and Fremantle, the southern and northern boundaries of the Abrolhos area have each been shifted 30 minutes northwards to 29°30' and 27°30', respectively. This will allow Geraldton licensed boats to fish the grounds to approximately thirty miles north of the arbitrary line separating the areas in which Fremantle and Geraldton licensed boats may operate. At the same time it will close, during the Abrolhos season, the grounds known as Shallow Bank which were previously just outside the north-eastern boundary of the closed area.

CLEARING HOUSE

The Scallop Fishery of Tasmania

Compiled by the Fisheries Division,
Department of Agriculture and C.S.I.R.O.
Regional Laboratory, Hobart.

When we hear the word "scallop" today, it may suggest to us a shell or a piece of embroidery or something to eat, while the word "shell" may call to mind eggs, snails, petrol, shelling peas, or shelling enemy positions.

Some centuries before Christ, the Germanic tribes inhabiting Central Europe had a word that is the ancestor of "scallop" and "shell" - it was SKAL. They used the word to describe various kinds of hard coverings that were new to them - new either because they developed them in their own culture or because they came across them in lands where they had not lived before: coverings of dwellings, large shells used as plates or cups, pea-pods, shells of tortoises, scales of snakes.

The general shape of the scallop shell is fairly well known to most of us. In medieval times, however, it had a religious significance for in England the wearers of a small scallop shell or badge, shaped like a scallop shell, denoted the wearer was a Canterbury pilgrim. On the Continent of Europe it indicated that the wearer had made a pilgrimage to the tomb of St. James in Spain. In Germany its religious association is still recognised for it is still referred to as a "pilger-muchel" or "pilgrim mussel". In fact the scallop shell is widely known throughout the world even though its name may vary from tongue to tongue.

The French use the term "petoncle St. Jaquin" or escallope and doubtless the Norman conquerors transferred this name to England where it has been anglicised to escallop or scallop. It is called descriptively the fan shell and could even be the source of a short digression into the realms of word formation because the old Cornish name for a scallop is a "squinn".

Whatever its name the Tasmanian aborigines from the Channel area made use of the scallops as food, for the shell is found in their kitchen middens. The Indian tribes inhabiting the Maritime Provinces of Canada also utilised it for food as the shells are found in the middens used long before the advent of white men in Canada.

The scallop is a mollusc, a member of a very

large group of animals which includes the oysters, the whelks, the octopuses, and the slugs. "Scallop" is a general term which can be applied to nearly three hundred different species living in warm and temperate seas the world over. They sometimes congregate in thousands in favourable sea bed situations and they may occur in small numbers almost anywhere where the conditions are suitable between depths of 25 and 500 ft.

It is a very lively creature and can, in fact, swim in its own inimitable fashion. This evolution of a swimming habit makes it a particularly interesting animal to the biologist and is probably the most spectacular feature of the scallop. There are three different kinds of movement it can perform; normal swimming, twisting, and the so-called "escape" movement.

In order to swim they open their shells entrapping water which is ejected forcibly through the two openings on either side of the hinge. The two jet streams thrust the scallop forward, lips foremost, and this action of opening and closing is repeated throughout the swimming action. The scallop moves forward about its own length at each "bite" and they are known to swim as far as 15 feet at a time and rise as high as 6 feet off the bottom. Measurements show that some scallops required about 12 "bites" to travel about 3 feet. Mostly they swim 12 to 18 inches off the sea floor. Contrary to the general belief, the "commercial" scallop lies on the curved shell with the flat one uppermost.

The chief enemy of the scallop is the starfish. As soon as one comes near, it will attempt an immediate escape by swimming. If the scallop is not quick enough the small tube feet within the arms of the starfish adhere to the scallop. The starfish wraps its arms around it and, by exerting a continuous pull eventually overcomes the resistance of the animal and forces the shells apart. It then everts its stomach out through its mouth, envelopes its prey with the enormously distensible stomach and leisurely digests its meal outside its own body.

The whelk also feeds on scallops, but is not so discriminating as regards the size of scallops. Man, however, is probably the main predator of large scallops.

Although scallops have been caught in Tasmanian waters for over 50 years it is only in recent years that the scallop fishery has become better known. This is due mainly to improved marketing methods. However, it is not generally realised that scallops are not a Tasmanian monopoly for they occur not only in the waters of other Aust-

ralian States but also in other parts of the world. Such information about their world-wide distribution comes as a surprise to many Tasmanian people who are apt to think of this unique fishery as peculiarly their own.

The largest scallop fishery in the world is operated on the Atlantic sea coast of the United States with New Bedford, Massachusetts, the main port for landing most of this catch. The annual landed weight of scallops is about 20 million lbs., approximately 20 times greater than the Tasmanian catch. Two species contribute to the U.S.A. total, the more important being the sea scallop, Plactopecten magellanicus, which is fished down to 60 fathoms, whereas the other, the bay scallop, Pecten irradians, as its name indicates, is found in the shallower waters of bays and inlets. Only the large white "eye" meat, the adductor muscle, is used in the U.S.A. whereas the Tasmanian catch is boosted by leaving attached the bicoloured roe, which increases the edible weight by up to one-third.

The Tasmanian catch is about the third largest in the world and is roughly comparable in size to the Japanese and Canadian scallop fisheries, which land greater catches than either the Irish, English and French scallop fishermen.

In Tasmania three species are taken and marketed, the main one being the "commercial" scallop (Pecten meridionalis) and the other two are the "queen" (Equichlamys bifrons) and the "doughboy" (Mimachlmys asperiums) scallops. At one time the "doughboy" was the most common of the species taken but now it has been replaced by the "commercial" scallop.

Although scallops are found practically all round Tasmania, the main fishing centres are in the D'Entrecasteaux Channel just south of Hobart, in Spring and Oyster Bays in the East Coast and in Ringarooma Bay on the north-east coast.

In the early 1900's the dredging for scallops commenced in the River Derwent off the Marine Board shipyards and Rose Bay near Hobart, mainly by rowing and sailing vessels. When marine engines were first introduced in 1905 the dredging moved to the entrance of the River Derwent, Ralph's Bay and the Channel where sufficient quantities were taken to commercialise the fishery. It was not until after the First World War that it was developed to an extent to warrant some control by legislative measures.

The Fisheries Regulations of 1925 provided for

a season of 6 months - April to September - and fixed a minimum size of 3½ inches for the "commercial" species and 2½ inches for the "doughboy" species. In 1928 the season was reduced by 2 months making the season May to August. It remained so until 1950, when August was deleted, leaving the season from 1st May until the 31st July. The season was shortened so that there was no disturbance of the beds during the period the scallops were spawning.

Production has risen considerably over the years; in 1928 approximately 4½ million scallops were taken, producing 180,000 lbs. of scallop meat, (i.e., muscle and roe). By 1932 production had risen to 6½ million (250,000 lbs. of meat). Successive years saw increased production; 1933, 8½ million; 1934, 10 million; rising to 18 million in 1938. The World War II years brought about a slight decline, but by 1946 the production figure had risen to 25 million (991,943 lbs. of meat). A decline followed until 1952 when production was 8 million (325,681 lbs. of meat). Subsequent figures were 1953, 18 million (743,734 lbs. of meat); 1954, 20¼ million (837,254 lbs.); 1955, 28 million (1,146,138 lbs.); and 1956, 29 million (1,177,120 lbs.). The catch rate for 1956 was made possible by the exploitation of new beds in Norfolk Bay, which were responsible for three-fifths of that season's production.

The catch from all areas over the last four seasons has been reasonably steady, being -

Year	Whole Weight	Meat
1957	24 million	962,058 lbs.
1958	20.8 million	832,707 lbs.
1959	22.8 million	914,488 lbs.
1960	22.5 million	900,213 lbs.

The number of fishing vessels operating in the fishery has risen from 20 in 1930 to a maximum of 124 in 1960. By regulations, vessels have been limited to carrying 2 dredges since 1949. Previously the larger vessels carried as many as 6, but the majority carried 2 or 3.

Vessels engaged in this industry usually range from 30-50 feet in length and are fitted with diesel engines.

During the winter months the scallops are taken from the known beds by means of dredges dragged over the sea floor. The dredges are towed along the bottom, scraping up the scallops from the sea bed and are then hauled to surface by wire lines. The wire lines are then wound up on the drums of the mechanical winches about every 15-

20 minutes. They are raised above deck level to the height of the gallows bar erected above the sorting platform on the stern of the fishing boat. When they reach the limit of the line the operator leans out and pulls the dredge bag inboard up-ending it so as to spill its contents on the platform. The same procedure is repeated for the second dredge. Immediately the boat is "on position" for another pull the dredges are cast over to "work" while their catch is being sorted.

All "commercial" scallops above the minimum legal size of three and a half inches are placed in boxes on the sorting platform. Because of the fishing location the haul may require little sorting, whereas on the other hand, the scallops, though of good quality, may be mixed with "trash", consisting of much debris of shell, sponges and other marine growths, so that the picking up of scallops may be very tedious and time-consuming.

When the boxes are filled they are tipped into moistened cocoa bean or potato bags stacked forward out of the way. At the end of the day's dredging the scallop fleet makes for home, which may, in the D'Entrecasteaux Channel be anything up to five to ten miles away - further in other places - to unload the day's harvest. Over a three months' season a scalloper who can average fifteen to twenty bags per day for a six-day working week is considered among the front rank of scallop fishermen. Each bag carries between 500 to 600 scallops, the actual number depending on such factors as shell size, brittleness and weight of bags. Opening or "shucking" is done by members of the scalloper's family or "splitters" especially recruited for the purpose. An expert "splitter" opens a bag (500 to 600 scallops) in thirty-five to forty-five minutes, and in eight hours splits between 200 and 250 pounds.

Approximately 70 per cent. of the State's production is exported in a frozen condition to Melbourne and Sydney and small quantities have also been exported to the United States of America.

Although it has been asserted from time to time that the scallop beds are being depleted, fishermen have discovered new beds and production has been maintained. The Fisheries Division of the Department of Agriculture in Tasmania has power to close scallop beds in cases where over-fishing is suspected. It has been found, however, that by rigid inspection methods in regard to legal size, fishermen soon move to other areas when the catch rate of legal size scallops falls below an economic return.

The scallop industry is a valuable one to

Tasmania for it not only gives employment to a number of seasonal workers but provides quite remunerative work for a considerable number of fishing vessels which would otherwise be idle.

("Service" Tasmania May, 1962)

Sea population studies are popular these days

by Eric Hardy, F.Z.S.

There seems to be no easier shellfish to identify than the common mussel. The Fishmongers' Company gave the long and curved blue-back, concave shells as the distinguishing feature of the common edible mussel in their handbook on the distinguishing features of fish; but six years ago Michael Graham pointed out in his book on the Sea-Fisheries that several mussels in the rivers of Cornwall were identical in appearance with the Mediterranean mussel, though he considered the latter to be a separate species. Now Lewis, a Leeds University zoologist, and Powell, of the Millport marine biology station, have described to the Zoological Society their conclusion from studies of these shellfish that they are the same species.

Theories

They find that the shell features of these mussels are too variable to distinguish between them. Usually the Mediterranean mussel, Mytilus galloprovincialis, is better identified by the very dark colour to the edge of its mantle. But this feature also occurs occasionally in our mussel, M. edulis. As it grows older, or in slow districts, our common mussel also produces more curved and ungulate shapes than usual. They conclude that the Mediterranean mussel is only a variety or sub-species of the common British sea-mussel, a theory held by others in the past. This mussel becomes scarcer the further east one goes in the Mediterranean. It is rare on the Palestine coast where estuaries are poor, and it is replaced by the smaller Mytilus minimus, while a Red Sea mussel, M. variabilus, has migrated through the Suez Canal to the coast at Beirut.

Studies

Population studies are very popular with field-naturalists nowadays as they often help to assess the physical and biological factors controlling animal numbers. On our ever topical subject of grey seals, the big colony on North Rona, off north Scotland, the largest land-breeding community of these fishing mammals in Britain,

has been counted, like the Farnes. This huge colony has steadily increased since it began to form after the last family of islanders was evacuated in 1864. J.M. Boyd and J.D. Lockie of the Edinburgh office of the Nature Conservancy, and Prof. H.E. Hewer of London, recently reported to the Zoological Society that over 2,300 young grey seals are now being born there annually compared with just over 1,000 at Farne. The mortality on the island is about 17 per cent. The breeding season there is from September to mid-November, and there is a ratio of one bull seal to 10 to 13 cow seals.

(The Fishing news London June 8, 1962)

The Spotlight is on Film

In an industry such as the frozen food business which has reached (for the present) what might be called a plateau in new and sensational developments, the past year did not have a great deal to add to methods, new products, new containers or striking new ideas. This is to be expected because of giant steps that had been taken in some years in the past.

However, the resourcefulness of the industry and its members, and their determination not to stand still, has brought forth several developments that will be extremely important in the future. Although the initiation of these developments did not necessarily occur in the past year, their acceptance became more of a reality, and their future can be more accurately foreseen.

Dry Freezing

One of the most notable of these advances is the improvement and widening of the products that are dry-frozen. It is pointed out that this movement is a continuation of renewed interest in dried products that has upsurged since World War II. Where for years there had been a prejudice against dehydrated foods, following some bad experiences during World War II, new improvements in quality and packaging have made the dried food market an exploding one.

Of course, the great advantage of dry-freezing is that after the product has been frozen into ice crystals, because of the vacuum-dehydration at very low temperatures the ice "sublimates" and the crystals pass off as vapor and not a liquid.

One of the first products to be offered as dry-

freeze was shrimp, and it is reported that on the West Coast, where it was first marketed, that its reception has been excellent.

Machinery and packaging manufacturers are now offering a wide variety of equipment for what is believed to be one of the greatest potential markets in the frozen food business.

Boil-in-Bag Packaging

Also of great importance during the past year has been the development of the boil-in-bag packaging method. Although introduced several years ago, increased attention recently has made this type of packaging a major consideration in all segments of the packaging industry.

Polyester is the basis for boil-in-bag materials, and both polyethylene and polypropylene are used. Because of their economical cost they present an important area for packaging development.

For example, it is estimated that the restaurant cost of one portion of boiled-in-bag peas is 6¢, as against the cost of regular pack frozen peas at 3 ¢. However, the handling and other costs in preparing the regular frozen peas for the table is estimated to total 10 ¢.

This reasoning has led to an enormous expansion of b-i-b portion packaging for institutions and restaurants, and there is ample evidence that this has only started. One of this country's largest packers is offering a complete line of restaurant and institutional b-i-b products that need only to be heated in boiling water for 10-12 minutes, and are ready for the table just as though they were extremely fresh. The portion method of serving in restaurants has many advantages, and the most important are low cost, better flavor and quality.

An incidental development in the b-i-b business is the work that is being done to make it easy to remove the food from the bag. This research is in the hands of one of the largest and most resourceful packaging material manufacturers in the country, and although a seemingly small factor, can be of great importance to the housewife.

The machinery manufacturers have kept pace with such packing and are offering new machines that will produce quality bags at very high volume.

(Fishing Gazette 1962 Annual Review New York)

I.C.I. Introduces New Synthetic Fibre for Fishing Nets.

I.C.I. recently staged the first public exhibition of its latest synthetic fibre, "Ulstron" polypropylene, at three centres in Norway.

The exhibition, which was held at Bergen, Aalsund and Stamsund, told fishing gear manufacturers and fishermen the story of this new fibre and how it differs from other synthetic fibres, such as nylon, "Terylene", or polythene.

Much Interest

There has been much interest in "Ulstron" in the fishing industry since I.C.I. acquired the U.K. manufacturing and selling rights for this material, particularly as special production techniques make "Ulstron" stronger than any other polypropylene yarn currently being produced anywhere in the world. "Ulstron" is the lightest fibre yet known, has good resistance to abrasion, is completely rot-proof, and loses no strength on wetting.

Supplies of "Ulstron" to date have been limited, but a large plant at Wilton, North Yorkshire, for the manufacture of this new material has just been completed and increasing quantities are now becoming available.

The exhibition was in four sections; the first described the background to "Ulstron", its discovery, production and properties; the second was a display of different types of "Ulstron" nets and twines; the third described a series of trials carried out at Lofoton, Norway, in 1961 with "Ulstron" cod nets in comparison with other synthetic cod nets and described the arrangements for the trials, the names of the vessels that took part, the results and comments from the skippers. The fourth display was devoted to I.C.I.'s other synthetic fibre, "Terylene", in particular its application for mounting ropes and lines.

(Shipping News South Africa June, 1962)

How to Operate a Fish Shop on Self-service

Reprinted from "Self Service Merchandising"

Queensland's Gold Coast has, what is believed to be, Australia's first self-service fish shop.

Called THE FISH BOWL, it is the most unlikely self-service store you could imagine.

Its features include:

* No smell of fish.
* Enough refrigeration and deep-freeze equipment to run a 2,000 square foot grocery self-service.
* A compact 350 square feet which is a lesson in commercial store design.

New Field

The store shows an entirely new field for carefully picked areas.

The man and woman behind this newest Gold Coast oddity (it opened only in November) are John Harris Simon, 34, and his wife, Marion.

They have a record unconventional operation. Last year they "migrated" from New Guinea - where they had set up Port Moresby's first air-conditioned self-service store, of 720 square feet.

This store, Foodland, was also the first in that country to pre-pack fruit and vegetables.

Part of arcade

The shop, with a plate glass and louvred ceramic tiled front, is part of the large and busy Bulletin Arcade, which houses dozens of small shops in an L-shape running from Nerang to Scarborough Streets - Southport's main shopping avenues.

On each side are a fruit market and a jeweller's store. Opposite are an optometrist and a men's wear shop.

The Fish Bowl cost £6,500 to equip.

It sells pre-wrapped fresh fish, canned and exotic fish, deep frozen bait, chips, caviare (for which there is a steady sale), and a range of associated items. These include lemons, salt, vinegar, fish soups and pastes, turtle soup, oysters, crabs, and fish sauces.

Across the rear, taking up 7 ft. of the shop's total depth of 26 ft. is the "fish and chips" section ... which is a real eye-opener.

Lysaght's Ornamesh runs across the top of the rear section. Inside, two assistants work at the electric potato peeler and chipper and the Sterlic electric cookers. They also work the shop's checkout when needed.

They wear red and white pencil striped uniforms, with The Fish Bowl outlined in red on the left shoulder.

Fish and chips are served to customers through a waist-level mesh-surrounded outlet, below a glass strip section. The access door to this section is tangerine, and is met by a tan and green back wall.

Every item purchased in the shop is wrapped in a clean white paper at the checkout.

Fresh fish is pre-wrapped in a green-and-yellow lemon and parsley motif on cellophane, marked "fresh from The Fish Bowl".

John Simon buys prepared fish (no filleting is done on the premises) from Gold Coast wholesale suppliers.

John has advertised extensively in the Gold Coast Bulletin and Adviser, in the Coast edition of the Brisbane Telegraph, and on radio. But he says the best response he has had came from 4,000 handbills he had delivered to all Southport homes.

John runs specials on Thursdays and Fridays - his best days. Typical of a week's specials were mullet fillets and 10 oz. Birds-Eye fish fingers.

Trading hours at 9 a.m. to 6 p.m., Monday to Thursday; 9 to 7 p.m., Friday; and 9 a.m. to 1 p.m. Saturday.

Saturday trading, throughout all types of stores in the area, is poor.

The shop has an average of 800 customers weekly.

(Fish Trades Review Sydney June, 1962)

Sydney goes for Nor'-West Prawns

This month, the first of Nor'-West's pack of cooked frozen prawns and prawn cutlets reached the Sydney trade.

The product was rushed by buyers.

Another first

W. Len Johnson (the firm that's in everything successful) is handling the new product.

Len Johnson's sales manager, Max Butel, is wildly enthusiastic about the pack.

He says the most outstanding feature of the pack is the uniformity of size of the prawns.

Max said Nor'-West is using three trawlers and is catching very good quantities of prawns.

(Fish Trades Review Sydney June, 1962)

Nautilus Wrecks Record With 730-Ton Tuna Trip

The biggest single load of tuna ever landed at an American port by a fishing vessel was brought into San Pedro early in May by the converted seiner Nautilus.

The 189' all-steel former Navy vessel unloaded 730 tons of Yellowfin and Skipjack at Star-Kist Plant No.4 on Terminal Island to break the former record of 649.3 tons, held by Western King.

Most of the catch was made, according to owner Edward X. Madruga of San Diego, in latitudes west of Ecuador. The vessel fished under command of Manuel Cintas, who, Mr Madruga said, will be in charge of the Nautilus on virtually all of her fishing operations from now on.

Nautilus was originally equipped with two power-blocks, one fore and one aft; but in practical fishing operations it was found more efficient to use the conventional one-block method, and the forward block has now been removed. The big vessel fishes with a Tri-Lock net made by U.S. Net & Twine Co. of Long Beach, California.

To carry the smaller of her two fishing skiffs, Nautilus' owner devised a new method. A portion of the starboard rail has been made removable like a gate, and a rack with three steel beams provided for the skiff to ride on. When the skiff is to be taken aboard, the rail is opened, the rack is lowered and the skiff is taken out of the water by electric hoists mounted on davits and brought aboard. The rails can be raised to a vertical position when the skiff is in the water. This device, Mr Madruga says, is an efficient way of shipping the skiff and also a very practical launching pad. Nautilus has two skiffs, the larger of which is normally carried on the turntable in the conventional manner.

(Pacific Fisherman Portland, Ore. June, 1962)