

The introduction of limited entry

The New Zealand rock lobster fishery

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The author describes the implementation of a controlled or limited entry fishery for New Zealand rock lobsters. The background to the implementation of limited entry is described and the decrease in annual landings per vessel in the period 1955-77 is pointed out. The New Zealand licensing system is outlined, attention being paid to continuous and seasonal licences, allocation of licences, controlled fishing areas, and fishing methods and gear restrictions. The number of rock lobster vessels decreased from 1574 in 1979 to 970 after the initial round of licensing.

Keywords: Fisheries management; Rock lobsters; New Zealand

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The New Zealand rock lobster fishery is widespread, extending south from Northland to the Snares Islands and east to the Chatham Islands (Figure 1). The main fishing areas are the north and east coasts of the North Island, the east, south, and south-west coasts of the South Island (including the waters around Steward Island), and the Chatham Islands.

There are two rock lobster species in New Zealand: *Jasus edwardsii*, the red or spiny rock lobster, and *Jasus verreauxi*, the green or pack-horse rock lobster. *J. edwardsii* is the most abundant species and accounts for at least 95% of the total rock lobster landings.

The rock lobster fishery has been and still is New Zealand's single most important domestic fishery in terms of the number of vessels and fishermen employed and the value of landings and exports.¹ The New Zealand Fishing Industry Board (FIB)² estimated that in 1979 about 900 out of the total of 1 500 full-time fishing vessels and about 1640 out of the total of 3050 full-time fishermen were employed in the rock lobster fishery. Furthermore, in 1979 rock lobsters accounted for NZ\$21 million (32%) of the total landed value of all fish species of NZ\$66.5 million, and NZ\$27 million (27%) of the export value for all fish products of NZ\$100 million.

Entry into the New Zealand rock lobster fishery was limited during 1980-81. This article describes the implementation of the controlled or limited entry fishery and some of the events leading up to control of the fishery.

Background

Rock lobster landings from the North and South Islands increased rapidly during the late 1940s and early 1950s as export markets (primarily in the USA) developed and the fishery expanded (Figure 2).³ Landings peaked in 1955, declined during the early 1960s, increased again to reach a lower peak in 1965, and then declined during the 1970s. The number of registered rock lobster vessels increased over the entire period, which resulted in a decrease in the average annual landings per vessel from a high of 15.3 tonnes in 1955 to a low of 1.8 tonnes in 1977.

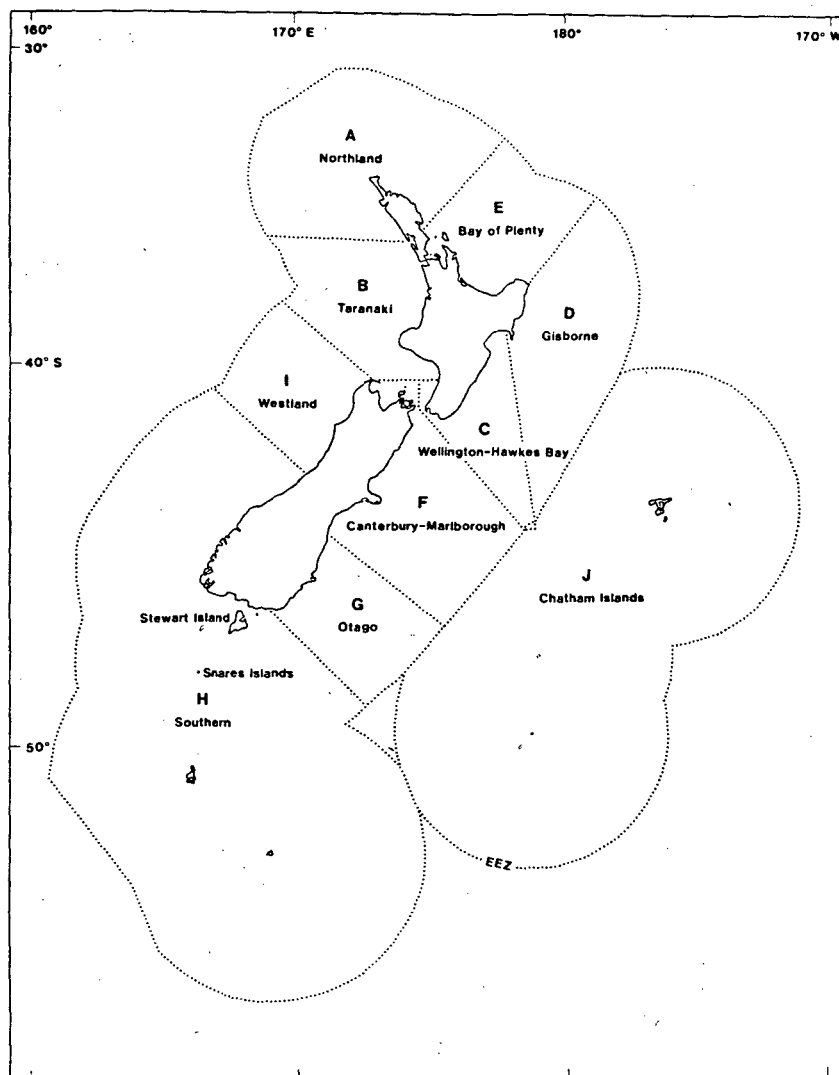


Figure 1. Map of New Zealand showing the controlled rock lobster fisheries.

¹The domestic market for rock lobsters in New Zealand is small, with approximately 98% of the rock lobsters landed being exported.

²The New Zealand Fishing Industry Board is a statutory body whose main function is to promote the New Zealand fishing industry. Its staff includes economists, accountants, gear technologists, food technologists, etc. Its operations are funded by levies on fish products paid by industry and by government grants.

³Taken from J.H. Annala, 'The biology of and fishery for New Zealand rock lobsters', *Fisheries Research Division Occasional Publication No 42*, in press, to be published by the New Zealand Ministry of Agriculture and Fisheries, Wellington.

⁴Before the introduction of limited entry the main regulations governing the rock lobster fishery were minimum legal sizes; a prohibition on the taking of berried females; a requirement for the placement of escape gaps in pots to allow the escape of under-

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The commercial rock lobster fishery at the Chatham Islands did not begin until 1965, when one vessel landed 2 tonnes (Figure 2). The fishery developed rapidly, with landings reaching a peak of nearly 6 000 tonnes in 1968 and the number of vessels a maximum of 186 in 1969. Landings and vessel numbers declined rapidly thereafter, and since 1974 landings have fluctuated between 300–400 tonnes per year and the number of vessels from 45 to 65. Average annual landings per vessel peaked in 1967 at 56.1 tonnes and then decreased to a low of 4.5 tonnes in 1978.

These declines in total landings and landings per vessel prompted concern about overfishing and the possible depletion of rock lobster stocks.⁴ There is no evidence available to suggest that breeding stocks have been adversely affected, resulting in recruitment overfishing. However, because of the long time required for lobsters to grow to the minimum legal size,⁵ any adverse effects on recruitment to the legal size stock would not become apparent for a number of years. It does appear that growth overfishing is occurring and that overall yields from the fishery could be increased by a reduction in effort.⁶

The New Zealand Federation of Commercial Fishermen⁷ began advocating the introduction of limited entry into the rock lobster fishery

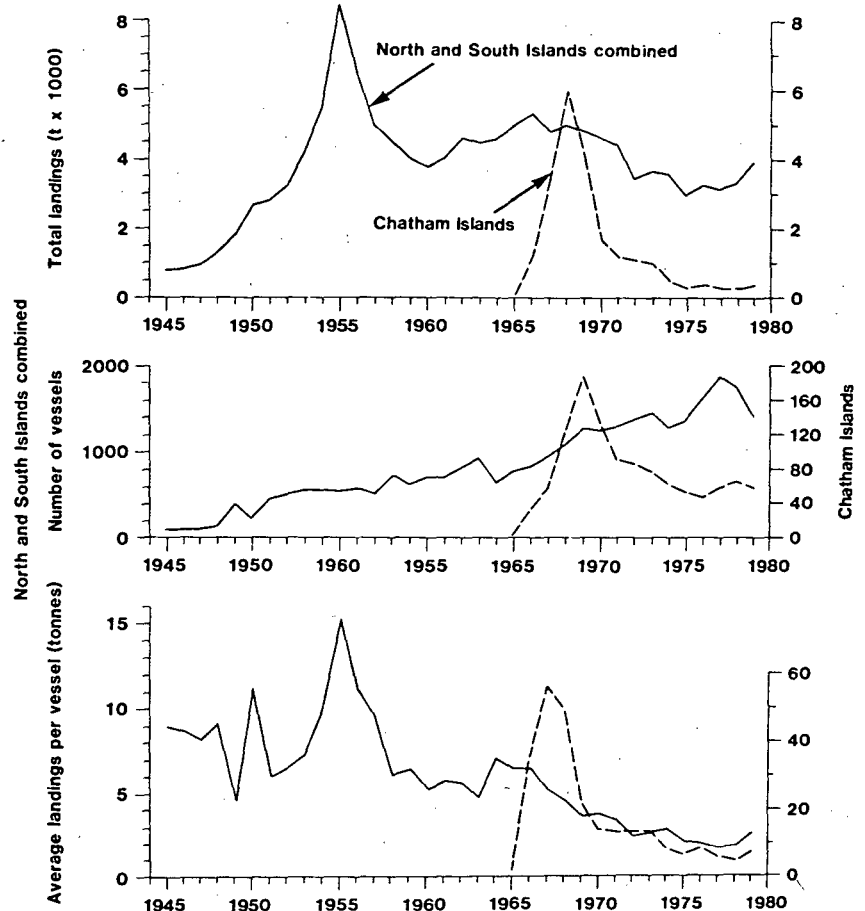


Figure 2. Total landings^a and average landings per vessel and number of registered rock lobster vessels for the North and South Islands combined and the Chatham Islands (1945–79).

^aWhole weight in tonnes of *Jasus edwardsii* and *Jasus verreauxi* combined.

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sized animals; a small number of closed areas; and a short closed season on commercial diving. There were no controls on effort – eg through pot limits, quotas, gear restrictions etc. Rock lobster fishing permits were required of all commercial rock lobster fishermen. However, there were few restrictions on the issue of permits, and they were readily available to most applicants.

⁵Estimates of the time required to grow to the minimum legal size from the time of larval settlement vary from 5 to 12 years, depending on sex and area.

⁶See J.H. Annala, *op cit*, Ref 3; also S.B. Salla, J.H. Annala, J.L. McKoy, and J.D. Booth, 'Application of yield models to the New Zealand rock lobster fishery', *New Zealand Journal of Marine and Freshwater Research*, Vol 13, No 1, 1979, pp 1–11.

⁷The New Zealand Federation of Commercial Fishermen is the main organization representing the interests of commercial rock lobster fishermen. It is composed both of local fishermen's associations and individual members. However, some local associations do not belong to the federation, and they independently represent their members' interests.

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during the early 1970s. Its position was supported by a number of individuals and other organizations in the fishing industry, the FIB and individuals within the Fisheries Divisions of the Ministry of Agriculture and Fisheries (MAF).⁸ Supporters of limited entry recognized the importance of the rock lobster fishery in terms of the number of fishermen and vessels employed; as an earner of export dollars; and as the fishery in which many New Zealanders begin commercial fishing.⁹ They also agreed that further increases in the number of fishermen and fishing effort should be prevented in order to ensure continuing yields from the fishery and the maintenance of the economic well-being of the industry. The steady increase in the number of fishermen, vessels, and pots during the 1960s and early 1970s resulted in the erosion of individual incomes and increased gear conflicts.

In 1977 the Fisheries Amendment Act 1977 (commonly referred to as the 'Controlled Fisheries Act') was passed by the New Zealand Parliament and became Part III of the Fisheries Act 1908. This new act established the mechanisms by which a controlled fishery could be declared and administered. Following its passage, the first step in the chain of events leading to the control of the rock lobster fishery occurred on 22 December 1977 when the Minister of Fisheries declared a moratorium on the issue of any further permits for rock lobster fishing.

In 1978 a planning committee, which included representatives from the Fisheries Management Division (FMD), the Fisheries Research Division (FRD), the Economics Division of MAF and the FIB, was formed. This

committee conducted 40 public meetings between September 1978 and May 1979 in the major rock lobster ports throughout New Zealand. The aims of these meetings were to: (a) discuss the provisions of the Controlled Fisheries Act; (b) discuss the implementation of a controlled fishery for rock lobsters; and (c) solicit the opinions of those in attendance concerning the management of the fishery. After the meetings in each area the FIB sent out a questionnaire¹⁰ to all registered rock lobster fishermen which asked for details about the vessels, gear and fishing methods used, and earnings from the fishery. The questionnaire also sought opinions on specific management issues.

As a result of the opinions expressed at these meetings and on the questionnaire, the Minister of Fisheries declared a controlled fishery for rock lobsters and on 25 January 1980 issued a 'Policy Statement for the Rock Lobster Controlled Fisheries'.¹¹ The policy statement was primarily concerned with the mechanics of implementing limited entry and the short-term management of the fishery. However, it also summarized some of the background information used in the formulation of policy and discussed some of the reasons why certain policy decisions were made. An important principle stated in the document, and one which governed all management decisions during the initial control of the fishery, was the desire to cause the minimum possible disruption to traditional fishing practices.

Characteristics of the controlled fishery

Fisheries Licensing Authority

The Controlled Fisheries Act established the Fisheries Licensing Authority (FLA) which consists of three members, one of whom is appointed after consultation with FIB. The principal functions of the FLA are to evaluate applications for licences to fish in a controlled fishery, and to grant, renew, revoke, or amend such licences.

The FLA must consider the following matters when evaluating licence applications: the extent to which the grant of a licence is necessary or desirable in the controlled fishery; any policy approved by the Minister of Fisheries for the conservation of any species of fish and/or the proper management of the fishery; the desirability of providing and maintaining a reasonable standard of living for fishermen within the controlled fishery; the desirability of giving preference to fishermen already engaged in the fishing industry and to communities within the area of the controlled fishery; the financial ability of the applicant to fish in the manner proposed in the application; and the boat(s) and fishing devices proposed.

Licence specifications

Licences are not transferable and are held by individuals or companies instead of being attached to vessels.¹² There are two types of controlled fishery licences:

- Continuous licences. These authorize fishing throughout the year. An applicant for a continuous licence must derive at least 80% of his earned income from fishing or fishing-related activity or satisfy the FLA that he intends to do so. Continuous licences are valid for more than one year (three to four years in the case of the rock lobster

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⁸There are two Fisheries Divisions within the Ministry of Agriculture and Fisheries (MAF). The Fisheries Management Division (FMD) is concerned with administration, legislation, enforcement, and management, while the Fisheries Research Division (FRD) is concerned with biological and fishery research.

⁹New Zealand's domestic fleet is primarily a small boat fleet, and many fishermen begin their careers by rock lobster fishing on these small boats. Even after purchasing larger vessels and/or diversifying their fishing operations, many fishermen continue to supplement their incomes by fishing for rock lobsters.

¹⁰The replies to the questionnaire are summarized in J.H. Annala, *op cit*, Ref 3, Appendix 1.

¹¹The full text of the policy statement is found in *ibid*, Appendix IV.

¹²The number of licences issued does not necessarily equal the number of licensed vessels, as an individual or company holding a licence may be authorized to fish more than one vessel. However, about 95% of the rock lobster vessels are owner-operated, and in most areas the number of licences equals the number of vessels. The notable exceptions are in the Otago and Southern fisheries where there are a number of companies licensed to fish more than one vessel.

fishery) from the date of issue, but may be reviewed by the FLA at any time.

- Seasonal licences. These authorize fishing during the periods specified in the licence. An applicant for a seasonal licence must satisfy the FLA that he intends to fish in the controlled fishery during the specified period. Seasonal licences are valid only for the period issued, and must be applied for annually.

All applicants for rock lobster licences must provide the following information: the class of licence applied for (continuous or seasonal); the location of the controlled fishery; details of the boat(s) and any gear and equipment to be used in the controlled fishery; the names and qualifications of any masters who will have command of the boat(s) to be used; details of any convictions within the past five years for any offence punishable by imprisonment or for any offence against the act; history of involvement in the rock lobster fishery showing catch levels for the past five seasons and including copies of fishing return forms for the last 12 months; an operating statement for the vessel for the last two seasons; and details of other sources of income.

Allocation of licences

In granting continuous licences, preference is given to fishermen with a genuine and long-term commitment, not only to the rock lobster fishery, but to the fishing industry generally. In certain areas many individuals have a genuine commitment to the rock lobster fishery, and yet because of circumstances beyond their control (such as marginally economic fishing conditions) earn less than 80% of their income from fishing. These individuals have been issued with seasonal licences if they were otherwise eligible. However, applicants with full-time employment outside the fishing industry have been denied a licence unless they could demonstrate a genuine, long-term commitment to the fishery.

If conditions in a controlled fishery materially change, then all licences for that fishery may be reviewed by the FLA at any time. In addition, the fishing activity of an individual licensee may be reviewed by the FLA to determine if that activity is being conducted in conformity with the licence. In both cases, the FLA may revoke, suspend, or alter the terms and conditions of the licence(s).

Controlled fishery areas

The rock lobster fishery was divided into ten separate controlled fisheries (see Figure 1). The fishery is geographically widespread and many areas have different management measures and unique biological and fishery features. Moreover, the administrative problems would have been formidable if the entire rock lobster fishery had been declared one controlled fishery.

A controlled fishery licence is normally valid for only one fishery and separate licences are usually issued if a fisherman wishes to fish in more than one area. The most important consideration in setting the boundaries between fisheries was to avoid dividing particular fishing grounds into two or more areas. However, fishermen who demonstrated that the boundaries disrupted their traditional fishing practices were permitted to fish in more than one area.

All these factors help to explain why there are such large differences in the sizes and the number of licensed vessels in the fisheries. For example,

Southern, the largest fishery in terms of area and the number of licensed vessels (Table 1), is the only area where fishermen are allowed to tail their catch at sea.¹³ Moreover, many fishermen have traditionally ranged throughout the entire Southern area during any given season and have not restricted their fishing activity to small, discrete areas.

Fishing methods and gear restriction

The only methods permitted for taking rock lobsters are rock lobster potting, which accounts for at least 98% of the landings, and free or snorkel diving (ie hand-picking). Pots having more than one chamber ('kitchen-parlour' pots) are prohibited because of their ability to continue 'ghost-fishing' if they are lost. Pot limits have not been set because of lack of the information necessary to determine an equitable means of pot allocation.

Liaison committees

Each of the ten controlled fisheries has its own liaison committee organized by the FIB. These committees are composed of representatives of fishermen's and processor/wholesaler organizations, with MAF and FIB personnel acting as advisers. Their main function is to provide industry input into the management of the fishery in each area. During the initial licensing of each fishery, the FLA co-opted a member of the local committee to aid in their deliberations. A national advisory committee has also been formed, and is composed of representatives from each of the ten area committees.

Implementation

The national policy statement set out an approximate timetable for the control of the fishery. The first area (Gisborne) was controlled on 14 April 1980 and the last (Chatham Islands) on 5 June 1981 (Table 1). Each controlled fishery has its own policy document based on the national policy statement but taking into account local conditions. The criteria specified in both policies were used by the FLA during its licensing deliberations.

¹³Fishermen in this area are allowed to separate the tails of rock lobsters from the carapaces and freeze the tails on board their vessels while at sea. This area is remote, with few port facilities, and fishermen may not make port calls for periods ranging from a few days to a few months. Fishermen in the rest of New Zealand are required to land rock lobsters ashore whole and alive before they are processed.

The FLA called for licence applications for each controlled fishery a few months before the implementation date. Provisions in the act give all applicants the opportunity to appear in person before the FLA to present their case. However, because of the large number of applicants and the tight schedule for the control of the fisheries, licences were granted

Table 1. New Zealand's ten controlled rock lobster fisheries.

Controlled fishery	Implementation	Maximum number of licensed vessels	Recommended number of licensed vessels	Number of vessels licensed
Gisborne	14 April 1980	130	85	96
Otago	15 May 1980	150	100	108
Southern	30 June 1980	340	230	317
Wellington-Hawkes Bay	15 August 1980	154	75	101
Canterbury-Marlborough	7 October 1980	238	75	106
Bay of Plenty	30 November 1980	141	50	107
Northland	7 February 1981	84	20	41
Taranaki	16 March 1981	34	8	19
Westland	30 April 1981	30	10	14
Chatham Islands	5 June 1981	62	36	61
Totals		1363	689	970

without a hearing to all applicants who obviously met the stated criteria. In the case of applicants who did not obviously meet the criteria, or from whom the FLA requested additional information to support their application, hearings were held at one or more locations in the area of the controlled fishery.

In each area policy document the minister specified the maximum number of vessels which could be licensed and recommended the number of vessels which should be licensed (Table 1). The maximum number was usually the number of commercial rock lobster fishing permits issued in the area of the fishery during the year before the control date. All rock lobster permit holders were regarded as potential participants in the fishery, and a lower maximum number may have arbitrarily excluded some individuals and usurped the licence allocation powers of the FLA. The recommended number was equal to an estimate of the number of vessels obtaining all of their income from rock lobster fishing that a fishery could support.¹⁴

The number of vessels licensed by the FLA was always less than the maximum number but more than the recommended number. However, not all the licensed vessels obtain all of their fishing income from rock lobsters, so the number licensed is closer to the recommended number than the figures suggest. During the initial round of licensing, 970 vessels were licensed in the entire fishery, a reduction of about 38% from the 1 574 vessels permitted to fish in 1979.

During 1981 the Minister of Fisheries reduced the maximum number of vessels allowed in eight of the ten fisheries to the number initially licensed. This effectively limited entry, as an applicant can only enter a fishery if an existing licence holder surrenders his licence.¹⁵ The main aims of reducing the maximum numbers were to limit further increases in fishing effort and to prepare for a reduction in vessel numbers where such a reduction is necessary to maintain or increase yields and/or economic well-being. Since the initial round of licensing the number of licensed vessels has been further reduced by natural attrition. As of 1 June 1982 the number of vessels stood at 923.

Future directions

Now that entry into the rock lobster fishery has been limited, the next step is to plan for its long-term management. A discussion paper¹⁶ has been prepared which presents five objectives for the long-term management of the fishery and various options for meeting these objectives. The objectives are:

- (1) To prevent depletion of rock lobster stocks and protect sustainable yields from the fishery.
- (2) To ensure an adequate economic return from the fishery for the largest number of fishermen possible on a sustainable basis.
- (3) To reduce user group and gear conflicts in the fishery.
- (4) To acquire the biological, economic and social information needed to manage the fishery.
- (5) To consult the fishing industry about the management of the fishery through the area and national liaison committees.

The first objective is considered to be the most important. If the 'health' of the stock is not maintained, then the second and third objectives cannot be attained. The fourth and fifth objectives are concerned with,

¹⁴During 1979 the FIB conducted a cost and earnings survey of the rock lobster fleet, the results of which are summarized in J.H. Annala, *op cit*, Ref 3, Appendix II. For each controlled fishery the gross earnings required for the average vessel in the fleet to obtain an 'adequate' income were estimated. (An 'adequate' income was defined as being equal to the 1979 average wage plus the expected return on the equity in the business.) MAF estimated the sustainable weight yield from the fishery, and this figure was converted to a monetary yield by multiplying by the then current ex-vessel price for rock lobsters. The number of vessels obtaining all of their income from rock lobster fishing that a fishery could support was estimated by dividing the monetary yield estimate by the average gross earnings figure.

¹⁵When licences are surrendered, the Minister (after consultation with the local liaison committee) directs the FLA to either re-issue or retire the licence. Where the licence is re-issued, it goes to the most 'suitable' candidate. Guidelines have been chosen to determine the most 'suitable' candidate, although no strict criteria (eg a points system) have been outlined. These guidelines state that preference should be given to applicants for continuous licences; to individuals with experience in the rock lobster fishery during at least two out of the past three fishing seasons; to qualified and committed young fishermen; to nominated relatives of previous licencees; and to individuals operating their own vessels.

¹⁶J.H. Annala, 'Management options for the controlled rock lobster fishery - A discussion paper', unpublished, May 1982.

gathering the information needed to determine if the first three objectives are being met.

A number of measures or regulations which can be used to manage the fishery and achieve the first three objectives have been identified. Measures for controlling fishing effort have been grouped into three categories:

- restrictions on inputs (limits to the number of fishermen, vessels, gear, days fished, etc);
- the imposition of a tax or royalty on the catch;
- restrictions on output by allocating quantitative rights or quotas among fishermen.

Other management concerns, such as the introduction of a buy-back scheme and transferability of licences, are also discussed.

This discussion paper is currently being circulated throughout the industry. Comments and recommendations have been invited from the area and national liaison committees and other interested parties. Management decisions will be made by MAF, but industry should be fully involved in the decision-making process. The existence of separate controlled fisheries will allow more flexibility in the management of the total fishery, as measures may be tailored to suit local conditions.