

NRLMG

**NATIONAL
ROCK
LOBSTER
MANAGEMENT GROUP**



**2006
Annual
Report**
to
**The Minister
of Fisheries
The Hon. Jim
Anderton**

New Zealand Rock Lobster Fisheries Management Areas

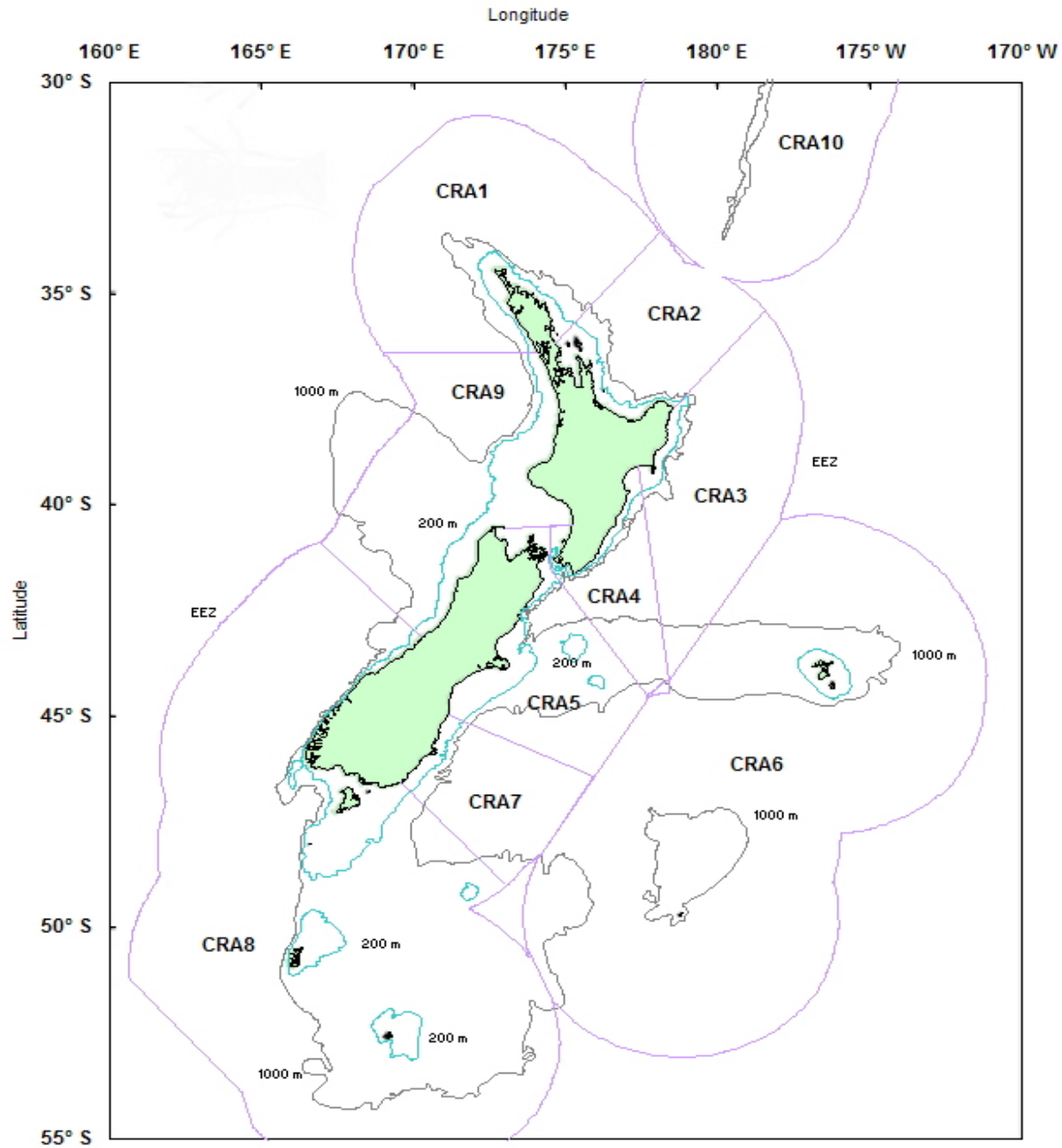


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1. SUMMARY OF RECOMMENDATIONS

1. This report from the National Rock Lobster Management Group (NRLMG) provides you with information on a wide range of matters. For your convenience the recommendations contained in the report are summarised as follows:
2. The NRLMG recommends that you:
 - a) **renew** your endorsement of the role and function of the NRLMG
3. The NRLMG stakeholder representatives recommend that you:
 - a) **agree** that the proposal to amend regulations to remove the closed season for commercial rock lobster fishing in CRA 7 should be progressed in the October view of Sustainability Measures and Other Management Controls.
 - b) **note** that MFish believes that the internal prioritisation process is the best method of determining which regulatory proposals should proceed to be included in Regulatory Review rounds.
4. The NRLMG recommends that you:
 - a) **note** that stakeholder group representatives support the proposal to implement telson clipping as being a simple, cost-effective management option for rock lobster fisheries that has considerable potential to isolate, identify and reduce black market activity.
 - b) **note** that recreational stakeholder representatives may progress the telson clipping proposal as part of the Recreational Regulation Review

INTRODUCTION TO THE 2006 ANNUAL REPORT

2. PURPOSE OF THE NRLMG REPORT

5. The purpose of the NRLMG report is to provide information on rock lobster fisheries and a comprehensive background to NRLMG advice and recommendations on sustainability measures and management controls for rock lobster fisheries to the Minister of Fisheries.
6. The report reviews a range of topics considered and activities undertaken by the NRLMG during 2006. The information contained in this report includes:
 - a) a description of New Zealand rock lobster fisheries;
 - b) the framework for managing rock lobster fisheries;
 - c) an explanation of management procedures and harvest control rules;
 - d) an outline of stock assessment issues.
7. This report also contains discussions related to:
 - a) the role and function of the NRLMG;
 - b) a proposal to remove the CRA 7 commercial closure period;
 - c) a proposal for catch identification of rock lobsters legitimately taken by the recreational fishing sector;
 - d) the operation of a multi-sector stakeholder group for the CRA 3 fishery;
8. A separate TAC and Sustainability advice paper would fulfil the role of the Ministry of Fisheries Initial Position Paper (IPP) and forms the basis of the Minister's statutory consultation with stakeholders on rock lobster issues.
9. There were no TAC and Sustainability issues on the NRLMG agenda during 2006 and therefore no supplementary advice paper or any requirement for statutory consultation.

3. ROCK LOBSTERS

10. The spiny rock lobster (*Jasus edwardsii*; koura) has always been important to Maori and for much of this century has supported increasingly important commercial and amateur fisheries. Rock lobsters support one of the country's oldest commercial fisheries, and are one of the seafood industry's top export earners.
11. The commercial fishery has developed through a number of phases as catches have increased with the development of export markets. Management of the resource has changed in response to the changing status of the stocks and the expectations of stakeholder groups.
12. Since 1990 the rock lobster fishery has been managed within the Quota Management System (QMS) and governed by a mix of output controls and fishery regulations, including the provision of a minimum legal size, a prohibition against taking berried females and soft-shelled animals, method restrictions, the requirement that all pots be fitted with escape gaps, and closed seasons in some areas.
13. The current management of the rock lobster fishery is focused on moving stocks to agreed biological reference points and maintaining them at this level or above, primarily through the adjustment of Total Allowable Catches (TACs).
14. The NRLMG is the primary source of advice to the Minister of Fisheries on rock lobster fisheries issues. The NRLMG comprises representatives of the customary Maori, amateur, commercial, environment and conservation interests, and delegated Ministry of Fisheries (MFish) personnel, NIWA, SeaFIC, and other consultant science advisors also assist the NRLMG.
15. Since 1996 the NRLMG has developed management procedures underpinned by "Decision Rules" by which to manage some rock lobster fisheries. These rules, as currently established, provide for TAC adjustments to be made if indicators of stock abundance show increases or decreases across a predetermined range.
16. The NRLMG was one of the principal outcomes of the Rock Lobster Steering Committee convened by the then Minister of Fisheries in 1990 and which published a Ten Year Management Plan for lobster fisheries. The NRLMG has produced an Annual Report and recommendations to various Ministers of Fisheries since 1992.

The Species

17. New Zealand's rock lobster species belong to the crustacean family *Palinuridae*. The predominant species, *Jasus edwardsii*, (spiny or red rock lobster) occurs from the Three Kings Islands in the north to the Auckland Islands in the south and east to the Chatham Islands. The main fishery areas are the east coasts of the North and South Islands, the south and south-west coast of the South Island, including Stewart Island, and the Chatham Islands. This species is found in New Zealand and southern Australia.
18. *Sagmariasus verreauxi* (Pawharu - green or packhorse rock lobster) is most abundant along the north and east coasts of the North Island from Cape Maria van Diemen to East Cape. The main fishery is in the northern part of this area. Some individuals are found as far south as Foveaux Strait, but there is no directed fishery for the species south of the Bay of Plenty.

Life cycle

19. Mating occurs in mature females that have recently moulted, although their shells need not be "soft" for mating to occur, a few hours to about five weeks after the female moult. Mating can take as little as 90 seconds, and egg laying occurs immediately afterwards. Fertilisation is external, by way of a spermatophoric mass deposited on the sternum of the female.
20. Most mature *J. edwardsii* females moult and mate some time between February and May. Females carrying eggs occur in greatest numbers from April to October, though a few are found during any month of the year. Females bear eggs only once each year and most mature females carry eggs during the egg-bearing season. Successful reproduction requires mature male and female lobsters of similar size.
21. The number of eggs carried by *J. edwardsii* depends on size, ranging from about 125,000 for a female of 95 mm carapace length (CL) to about 540,000 for one of 170 mm CL.
22. The size at which 50% of females are mature varies considerably for *J. edwardsii* throughout New Zealand, from 72 mm CL near Gisborne to 121 mm CL in eastern Foveaux Strait. This size appears inversely related to water temperature. No data are available from the Chatham Islands.

23. Size at 50% female maturity in most areas is less than the minimum legal size of 60 mm tail width (TW) (approximately 93 - 98 mm CL). Most females from these areas breed at least once before reaching the minimum legal size. However, from Banks Peninsula through western Foveaux Strait (CRA 7 and part of CRA 8), size at 50% maturity is greater than the minimum legal size. The effects of this are not known, but these areas have sustained high catches over time.
24. Most mature female *S. verreauxi* moult between July and November, bear eggs during late September to January, and hatch the eggs from December to January. The number of eggs carried by *S. verreauxi* ranges from about 375,000 for a female of 152 mm CL to 2,000,000 for one of 230 mm CL.
25. Rock lobsters of both species develop through a series of stages from egg to adult. Fertilised eggs are attached to pleopods (swimmerets) on the underside of the female's tail. The eggs develop for 3 to 6 months and hatch as small nauplisoma larvae. Within a few days these metamorphose into phyllosoma larvae, which develop through 11 stages during the 10 to 20 months they spend in the ocean. The last phyllosoma stage metamorphoses into the puerulus larva, a strong swimmer that returns to the coast and moults into the first juvenile stage if it finds suitable substrate.

Larval Distribution and Recruitment

26. An extensive distribution of phyllosoma and puerulus larvae of *J. edwardsii* has been observed in areas along the east coast of the North and South Islands, and the Tasman Sea, to areas outside the EEZ boundary. Information on larval settlement patterns is available from several parts of the country.
27. Most late-stage phyllosoma larvae occur beyond the edge of the continental shelf to 1100 km from the coast. Larvae undergo diurnal vertical migration, moving into the top 150 m of the water column at night and dispersing in deeper water during the day. It is possible that late stage phyllosoma larvae delay metamorphosis to the puerulus stage, perhaps until they encounter an environmental cue such as lower salinity shelf water.
28. Puerulus larvae are most common in the plankton within the shelf edge. They are near the sea bottom during the day and rise in the water column at night. They have been observed to settle on the sea bed at depths to 10 m.
29. The puerulus settlement season varies with locality. Along the east coast of Northland and the Bay of Plenty the main settlement season is probably summer;

from East Cape through Cook Strait settlement occurs in both summer and winter. Autumn appears to be the main settlement period in the north-east of the South Island; winter and spring are the main seasons south of Banks Peninsula; year-round settlement is possible along the west coast of the South Island.

30. The highest larval settlements have been seen along the east coast of the North Island south of Matakaoa Point, the northeast and south coasts of the South Island and the north Taranaki coast.
31. Because of the long larval life, the origins of larvae are difficult to determine. Larvae hatched in one area may be retained in that area by local eddy systems carried to other areas by currents, or lost to New Zealand entirely. Eddy systems have been identified off the east coast North Island that may help to retain larvae within this area. However, for most areas larvae may originate a considerable distance from the settlement site.
32. The only known large breeding population of *S. verreauxi* is near Cape Reinga. The larval life is probably similar to that of *J. edwardsii*. The developing phyllosoma larvae are probably carried by the East Auckland Current towards the Bay of Plenty. The puerulus larvae probably settle out of the plankton at various sites along this coast. A few larvae may be transported south of East Cape, but most either settle out before reaching this area or are lost to the north-east, towards the Kermadec Trench.

Age and Growth

33. Rock lobsters, as do all crustaceans, increase in size by moulting. Growth rate is a function of both moulting frequency and moult increment. Because rock lobsters lack structures that would allow them to be aged, growth has been estimated from size-frequency distributions and tagging experiments.
34. Estimates of the growth rates for small *J. edwardsii* are available from the Gisborne area and Stewart Island. Males and females in Gisborne both reach about 38 mm carapace length (CL) one year after settlement and about 58 mm CL after two years. At Stewart Island, after one, two and three years they have reached 33 mm, 52 mm, and 68 mm CL.
35. Growth rates of larger animals have been estimated for a number of areas. The estimates of growth per moult, moult frequency, and annual growth vary between areas and between the sexes for the same area. The estimates come from ongoing tag release and recapture studies across most rock lobster management areas.

36. In most areas moulting is seasonal, with immature and mature animals of both sexes having their own distinct periods, which may vary between areas. Smaller males (between about 70 mm and 80 mm CL) from most areas generally moult twice a year. Large males moult once each year; very large males may moult even less often.
37. Immature females usually moult twice a year until maturity, then annually. Where size at 50% maturity is large, some females may begin moulting once a year before maturity.
38. Information on the growth rate of *S. verreauxi* is limited mainly to animals between 120 mm and 159 mm CL. Males and females between 120 mm and 139 mm CL moult at least once a year, between July and November, and perhaps twice, with an increment of about 7 mm CL per moult. Animals between 140 mm and 159 mm CL moult once a year between July and November, with an average increment of about 6.8 mm and 6.0 mm CL for males and females respectively.

Movements

39. For management, the most important movements would be large-scale migrations or inshore-offshore movements. Extensive tagging of *J. edwardsii* has been conducted in many areas. In most areas fewer than 5% of the returns have moved more than 5 km. Such areas include Tauroa Point, Banks Peninsula, Gisborne, Wellington, and Fiordland.
40. Movement patterns in southern New Zealand appear to involve two groups of animals: “run” rock lobsters that migrate over long distances, and “resident” rock lobsters that do not. In most studies, only up to 4% tagged lobsters moved significantly from the release site. However, when “run” lobsters were tagged, between 27.6% and 38.6% recaptures showed long-distance movements.
41. The long-distance movements of *J. edwardsii* tagged in southern New Zealand tend to be directional: southward along the Otago coast and the east coast of Stewart Island, westward through Foveaux Strait and northward along the west coast of Stewart Island and the Fiordland coast, in opposition to the prevailing current systems. These movements also appear to be seasonal, usually occurring off the Otago coast and through Foveaux Strait from September through November and along the Fiordland coast during November through January. Most migrating females are immature, moving from Otago and Foveaux Strait, which have a large size at 50% maturity to Fiordland, with a smaller size at 50% maturity. These movements may be a “contranantant migration” in which animals migrate against the current that carries the larvae.

42. The long-distance movements of *S. verreauxi* in northern New Zealand also appear directional. All but two recaptures tagged at North Cape moved to the west or southwest, most to near Cape Reinga. Of the female recaptures, only 10% were mature when tagged, but 80% were mature when recaptured. Only 10% of the females tagged at North Cape had setae on the pleopods, but 80% had setae when recaptured. This may be another contranatal migration, with juveniles near North Cape moving towards Cape Reinga, where the only large breeding population of this species is known, at about the time of maturation.
43. There may also be a return movement towards the north against the prevailing current system along the east coast of the North Island by juvenile *S. verreauxi*. Most of the sublegal lobsters and immature females tagged between Bream Bay and Mahia moved north or west before recapture. Large numbers of sublegal animals are found on the east coast south of North Cape, but some legal-sized mature females are also found in this area. Thus juveniles from this area may also move towards Cape Reinga just before attaining sexual maturity.

Stock units and fisheries

44. The rock lobster fisheries extend from the Three Kings Islands in the north to the Snares Islands in the south, and to the Chatham Islands in the east. The main fishery is for *J. edwardsii* (CRA), which accounts for nearly all landings. There are currently ten quota management areas for CRA although one (CRA 10) is only an administrative designation and no fishing of any consequence is carried out there.
45. *S. verreauxi*; (PHC) is caught mainly in the north of the North Island and there is only one quota management area for all New Zealand waters.
46. Gel electrophoresis techniques have revealed no genetic differences between three samples of *J. edwardsii* collected from Gisborne, Wellington, and Stewart Island, suggesting that these samples were collected from the same stock.
47. Preliminary morphometric studies conducted on run and resident lobsters near Stewart Island show that the two groups can be distinguished on the basis of the telson length to carapace length ratio, but such differences may be environmentally induced.
48. The lack of genetic differences among areas, the long larval phase and long-distance movements of adults in some areas all suggest a single *J. edwardsii* stock around the mainland.

49. Recent stock assessments have addressed individual CRA areas (CRA 7 and CRA 8 in 2006; CRA 4 in 2003 and 2005; CRA 3 in 2001 and 2004; CRA 5 in 2003; CRA 1 and CRA 2 in 2002). For earlier assessments, the seven principle mainland areas were grouped on the basis of similarities in relation to size at maturity, the timing of biological cycles, and the perceived interchange between areas. CRA 7 and CRA 8 are designated the "NSS" sub-stock. CRA 1 and CRA 2 are called the "NSN", and CRA 3, CRA 4, and CRA 5 are called the "NSC".
50. Genetic and morphometric samples have not been collected at the Chatham Islands, and, because of their geographical isolation, the rock lobsters from this area are also treated as a separate stock for management purposes.
51. Genetic and morphometric samples have not been taken for *S. verreauxi*. Because of the limited distribution of mature females near Cape Reinga, and the highly directional movements of tagged animals to this area, the species is considered a single stock.

4. NRLMG BACKGROUND

52. In 1992, the then Minister of Fisheries, Hon D L Kidd, endorsed the establishment of a national group, the NRLMG, to revise and develop the Rock Lobster Management Plan devised by the Rock Lobster Steering Committee (RLSC) (1991) and asked sector groups to nominate representatives. The RLSC was established by the same Minister to develop a long-term management plan for the lobster fisheries that at that time were considered to be seriously depleted by overfishing. The NRLMG has since made thirteen annual reports, which contained recommendations for the sustainable management of these most important New Zealand inshore fisheries.

Role of the NRLMG

53. The NRLMG operates in accordance with standards and specifications drawn from an extensive review in 2001 of the role and objectives of the NRLMG in consultation with the Minister of Fisheries. The NRLMG and the Minister agreed:
- a) to maintain the NRLMG as the primary source of advice to the Minister of Fisheries.
 - b) to encourage and coordinate the development and implementation of Fishery Plans for rock lobster fisheries.
 - c) to act as a default regional planner for rock lobster research and management in circumstances where no Fishery Plan proposal was contemplated, or where a lack of organisation and coordination precludes any regional oversight by sector groups.
 - d) to retain a national coordinating body with well established and identifiable links to and from regional sector groups.
 - e) to coordinate and provide sector group input to research and information planning processes.
 - f) to coordinate and provide input to, and maintain an oversight of, the relevant Working Group processes and timetables.
 - g) to provide well informed, credible, and consistent research and management information and advice to sector groups, Government agencies, and Ministers.

Roles and responsibilities of members and advisers

54. Noting a preference for membership and participant numbers being kept at current levels with some flexibility accorded to need and circumstance, the NRLMG and the Minister also agreed the roles and responsibilities of the participating members and advisers as follows –
55. **Sector Representatives** – TOKM, NZ RLIC, NZRFC, ECO¹
- a) To provide consistent expertise, experience, knowledge, networking – to and from sector constituency. “It is important that each member represents the views of their constituent groups and relays discussions from the Group back to their constituents”... (Hon. Pete Hodgson, March 2001)
56. **MFish** – Fisheries Management, Compliance, Science
- a) To facilitate and coordinate information and advice to and from the NRLMG
 - b) To ensure consistent information and advice to MFish personnel and to tangata whenua.
 - c) To enable science (including stock assessment and biological), economic, social policy, and other advice deemed necessary by the NRLMG.
57. **Advisory members** – Stock Assessment, Biology and Behaviour, Economic, Social
- a) To maintain oversight of NRLMG deliberations and offer advice and guidance, including cautions, to assist the development and implementation of research and information plans, Fishery Plans, or regional harvest initiatives.
58. **Chairman**
- a) To facilitate NRLMG meetings and to oversee the development and delivery of the NRLMG Annual Report.

The NRLMG seeks technical advice from experts, and develops refinements and improvements to the management regimes currently in place for rock lobster fisheries. The NRLMG strives to provide quality advice to the Minister to assist in the statutory decisions on Total Allowable Catches (TACs), Total Allowable Commercial Catches (TACCs), and other management controls.

¹ Te Ohu Kaimoana; NZ Rock Lobster Industry Council; New Zealand Recreational Fishing Council; Environment and Conservation Organisations of New Zealand.

59. The NRLMG continues the important role of being a co-operative user group forum with specific focus on rock lobster fisheries issues. The NRLMG is perceived as a model for multi-sector management of fisheries in New Zealand. The NRLMG encourages co-operation between user groups at local and regional levels, and undertakes a co-ordinating role to ensure that the informed views of the represented sectors are incorporated into management and planning considerations.
60. The NRLMG has not only played a role in developing a significant level of consensus among user groups, which aids the decision making process, but also has encouraged the development of management initiatives throughout the country which have contributed to the improvement in rock lobster stocks over recent years.
61. Stock assessments since 1992 have tracked increasing abundance in most fisheries, and where stock rebuild has been less than optimum, management responses have been implemented which should ensure the sustainable utilisation of those fisheries within acceptable stock rebuild timeframes.
62. The NRLMG advises and informs regional stakeholder groups. This ensures that local issues are addressed within the context of the Fisheries Act and in a manner that is consistent with the overall harvest strategy for rock lobster fisheries.
63. The NRLMG continues to persevere with its efforts to formulate robust and enduring harvest strategies that will not require annual review, rather only fine-tuning when new information indicates that some adjustment is necessary. To that end, the NRLMG continues to develop and refine management procedures incorporating 'harvest control rules' which are designed to guide management actions.

2006 Work Programme

64. Over the past year the NRLMG convened on nine occasions to deliberate on a range of research, planning and management issues with the aim of confirming advice and recommendations for regulatory amendments to meet statutory timetables and to ensure the presentation of this annual report and TAC and Sustainability recommendations to the Minister of Fisheries by 14th December 2006.
65. In addition, some members of the NRLMG have attended and participated in the Rock Lobster Fisheries Assessment Working Group (RLFAWG) meetings held during 2006.

66. Also in 2006, the NRLMG again provided the core sector group participation in the annual Rock Lobster Research Planning Group process which culminates in the Research Co-ordinating Committee recommendations to the Minister of Fisheries in relation to required research services.
67. The NRLMG contributed to the development of management procedures and agreed biological reference points for incorporation into fisheries management decisions.

Attendance During 2006

<i>Representation</i>	<i>Meetings Attended</i>	<i>Apologies</i>
Chairman	7	2
Ministry of Fisheries	9	-
NZ Recreational Fishing Council	9	-
Te Ohu Kaimoana	9	-
Environment and Conservation	0	0
NZ Rock Lobster Industry Council	9	-
Science Advisors	9	-

Organisational Arrangements

68. Max Hetherington, a foundation member of the NRLMG, passed away in July 2006. Max was held in high regard and his important contribution to the NRLMG and his representation and advocacy on behalf of his constituency within the recreational fishing community of New Zealand was widely acknowledged and appreciated. In September the NZ RFC confirmed Bruce Carter, NZ Underwater Association, as a worthy replacement for Max Hetherington on the NRLMG.
69. Costs of participation in the NRLMG are borne by the representative organisations, and the NZ Rock Lobster Industry Council (NZ RLIC) supplies venues and facilities. The NZ RLIC and MFish share secretarial and administrative duties.

In Summary

70. The NRLMG **notes:**

- a) that whilst supporting and encouraging the development and implementation of Fishery Plans for rock lobster, the NRLMG will continue to operate the current management framework outlined in this document and will work within the roles and responsibilities confirmed in the most recent review;
- b) that previous Ministers have endorsed the NRLMG as the primary source of TAC, TACC and management advice for New Zealand rock lobster fisheries; and
- c) that previous Ministers have endorsed the NRLMG as an appropriate body to consult on any matters relevant to the management of rock lobster fisheries.

71. The NRLMG recommends that you:

- a) **renew** your endorsement of the role and function of the NRLMG as outlined.



Max Hetherington

19/05/1946 - 18/07/2006

NRLMG membership in 2006

Dr Kevin Stokes	<i>Chairman</i>
Dr Kevin Sullivan	<i>MFish</i>
Leigh Mitchell	<i>MFish</i>
Dave Wood	<i>MFish</i>
Alan Riwaka	<i>Te Ohu Kaimoana Trustees Ltd</i>
Stan Pardoe	<i>Te Ohu Kaimoana Trustees Ltd</i>
Keith Ingram	<i>NZ Recreational Fishing Council</i>
Max Hetherington	<i>NZ Recreational Fishing Council</i>
Bruce Carter	<i>NZ Recreational Fishing Council</i>
Malcolm Lawson	<i>NZ Rock Lobster Industry Council</i>
Daryl Sykes	<i>NZ Rock Lobster Industry Council</i>

Science Advisers to the Group

Dave Banks	<i>SeaFIC Science Group</i>
Vivian Haist	<i>Haist Consultancy</i>
Dr Paul Breen	<i>NIWA</i>
Paul Starr	<i>StarrFish</i>

Secretarial and Administrative Services

Helen Regan	<i>NZ Rock Lobster Industry Council</i>
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NRLMG STRATEGIC VISION

and

**FRAMEWORK FOR ROCK
LOBSTER FISHERIES**

5. STRATEGIC VISION

72. The NRLMG has developed a Strategic Vision for the NZ Rock Lobster Fisheries. The vision is consistent with the Fisheries Act 1996, enhances an agreed management framework, and provides a basis for consideration of short, medium, and long term research and management issues such as:
- a) rock lobster stocks will be managed effectively (including cost effectively) to maintain the status of the stocks at or above the agreed biological reference points, consistent with the Minister's legislative responsibility;
 - b) fisheries will be managed using a property rights/ Quota Management System (QMS) regime with the principal management actions exerted via output controls (TACs) while a range of input controls will still apply where this proves appropriate to individual situations;
 - c) the strategy will provide for management flexibility, whilst ensuring sustainability, to enable all sector groups to maximise their benefits within a shared fishery;
 - d) management of the fisheries will take place within a clear policy environment, e.g., there will be clear, explicit, and agreed rules to describe property rights in the fisheries and the allocation between user group sectors. In addition, there will be explicit and agreed decision rules to prescribe management actions that result from monitoring and assessment of fisheries;
 - e) reliable and cost effective means to monitor and assess fish stocks will be in place. The catches taken and effort deployed by all extractive user groups will be effectively quantified, documented, and managed in accordance with the exercise of rights;
 - f) adverse environmental effects of fishing activities will be averted or minimised;
 - g) aquaculture of rock lobsters will be a permissible activity, governed by policies which ensure sustainable use of the wild stock within a rights based framework;
 - h) a shift of management responsibility to user groups will be promoted within the Fishery Plan framework provided for in the 1996 Fisheries Act; and
 - i) collaborative/consultative national co-ordination of research and management recommendations and development of policy will continue within the NRLMG or similar organisation; and

- j) co-operative management initiatives, which may include the development of regional user groups and Fishery Plans, will be encouraged; and
- k) sustainable management and use of rock lobster fisheries will occur in an environment where the New Zealand public are well informed and educated on matters dealing with fisheries in general and rock lobster fisheries in particular.

6. FRAMEWORK FOR MANAGING ROCK LOBSTER FISHERIES

73. The framework for managing rock lobster and the attendant recommendations of the Group are consistent with expectations of a robust and enduring harvest strategy leading to a continuing sustainability of rock lobster stocks, and in the view of the Group are also consistent with the statutory obligations enshrined in the Fisheries Act 1996.

Goal

74. The rock lobster fisheries should be managed and be maintained at or above the assessed and agreed biological reference points, using a comprehensive approach that recognises a range of commercial, customary non-commercial, amateur and environmental concerns and values.

Strategies to Achieve Goal

75. The strategies will allow the population size to:
- a) increase in each fishing year that it is below the target in agreed management procedures; or
 - b) be maintained at or above that level.
76. The extent of change in population size that can be sought will be determined after consideration of:
- a) economic and social factors including:
 - i. the economic cost and benefits, social factors and rate of adjustment to the fishing industry,
 - ii. the availability of rock lobster to Maori and amateur fishing groups, and
 - iii. the economic return from the fishery; and
 - iv. biological and environmental factors including:

- v.* the uncertainty in the assessment of stock size and other biological parameters, and
 - vi.* the risk to the population; and
 - vii.* the timeframe over which the management options will have effect.
- 77. The strategies will identify the effects of fishing on the aquatic environment and provide for the implementation of measures to:
 - a) avoid, remedy, or mitigate any adverse effects of fishing on the aquatic environment;
 - b) maintain associated or dependent species above a level that ensures their long-term viability;
 - c) maintain the biological diversity of the aquatic environment; and
 - d) protect habitat of particular significance for fisheries management.

Implementing the Strategies

- 78. The tactics or actions developed to implement the strategies will:
 - a) be produced through a process that involves all sector groups, minimises conflicting views, and involves all participants in the group disclosing their positions on the issues considered in order to promote co-operation and encourage full and frank discussion;
 - b) be based on advice from scientists on the steps necessary to achieve the goal within various time frames;
 - c) consider available management options including but not limited to catch reductions, area closures, gear restrictions, enhancement, legal size changes, measures to maximise egg production, recruitment, and to minimise juvenile mortality;
 - d) promote and enable effective, including cost effective, compliance with fishery rules;
 - e) consider the costs and implications of management options including:
 - i.* the resources that are needed and currently available for research, compliance and administration;
 - ii.* the integrity of the research database;

- iii.* whether the management alternatives can be effectively implemented;
- iv.* how the impact of the management options are to be measured or estimated;
- v.* the impact of the management options on industry, customary non-commercial, and amateur fishers and the degree of their acceptance of the measures; and
- vi.* the impact on other fisheries and the aquatic environment.

- f) be based on the best available information;
- g) recognise any uncertainty in the available information and be precautionary when information is uncertain, unreliable, or inadequate; and
- h) not use the absence of, or any uncertainty in, any information as a reason for postponing or failing to take any measure to achieve the purpose of the Fisheries Act 1996.

- 79. The NRLMG will provide a timely annual report containing recommendations for management, research and compliance of rock lobster fisheries to the Minister.

Harvest Strategy

- 80. The NRLMG pursues a dynamic harvest strategy for rock lobster fisheries. It is willing to consider and accept TAC changes in two situations:
 - a) where stock modelling demonstrates that, after a TAC change, abundance is likely to move towards agreed biological reference points within an agreed period; and
 - b) where a TAC change is triggered by a fully tested and accepted management procedure (including a harvest control rule), such as the one described elsewhere in this report, designed either to rebuild a stock unit or to maintain the stock unit near an agreed biological reference point.

Assessment and Indicators

- 81. In accordance with the goal for managing rock lobster fisheries, stock assessment research will continue to be an important component of the management framework. The Rock Lobster Fisheries Assessment Working Group (RLFAWG) continues to refine and improve stock assessment techniques and to identify areas of uncertainty and information needs.

82. For a number of years, MFish has commissioned a major rock lobster stock assessment project incorporating extensive stock monitoring, data grooming and stock modelling, and a rock lobster recruitment project, based on monitoring puerulus settlement at selected sites around the New Zealand coast.
83. Since 1997 NZ RLIC has been contracted to provide stock monitoring and assessments in collaboration with NIWA, Trophic Research, StarrFish, Haist Consultancy and, for the first two periods, the SeaFIC Science Group. Within the overall research programme, the NZ RLIC has contracted NIWA, Lat37 Ltd, and Trophic Research to undertake catch sampling and data entry, and to construct and maintain databases for the tagging projects. NIWA holds the MFish contract for the rock lobster puerulus settlement project.
84. Intensive catch sampling (including logbooks) and tagging are undertaken to MFish agreed standards and specifications.
85. Vessel logbook data are now routinely incorporated into the stock assessment process. Logbook programmes supervised by technicians are well established in CRA 2, CRA 5, and CRA 8.
86. NIWA, StarrFish and Haist Consultancy scientists continue to refine and improve stock assessment methods with routine oversight from the RLFAWG chaired by MFish Science Group. The SeaFIC Science Group provides a useful peer review of the process.
87. An independent peer review of rock lobster stock assessment methodology commissioned by MFish in 2001 concluded that key aspects of the current assessment model represent state-of-the-art methodology and are appropriate for assessments of the rock lobster stocks. Another independent review is scheduled for February/March 2007.

Management Procedures and Decision Rules

88. The NRLMG has established two simple decision rules for the NSN and NSC substocks. Each year, the rule for each substock compares the current estimate of standardised CPUE with the index from 1992-93. The two estimates are considered significantly different if their 1-standard-error bars do not overlap. Under these rules, TAC changes are considered only when the two CPUE estimates differ significantly.

89. For the NSS substock (CRA 7 and CRA 8) the NRLMG recommended, and in 2002 the Minister accepted, a more complex and extensively tested decision rule, called a management procedure. This specifies the data to be used and how it is to be analysed; specifies a new CPUE target for the fishery; specifies how the rule is “triggered”, and specifies how the TACC is modified when the rule is triggered. This procedure, designed to rebuild the CRA 8 fishstock to the target level, is scheduled to be reviewed in 2007. It is accepted that CRA 7 may develop and test an alternative management procedure for their area, leaving this procedure to operate for CRA 8 only.
90. Management procedures designed to maintain the stock near agreed target levels were tested under the stock assessment research contract (CRA2003-01) in 2006. These were designed around a decision rule matrix that enables stakeholders to consider biological, economic and other outcomes, and their associated risks, when choosing fishery goals.

Tactics

91. There are a number of mechanisms by which total removals from the fishery can be adjusted if circumstances dictate. These are:
- a) adjusting the TAC;
 - b) changes in minimum legal size (MLS) limits;
 - c) adjustments to escapement provisions;
 - d) closed seasons;
 - e) fishing method restrictions;
 - f) effort controls;
 - g) closed areas;
 - h) adjustments to commercial quotas and amateur bag limits;
 - i) limitations on the numbers of participants in the fishery;
 - j) improved handling to reduce sub-legal mortality;
 - k) protection of soft-shelled lobsters and berried females.
 - l) effective enforcement which provides a greater deterrent to illegal fishing;

- m) effective compliance services, such as education, which encourages voluntary compliance; and,
- n) maximised voluntary compliance with fisheries laws by fishers.

**MATTERS CONSIDERED BY NRLMG
IN 2006**

7. MATTERS CONSIDERED IN 2006

92. The NRLMG has given consideration to a number of rock lobster fisheries management issues during 2006. The most important of these are:
- a) research programme activities, including the 2006 stock assessment outcome for CRA 7 and CRA 8;
 - b) proposed changes to regulations to remove the commercial closed season in CRA 7 (Otago rock lobster fishery);
 - c) proposed implementation of a catch identification initiative previously recommended by the NRLMG;
 - d) the ongoing CRA 3 User Group forum;
93. In 2006 a primary function of the NRLMG was to conduct Rock Lobster Research Planning, and in that role considered the full range research activities for the period 2006 to 2008 considered relevant to the agreed plan and strategic vision for rock lobster fisheries.

8. RESEARCH ACTIVITIES

2006 Rock Lobster Research Programme

94. In 2006 the NZ RLIC in collaboration with sub-contracted stock monitoring and stock assessment providers commenced the final sequence of the three year CRA 2003-01 research contract. This contract incorporates extensive stock monitoring coverage, stock assessments, and the maintenance and development of management procedures incorporating harvest control rules.
95. Stock Assessment scientists completed the draft CRA 4 Management Procedure that may guide future decisions as to seasonal commercial catch limits for the stock.
96. NIWA continued the annual monitoring of rock lobster larval settlement. Work continues to attempt to establish some correlation between settlement and future abundance that may be useful to inform management responses in anticipation of seasonal variability in stock abundance.

Stock Monitoring

97. Industry logbook data from CRA 2, CRA 5, and CRA 8 continue to be incorporated into the stock assessment process. These programmes are supported by individual lobster fishermen who measure and record all rock lobsters in four designated pots each fishing day. The data, which are designed to be representative of the respective fisheries, are providing reliable and consistent information for stock assessments.
98. Sequences of stock monitoring are undertaken as Fisheries Research Services in CRA 1, CRA 2, CRA 3, CRA 4, CRA 5, CRA 7 and CRA 8.
99. Industry-funded technicians and administrative support staff continue to be employed in the Bay of Plenty, Canterbury-Marlborough, Chatham Islands, Otago, and Southern rock lobster fisheries.
100. Regional administrative and support staff are contracted and supervised by the NZ RLIC on behalf of industry. The NZ RLIC contracts Trophica Research to maintain the CRA Logbook database and to analyse and report logbook data to participants and to the annual assessment process.

101. The NZ RLIC and Trophia Research have implemented a web-based tag and release “track and trace” system that enables more timely reporting of tag recapture data by commercial and non-commercial extractive users. The system can be accessed at <http://tagtracker.trophia.co.nz/>.

Research Planning

102. In 2006, MFish again designated the NRLMG as the forum for the Rock Lobster Research Planning process. This process contributes to the MFish Business Plan. The NRLMG was selected as a model for fisheries research planning groups because of its multi-sector representation and participation, and the degree of recognition given by the Minister when seeking TAC and sustainability advice.
103. The NRLMG sought and actively encouraged additional participants to the Rock Lobster Research Planning process that commenced in August and concluded with the Research Co-ordinating Committee submissions in September/October 2006. These included interest groups not directly represented on the NRLMG, and potential service providers.
104. The initial focus was to identify the information needs for rock lobster fisheries. The planning process also took account of the research projects in progress during 2005/06.
105. The NRLMG has previously confirmed a range of immediate and medium term research needs, the results of which will inform the Minister when making TAC and sustainability decisions, and may assist stakeholders wanting to develop and implement Fishery Plans.
106. The projects that are considered essential to the stock assessment and modelling, to the management procedures including harvest control rule evaluation and analysis and to management decisions are:
- a) stock assessment;
 - b) stock monitoring;
 - c) better non-commercial catch estimates including estimates of illegal removals.

9. STOCK ASSESSMENT OVERVIEW

Introduction

107. Stock assessments were updated for CRA7 and CRA 8 in 2006. No assessments were done in 2006 for the CRA 1, CRA 2, CRA 3, CRA 4, CRA 5, CRA 6, CRA 9, or for the PHC fishery.

Management Procedures and Harvest Control Rules

108. Harvest control rules for rock lobster fisheries were first implemented following agreement by the Minister in 1993.
109. Generically the main benefit of harvest control rules and management procedures is that they enable the Minister's legislative obligations to be met in relation to sustainable utilisation while providing greater certainty to stakeholders over future management interventions.
110. Specifically, the benefits of harvest control rules are that:
- a) they allow users to plan rationally;
 - b) they force stakeholders and managers to define management goals clearly;
 - c) they force stakeholders and managers to agree on data used in making decisions;
 - d) they force stakeholders and managers to establish clear rules in advance to guide management interventions;
 - e) they incorporate uncertainty into the decision making process formally and objectively; and
 - f) they may act to increase the user's understanding and acceptance of decisions.
111. There are currently two types of rule in operation. The rule for the NSN and NSC substocks provides guidance, based on commercial CPUE, on when stock assessments should be undertaken. The decision rule does not provide guidance on management interventions, except that TAC changes should not be considered unless CPUE is significantly different from that in the reference year. The decision

rule for NSN and NSC substocks was constructed to allow for increases in TACs where rebuild would not be significantly delayed by taking such an action.

112. The NSS Management Procedure incorporating a harvest control rule that invokes TAC/TACC adjustments at predetermined intervals guides TAC and Sustainability decisions for CRA 7 and CRA 8.
113. The application of these decision rules will result in management action consistent with the Minister's legal obligations.

Management objectives and associated performance indicators to be considered in development of harvest control rule candidates.

	Objective	Performance indicators
Yield	Maximise catch	Mean and median annual catch (t) Probability of falling below current TACC
Abundance	Maintain high abundance – there are economic, biological, and social benefits of high catch rates	Mean of CPUE (kg per potlift)
Stability	Minimise frequency of quota adjustments – a maximum of 3 to 5 years is preferred	Frequency of TAC adjustments Average annual variation in TACC (% AAV)
Safety	Minimise risk of low biomass levels	Probability of CPUE staying above the 1997 level
Diversity	Maintain a wide size range of lobsters – fishers are able to respond to changes in market demand	The proportion of lobsters in the catch that weigh 1kg or greater (%)
Rebuild	Maximise rate of rebuild	Mean annual percentage increase in CPUE Time to rebuild (yrs)

Reference points

114. In the absence of stakeholder group agreed management strategies, and in the absence of estimates of the biomass that could produce the maximum sustainable yield, the NRLMG believes that biological reference periods provide appropriate alternatives for management consideration for the reasons outlined in the discussion that follows.
115. The CRA 7 and CRA 8 stock assessment was undertaken in 2006 using the revised length based model (described in detail in the Plenary Report, Annex 1). Because

estimates of virgin biomass are very uncertain, the status of a stock relative to B_{msy} is not estimated in these assessments.

116. To assess the status of a stock, the RLFAGWG examines a variety of performance indicators. Several indicators are based on “vulnerable biomass”: the pre-season biomass that is legally available and vulnerable to the fishery (i.e. at or above the MLS, excluding berried females, and taking selectivity-at-size and seasonal vulnerability into account) in the autumn-winter (AW) season.
117. The minimum biomass indicator, B_{min} , is defined as the lowest point (nadir) of the AW vulnerable biomass trajectory. Current biomass, B_{curr} , is defined as vulnerable biomass from AW of the year following the last year of data. Projected biomass, B_{proj} , is taken from the end of a three-year projection.
118. B_{ref} is defined as a proxy for B_{msy} and is taken to be the average vulnerable biomass from a reference period. B_{ref} has been calculated as the average start-of-season vulnerable biomass in the AW season during the defined reference period.
119. The choice of reference period is perforce arbitrary and open to debate. When selecting reference periods the RLFAGWG and the NRLMG consider a number of important factors:
 - a) a period for which good data are available from which to estimate vulnerable biomass;
 - b) a period during which the fishery was well developed, but by no means fully developed – the fishery has continued to produce catches after the end of the reference periods;
 - c) a period in which the biomass was relatively stable.
120. The target reference point B_{ref} was defined for CRA 8 in 2002 as the biomass from 1979 through 1981. In this period the fishery showed good productivity and the biomass level was demonstrably safe: it subsequently declined to lower levels and then recovered. The 2006 assessments of CRA 7 and CRA 8 used 1979-81 as the reference period.
121. Recent assessments (CRA 3 in 2001 and 2004; CRA 5 in 2003; CRA 4 in 2003 and 2005) provide an indicator that is the average vulnerable biomass from a reference period. For simplicity this is referred to as B_{ref} . This is the biomass level calculated from the average start-of-season vulnerable biomass for the reference period. In

assessments and model projections, B_{ref} is a reference biomass, and can be regarded as the “fishable” biomass.

122. For the CRA 4 assessment completed in 2005, the reference periods from which B_{ref} is calculated were selected from the history of the fishery from 1979 onwards, when data are known to be more reliable, and from periods when the stock biomass appeared to be stable. Longer periods of stability indicated that the reference period was better determined. The interpretation of a relatively long period of stability was that a fishery could be considered “sustainable” at the levels of removals existing during the period, especially if removals were stable as well.
123. B_{refs} are neither the highest nor lowest biomass levels that have been experienced and observed in the CRA areas for which reference periods are chosen. In every case, stock abundance has fallen lower than the B_{refs} and biomass has increased from those lower levels.
124. The lowest biomass observed anywhere in the history of the fishery is suggested as the “limit” reference point – B_{min} . In compiling advice to the Minister, the NRLMG has determined that the probability of being below that reference level should be small (<10%). In simple terms the limit B_{min} is an undesirable stock status.
125. The NRLMG has therefore adopted B_{refs} as “target” reference points because, in the absence of estimates of B_{msy} , they provide credible and practical benchmarks of sustainability and utilisation against which management actions that are consistent with legislative obligations can be recommended to the Minister.

STATUS OF THE STOCKS

NSS substock (CRA 7 and CRA 8)

126. The outcome of the harvest control rule used to operate the management procedure in 2005 was to trigger a 22% increase in the CRA 7 TAC, from 114.886 tonnes to 140.159 tonnes; and a 22% increase in the CRA 8 TAC, from 690.370 tonnes to 842.242 tonnes, effective on 01 April 2006. No management action is required in 2007 as the management procedure specifies a “latent year”, which prohibits changes to the TAC in two consecutive years.
127. In 2006, CRA 7 and CRA 8 were modelled simultaneously as separate stocks within a new multi-stock model. A new multi-stock length-based model was developed based on the model previously used for rock lobster stock assessments. When multiple

regions are modelled, separate parameters can be estimated for each region or common parameters can be estimated and shared by the regions. The dynamics allow for movement among regions. Other changes included the use of a continuous growth function and two options for the catch equations (instantaneous or discrete).

128. The new model was able to closely match the results from the 2005 assessment for CRA 4 (when run as a single stock model), indicating that the coding changes were properly implemented. Biomass trajectories and parameter estimates were similar to the original assessment.
129. The assessment was not finalised in the time available, however, both stocks show increasing CPUE to levels not seen since the 1980s. CPUE in CRA 8 in 2006 was well above the target set for the rebuilt stock (1.9 kg per potlift). This indicates that it is now time to develop a management strategy designed to maintain stock biomass rather than continue to use the current decision rule which was intended for stock rebuild.
130. The Working Group agreed that as no management measures were required in CRA 7 and CRA 8 for 2007, the assessment did not need to be completed before the planned November Plenary meeting (this meeting was subsequently cancelled). However, to allow the management strategy evaluation to be completed for CRA 7 and CRA 8 in 2007 an agreed basecase model will be required early in that year. Alternative parameterisations or methodology may be needed to form a base operating model suitable for management strategy evaluation.

10. MANAGEMENT PROCEDURE DEVELOPMENT

131. For the first time since 1990 the CRA 4 commercial fishery was unable to catch their TACC in 2005. The TACC is 577 tonnes and the confirmed 2005/06 commercial landings are 504 tonnes. CRA 4 CPUE also shows a declining trend, and the economic impacts associated with stock decline are of concern to the CRA 4 industry. To reverse the declining trend in abundance and avoid a slide to “unsafe” levels, the CRA 4 industry has expressed interest in an ACE-shelving decision rule.
132. In response to this situation, harvest control rules were evaluated by Breen & Kim². These authors used the CRA 4 assessment base case (Breen et al. 2006) as an operating model. Rules were then tested by applying each rule during 20-year population projections with randomly varying recruitment. The rule was developed as an ACE shelving rule. It appears that the 2006 commercial catch is likely to be 450 t or less. An ACE shelving decision rule must try to set a catch limit that is less than the catch that would otherwise be taken in 2007; otherwise the rule is not doing anything to rebuild biomass.

Specifications

133. For each rule, 2000 runs were made, one from each sample of the assessment’s joint posterior distribution of parameters.
134. A set of indicators, incorporating the classic outputs yield, safety, stability and abundance, were calculated for each run and summarised for each rule.
135. Specific rules were discussed in a series of CRA 4 industry meetings, in Wellington, Masterton and Napier during November.
136. Specific items agreed were:
- a) the harvest control rule should be based on AW standardised CPUE;
 - b) the safety indicator should be based on *Bmin* from the 2005 assessment;
 - c) if the rule mandates a decrease in commercial catch, that should happen without regard to a latent year; and

² Breen, P.A. & S.W. Kim. 2006. Development of an operational management procedure (decision rule) for CRA 4. *New Zealand Fisheries Assessment Report 2006/53*. 46pp

d) if the rule mandates an increase in commercial catch, that should be applied without regard to a latent year.

137. When most indicators are plotted against the seasonal commercial catch (SCC) that they would set for 2007, there is some but not much contrast among rules. The main determinant of a rule is therefore the 2007 SCC. When groups of rules that produce the same SCC are compared, again there is not much contrast. Within a group, the various rules tend to produce similar results. Differences among the rules are consistent when looked at in various ways, and even consistent in the robustness trials, but they are small.
138. The stock assessment team and the NZ RLIC recommended that the CRA 4 industry implement a decision rule that would produce a seasonal commercial catch limit of 323 tonnes in the first year and be updated each season.

Duration of any management procedure

139. Management procedures are unlikely to remain in place for longer than about five years without a review, because in five years the operating model used to evaluate rules will be obsolete and performance should be re-evaluated. Such a review was written into the 2002 NSS management procedure (Bentley et al. 2003b).

Discussion

140. Complexity of management procedures and complexity of evaluation is a problem. In the New Zealand system, the drive for management procedures must come from stakeholders, who therefore must understand and accept them. Technical complexity in evaluation is beyond most people who are not comfortable with current assessment technology. Some rules require understanding a set of equations, and even simple, purely arithmetic equations put off many (not only stakeholders). A focus of continuing work should be to develop communication techniques so that stakeholders can become comfortable with these issues.

In Summary

141. The NRLMG **notes:**
- a) A CRA 4 Management Procedure to guide future commercial catch limits for the stock has been developed and reported to commercial rights holders.

11. OTAGO (CRA 7) CLOSED SEASON

Introduction

142. The NRLMG considered a proposal by the Otago Rock Lobster Industry Association and it was submitted to the MFish internal prioritisation process in 2005. The proposal met prioritisation criteria but failed to progress due to insufficient resources being available to MFish to run all regulatory proposals under consideration. CRA 7 Industry representatives subsequently spoke to the Minister on this matter.
143. Industry representatives then brought the proposal back to the NRLMG with the intention of getting it back into the 2007 MFish internal prioritisation process.

Proposal

144. The Otago Industry Association recommends the Fisheries (South-East Commercial Fishing) Regulations 1986 Regulation 8 be amended to remove the closed season for commercial rock lobster fishing in CRA 7.

Background

145. Regulations currently restrict CRA 7 commercial rock lobster fishing to the period from 21st June to 19th November in each 01 April to 31 March rock lobster fishing year.
146. The current seasonal closure to commercial fishing has been arrived at in steps from 1986 through to 1994.
147. In 1986 the Fisheries (South-East Commercial Fishing) Regulations invoked a prohibition on the commercial harvest of CRA 7 “concession” rock lobsters³

³ “Concession Lobsters” have a minimum legal size (MLS) of 127 mm tail length for male and females, and the 127 MLS applies only to commercial fishing in the Otago Concession Area.

Prior to a regulatory change from tail length to tail width measurement in 1988, “non-concession” lobsters were those at or above 152mm Tail Length (males and females) and since 1992, are males at or above 54mm tail width (TW) and females at or above 60mm TW.

commencing on the 20th day of December in any year and ending on the 20th day of June in the following year.

148. However commercial fishing for “non-concession” lobsters was still allowed over the full duration of the April to March fishing year. In effect a full twelve month fishing year was available to industry, albeit with restrictions on the catching and landing of concession rock lobsters.
149. In 1993 the date for closing the CRA 7 “concession” season was brought forward to the 20th day of November by way of Regulatory amendment. This change was as a management response to an observed decline in stock abundance at the time and in part was made as an alternative to a reduction in the Total Allowable Catch.
150. However despite this reduction to the length of the “Concession season” the regulations still allowed commercial fishing for rock lobsters at or above 54 mm (male) or 60 mm (female) TW over the duration of the fishing year. A full twelve month fishing year was available but with a shorter period to land concession rock lobsters.
151. In 1994 and in again response to concerns over stock abundance, another regulatory amendment effectively closed the commercial rock lobster season from the 20th day of November in any year through to 21st June in the following year. Specifically the wording of Regulation 8 is:

No commercial fisher shall –

- i. Take any rock lobster from the waters of the Otago Concession Area; or*
 - ii. Be in possession of any rock lobster taken from those waters; or*
 - iii. Fish using any rock lobster pot in those waters –*
 - iv. During the period commencing on the 20th day of November in any year and ending with the 20th day of June in the next year (both days inclusive).*
152. As a consequence of this amendment, the commercial fishing season was reduced from a full twelve months (April to March) to five months, June 21th through to November 19th inclusive.
 153. The intent of the extended closure was to protect the larger lobsters (i.e. lobsters at or above 54 mm (male) or 60 mm (female) TW that are sexually mature) that were considered to be part of a resident breeding population.

154. The “protection” of the breeding stock within the CRA 7 fishery was deemed necessary to ensure the sustainability of the fishery at a time when the management approach was directed more at an egg per recruit (EPR) management objective than the current approach incorporating commercial catch limits guided by biological reference points and size-structured stock assessments.

Problem Definition

155. In the absence of a demonstrated stock/recruit relationship the current prohibition on commercial fishing is ineffectual in terms of being a sustainability measure for the CRA 7 stock. The seasonal closure intended to protect breeding stock and possibly enhance egg production is therefore redundant as a fisheries management measure.
156. The current prohibition on commercial fishing inhibits the maximum economic value that can be gained from the fishery because of the time constraints on the quota-limited commercial fishing opportunity.
157. Prices paid to fishermen are variable within season depending on market demand for certain grades (sizes) of lobsters. The existing commercial closure means that CRA 7 fishermen cannot target their catching effort during specific times of year when prices are better or when certain grades are in demand.
158. Because of the extended commercial closure, CRA 7 fishermen are obliged to harvest the TACC during a short period when export demand is limited and prices paid are low.
159. In addition, CRA 7 lobsters are in a post-moult phase during most of the current commercial season and are more susceptible to mortality due to the stress induced during handling and transport. Product that is less than premium quality is therefore being sold at commensurate prices, creating lower financial returns to the exporting companies and to fishermen.
160. All other rock lobster fisheries within New Zealand are open all year (April to March) other than CRA 6 where a short (two month) regulated closure applies for social reasons, and CRA 3, where a one month voluntary commercial closure currently applies for similar reasons. No other CRA area has a management regime that constrains economic performance to the extent that the current CRA 7 seasonal closure does.

Need for Action

- 161. The CRA 7 industry is disadvantaged because of an existing regulatory constraint that prevents them maximising the economic benefit from ITQ/ACE-limited commercial fishing opportunity.
- 162. There is evidence that the supply of lobsters to international markets that are not of premium quality is resulting in negative perceptions of the quality of New Zealand lobsters.
- 163. An amendment to allow commercial fishing over a full fishing year season (April to March) will provide the opportunity for CRA 7 commercial operators to maximize the economic benefit to be derived from the TACC. A return to a full fishing year will not entail any increase in commercial removals and will spread effort across a longer period and across a wider size and sex distribution of lobsters.

Options for Achieving the Desired Result

Non-regulatory measures

- 164. The current restriction is due to wording contained in regulation. Therefore it is not possible to achieve a result through non-regulatory intervention.

Regulatory measures

- 165. The change to allow fishing at anytime during the fishing year can only be done through amending the current regulations by removing Regulation 8 in its entirety. This proposal is also consistent with the stated aim of Government to remove unnecessary fisheries regulations.

Costs and Benefits of the Proposal

- 166. An amendment as proposed will improve the ability of the CRA 7 rock lobster industry to maximize the returns to be gained from the TACC. This is consistent with the “adding value” philosophy that underpins the current MFish SOI.
- 167. MFish compliance costs would reduce, as there would no longer be any need to put effort into monitoring and enforcing the closed season provisions.

168. Costs involved in implementing the change would be minimal.

Communications

169. Communication of the change would be required to both industry and MFish staff.

Conclusion

170. The current CRA 7 seasonal closure is the most restrictive and onerous of any in place across the New Zealand rock lobster industry. The closed season to commercial fishing is redundant as a sustainability measure and impedes cost effective and efficient utilisation.
171. The closure prevents flexibility in business decision-making within the industry and therefore impedes the maximization of the economic benefits that are available from the TACC.

NRLMG Recommendation

172. The NRLMG stakeholder representatives recommend that you:
- a) **agree** that the proposal to amend regulations to remove the closed season for commercial rock lobster fishing in CRA 7 should be progressed in the October view of Sustainability Measures and Other Management Controls.
 - b) **note** that MFish believes that the internal prioritisation process is the best method of determining which regulatory proposals should proceed to be included in Regulatory Review rounds.

12. CATCH IDENTIFICATION

173. In 2006 the NRLMG again reviewed recommendations that in 2001 and 2002 were deferred by MFish for further consideration. MFish did not assess the recommended telson clipping initiative as having high enough priority to proceed in 2002 or 2003 (when balanced against available resources and all other regulatory amendment proposals).
174. The NZ Recreational Fishing Council 2006 annual conference re-affirmed support for telson clipping of amateur rock lobster catches. Recreational stakeholder representatives brought the issue back to the NRLMG for further discussion and consideration.
175. The NZRFC submits that lack of clear identification of rock lobsters that constitute all or part of an amateur daily bag limit allows an opportunity for excessive numbers of rock lobsters to be taken. This increases the opportunity/incentive for rock lobsters to be sold on the black market or bartered for personal commercial gain.
176. The NZRFC submits that telson clipping is a means of distinguishing legitimate amateur catch enabling a more effective deployment of compliance and enforcement resources directed at constraining illegal unreported removals from rock lobster fisheries. Telson clipping is being used successfully in Western Australia to constrain blackmarket activity, and is a no cost, pragmatic catch identification mechanism.
177. The NZRFC submits that the requirement for amateur catches of rock lobsters to be telson clipped will enable Fisheries Officers to make prompt identification of lobsters taken with the intent of keeping them for personal use. Telson clipping will reduce the possibility of amateur catches being traded on the blackmarket. Telson clipping will enable Fisheries Officers to better direct their enquiries as to the source and audit trail of lobsters held on commercial premises.
178. The NZRFC submits that this proposal is a simple, cost-effective option that has considerable potential to isolate, identify and reduce black market activity. Industry representatives to the NRLMG are also supportive of telson clipping as a method of catch identification to assist compliance with amateur fishing regulations.
179. The recreational stakeholder representatives may progress the telson clipping proposal as part of the Recreational Regulation Review. The Recreational Regulation

Review is a commitment made by the Minister of Fisheries to look at 10 regulatory issues of concern to recreational fishers over a three-year period. 2007 is the third and final year of the review and the issues to be looked at have not yet been confirmed by the New Zealand Recreational Fishing Council.

Recommendation

180. The NRLMG recommends that you:

- a) **note** that stakeholder group representatives support the proposal to implement telson clipping as being a simple, cost-effective management option for rock lobster fisheries that has considerable potential to isolate, identify and reduce black market activity.
- b) **note** that recreational stakeholder representatives may progress the telson clipping proposal as part of the Recreational Regulation Review

ONGOING ROCK LOBSTER ISSUES

13. UNCERTAINTY IN ESTIMATES OF TOTAL REMOVALS

Overview

181. Accurate information about total removals is necessary to enable appropriate management decisions to ensure sustainability. Information on the level of commercial removals is collected by the Quota Management System (QMS) reporting system. However, the infrastructure for collecting information on amateur, customary, and illegal removals is poorly developed.
182. The lack of accurate information on non-commercial and illegal catch contributes to the uncertainty of the stock assessment, detracts from the effectiveness of agreed harvest strategies and undermines the incentives created by the QMS.
183. In the case of rock lobster fisheries, to allow any or all of the individual catch components to increase without control will jeopardise the rebuild strategy and erode existing harvest rights and opportunities. No control is possible if catch components are unknown. No effective control is possible if catch components are uncertain.
184. Because the catch projections contained in stock assessments are made under the assumption of constant catches fixed at levels used in the assessment, an increase in future catch levels would result in an increased probability of a decrease in biomass and likely lower future biomass.
185. Significant uncertainty is associated with non-commercial removals from rock lobster fisheries. This situation has potential to confound the reliability of stock assessments, and to confound the expectations for, and to compromise the implementation of, Management Procedures, regional harvest initiatives and Fishery Plans.
186. In the case of those stocks generally regarded as “shared fisheries”, or those where stock abundance is less than optimum and high levels of non-commercial fishing activity are evident, the need for reliable and credible non-commercial catch data is urgent.

Customary Harvest

187. There is minimal information on customary non-commercial harvest even though customary fishing regulations have been promulgated. In the South Island the Fisheries (South Island Customary Fishing) Regulations 1998 became law on 20 April 1998. Customary fishing regulations for the North Island and Chatham Islands, the Fisheries (Kaimoana Customary Fishing) Regulations 1998 came into force on 1 February 1999. The regulations become effective in different areas as nominated representatives of the tangata whenua are appointed⁴.
188. The North Island and South Island customary regulations provide for quarterly reporting of permits issued for customary fishing purposes. Information derived from those permits is intended to improve the estimates of the level of customary harvest and although all available information has been presented to the RLFAWG there is no information available from areas still managed under Regulation 27.

Amateur Harvest

189. MFish telephone, diary and ramp surveys have provided some amateur landing data from which estimates have been derived. Estimates of amateur harvest exist only for recent years and the results of the amateur catch surveys commissioned by MFish in 2000 remain highly uncertain and are not used in stock assessments. They were rejected by the RLFAWG. For the most recent rock lobster stock assessments the RLFAWG has assumed amateur catches and the trends in those catches over time.

Illegal Take

190. The level of illegal removals from NZ rock lobster fisheries, previously estimated to be 378 tonnes nationally, and updated to 64 tonnes and 52 tonnes for CRA 4 and CRA 5 respectively and 89.5 tonnes for CRA 3, remains of concern to the NRLMG.
191. In September 2006 MFish advised the RLFAWG that specific fish stock based information on illegal catches from CRA 7 and CRA 8 was not available and suggested that previous data be used in assessments.
192. In 2005 MFish Compliance provided updated point estimates of 'unreported' illegal removals, advising that "MFish does not currently have a reliable robust and defensible methodology to estimate illegal fishing. Our approach uses the 'method'

⁴ See Annex 1

employed last year to provide information on the CRA3 fishery.” In 2004, MFish Compliance advised that “Difficulties arise in trying to verify and cross check the figures provided and this is a limiting factor of the methodology. Therefore, estimates cannot be verified and have an associated low level of confidence.”

193. MFish was unable to provide more detailed information requested by the assessment scientists (e.g. does the illegal catch in a season come mostly from scrubbed or berried females, or alternatively is it mostly undersized fish caught in pots or does it come from the whole range of fish available to pots).
194. Estimates of illegal take, and its historical pattern, are highly uncertain. The RLFAWG has very little confidence in them.

In Summary

195. The NRLMG notes:
 - a) that accurate and reliable data for all sectors are essential to the stock assessment process;
 - b) that accurate and reliable data for all sectors are essential to the fishery management decision making process, particularly in circumstances where catch reductions are considered necessary to maintain or improve stock abundance;
 - c) that sufficient resources must be deployed to monitor non-commercial removals from rock lobsters fisheries to maintain the integrity of the TACs set for stocks, to maintain the integrity of the allowances made to extractive users within the TACs and to maintain the fishing opportunity associated with those allowances;
 - d) that greater emphasis should be placed on the full implementation of the North and South Customary Regulations.

14. COMPLIANCE AND ENFORCEMENT ISSUES

Illegal Removals

196. The NRLMG has consistently stated that reduced illegal fishing activity will facilitate attainment of the goal of the framework for managing rock lobster fisheries and improve harvest opportunities for legitimate extractive users.
197. Industry, customary, environmental, and amateur fishing representatives on the NRLMG have consistently expressed the view that Government should make a greater contribution to the existing Compliance budget and therefore enable more resources to be deployed into minimising illegal removals from the rock lobster fisheries.
198. Industry, customary, and amateur fishing representatives on the NRLMG agree that better compliance could be attained if rock lobster compliance strategies were developed and implemented.

In Summary

199. The NRLMG notes:
- a) the significance of the illegal catch component and its negative effect both on the stock and on legitimate extractive users;
 - b) that all user groups recommend that the Minister take steps to ensure that compliance strategies and services (including enforcement and education services) are sufficient to minimise illegal catch;
 - c) that sufficient resources must be deployed to constrain illegal unreported removals in the first instance to the levels of the allowances made in setting TACs, and ideally to much lower levels so as to improve the quality of the fishing experience to be enjoyed by legitimate users.

15. ALLOCATION PRINCIPLES

200. The NRLMG is agreed that the current fisheries management regime aims to achieve sustainable utilisation by controlling total removals to levels that allow stocks to move towards optimum levels. Total removals are expressed as the TAC.
201. The Fisheries Act requires that, when recommending any variation in the TACC after having regards to the TAC, the Minister must allow for non-commercial interests in the fishery. However, the Act does not provide guidance on the amount that should be allowed.
202. Courts have determined that legislation does not require the Minister to give priority to amateur fishing over commercial interests or that the allowance must fully satisfy amateur requirements, and that under the Act the Minister may allow a preference to non-commercial fishing when setting TACCs.
203. Courts have also determined that a Minister should not reduce the TACC for conservation reasons unless he is able to take, and he does take, reasonable steps to avoid the reduction being rendered futile through increased amateur fishing.
204. Consistent with those Court decisions, MFish holds the view that, when a TAC is set, the Minister has an obligation to consider controls to constrain amateur fishing limits within that allowance, but that it is not intended to constrain customary harvest.
205. The Courts have held that there is no implied duty for the Minister to fix or vary the amateur allowance at any particular proportion of the TACC or the TAC. The appropriate allocation is a matter for the Minister's assessment, bearing in mind all relevant considerations on each occasion the Minister revisits the issue
206. Unconstrained increases in legitimate take by any sector, or illegal take by fish thieves, have a number of potential consequences. These are:
- a) a risk that the TAC will be exceeded,
 - b) a risk that the stock will decline or that a rate of increase will be reduced,
 - c) an erosion of other sector groups' fishing opportunity,
 - d) an erosion of the value and utility of the quota fishing property right,

- e) a possible failure of an agreed management plan and
 - f) an obstacle to reaching a useful harvest initiative or Fishery Plan agreement among sectors.
207. In the case of rock lobster fisheries, to allow any or all of the individual catch components to increase without control will jeopardise the rebuild strategy and erode existing harvest rights and opportunities.
208. The NZRFC representatives wish to ensure that the amateur fishing right is not further eroded; therefore any increase in TACC should incorporate a concurrent increase in the amateur allowance required by the Act. In addition to such an increase, they consider that the bag limits need upward adjustment to allow those fishers who take their limit to benefit from the increased abundance. They note that in the past the bag limit was reduced from ten to six rock lobsters for sustainability reasons and for that reason the reverse must occur.
209. Amateur fishing representatives also consider that the legislation gives customary Maori rights and amateur fishing interests precedence over commercial rights. It is their submission that after setting a TAC the Minister must first satisfy all Maori and amateur expectations of catch, then make allowance for 'other sources of fishing related mortalities' including illegal catch, and having attended to those matters, allocate any remaining portion of the TAC to commercial users as the TACC for the fishstock.
210. Industry, Customary, and MFish representatives do not believe that the amateur fishing view is consistent with the determinations of the Courts. Industry representatives do not agree with the amateur fishing representatives interpretation because they believe it fails to recognise the security of fisheries property rights already held by commercial users, including Maori, and the associated husbandry incentives.
211. Industry contends that, by its very nature, the TAC/TACC setting process allocates defined 'shares' of available harvest to extractive user groups. Further, the principle of proportional allocation of explicit catch allowances has been partially pre-determined by the existence of quota rights and a TAC. However, MFish notes that the Courts held that there was no requirement for proportionality in allocative decisions.
212. Industry is concerned that, in the absence of sufficient information, appropriate measures to constrain amateur catch to an allowance and adequate constraints on illegal removals, a Minister may consider reducing TACCs in an attempt to hold total

removals within the TAC to ensure sustainability. If total non-commercial catch is not constrained, any TACC reduction may facilitate only an increase in non-commercial catch and illegal activity, through a relative increase in stock availability.

213. For this reason, industry representatives advocate a proportional allocation arrangement that allows each extractive user group to share in the available stock abundance and would therefore provide each legitimate sector with an incentive to protect and enhance their respective harvest opportunities.
214. These issues apply to other than rock lobster fisheries. The debate has raised issues of fairness and equity. In rock lobster fisheries such as CRA 1 and CRA 2, where industry suggest an increasing proportion of the total catch is taken by non-commercial fishermen, allocation policies are of strong interest to commercial fishermen. In the absence of allocation principles, industry is concerned that any future actions required to maintain stock sizes could come at the expense of commercial operators and erode the property rights which are the foundation of the QMS.
215. Industry representatives acknowledge that rock lobster fisheries are 'shared' fisheries that have significant social and cultural values in addition to economic values. However, industry cannot support other than a proportional aggregate amateur fishing allowance within the constraints of a TAC. Industry also submits that the initial allowances made in the TAC setting process establish a 'benchmark' for shares of the available yield which can then become the basis for negotiation between user groups at a regional level as to future levels of access and use of rock lobster fisheries.
216. Industry submits that a formal allocation of 'shares' to amateur fishing provides an incentive required to bind that stakeholder group into an ongoing co-operative management, compliance, and research planning process at a regional level.
217. The NZRFC has noted the admission by the Minister and MFish that the amateur fishing right is poorly defined and poorly managed. They further note the admission that over a period the amateur fishing right has been eroded. The NZRFC accepted a challenge by the Minister and MFish to work jointly towards properly defining that right and setting an appropriate management structure.
218. Representatives of the NZRFC and officials from MFish formed the Recreational Rights Working Group (RRWG) to define the nature and extent of the amateur fishing right. The RRWG report was released for widespread consultation. The RRWG then reported to Cabinet with an analysis of the public submissions and

recommendations. The Minister then established a Ministerial Consultative Group (MCG) that discussed the outcomes of public consultations and possible solutions.

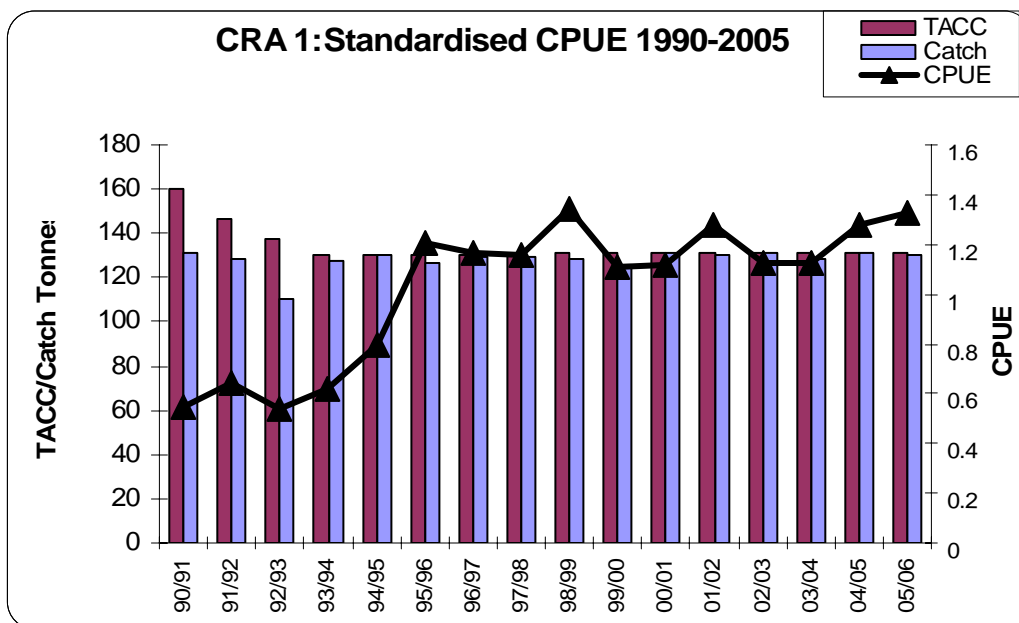
219. Following consideration through the MCG process the Minister reported to Cabinet, who agreed objectives to provide a basis for continuing discussion and development of options for further public consultation.
220. A Government “Shared Fisheries Public Discussion Paper” was released for consultation in October 2006 and is intended to form the basis for legislative amendments in July 2007.

STOCK SUMMARY

16. STOCK SUMMARY

221. This section outlines the principal rock lobster fishing activities in each of the quota management areas and a brief summary of stock status taken from the most recent assessments.

17. CRA 1

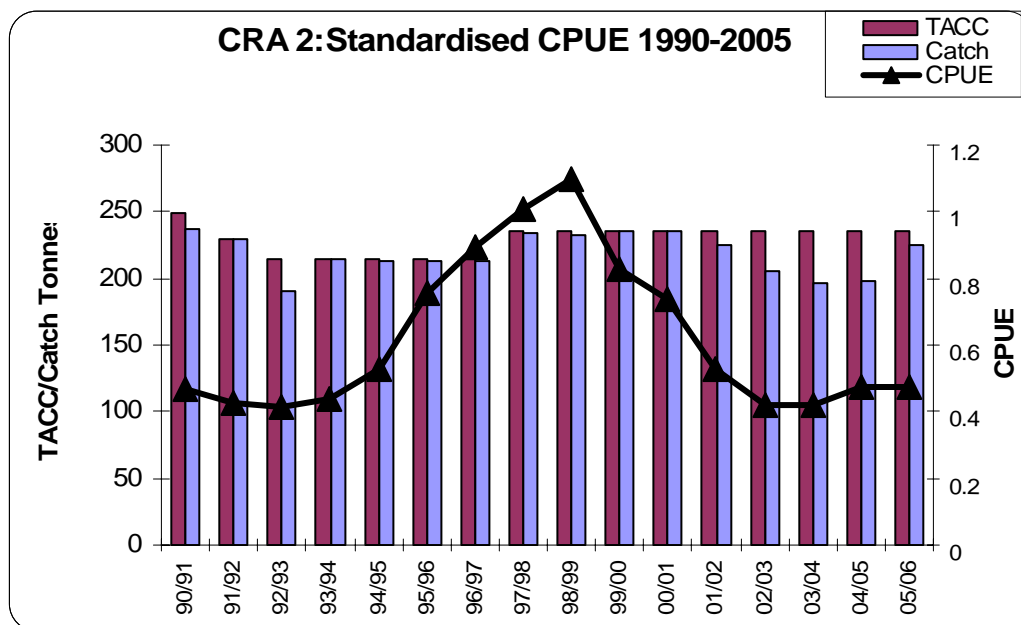


222. The CRA 1 fishery extends from the Kaipara Harbour on the west coast of the North Island around North Cape and then south to Waipu. The commercial fishery extends offshore to the Three Kings, but the bulk of the commercial harvest is taken from waters adjacent to the mainland. No TAC has been set for this fishery. The 130.46 tonnes TACC has remained unchanged since April 1993.
223. The 130.46 tonnes CRA 1 TACC is distributed amongst 23 quota share owners. Approximately 16 permit holders harvest the TACC. The landed value of commercial catch in CRA 1 is \$3.6 million (based on average port price paid to fishermen), making rock lobster an important contributor to the local and regional economy.
224. Amateur catch of rock lobster is estimated at 51 tonnes (MFish 1996). Diving using UBA is the predominant method used by amateur fishermen and women, although hand gathering, ring potting, and potting from vessels contributes to the amateur catch.
225. A large Maori population in the Northland region ensures that rock lobster retains significant customary value. No reliable estimates are available for customary catch. The progressive implementation of reporting procedures within the North Island

Customary Regulations might assist in future evaluations of customary harvest for the CRA 1 fishery.

226. CRA 1 is assessed using commercial catch and effort and quota monitoring report data. In addition, the CRA 1 commercial stakeholders group commissioned intensive catch sampling sequences for the fishery in the 1997/98 and 1998/99 seasons. CRA 1 stock monitoring was part of the CRA 1999–01 and CRA 2000–01 Research Services contracts and 60 catch samples and 7000 rock lobster tag and releases were completed from 2001 to 2003 inclusive. The CRA 2003–01 research contract provides for catch sampling sequences to be done annually until 2007.
227. CRA 1 is part of the NSN substock that was assessed in 2002. The model results showed that the April 2001 stock abundance was higher than in the 1979–88 reference period. Projections at the end of a five year period (April 2006) had a median expected biomass near the 2001 level if catches were constrained to the levels used in the assessment.
228. The assessment noted that these projections should not be considered reliable much beyond two to three years but CPUE has stabilised from 1999 to 2005 albeit with minor upward fluctuations, suggesting stable stock abundance.

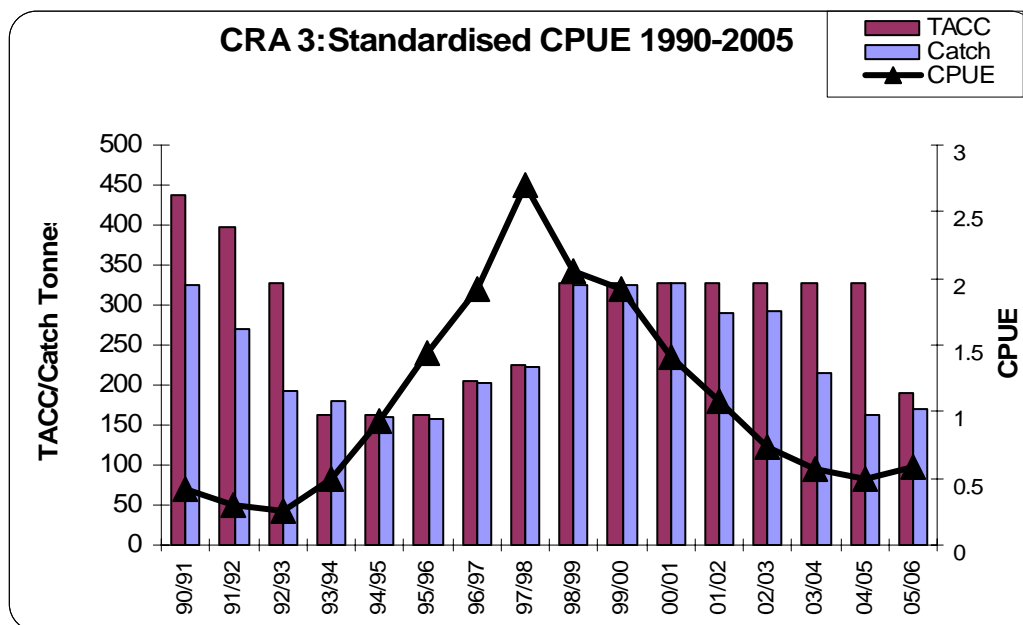
18. CRA 2



229. The CRA 2 fishery extends from Waipu through the Hauraki Gulf and Bay of Plenty to East Cape. The current 452.6 tonnes TAC for the fishery was set in 1997. The TAC is comprised of 140 tonnes for amateur catch, 16.5 tonnes for customary harvest and 60 tonnes for illegal removals. The current TACC is 236.1 tonnes.
230. The 236.1 tonnes TACC is distributed amongst 49 quota share owners. There are an estimated 34 vessels in the CRA 2 rock lobster fleet and the commercial season generally extends from June to January. The estimated landed value of the CRA 2 catch is \$6.3 million (based on average port price paid to fishermen) and the industry sustains a number of processing and export companies in Tauranga, Whitianga, and Auckland.
231. Amateur catch in this fishery is estimated at 140 tonnes (MFish 1996). Potting and diving are the preferred methods, and there is a large recreational charter vessel industry catering to the sector.
232. Customary catch is conservatively estimated at 16.5 tonnes. Anecdotal evidence in recent seasons suggests that the actual harvest may have been much greater. A large Maori population in the Bay of Plenty region ensures that rock lobster retains significant customary value.

233. The CRA 2 Rock Lobster Company Ltd is the representative commercial stakeholder group for this region. The Company has made significant investments in rock lobster research since its formation in 1995, including a comprehensive vessel logbook programme, tag and release projects, and sequences of intensive catch sampling to MFish standards and specifications. These data continue to be collected.
234. Stock monitoring activities for the 2006/07 season include the continuation of logbook coverage, intensive catch sampling sequences within season, and tag recapture reporting.
235. CRA 2 was assessed as part of the NSN substock in 2002. The model results suggested stock abundance in April 2001 was higher than in the 1979-88 reference period. Projections at the end of a five year period (to April 2006) had a median expected biomass near the 2001 level if catches were constrained to the levels used in the assessment.
236. The assessment noted that these projections were less reliable than for CRA 1, as the uncertainty of future recruitment had more impact on the short term projected biomass. CPUE for this fishery declined from 2001 to 2002, suggesting a decline in stock abundance, but then increased slightly in 2003 and again in 2004 and 2005 and now appears to be stable. CPUE in this fishery has been variable over time since 1979/80.

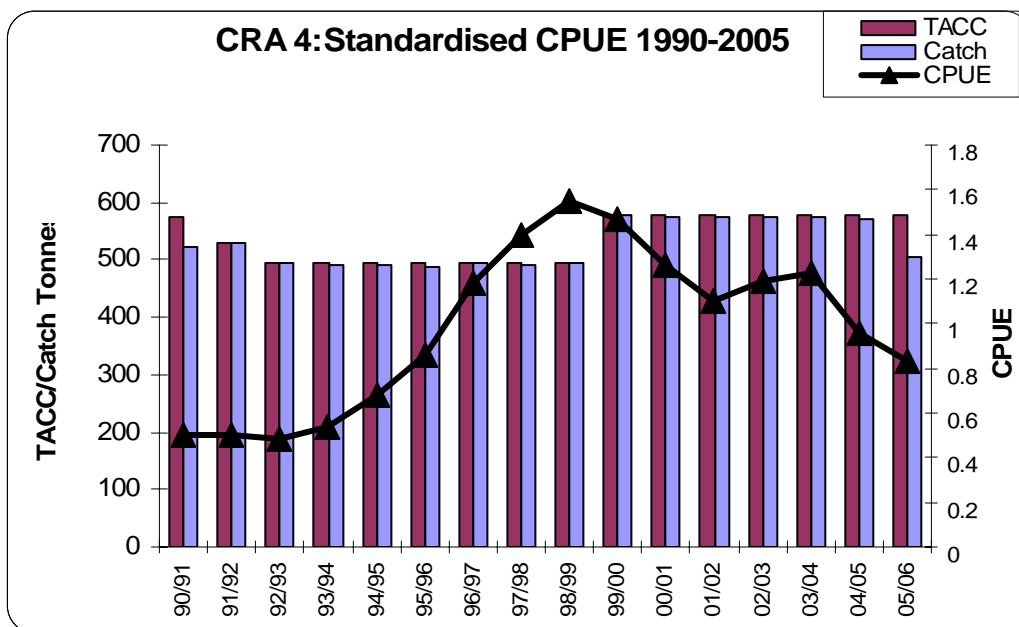
19. CRA 3



237. The CRA 3 fishery extends from East Cape south to the Wairoa River. The current 319 tonnes TAC was set in 2005. The TAC is comprised of a 20 tonnes allowance for amateur catch, a 20 tonnes allowance for customary harvest, an 89 tonnes allowance for illegal removals and a TACC of 190 tonnes.
238. The TACC is distributed amongst 39 quota share owners. An estimated 39 commercial vessels reported CRA 3 landings in the 2003/04 fishing year. There is significant Iwi involvement in quota share ownership and fishing. The commercial harvest has a landed value of \$5.3 million (based on average port price paid to fishermen). There are two processing plants in Gisborne, and product is also shipped to Wellington, Tauranga and Auckland for processing and export.
239. Amateur catch is currently unknown but was estimated at 14 tonnes (RLFAWG 2001), although an allowance of 20 tonnes was again made in the 2005 TAC decision. Potting and hand gathering are the preferred amateur fishing methods.
240. Rock lobsters have great cultural significance to local Maori and there is a very high level of customary harvest activity. Customary removals are uncertain although an allowance of 20 tonnes was made in the 2005 TAC decision.

241. Catches and catch rates declined from 1999, and in 2003 the CRA 3 Industry Association took advice from fisheries research and management service providers and implemented an ACE shelving process to reduce the commercial catch target for the 2004/05 season and ensure a rebuild of stock abundance.
242. Shelving was done by way of forward ACE transfers to an independent non-fishing third party – in this instance the NZ RLIC – secured by a consensual caveat on the numbers of quota shares needed to cover the ACE transaction.
243. A new stock assessment was done for CRA 3 during 2004. The projections from the assessment used the 210 tonnes commercial catch target, along with other levels and the current allowances for non-commercial, including illegal, removals. On the basis of those projections the NRLMG made recommendations to reduce CRA 3 catches to ensure sustainability. Despite a second industry ACE shelving initiative being confirmed for the 2005/06 season the Minister invoked a TAC reduction by way of a 42% reduction to the TACC in April 2005.

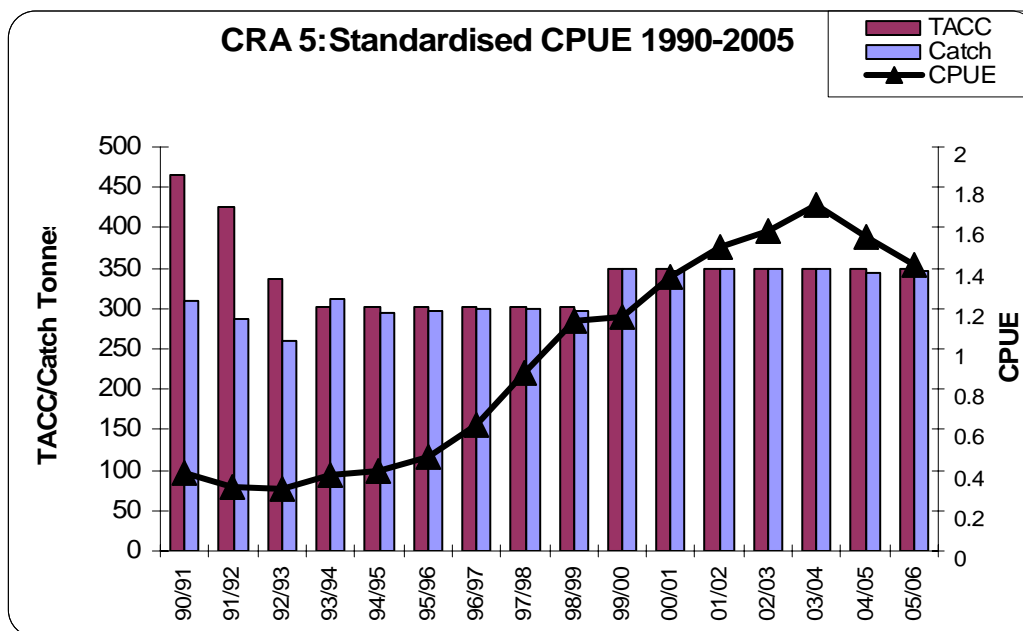
20. CRA 4



244. The CRA 4 fishery extends from the Wairoa River on the east coast, southwards along the Hawkes Bay, Wairarapa and Wellington coasts, through Cook Strait and north to the Manawatu River.
245. A CRA 4 TAC was first set in April 1999 and remains at 771 tonnes. In that 1999 decision, the TACC was increased from 495.3 tonnes to 576 tonnes. Before 1999 the TACC remained unchanged since April 1993. Within the TAC a total of 85 tonnes is allowed for amateur catch and 35 tonnes for customary catch. An allowance of 75 tonnes is made for illegal unreported removals.
246. The 576 tonnes TACC is distributed amongst 88 quota share owners. The fleet comprised an estimated 65 vessels at the peak of the 2003/04 commercial season. The majority of vessels in the fleet operate from coastal bases in isolated rural areas. The CRA 4 commercial catch has a landed value in excess of \$16 million (based on average port price paid to fishermen) and supports several processing and export operations in Napier and Wellington, and Auckland.
247. The amateur catch is estimated at 73 tonnes (MFish 1996). Potting and hand gathering are the preferred methods for amateur fishers in this area. As in most CRA areas, the majority of amateur catch is taken in the summer months. The region sustains a recreational fishing and dive charter industry during those months.

248. Aggregate customary harvest estimates for CRA 4 are not available, but the reporting requirements associated with the implementation of the North Island Customary Regulations should enable more informed decision making in future.
249. A comprehensive stock monitoring programme has been established in the CRA 4 fishery. There is a long time series of intensive catch sampling data from Napier, Castlepoint, Cape Palliser, and the Wellington South coast. This series was extended in the current season with a total of 32 sample days completed for the period May 2006 to January 2007. Commercial fishermen are routinely reporting tag recapture data.
250. The most recent (2005) CRA 4 stock assessment is reported in detail in the RLFAWG 2005 Plenary Report.

21. CRA 5

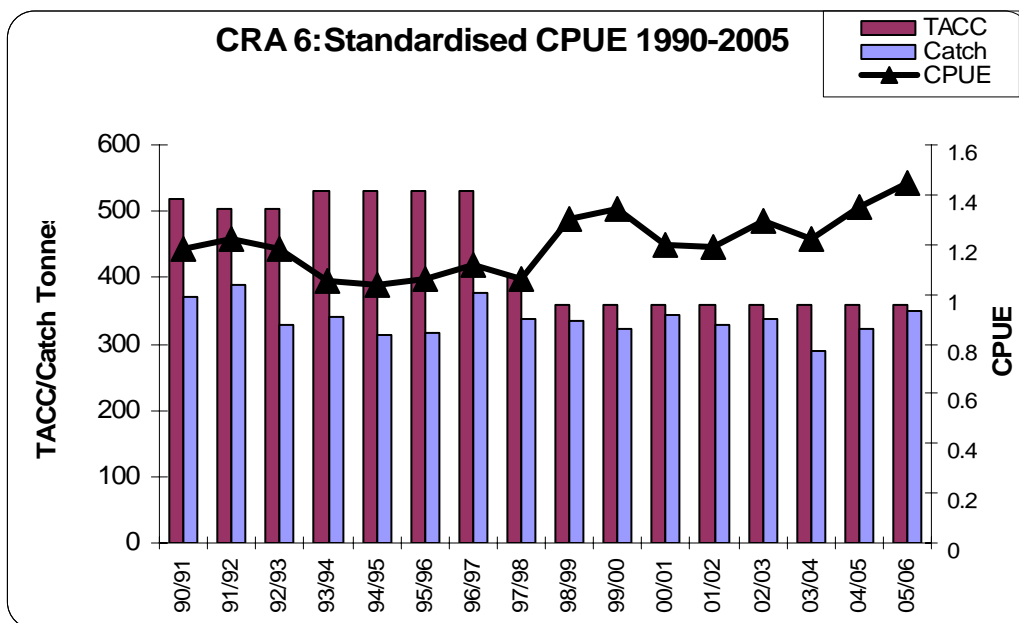


251. The CRA 5 fishery extends from the western side of the Marlborough Sounds across to Cape Jackson and then southwards to Banks Peninsula. There are three distinct regions of commercial fishing—Picton/Port Underwood, Ward-Kaikoura-Motunau, and Banks Peninsula, although a small number of commercial vessels work the area from Nelson through to D'Urville Island. The bulk of the commercial catch is taken from the area bounded by Tory Channel in the north and Motunau in the south.
252. The current TAC of 467 tonnes was set in April 1999. In that decision 40 tonnes was allowed for amateur catch and 40 tonnes for customary catch. The TACC was increased from 303.7 tonnes to 350 tonnes. The allowance for illegal unreported removals is 37 tonnes.
253. There are 45 quota share owners in CRA 5. The fleet comprised an estimated 35 vessels reporting catch in the 2003/04 season. Many commercial vessels work off beaches between Port Underwood and Motunau. The landed value of the commercial catch was estimated at \$10 million in 2004/05 (based on average port price paid to fishermen), and the fishery supports processing and export facilities in Ward, Kaikoura, and Christchurch
254. The CRA 5 industry members, through membership of their commercial stakeholder group CRAMAC 5, have encouraged and facilitated an ongoing dialogue with

amateur fishing and dive clubs and with Iwi groups in the region. The responses to the process have been extremely encouraging in terms of future co-operative research and management initiatives.

- 255. Amateur catch is estimated at 35 tonnes (MFish 1996). The preferred methods for amateur fishing are potting and diving with UBA. Recreational rock lobster fishing and the dive charter industry are both growing in the region. Dive clubs in the region have actively reported tag recapture information and maintain an ongoing interest in the regional research programme.
- 256. There are low estimates of customary harvest in CRA 5.
- 257. CRA 5 has an intensive stock-monitoring regime in place. Intensive catch sampling and tag and release projects have been done as Fisheries Required Services, and CRAMAC 5 operates an extensive Vessel Logbook programme that provides data to the stock assessment process.
- 258. The 2003 stock assessment for CRA 5 is reported in detail in the RLFAWG 2003 Plenary Report.

22. CRA 6

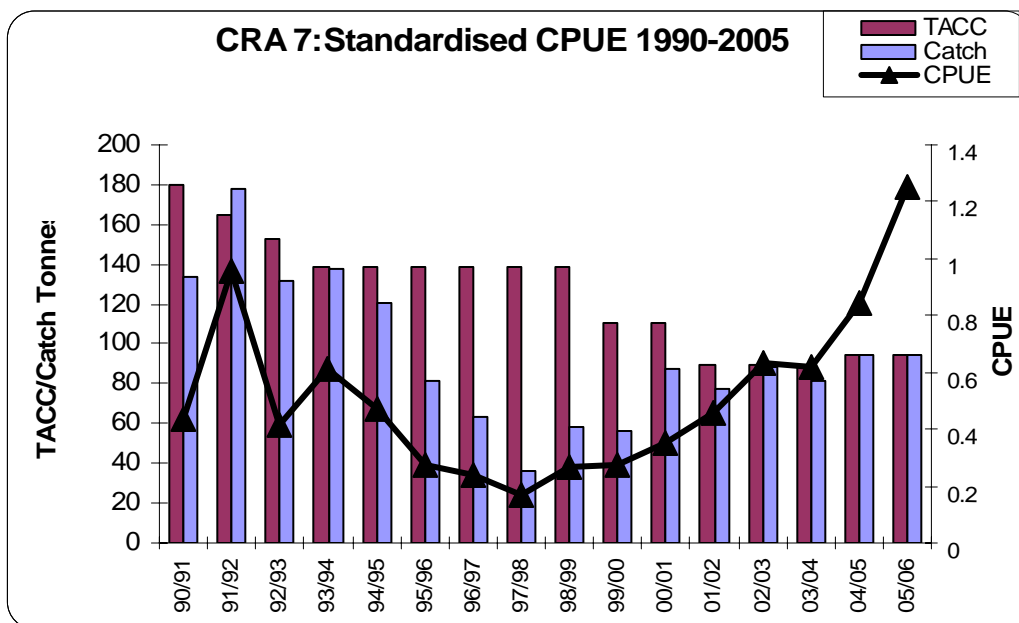


259. The region designated as CRA 6 is geographically very large, being all waters within a 200 nautical mile radius of the Chatham Islands and Bounty Islands, but the area being fished is restricted to a relatively narrow coastal margin adjacent to the Chatham Islands coastline.
260. The fishery is unique in that despite declines in landing and CPUE from historical levels; the lobsters caught generally comprise much larger size classes than are found in mainland fisheries. The reasons for the decline in catch and CPUE are unknown, and length frequencies of the landed catch have changed little since the development of this fishery. Previous RLFAWG reports have noted that the CRA 6 data are consistent with a stock model in which the biomass being fished is much smaller than the biomass of the contributing stock.
261. The abundance of the standing stock in CRA 6 is likely to be more dependent on immigration of larger lobsters into the area than it is on recruitment and growth. This reduces the likely effectiveness of management interventions.
262. For the 1998/99 fishing year a TAC of 370 tonnes was set. A total of 6 tonnes was set aside for amateur catch and 4 tonnes was provided for customary catch. The TACC was reduced from 400 tonnes to 360 tonnes in response to MFish concerns over

declining landings and declining CPUE. The TAC and TACC remain unchanged and CPUE has stabilised and recently shown an improvement.

- 263. An analysis of CPUE and catch against TACC was undertaken in 1998. The analysis indicated that when CPUE was standardised (takes into account changes in fishing patterns and numbers of vessels operating etc), as opposed to the use of raw data, catch rates in the fishery had not significantly declined over recent years.
- 264. CRA 6 is unique in that unlike all other CRA management areas, two harvest methods are allowed for commercial fishing. The bulk of the TACC is landed from vessels using pots, but there are limited numbers of method concessions issued for the fishery and divers take large quantities of lobsters in the summer months.
- 265. There are 48 CRA 6 quota share owners. Mainland New Zealand interests own the majority of quota. There are approximately 34 vessels reporting CRA 6 landings and the number of divers is unknown although only 11 of the original method exemptions issued to qualifying persons between 1990 and 1993 were current during 2005-06. Additional divers operate under the authority of permits in the name of the consent holders.
- 266. The landed value of the commercial catch in 2004–2005 was approximately \$8.8 million (based on average port price paid to fishermen). The fishery supplies processing and export facilities on the Chatham Islands and in Auckland, Wellington, and Christchurch.
- 267. The CRA 6 Industry Association established a Fishermen’s Office at Waitangi in May 2000 and the NZ RLIC contracted an administrative officer trained by FishServe to co-ordinate the distribution and collation of Catch Effort Landing Returns and Monthly Harvest Reports for delivery to FishServe and provide a range of additional administrative services to the Chatham Islands seafood industry.
- 268. There is no major research programme currently underway for the fishery because all previous research initiatives — intensive catch sampling, tagging, and juvenile abundance surveys — have delivered similar results. There are also high costs associated with research co-ordinated from the mainland. However, the CRA 6 Industry Association is monitoring a trial of Vessel Logbooks, such as used in CRA 2, CRA 5, and CRA 8, to collect size frequency and abundance information.

23. CRA 7

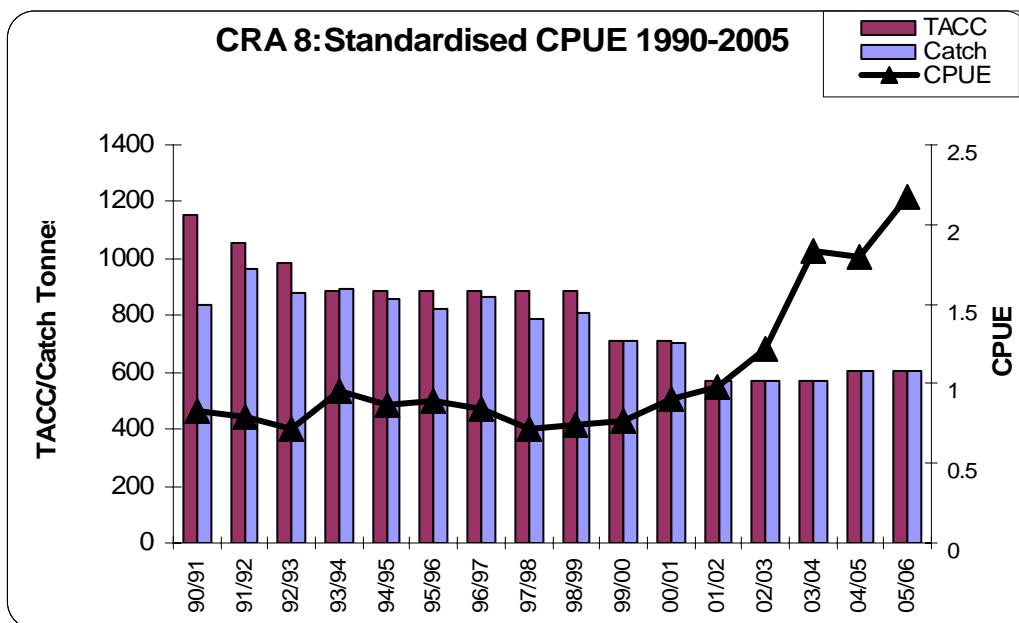


269. The CRA 7 fishery extends from the Waitaki River south along the Otago coastline to Long Point. In 2002, CRA 7 agreed to accept the new NSS management procedure proposed by the NRLMG and accepted by the Minister of Fisheries. Although the procedure is based only on CRA 8 CPUE and is designed to rebuild the CRA CPUE to target level, CRA 7 has agreed to accept TAC changes generated by this procedure.
270. At some time in the future, CRA 7 may develop and evaluate a management procedure specific to CRA 7. If this procedure is accepted by the NRLMG and the Minister, then CRA 7 may switch to that management procedure, leaving the current NSS management procedure to operate in CRA 8 only.
271. For the 2006/07 fishing year the TAC was set at 140.2 tonnes. A total of 10 tonnes was provided for customary catch, 5 tonnes was set aside for amateur catch and 5 tonnes for illegal unreported removals. The TACC was set at 120.2 tonnes. The TAC/TACC adjustment was undertaken in response to the triggering of the NSS decision rule.
272. The CRA 7 commercial season runs from 21 June to 19 November inclusive and the MLS is a tail length of 127 mm for both male and female lobsters. The fishery is open to amateur fishing all year with a MLS regime of 54 mm TW for males and 60 mm

TW for females. The CRA 7 fishery is unique in that a 'buffer zone', closed to commercial rock lobster fishing has been incorporated into the regional harvest initiative agreed by amateur and commercial users in 1993.

- 273. There are 30 CRA 7 quota share owners. In the 2004/05 season 16 commercial vessels reported CRA 7 landings. The landed value of the catch is estimated at \$1.6 million (based on average port price paid to fishermen). The CRA 7 catch is processed and exported or sold to the domestic market by several Dunedin fishing companies.
- 274. The Otago Rock Lobster Industry Association represents CRA 7 commercial interests. The association has a paid regional co-ordinator.

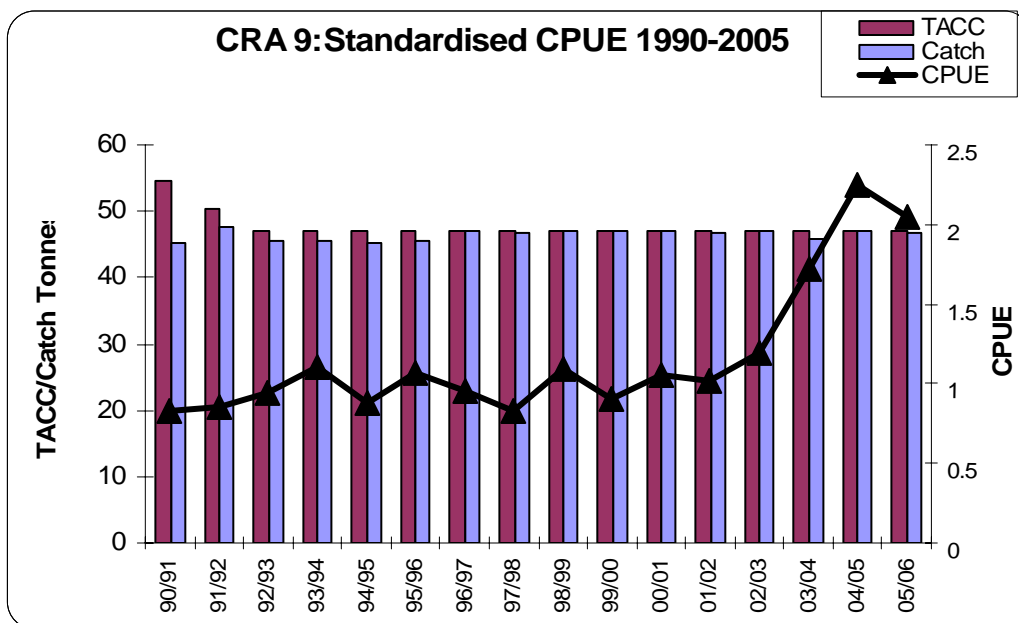
24. CRA 8



275. The CRA 8 fishery is the largest mainland fishery geographically. The region extends from Long Point south to Stewart Island and the Snares, the islands and coastline of Foveaux Strait, and then northwards along the Fiordland coastline to Bruce Bay. The CRA 8 fishery is included with CRA 7 in the NSS assessment and management procedure analysis.
276. There are 104 CRA 8 quota share owners. In the 2004/05 season there were 61 commercial vessels reporting CRA 8 landings. The CRA 8 fleet operates in the most remote coastal areas of South Westland and Fiordland. The estimated value of the landed catch is \$18.1 million (based on average port price paid to fishermen). The industry supplies processing and export operations in Te Anau, Riverton, Stewart Island, Invercargill, Bluff, Christchurch, and Wellington.
277. The CRA 8 Management Committee Inc. is the commercial stakeholder organisation for the fishery. The Association employs a Chief Executive. The Association has funded an extensive Voluntary Logbook programme until 1998 when the Logbook programme was incorporated as a Fisheries Required Service. The Association also contracts to the NZ RLIC to provide intensive catch sampling and lobster tag and release as part of the Fisheries Research Services contract to the Ministry of Fisheries.

278. The CRA 8 Industry has developed and implemented codes of practice in relation to use and disposal of fishing gear and refuse, and as a founding member of the Guardians of Fiordland Fisheries, has contributed to an extensive code of practice for the waters adjacent to the World Heritage area.
279. Amateur catch is estimated at 16 tonnes (MFish 1996). The preferred methods for amateur fishing are potting and diving with UBA.
280. The estimates of customary harvest in CRA 8 are significantly lower than the allowance in the current TAC.
281. A TAC of 842.2 tonnes was set for the 2006/07 fishing year. A total of 29 tonnes was set aside for amateur catch and 30 tonnes was provided for customary catch. The TACC was set at 755.2 tonnes. The TAC adjustment was undertaken in response to the triggering of the NSS decision rule.

25. CRA 9



282. The CRA 9 fishery is geographically large but has the smallest TACC of any region (with the exception of CRA 10). The fishery extends from north of Bruce Bay to the Kaipara Harbour but commercial lobster fishing is constrained to the north-west coast of the South Island and the area between Patea and Kawhia, in particular the Taranaki coastline. No TAC has been set for this fishery and the 47 tonnes TACC has remained unchanged since 1992.
283. There are 16 CRA 9 quota share owners. In the 2003/04 season 9 commercial vessels reported CRA 9 landings. The estimated value of the landed catch is \$1.4 million (based on average port price paid to fishermen). The industry supplies processing and export operations in Marlborough, Nelson, New Plymouth, Wellington and Auckland.
284. The CRA 9 Industry Association Inc. is the representative organisation of the commercial interests in the fishery. The Association has initiated a Voluntary Logbook programme but the project has limited potential because of the relatively short commercial season and the small number of vessels in the fleet. The Association has contracted a regional liaison officer to co-ordinate tag recapture reporting and supervise the use of Vessel Logbooks by commercial operators.
285. There are no estimates of amateur or customary catch for the CRA 9 fishery.

286. No stock assessment has been made for the CRA 9 fishery. CPUE was consistent over many years and has shown a significant increase since 2001/02. The TACC has constrained commercial landings in every season from 1990, and CPUE has been stable or increasing over the same period suggesting a stable or increasing stock.

26. PACKHORSE ROCK LOBSTER – PHC

287. The packhorse rock lobster management area extends to all of New Zealand. Packhorse lobsters grow to a significantly larger size than red rock lobsters (CRA) and have different shell colourations and appearance.
288. The TACC for this fishery was set at 30 tonnes in 1990, but was increased to 40 tonnes in 1992 as a result of appeals. Historically the fishery has been primarily an incidental catch for many commercial rock lobster fishermen in the Northland/Auckland and Bay of Plenty regions. However several fishermen did successfully target the species prior to 1990 and dependent on environmental conditions have attempted to do so in several seasons since.
289. Because of different biology and behaviour of this species, the MLS is set at 216 mm tail length. Prohibitions on the taking of berried female lobsters apply. In addition, a large area of water to the north-east of North Cape was closed to rock lobster fishing on a year-round basis in 1977 in an apparent effort to protect what was then thought to be a large concentration of sub-legal PHC rock lobsters.
290. Commercial catches have fluctuated since 1990, reaching a peak of 24 tonnes in the 1995/96 season. The reported landings are 16.2 tonnes 1998/99, 12.6 tonnes in 1999/2000, 9.8 tonnes in 2000/01, 7.8 tonnes in 2001/02, 8.6 tonnes in 2002/03, 16.4 tonnes in 2003/04, and 20.8 tonnes in 2004/05. It is thought that the shortfall of catch against quota reflects the low levels of target effort being directed at the fishery which is known to have variations in abundance possibly determined by weather and sea temperatures.
291. In 2003/04 an estimated 24 commercial vessels reported PHC catch. Less than five are known to be target fishing the species, all of these operating in either CRA 1 or CRA 2. The value of the landed catch is estimated to be in excess of \$500,000.
292. There are no estimates of amateur catches for the species but divers using UBA are known to target PHC in Northland and the Bay of Plenty as “trophy” fish. There are no estimates of customary harvest.

ANNEX 1 Rohe moana areas gazetted under the Fisheries (Kaimoana Customary Fishing) Regulations 1998 as at 1 December 2006.

