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FISHERIES

FISHERIES IN VICTORIA

Fisheries and Wildlife Division

The development of the Fisheries and Wildlife Division as a research and management organisation effectively began in the 1940s. Before Federation the responsibility for fisheries and wildlife was vested in the Department of Trade and Customs and from 1901 in the Department of Public Works ; in 1909 these activities were transferred to the Department of Agriculture. Until then there was little more than limited enforcement work and stream stocking. A separate office for the Fisheries and Game Branch (as it was then called) was established in 1913 when the group came under the control of the Chief Secretary, and until 1940 activities were mainly centred on the acclimatisation programme which had begun in the 1870s. Trout were distributed from hatcheries at Ballarat and Geelong, a small government hatchery, and a number of small hatcheries operated by local angling clubs throughout the State. In 1933 a trout licence was introduced at a cost of 50c per season. In 1940 the branch consisted of eleven persons and the total budget was $21,000.

The appointment of the first biologist in 1941 resulted in bream fishery research at the Gippsland Lakes, leading to the first Victorian fisheries management regulations based on scientific observations. Information on trout food and growth was also collected and plans were formulated for a large trout hatchery and research station near Eildon ; in 1946 the first temporary buildings of the Snobs Creek Freshwater Fishery Research Station and Hatchery were erected. In 1947 the Port Phillip Bay fisheries were studied extensively with particular reference to snapper, and these studies foreshadowed a relatively short-term but lucrative scallop fishing industry. In 1948 research was expanded to cover mammals and birds, resulting in more knowledge and better management of quail, water-rats, koalas, and fish-eating birds. Enforcement was also increased by the appointment of six new inspectors in that year. By 1950 the staff of the branch had increased to 40 and the annual budget had reached a figure of $82,000 of which about $5,000 was spent on research. From 1950 to 1952 research was conducted into Murray River fish, trout, and pond culture, and in 1953 the need for research into game was recognised by the appointment of a biologist. Research into ducks resulted in the game licence being introduced in 1959, and in that year 34,863 shooters took out the $2 licence, a wildlife reserves system was established, and the programme was expanded with the appointment of the State Wildlife Reserves Investigation Committee. In 1973 a new

hunting licence system was introduced, with a basic Shooters Licence and Game Stamps for particular game species. It is anticipated that revenue from this licence system will raise some $300,000 per annum for the Wildlife Management Fund, to be used for wildlife conservation projects. State wildlife reserves continue to be established through consideration of regions of Victoria by the Land Conservation Council.

Following the appointment of a scientific superintendent at the Snobs Creek Station in 1952 several basic problems relating to the culture of trout under Australian conditions were overcome, and by 1956 large numbers of trout were being produced and released into streams and lakes. Further additions to the research staff, particularly on other wildlife, resulted in a new research wing being opened in 1959. By 1960 the total number of staff had risen to 121 and the annual budget was slightly in excess of $500,000 of which approximately $100,000 was devoted to research.

Since 1959 the Serendip Wildlife Research Station near Lara has been developed to demonstrate that farming and wildlife are not incompatible; research work at the Station includes the rehabilitation of declining species of birds, including waterfowl. In a report by the State Development Committee on the fishing industry in Victoria, major recommendations aimed at securing development of the fishing industry and led to the creation of the Commercial Fisheries Council in 1961.

There has been increasing interest in studies of the total environment since 1962, and this broad ecological approach provided the basis for the beginning of the Port Phillip Bay Environmental Study in 1968. The programme, undertaken by the Marine Pollution Section in co-operation with the Melbourne and Metropolitan Board of Works and the universities, is to establish the ecological status quo of Port Phillip Bay so that a sound scientific basis can be developed for the long-term management of the Bay. The results of the first stage of the Environmental Study have been assessed in a major publication entitled *Environmental Study of Port Phillip Bay, Report on Phase I 1968–1971.* (See also pages 48–50.)

The second major environmental study being undertaken by the Section is the marine biological component of the Western Port Bay Environmental Study (see also pages 50–1). This commenced in 1972 and a Phase I report was proposed for publication in early 1975. A third investigation currently in progress is designed to elucidate the effects of the additions of large amounts of cooling water to the marine environment. The Heated Effluent Study is financed by the State Electricity Commission and the Victorian Government with the initial phase of the work centred on the proposed Newport power station, but with sampling sites in the wider area of Port Phillip and in Western Port.

The Marine Pollution Section has eighteen scientific officers and some 45 support staff. At the beginning of 1973 the total staff was over 250 and about half of the annual operating budget of approximately $1.8m was devoted to research. A new and spacious research facility, the Arthur Rylah Institute for Environmental Research, was opened at Heidelberg in 1970.

Concurrently with the amending of the Act it was recognised that some heavily fished and economically important species of limited potential, namely rock lobster, abalone, and scallop needed protection against uncontrolled exploitation stimulated by increasing export demand. A

"limited entry" policy was consequently adopted, supported by legislation, which sought to hold the fishing effort directed towards rock lobster, abalone, and scallop at the 1967 level until research could establish the optimum degree of exploitation desirable. Control over effort in the abalone fishery was achieved by limiting the number of divers and in the case of rock lobster and scallop fisheres by limiting the number of fishing vessels licensed to fish for those species.

In January 1973 the Ministry for Conservation was set up and Fisheries and Wildlife was transferred from the Chief Secretary's Department to become a Division of the new Ministry for Conservation.

Victorian marine fisheries development

The existence of stocks of many marine species which are currently under-exploited in Victoria has been known for many years. However, during the early growth of the rock lobster, shark, and barracouta fisheries—and more recently the scallop and abalone fisheries—there was little incentive to explore the commercial potential of these under-exploited stocks. In 1973, however, the major fisheries were approaching their maximum production levels and the industry became aware of the need to diversify its activities by developing new fisheries and expanding existing minor fisheries. The statutory restrictions imposed on school shark production in 1972 because of high mercury content highlighted this need and accelerated fisheries development by the Victorian and Australian Governments and by fishermen themselves.

The fishing industry therefore endorsed a comprehensive programme to investigate the potential of several new fisheries. This programme, designed and conducted by the Fisheries and Wildlife Division, was financed jointly by the Victorian and Australian Governments at a total cost of $240,000. Sixteen shark-fishing boats were chartered for periods of between twelve and forty-eight weeks and fitted out for exploratory fishing.

Four vessels were engaged in drop-lining for trevalla and other deep-sea fish on the edge of the continental shelf off eastern and western Victoria. Two other vessels fitted with experimental gill nets operated from Port Fairy and Lakes Entrance to determine whether this gear could be used at depths down to 550 metres and whether nets would capture these fish more efficiently and over a greater part of the year than drop-lines.

Three vessels were chartered and equipped for beam trawling in central Victorian coastal waters, and operated from Port Albert, Flinders, and Barwon Heads. Beam trawling is an ideal method for small boats working in shallow water and small open areas among scattered reefs; this project was of great interest to small-boat owners in this area.

One boat, operating from San Remo, was fitted out and chartered for stern trawling in Bass Strait, and another from Apollo Bay investigated the potential for Danish seining off western Victoria. A San Remo boat was also fitted with four automatic squid-fishing machines and high-powered lighting and fished in Victorian and Bass Strait waters for forty-eight weeks. Squid are known to be abundant in this region for part of the year. There was considerable local and overseas interest in the development of a squid fishery in Victoria and a Japanese company provided two squid-fishing advisers to accompany the chartered vessel for two months in 1973.

Two Port Fairy boats were engaged in a project to develop a trap for giant crabs which are caught incidentally in rock lobster pots over an extensive area off western Victoria. Fish trapping was investigated by two vessels from Lakes Entrance and Port Albert. This project was conducted during the summer of 1973–74 when stocks of snapper were present on reefs off eastern Victoria. Because rock lobster are likely to enter fishtraps, experimental trapping by individuals was closely controlled, while traps which do not catch or retain rock lobster were being developed.

A major developmental project, financed jointly from the Commonwealth Fisheries Development Trust Account and the Victorian Fisheries Research Fund, was concerned with pair trawling in Bass Strait. Two shark-fishing vessels were chartered to develop demersal and midwater trawling gear and methods suited to local species and conditions and to demonstrate these to the fishing industry. Exploratory purse seining was also conducted for tuna and jack-mackerel in Victorian and adjacent waters during 1973 and 1974. This project was conducted by a Victorian boat and was partly financed by the Australian Government.

The Lakes Entrance scallop fishery developed in 1970 when fishermen moved out of Port Phillip Bay after the decline of the scallop fishery in the Bay. In 1972 the Fisheries and Wildlife Division conducted a survey, financed by a grant from the Commonwealth Fisheries Development Trust Account, of the distribution and abundance of scallops off eastern Victoria.

Commercial fishermen also made significant progress in fisheries development. Fishing for southern calamary squid, using manual jig-lines, developed in 1973 and a few boats between San Remo and Apollo Bay fitted automatic squid-fishing machines to fish for both calamary and Gould's squid.

Two boats at San Remo were given experimental permits to use traps for snapper, leather jacket, and other reef fish ; rock crabs were also being caught in traps and sold locally. In 1972 western Victorian rock lobster fishermen began landing giant crabs for processing and were keen to develop crab fishing as an adjunct to the rock lobster fishery.

Boats at San Remo and Lakes Entrance were rigged for otter trawling and commenced fishing off eastern Victoria in 1973. Otter and pair trawling should enable major fisheries to develop on the known but unexploited trawl grounds in eastern Bass Strait and possibly off western Victoria.

Occasional catches of school prawns have been made off Lakes Entrance and early in 1973 small quantities were taken in makeshift trawl gear. Local vessels and a new fisheries research vessel investigated the potential of a seasonal prawn fishery off eastern Victoria. Divers were also issued with permits allowing them to collect sea urchins and periwinkles, both of which are known to be abundant along parts of Victoria's coast. If a market could be developed then a fishery for these species should become established.

As well as conducting exploratory and experimental fishing, the Fisheries and Wildlife Division acts in an advisory capacity and has demonstrated and lent fishing gear to fishermen. The new fisheries research vessel, commissioned late in 1974, will greatly increase the Division's capacity to promote fisheries development.

Fisheries statistics

The statistics of production shown in the following tables are in terms of live weight for fish, crustaceans, and molluscs. In interpreting fisheries statistics, allowance should be made for the incomplete coverage. Returns are collected from licensed professional fishermen only, and as a result the published totals fall short of total fish production to the extent of the catch by amateur fishermen, the commercial catch by persons not licensed as professional fishermen, and unrecorded catch by professional fishermen.

The following table shows certain particulars about the fishing industry in Victoria for the years 1968–69 to 1972–73 :

VICTORIA—FISHERIES : MEN, BOATS, AND EQUIPMENT

Year	Registered crew members	Boats registered		Value of nets and other equipment
		Number	Value	
			$'000	$'000
1968–69	1,571	871	5,363	1,047
1969–70	1,429	795	4,966	944
1970–71	1,504	815	5,862	1,174
1971–72	1,534	808	6,237	1,329
1972–73	1,573	806	7,090	1,390

The following table shows the catch of fish, crustaceans, and molluscs for the years 1968–69 to 1972–73 landed at Victorian ports irrespective of the waters in which they were caught. Also included are fish, etc., landed by Victorian fishermen in South Australia.

VICTORIA—FISHERIES : QUANTITY AND GROSS VALUE OF CATCH

Year	Fish (*a*)		Crustaceans		Molluscs		Total	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
	tonnes	$'000	tonnes	$'000	tonnes	$'000	tonnes	$'000
1968–69	10,690	2,775	719	1,458	7,270	1,699	18,679	5,932
1969–70	15,983	3,396	812	1,502	4,409	1,081	21,204	5,979
1970–71	14,510	3,277	780	1,719	7,007	2,314	22,297	7,310
1971–72	15,893	3,335	799	1,970	10,416	4,201	27,108	9,506
1972–73	10,768	3,306	859	2,093	14,380	6,072	26,007	11,471

(*a*) Includes freshwater.

Further references, 1961–1974 ; Wildlife in relation to other natural resources, 1962 ; Introduced fish, 1963 ; Commercial fisheries, 1964 ; European carp, 1964 ; Freshwater research, 1965; Marine fisheries, 1966; State wildlife reserves system, 1966; Scallop fishery, 1967; Serendip Wildlife Research Station, 1968; Tower Hill State Game Reserve, 1969 ; Rehabilitation of species, Arthur Rylah Fish and Wildlife Research Institute, 1970 ; Economic aspects, 1971 ; Arthur Rylah Institute for Environmental Research, 1972 ; Marine pollution studies, 1974